

KOMENTAR DOSEN PENGUJI

Nama : Renny Resiana
NRP : 0123123
Judul Tugas Akhir : Perancangan Tata Letak, Fasilitas Fisik, dan Lingkungan Fisik Pada Laboratorium Komputer Fakultas Teknologi Informasi di Gedung Grha Widya Maranatha dengan Prinsip Ergonomi

Komentar Dosen Penguji :

Ibu Lestari Yuli Hastuti, S.T, M.T

1. Tambahkan analisa sudut pandang mata mahasiswa ke monitor.
→ sudah ditambahkan.
2. Tinggi meja *keyboard* sebaiknya memakai TPO + TSD.
→ jika memakai TPO + TSD, maka agar orang yang memiliki TSD besar dan kecil dapat menggunakan dengan nyaman harus menggunakan patokan minimum. Sedangkan hasil ukuran tersebut adalah sebesar $361.8 + 164.2 = 526$ mm. Secara nyata ukuran ini terlalu pendek untuk dipakai dalam perancangan.
3. Tinggi monitor sebaiknya sejajar dengan tinggi mata duduk.
→ Tinggi monitor maksimum adalah sejajar dengan Tinggi Mata Duduk. Tetapi akan lebih baik lagi jika tinggi monitor lebih rendah dari Tinggi Mata Duduk karena dengan demikian maka mahasiswa dapat melihat ke depan dengan nyaman. (Dosen Pembimbing I)

Ibu Novi, S.T, M.T

1. Usulan untuk Ruang Laboratorium Internet 2 masih belum ergonomis.
Usulan masih belum memperhitungkan *allowance* untuk orang yang duduk di meja no. 7 untuk keluar / masuk.
→ Tidak bisa semua terakomodasi (Dosen Pembimbing I)

KUESIONER MENGENAI FASILITAS DAN LINGKUNGAN FISIK PADA LABORATORIUM KOMPUTER

Kepada Yth. Mahasiswa/i Universitas Kristen Maranatha,

Dalam rangka menyusun Tugas Akhir tentang perancangan Laboratorium Komputer di Gedung Grha Widya Maranatha, ,saya sebagai mahasiswa Universitas Kristen Maranatha Jurusan Teknik Industri melakukan penelitian mengenai faktor-faktor penunjang laboratorium komputer yang ergonomis.

Oleh karena itu, maka saya menyebarkan kuesioner ini kepada mahasiswa/i pengguna laboratorium komputer di **GAP Lantai 3 Universitas Kristen Maranatha**. Saya mengharapkan kesediaan saudara untuk mengisi kuesioner ini. Sebelum dan sesudahnya saya ucapkan terima kasih atas waktu yang telah saudara luangkan untuk mengisi kuesioner ini.

Hormat saya,
Renny Resiana

PETUNJUK PENGISIAN KUESIONER :

- ❖ Pilihlah jawaban yang saudara anggap paling sesuai dengan keadaan yang saudara alami.
- ❖ Mohon untuk menjawab seluruh pertanyaan saya.
- ❖ Beri tanda [**x**] pada kolom kosong yang saudara pilih sesuai dengan jawaban saudara.

KETERANGAN :

P = Puas

TP = Tidak Puas

Data Pribadi :

1. Jenis Kelamin :	3. Tinggi Badan :
2. Usia :	4. Fakultas / Jurusan :

I. Bagian I

P TP

1	Tinggi meja komputer yang digunakan sekarang		
2	Lebar meja komputer yang digunakan sekarang		
3	Kejelasan penglihatan terhadap monitor / layar		
4	Kenyamanan penggunaan meja komputer sekarang		
5	Kenyamanan meja komputer dihubungkan dengan tempat CPU,mouse,keyboard		
6	Kenyamanan meja komputer dihubungkan dengan posisi mouse		
7	Kenyamanan meja komputer dihubungkan dengan posisi keyboard		
8	Kenyamanan meja komputer dihubungkan dengan kegiatan mengetik		
9	Tinggi kursi yang digunakan		
10	Kenyamanan kursi yang digunakan		
11	Lebar kursi yang digunakan		
12	Ketinggian monitor terhadap pandangan ke depan		
13	Ketinggian monitor terhadap pandangan mata		
14	Tata letak papan tulis		
15	Kenyamanan saat melihat tulisan di papan tulis		
16	Tata letak lampu dalam laboratorium komputer		
17	Kejelasan suara pengajar saat menerangkan materi		
18	Ketinggian jendela yang terdapat pada laboratorium komputer		
19	Lebar jendela yang terdapat pada laboratorium komputer		
20	Posisi jendela yang terdapat pada laboratorium komputer		
21	Tinggi pintu pada laboratorium komputer		
22	Lebar pintu pada laboratorium komputer		
23	Posisi pintu pada laboratorium komputer		
24	Pencahayaan yang terdapat pada laboratorium komputer		
25	Kadar cahaya pada monitor		
26	Kebisingan yang terdapat di laboratorium komputer		
27	Temperatur di laboratorium komputer		
28	Jumlah komputer yang terdapat di ruang komputer dihubungkan dengan kapasitas laboratorium komputer.		
29	Keleluasaan ruang kerja (<i>work space</i>) dalam menggunakan komputer		
30	Kebersihan dalam ruangan laboratorium komputer		

II. Bagian II

Komentar saudara mengenai fasilitas dan lingkungan fisik pada
Laboratorium Komputer di Lantai 3 GAP :

Saran-saran saudara mengenai fasilitas dan lingkungan fisik pada
Laboratorium Komputer di Lantai 3 GAP :

KUESIONER MENGENAI FASILITAS DAN LINGKUNGAN FISIK PADA LABORATORIUM KOMPUTER

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Dalam rangka menyusun Tugas Akhir tentang perancangan Laboratorium Komputer di Gedung Grha Widya Maranatha, ,saya sebagai mahasiswa Universitas Kristen Maranatha Jurusan Teknik Industri melakukan penelitian mengenai faktor-faktor penunjang laboratorium komputer yang ergonomis.

Oleh karena itu, maka saya menyebarkan kuesioner ini kepada mahasiswa/i pengguna laboratorium komputer **Laboratorium Komputer 3 IT** di lantai Basement 1 Gedung Fakultas Kedokteran Universitas Kristen Maranatha. Saya mengharapkan kesediaan saudara untuk mengisi kuesioner ini. Sebelum dan sesudahnya saya ucapkan terima kasih atas waktu yang telah saudara luangkan untuk mengisi kuesioner ini.

Hormat saya,
Renny Resiana

PETUNJUK PENGISIAN KUESIONER :

- ❖ Pilihlah jawaban yang saudara anggap paling sesuai dengan keadaan yang saudara alami.
- ❖ Mohon untuk menjawab seluruh pertanyaan saya.
- ❖ Beri tanda [**x**] pada kolom kosong yang saudara pilih sesuai dengan jawaban saudara.

KETERANGAN :

P = Puas

TP = Tidak Puas

Data Pribadi :

1. Jenis Kelamin :	3. Tinggi Badan :
2. Usia :	4. Fakultas / Jurusan :

I. Bagian I

		P	TP
1	Tinggi meja komputer yang digunakan sekarang		
2	Lebar meja komputer yang digunakan sekarang		
3	Kejelasan penglihatan terhadap monitor / layar		
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20	Posisi jendela yang terdapat pada laboratorium komputer		
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23	Posisi pintu pada laboratorium komputer		
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29	Keleluasaan ruang kerja (<i>work space</i>) dalam menggunakan komputer		
30	Kebersihan dalam ruangan laboratorium komputer		

II. Bagian II

Komentar saudara mengenai fasilitas dan lingkungan fisik pada **Laboratorium Komputer 3 IT di Lantai Basement Gedung Fakultas Kedokteran.**

Saran-saran saudara mengenai fasilitas dan lingkungan fisik pada **Laboratorium Komputer 3 IT di Lantai Basement Gedung Fakultas Kedokteran.**

Hasil Kuesioner Pertanyaan Mahasiswa Untuk Pertanyaan No. 1 - No.22

Untuk responden yang menjawab puas / tidak puas diberi skor :

puas = 1

tidak puas = 0

[illegible]

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Total	166	166	163	152	151	92	169	161	154	152	148	128	137	158	154	131	119	113	108	131	132	114

Hasil Kuesioner Pertanyaan Mahasiswa Untuk Pertanyaan No. 23 - No. 46

Untuk responden yang menjawab puas / tidak puas diberi skor :

puas = 1

tidak puas = 0

pertanyaan ke-																							
23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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[illegible]

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Hasil Kuesioner Pertanyaan Mahasiswa Untuk Pertanyaan No. 47 - No. 55

[illegible]

[illegible]

[illegible]

[illegible]

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Persentase Permasalahan Masing-masing Kuesioner Mahasiswa

No	Permasalahan	Puas	Tdk Puas	Persentase
1	Jok kursi yang digunakan (empuk, keras)	92	95	50.80
2	Tata letak papan tulis di lab 1	97	90	48.13
3	Tata letak monitor di bawah meja di lab 3	99	88	47.06
4	Jarak monitor ke mata (lab 3)	101	86	45.99
5	Tinggi tempat pijakan kaki	108	79	42.25
6	Tata letak papan tulis di lab 3	111	76	40.64
7	Lebar alas pijakan kaki	113	74	39.57
8	Tata letak LCD di lab 1	114	73	39.04
9	Keleluasaan ruang kerja dalam menggunakan komputer (sebelah belakang) di lab 1 dan lab 2	116	71	37.97
10	Tinggi alas meja keyboard dan mouse yang digunakan di lab 3	119	68	36.36
11	Temperatur yang terdapat di laboratorium 2 IT	121	66	35.29
12	Keleluasaan ruang kerja dalam menggunakan komputer (sebelah belakang) di lab 3	124	63	33.69
13	Lebar alas pijakan kaki di lab 1 dan lab 2	128	59	31.55
14	Tinggi alas meja komputer yang digunakan di lab 3	131	56	29.95
15	Tata letak meja dan kursi komputer di lab 1	131	56	29.95
16	Tata letak papan tulis di lab 2	131	56	29.95
17	Tata letak monitor diatas meja di lab 1	132	55	29.41
18	Kelembaban yang terdapat di laboratorium 2 IT	134	53	28.34
19	Tata letak LCD di lab 3	135	52	27.81
20	Ketersediaan fasilitas pada meja (tempat CPU, keyboard, dan mouse) di lab 3	135	52	27.81
21	Temperatur yang terdapat di laboratorium 1 IT	135	52	27.81
22	Jarak monitor ke mata (lab 1 dan lab 2)	136	51	27.27
23	Pencahayaannya yang terdapat di laboratorium 2 IT	136	51	27.27
24	Kelembaban yang terdapat di laboratorium 3 IT	136	51	27.27
25	Tinggi tempat pijakan kaki di lab 1 dan lab 2	137	50	26.74
26	Keleluasaan ruang kerja dalam menggunakan komputer (sebelah kanan) di lab 3	138	49	26.20
27	Jumlah komputer dihubungkan dengan kapasitas laboratorium 2	139	48	25.67
28	Tata letak LCD di lab 2	141	46	24.60
29	Jumlah komputer dihubungkan dengan kapasitas laboratorium 3	141	46	24.60
30	Jumlah komputer dihubungkan dengan kapasitas laboratorium 1	143	44	23.53
31	Keleluasaan ruang kerja dalam menggunakan komputer (sebelah kiri) di lab 3	143	44	23.53
32	Keleluasaan ruang kerja dalam menggunakan komputer (sebelah kanan) di lab 1 dan lab 2	144	43	22.99
33	Temperatur yang terdapat di laboratorium 3 IT	146	41	21.93
34	Keleluasaan ruang kerja dalam menggunakan komputer (sebelah kiri) di lab 1 dan lab 2	147	40	21.39
35	Tinggi alas meja keyboard yang digunakan di lab 1 dan lab 2	148	39	20.86
36	Kelembaban yang terdapat di laboratorium 1 IT	148	39	20.86
37	Tata letak lampu di lab 2	150	37	19.79
38	Ketinggian sandaran kursi yang digunakan sekarang	151	36	19.25
39	Ketersediaan fasilitas pada meja (tempat CPU, keyboard, dan mouse) di lab 1 dan lab 2	151	36	19.25
40	Lebar sandaran kursi yang digunakan sekarang	152	35	18.72
41	Tinggi alas meja tulis dan mouse yang digunakan di lab 1 dan lab 2	152	35	18.72
42	Tata letak meja dan kursi komputer di lab 2	152	35	18.72
43	Tinggi alas meja monitor yang digunakan di lab 1 dan lab 2	154	33	17.65
44	Lebar meja komputer yang digunakan di lab 3	154	33	17.65
45	Tata letak meja dan kursi komputer di lab 3	154	33	17.65
46	Panjang meja komputer yang digunakan di lab 3	158	29	15.51
47	Pencahayaannya yang terdapat di laboratorium 3 IT	159	28	14.97
48	Tata letak lampu di lab 3	160	27	14.44
49	Lebar meja komputer yang digunakan di lab 1 dan lab 2	161	26	13.90
50	Tinggi alas duduk yang digunakan sekarang	163	24	12.83
51	Panjang alas duduk yang digunakan sekarang	166	21	11.23
52	Lebar alas duduk yang digunakan sekarang	166	21	11.23
53	Tata letak lampu di lab 1	167	20	10.70
54	Pencahayaannya yang terdapat di laboratorium 1 IT	167	20	10.70
55	Panjang meja komputer yang digunakan di lab 1 dan lab 2	169	18	9.63

Uji Reliabilitas Kuesioner Mahasiswa Untuk Pertanyaan No. 1 - No. 22

Untuk responden yang menjawab puas / tidak puas diberi skor :

puas = 1

tidak puas = 0

No Resp	pertanyaan ke-																
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9	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1
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187	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1
Total	166	166	163	152	151	92	169	161	154	152	148	128	137	158	154	131	119
p	0.89	0.89	0.87	0.81	0.81	0.49	0.9	0.86	0.82	0.81	0.79	0.68	0.73	0.84	0.82	0.7	0.64
q	0.11	0.11	0.13	0.19	0.19	0.51	0.1	0.14	0.18	0.19	0.21	0.32	0.27	0.16	0.18	0.3	0.36
p x q	0.1	0.1	0.11	0.15	0.16	0.25	0.09	0.12	0.15	0.15	0.17	0.22	0.2	0.13	0.15	0.21	0.23

Keterangan : skor untuk jawaban puas = 1
 skor untuk jawaban tidak puas = 0

Untuk responden yang menjawab puas / tidak puas diberi skor :
puas = 1 tidak puas = 0

					pertanyaan ke-																																									
18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46																		
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[illegible]

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Uji Reliabilitas Kuesioner Mahasiswa Untuk Pertanyaan No. 47 - No. 55

pertanyaan ke-										Skor total (y)	y2
47	48	49	50	51	52	53	54	55			
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1	1	1	0	0	0	1	1	0	36	1296	
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1	1	1	1	1	1	1	1	1	44	1936	
1	1	0	1	0	1	1	1	0	40	1600	
1	1	1	1	1	1	1	1	1	48	2304	
1	1	1	1	0	0	1	0	1	31	961	
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1	1	1	1	1	1	1	1	1	47	2209	
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1	1	1	1	0	1	1	0	1	45	2025	
1	0	1	1	0	1	1	1	0	44	1936	
1	1	1	1	1	1	1	1	1	44	1936	
1	1	1	1	0	1	1	0	0	49	2401	
1	1	1	1	1	1	1	1	1	39	1521	
1	1	1	0	1	1	0	1	1	49	2401	
1	1	1	0	1	1	1	1	1	35	1225	
0	0	0	1	1	1	1	1	1	31	961	
1	1	0	0	1	0	0	0	0	33	1089	
1	1	1	1	1	1	1	1	1	48	2304	
1	1	1	0	0	0	0	0	0	12	144	
1	1	1	1	1	1	1	1	1	35	1225	
1	0	1	0	1	1	0	1	1	39	1521	
1	1	1	1	1	1	1	1	1	53	2809	
1	1	1	1	1	1	1	1	1	48	2304	
1	1	1	1	0	1	1	0	1	48	2304	
1	1	1	0	0	0	1	1	1	40	1600	
1	1	1	1	1	1	1	1	1	44	1936	
1	1	1	1	1	1	1	1	1	46	2116	
0	1	0	0	0	0	0	1	0	21	441	
1	1	1	1	1	1	1	1	1	45	2025	
0	0	0	0	0	0	0	0	0	2	4	
0	0	1	1	1	1	1	1	1	37	1369	
0	1	1	1	1	1	1	1	1	34	1156	
1	0	1	1	1	1	1	0	1	32	1024	
1	1	1	1	1	1	1	1	1	29	841	
1	0	1	1	0	0	1	1	1	48	2304	
1	1	1	1	0	1	1	1	1	48	2304	
1	1	1	1	1	0	0	1	0	37	1369	
1	1	1	1	1	1	1	1	1	53	2809	
1	1	1	1	1	1	1	1	1	42	1764	
1	0	1	1	1	1	1	1	1	48	2304	
1	1	1	1	1	1	1	1	1	45	2025	
1	1	1	1	1	1	1	1	1	52	2704	
1	1	1	1	0	0	0	0	0	23	529	
1	1	1	1	1	1	1	1	1	38	1444	

1	0	1	1	1	1	1	1	1	1	51	2601
1	1	1	1	1	1	1	1	1	1	38	1444
1	1	0	0	0	0	0	0	0	0	29	841
0	0	1	0	0	1	0	0	0	1	28	784
1	1	1	1	1	1	1	1	1	1	39	1521
1	0	1	0	0	0	1	1	1	1	33	1089
1	1	1	1	1	1	1	1	1	1	44	1936
1	1	1	0	0	1	1	1	1	1	33	1089
1	1	1	1	1	1	1	1	1	1	47	2209
1	0	1	1	1	1	1	0	0	0	31	961
1	1	1	1	1	1	1	1	1	1	47	2209
1	1	0	0	1	1	0	1	1	1	41	1681
1	1	1	1	1	1	1	1	1	1	54	2916
1	1	1	1	1	1	1	1	1	1	48	2304
1	1	1	1	1	1	1	1	1	1	53	2809
1	1	1	1	1	1	1	1	1	1	43	1849
1	1	1	1	1	1	1	1	1	1	50	2500
1	1	1	1	1	1	1	1	1	1	47	2209
1	1	1	1	1	1	1	1	1	1	42	1764
1	1	0	1	1	0	1	0	0	0	37	1369
1	1	1	0	0	0	0	0	0	0	41	1681
0	0	0	0	1	1	1	1	1	1	18	324
1	0	0	1	1	1	1	0	0	0	26	676
1	1	1	1	1	1	1	1	1	1	52	2704
1	1	1	1	1	1	1	1	1	1	44	1936
1	1	1	1	1	1	1	1	1	1	51	2601
0	0	0	0	0	0	0	0	0	0	35	1225
1	1	1	1	1	1	1	1	1	1	40	1600
1	1	1	1	1	1	0	1	1	0	47	2209
1	1	1	1	1	1	1	1	1	1	49	2401
1	1	1	1	1	1	1	1	1	1	36	1296
0	0	0	0	0	0	0	0	0	0	6	36
1	1	1	1	1	1	1	1	1	1	55	3025
1	1	1	1	1	1	1	1	1	1	50	2500
1	1	1	1	1	1	1	1	1	1	48	2304
0	1	1	1	1	1	1	1	1	1	44	1936
1	1	1	1	1	1	1	1	1	1	52	2704
1	1	1	1	1	0	1	1	1	0	46	2116
1	1	1	1	1	1	1	1	1	1	49	2401
1	1	1	1	1	1	1	1	1	1	47	2209
1	1	1	1	1	1	1	1	1	1	54	2916
1	1	1	1	1	1	1	1	0	0	25	625
1	1	1	1	1	1	1	1	1	1	55	3025
1	1	1	1	1	1	1	1	1	1	55	3025
1	1	0	1	1	1	1	1	1	1	41	1681
0	0	0	0	1	1	1	1	1	1	31	961
0	0	0	0	0	0	0	0	0	0	13	169
1	1	1	1	1	1	1	1	1	1	55	3025
1	0	1	0	1	0	0	0	1	0	45	2025
1	1	1	1	1	1	1	1	1	1	55	3025
1	1	1	1	1	1	1	1	1	1	52	2704
1	0	1	0	0	1	1	1	1	1	49	2401
1	1	1	1	1	0	1	1	1	1	42	1764
1	1	1	1	1	1	0	1	0	0	37	1369
0	1	0	0	1	1	1	1	1	1	24	576
0	0	0	0	1	1	1	1	1	1	21	441
1	1	1	0	1	0	1	1	1	0	38	1444
1	0	1	1	1	1	1	1	1	1	46	2116
1	0	0	1	0	0	1	0	0	0	29	841
1	0	1	0	0	1	0	0	1	1	48	2304
1	0	1	1	0	1	1	1	1	1	42	1764
1	1	1	1	1	0	1	1	1	1	38	1444
0	0	0	1	0	0	0	0	0	0	18	324
1	1	1	1	1	0	1	1	0	1	49	2401
1	0	1	1	1	1	1	1	1	1	30	900
1	1	1	1	0	0	1	1	1	1	43	1849
1	1	1	1	0	0	1	0	0	0	39	1521
1	0	1	0	0	0	1	0	0	0	31	961
0	0	0	0	0	0	0	0	0	0	28	784
1	1	1	1	0	1	1	1	1	1	48	2304
1	0	1	1	1	0	1	1	1	0	47	2209
1	1	1	1	0	1	0	0	1	0	37	1369
0	0	1	0	0	1	1	0	1	0	40	1600
1	1	1	1	1	1	1	1	1	1	49	2401
1	1	1	1	1	0	1	1	0	1	32	1024
1	1	1	1	1	1	1	1	1	1	47	2209

1	0	1	1	0	1	0	0	0	32	1024
1	1	1	1	0	0	1	0	0	29	841
1	0	1	0	0	1	0	0	1	23	529
1	1	1	1	1	1	0	0	0	41	1681
1	1	1	1	1	1	1	1	1	41	1681
1	1	1	1	1	1	1	1	1	51	2601
1	1	1	0	1	0	0	0	0	29	841
1	1	1	0	0	0	1	1	0	37	1369
1	1	1	1	0	1	1	0	1	37	1369
1	0	1	0	0	0	0	0	0	36	1296
1	0	0	1	0	1	1	0	1	40	1600
1	1	1	1	1	1	1	1	1	50	2500
1	0	1	1	1	1	1	0	0	38	1444
1	0	1	1	0	1	1	0	1	40	1600
1	1	1	0	0	0	1	1	1	36	1296
0	0	0	0	0	0	0	0	0	20	400
1	1	1	1	1	1	1	1	1	47	2209
1	1	1	0	1	1	1	1	1	54	2916
1	1	1	0	1	1	1	1	1	50	2500
1	0	1	0	0	0	0	0	0	25	625
1	0	1	1	1	1	1	1	1	53	2809
1	1	1	1	1	1	1	1	1	44	1936
1	1	1	0	0	0	1	1	1	26	676
1	0	1	0	0	1	0	0	1	33	1089
1	1	1	1	1	1	1	1	1	36	1296
1	0	1	0	0	1	0	0	1	39	1521
1	0	1	1	1	1	1	1	1	46	2116
1	1	0	1	1	1	0	1	1	36	1296
1	1	1	1	1	1	1	1	1	54	2916
1	0	1	0	0	0	0	0	0	36	1296
1	1	1	1	1	1	1	1	1	44	1936
1	1	1	1	1	1	1	1	1	40	1600
1	0	1	1	0	1	1	0	1	38	1444
1	0	1	1	0	1	1	0	1	35	1225
1	1	1	1	1	1	1	1	1	46	2116
1	1	1	1	1	1	1	1	1	49	2401
1	1	1	1	1	1	1	1	1	48	2304
1	0	1	1	1	0	1	1	0	41	1681
1	1	1	1	0	1	1	1	1	53	2809
1	1	1	1	1	1	1	1	1	53	2809
1	1	1	0	1	1	1	1	1	51	2601
167	136	159	135	121	146	148	134	136	7636	331242
0.89	0.73	0.85	0.72	0.65	0.78	0.79	0.72	0.73		
0.11	0.27	0.15	0.28	0.35	0.22	0.21	0.28	0.27		
0.1	0.2	0.13	0.2	0.23	0.17	0.17	0.2	0.2	9.9417	

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 1 dan No 2

Pertanyaan no 1

$$x = 166/187 = 0.8877$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.112	0.013	51	10.166	103.35	1.142
1	0.112	0.013	36	-4.834	23.368	-0.543
1	0.112	0.013	41	0.166	0.028	0.019
1	0.112	0.013	52	11.166	124.680	1.254
1	0.112	0.013	51	10.166	103.348	1.142
1	0.112	0.013	50	9.166	84.016	1.029
0	-0.888	0.788	46	5.166	26.688	-4.586
1	0.112	0.013	55	14.166	200.676	1.591
1	0.112	0.013	49	8.166	66.684	0.917
1	0.112	0.013	31	-9.834	96.708	-1.104
1	0.112	0.013	46	5.166	26.688	0.580
1	0.112	0.013	44	3.166	10.024	0.356
1	0.112	0.013	40	-0.834	0.696	-0.094
1	0.112	0.013	48	7.166	51.352	0.805
1	0.112	0.013	31	-9.834	96.708	-1.104
1	0.112	0.013	27	-13.834	191.380	-1.554
1	0.112	0.013	47	6.166	38.020	0.692
1	0.112	0.013	50	9.166	84.016	1.029
1	0.112	0.013	55	14.166	200.676	1.591
1	0.112	0.013	47	6.166	38.020	0.692
0	-0.888	0.788	16	-24.834	616.728	22.045
1	0.112	0.013	42	1.166	1.360	0.131
1	0.112	0.013	42	1.166	1.360	0.131
1	0.112	0.013	43	2.166	4.692	0.243

Pertanyaan no 2

$$x = 166/187 = 0.8877$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.112	0.013	51	10.166	103.348	10.166
1	0.112	0.013	36	-4.834	23.368	-4.834
1	0.112	0.013	41	0.166	0.028	0.166
1	0.112	0.013	52	11.166	124.680	11.166
1	0.112	0.013	51	10.166	103.348	10.166
1	0.112	0.013	50	9.166	84.016	9.166
0	-0.888	0.788	46	5.166	26.688	0.000
1	0.112	0.013	55	14.166	200.676	14.166
1	0.112	0.013	49	8.166	66.684	8.166
1	0.112	0.013	31	-9.834	96.708	-9.834
1	0.112	0.013	46	5.166	26.688	5.166
1	0.112	0.013	44	3.166	10.024	3.166
1	0.112	0.013	40	-0.834	0.696	-0.834
1	0.112	0.013	48	7.166	51.352	7.166
1	0.112	0.013	31	-9.834	96.708	-9.834
1	0.112	0.013	27	-13.834	191.380	-13.834
1	0.112	0.013	47	6.166	38.020	6.166
1	0.112	0.013	50	9.166	84.016	9.166
1	0.112	0.013	55	14.166	200.676	14.166
1	0.112	0.013	47	6.166	38.020	6.166
1	0.112	0.013	16	-24.834	616.728	-24.834
1	0.112	0.013	42	1.166	1.360	1.166
1	0.112	0.013	42	1.166	1.360	1.166
1	0.112	0.013	43	2.166	4.692	2.166

1	0.112	0.013	43	2.166	4.692	0.243
1	0.112	0.013	38	-2.834	8.032	-0.318
1	0.112	0.013	36	-4.834	23.368	-0.543
1	0.112	0.013	37	-3.834	14.700	-0.431
1	0.112	0.013	55	14.166	200.676	1.591
0	-0.888	0.788	28	-12.834	164.712	11.393
1	0.112	0.013	51	10.166	103.348	1.142
1	0.112	0.013	53	12.166	148.012	1.366
1	0.112	0.013	45	4.166	17.356	0.468
1	0.112	0.013	33	-7.834	61.372	-0.880
1	0.112	0.013	45	4.166	17.356	0.468
1	0.112	0.013	44	3.166	10.024	0.356
1	0.112	0.013	44	3.166	10.024	0.356
1	0.112	0.013	49	8.166	66.684	0.917
1	0.112	0.013	39	-1.834	3.364	-0.206
1	0.112	0.013	49	8.166	66.684	0.917
1	0.112	0.013	35	-5.834	34.036	-0.655
1	0.112	0.013	31	-9.834	96.708	-1.104
0	-0.888	0.788	33	-7.834	61.372	6.954
1	0.112	0.013	48	7.166	51.352	0.805
0	-0.888	0.788	12	-28.834	831.400	25.596
0	-0.888	0.788	35	-5.834	34.036	5.179
1	0.112	0.013	39	-1.834	3.364	-0.206
1	0.112	0.013	53	12.166	148.012	1.366
1	0.112	0.013	48	7.166	51.352	0.805
1	0.112	0.013	48	7.166	51.352	0.805
1	0.112	0.013	40	-0.834	0.696	-0.094
1	0.112	0.013	44	3.166	10.024	0.356
1	0.112	0.013	46	5.166	26.688	0.580
0	-0.888	0.788	21	-19.834	393.388	17.607
1	0.112	0.013	45	4.166	17.356	0.468

1	0.112	0.013	43	2.166	4.692	2.166
0	-0.888	0.788	38	-2.834	8.032	0.000
1	0.112	0.013	36	-4.834	23.368	-4.834
1	0.112	0.013	37	-3.834	14.700	-3.834
1	0.112	0.013	55	14.166	200.676	14.166
0	-0.888	0.788	28	-12.834	164.712	0.000
1	0.112	0.013	51	10.166	103.348	10.166
1	0.112	0.013	53	12.166	148.012	12.166
1	0.112	0.013	45	4.166	17.356	4.166
1	0.112	0.013	33	-7.834	61.372	-7.834
1	0.112	0.013	45	4.166	17.356	4.166
1	0.112	0.013	44	3.166	10.024	3.166
1	0.112	0.013	44	3.166	10.024	3.166
1	0.112	0.013	49	8.166	66.684	8.166
1	0.112	0.013	39	-1.834	3.364	-1.834
1	0.112	0.013	49	8.166	66.684	8.166
1	0.112	0.013	35	-5.834	34.036	-5.834
1	0.112	0.013	31	-9.834	96.708	-9.834
1	0.112	0.013	33	-7.834	61.372	-7.834
1	0.112	0.013	48	7.166	51.352	7.166
0	-0.888	0.788	12	-28.834	831.400	0.000
0	-0.888	0.788	35	-5.834	34.036	0.000
1	0.112	0.013	39	-1.834	3.364	-1.834
1	0.112	0.013	53	12.166	148.012	12.166
1	0.112	0.013	48	7.166	51.352	7.166
1	0.112	0.013	48	7.166	51.352	7.166
1	0.112	0.013	40	-0.834	0.696	-0.834
1	0.112	0.013	44	3.166	10.024	3.166
1	0.112	0.013	46	5.166	26.688	5.166
0	-0.888	0.788	21	-19.834	393.388	0.000
1	0.112	0.013	45	4.166	17.356	4.166

1	0.112	0.013	2	-38.834	1508.080	-4.361
1	0.112	0.013	37	-3.834	14.700	-0.431
1	0.112	0.013	34	-6.834	46.704	-0.767
1	0.112	0.013	32	-8.834	78.040	-0.992
1	0.112	0.013	29	-11.834	140.044	-1.329
1	0.112	0.013	48	7.166	51.352	0.805
1	0.112	0.013	48	7.166	51.352	0.805
1	0.112	0.013	37	-3.834	14.700	-0.431
1	0.112	0.013	53	12.166	148.012	1.366
1	0.112	0.013	42	1.166	1.360	0.131
0	-0.888	0.788	48	7.166	51.352	-6.361
0	-0.888	0.788	45	4.166	17.356	-3.698
1	0.112	0.013	52	11.166	124.680	1.254
1	0.112	0.013	23	-17.834	318.052	-2.003
1	0.112	0.013	38	-2.834	8.032	-0.318
1	0.112	0.013	51	10.166	103.348	1.142
1	0.112	0.013	38	-2.834	8.032	-0.318
1	0.112	0.013	29	-11.834	140.044	-1.329
1	0.112	0.013	28	-12.834	164.712	-1.441
1	0.112	0.013	39	-1.834	3.364	-0.206
1	0.112	0.013	33	-7.834	61.372	-0.880
0	-0.888	0.788	44	3.166	10.024	-2.810
1	0.112	0.013	33	-7.834	61.372	-0.880
1	0.112	0.013	47	6.166	38.020	0.692
1	0.112	0.013	31	-9.834	96.708	-1.104
1	0.112	0.013	47	6.166	38.020	0.692
1	0.112	0.013	41	0.166	0.028	0.019
1	0.112	0.013	54	13.166	173.344	1.479
1	0.112	0.013	48	7.166	51.352	0.805
1	0.112	0.013	53	12.166	148.012	1.366
1	0.112	0.013	43	2.166	4.692	0.243

1	0.112	0.013	2	-38.834	1508.080	-38.834
1	0.112	0.013	37	-3.834	14.700	-3.834
1	0.112	0.013	34	-6.834	46.704	-6.834
1	0.112	0.013	32	-8.834	78.040	-8.834
1	0.112	0.013	29	-11.834	140.044	-11.834
1	0.112	0.013	48	7.166	51.352	7.166
1	0.112	0.013	48	7.166	51.352	7.166
1	0.112	0.013	37	-3.834	14.700	-3.834
1	0.112	0.013	53	12.166	148.012	12.166
1	0.112	0.013	42	1.166	1.360	1.166
0	-0.888	0.788	48	7.166	51.352	0.000
0	-0.888	0.788	45	4.166	17.356	0.000
1	0.112	0.013	52	11.166	124.680	11.166
1	0.112	0.013	23	-17.834	318.052	-17.834
1	0.112	0.013	38	-2.834	8.032	-2.834
1	0.112	0.013	51	10.166	103.348	10.166
1	0.112	0.013	38	-2.834	8.032	-2.834
1	0.112	0.013	29	-11.834	140.044	-11.834
1	0.112	0.013	28	-12.834	164.712	-12.834
1	0.112	0.013	39	-1.834	3.364	-1.834
0	-0.888	0.788	33	-7.834	61.372	0.000
1	0.112	0.013	44	3.166	10.024	3.166
1	0.112	0.013	33	-7.834	61.372	-7.834
1	0.112	0.013	47	6.166	38.020	6.166
1	0.112	0.013	31	-9.834	96.708	-9.834
1	0.112	0.013	47	6.166	38.020	6.166
1	0.112	0.013	41	0.166	0.028	0.166
1	0.112	0.013	54	13.166	173.344	13.166
1	0.112	0.013	48	7.166	51.352	7.166
1	0.112	0.013	53	12.166	148.012	12.166
1	0.112	0.013	43	2.166	4.692	2.166

1	0.112	0.013	50	9.166	84.016	1.029
1	0.112	0.013	47	6.166	38.020	0.692
0	-0.888	0.788	42	1.166	1.360	-1.035
1	0.112	0.013	37	-3.834	14.700	-0.431
1	0.112	0.013	41	0.166	0.028	0.019
0	-0.888	0.788	18	-22.834	521.392	20.270
1	0.112	0.013	26	-14.834	220.048	-1.666
1	0.112	0.013	52	11.166	124.680	1.254
1	0.112	0.013	44	3.166	10.024	0.356
1	0.112	0.013	51	10.166	103.348	1.142
1	0.112	0.013	35	-5.834	34.036	-0.655
1	0.112	0.013	40	-0.834	0.696	-0.094
1	0.112	0.013	47	6.166	38.020	0.692
1	0.112	0.013	49	8.166	66.684	0.917
1	0.112	0.013	36	-4.834	23.368	-0.543
0	-0.888	0.788	6	-34.834	1213.408	30.922
1	0.112	0.013	55	14.166	200.676	1.591
1	0.112	0.013	50	9.166	84.016	1.029
1	0.112	0.013	48	7.166	51.352	0.805
1	0.112	0.013	44	3.166	10.024	0.356
1	0.112	0.013	52	11.166	124.680	1.254
1	0.112	0.013	46	5.166	26.688	0.580
1	0.112	0.013	49	8.166	66.684	0.917
1	0.112	0.013	47	6.166	38.020	0.692
1	0.112	0.013	54	13.166	173.344	1.479
1	0.112	0.013	25	-15.834	250.716	-1.778
1	0.112	0.013	55	14.166	200.676	1.591
1	0.112	0.013	55	14.166	200.676	1.591
1	0.112	0.013	41	0.166	0.028	0.019
1	0.112	0.013	31	-9.834	96.708	-1.104
1	0.112	0.013	13	-27.834	774.732	-3.126

1	0.112	0.013	50	9.166	84.016	9.166
1	0.112	0.013	47	6.166	38.020	6.166
0	-0.888	0.788	42	1.166	1.360	0.000
1	0.112	0.013	37	-3.834	14.700	-3.834
1	0.112	0.013	41	0.166	0.028	0.166
0	-0.888	0.788	18	-22.834	521.392	0.000
1	0.112	0.013	26	-14.834	220.048	-14.834
1	0.112	0.013	52	11.166	124.680	11.166
1	0.112	0.013	44	3.166	10.024	3.166
1	0.112	0.013	51	10.166	103.348	10.166
1	0.112	0.013	35	-5.834	34.036	-5.834
1	0.112	0.013	40	-0.834	0.696	-0.834
1	0.112	0.013	47	6.166	38.020	6.166
1	0.112	0.013	49	8.166	66.684	8.166
1	0.112	0.013	36	-4.834	23.368	-4.834
0	-0.888	0.788	6	-34.834	1213.408	0.000
1	0.112	0.013	55	14.166	200.676	14.166
1	0.112	0.013	50	9.166	84.016	9.166
1	0.112	0.013	48	7.166	51.352	7.166
1	0.112	0.013	44	3.166	10.024	3.166
1	0.112	0.013	52	11.166	124.680	11.166
1	0.112	0.013	46	5.166	26.688	5.166
1	0.112	0.013	49	8.166	66.684	8.166
1	0.112	0.013	47	6.166	38.020	6.166
1	0.112	0.013	54	13.166	173.344	13.166
1	0.112	0.013	25	-15.834	250.716	-15.834
1	0.112	0.013	55	14.166	200.676	14.166
1	0.112	0.013	55	14.166	200.676	14.166
1	0.112	0.013	41	0.166	0.028	0.166
1	0.112	0.013	31	-9.834	96.708	-9.834
1	0.112	0.013	13	-27.834	774.732	-27.834

1	0.112	0.013	55	14.166	200.676	1.591
1	0.112	0.013	45	4.166	17.356	0.468
1	0.112	0.013	55	14.166	200.676	1.591
1	0.112	0.013	52	11.166	124.680	1.254
1	0.112	0.013	49	8.166	66.684	0.917
1	0.112	0.013	42	1.166	1.360	0.131
0	-0.888	0.788	37	-3.834	14.700	3.403
1	0.112	0.013	24	-16.834	283.384	-1.890
0	-0.888	0.788	21	-19.834	393.388	17.607
0	-0.888	0.788	38	-2.834	8.032	2.516
1	0.112	0.013	46	5.166	26.688	0.580
1	0.112	0.013	29	-11.834	140.044	-1.329
1	0.112	0.013	48	7.166	51.352	0.805
1	0.112	0.013	42	1.166	1.360	0.131
1	0.112	0.013	38	-2.834	8.032	-0.318
0	-0.888	0.788	18	-22.834	521.392	20.270
1	0.112	0.013	49	8.166	66.684	0.917
1	0.112	0.013	30	-10.834	117.376	-1.217
1	0.112	0.013	43	2.166	4.692	0.243
1	0.112	0.013	39	-1.834	3.364	-0.206
1	0.112	0.013	31	-9.834	96.708	-1.104
1	0.112	0.013	28	-12.834	164.712	-1.441
1	0.112	0.013	48	7.166	51.352	0.805
1	0.112	0.013	47	6.166	38.020	0.692
1	0.112	0.013	37	-3.834	14.700	-0.431
1	0.112	0.013	40	-0.834	0.696	-0.094
1	0.112	0.013	49	8.166	66.684	0.917
1	0.112	0.013	32	-8.834	78.040	-0.992
1	0.112	0.013	47	6.166	38.020	0.692
1	0.112	0.013	32	-8.834	78.040	-0.992
1	0.112	0.013	29	-11.834	140.044	-1.329

1	0.112	0.013	55	14.166	200.676	14.166
1	0.112	0.013	45	4.166	17.356	4.166
1	0.112	0.013	55	14.166	200.676	14.166
1	0.112	0.013	52	11.166	124.680	11.166
1	0.112	0.013	49	8.166	66.684	8.166
1	0.112	0.013	42	1.166	1.360	1.166
0	-0.888	0.788	37	-3.834	14.700	0.000
1	0.112	0.013	24	-16.834	283.384	-16.834
0	-0.888	0.788	21	-19.834	393.388	0.000
0	-0.888	0.788	38	-2.834	8.032	0.000
1	0.112	0.013	46	5.166	26.688	5.166
1	0.112	0.013	29	-11.834	140.044	-11.834
1	0.112	0.013	48	7.166	51.352	7.166
1	0.112	0.013	42	1.166	1.360	1.166
1	0.112	0.013	38	-2.834	8.032	-2.834
0	-0.888	0.788	18	-22.834	521.392	0.000
1	0.112	0.013	49	8.166	66.684	8.166
1	0.112	0.013	30	-10.834	117.376	-10.834
1	0.112	0.013	43	2.166	4.692	2.166
1	0.112	0.013	39	-1.834	3.364	-1.834
1	0.112	0.013	31	-9.834	96.708	-9.834
1	0.112	0.013	28	-12.834	164.712	-12.834
1	0.112	0.013	48	7.166	51.352	7.166
1	0.112	0.013	47	6.166	38.020	6.166
1	0.112	0.013	37	-3.834	14.700	-3.834
1	0.112	0.013	40	-0.834	0.696	-0.834
1	0.112	0.013	49	8.166	66.684	8.166
1	0.112	0.013	32	-8.834	78.040	-8.834
1	0.112	0.013	47	6.166	38.020	6.166
1	0.112	0.013	32	-8.834	78.040	-8.834
1	0.112	0.013	29	-11.834	140.044	-11.834

0	-0.888	0.788	23	-17.834	318.052	15.831
1	0.112	0.013	41	0.166	0.028	0.019
1	0.112	0.013	41	0.166	0.028	0.019
1	0.112	0.013	51	10.166	103.348	1.142
1	0.112	0.013	29	-11.834	140.044	-1.329
1	0.112	0.013	37	-3.834	14.700	-0.431
1	0.112	0.013	37	-3.834	14.700	-0.431
1	0.112	0.013	36	-4.834	23.368	-0.543
1	0.112	0.013	40	-0.834	0.696	-0.094
1	0.112	0.013	50	9.166	84.016	1.029
1	0.112	0.013	38	-2.834	8.032	-0.318
1	0.112	0.013	40	-0.834	0.696	-0.094
1	0.112	0.013	36	-4.834	23.368	-0.543
1	0.112	0.013	20	-20.834	434.056	-2.340
1	0.112	0.013	47	6.166	38.020	0.692
1	0.112	0.013	54	13.166	173.344	1.479
1	0.112	0.013	50	9.166	84.016	1.029
0	-0.888	0.788	25	-15.834	250.716	14.056
1	0.112	0.013	53	12.166	148.012	1.366
1	0.112	0.013	44	3.166	10.024	0.356
1	0.112	0.013	26	-14.834	220.048	-1.666
1	0.112	0.013	33	-7.834	61.372	-0.880
1	0.112	0.013	36	-4.834	23.368	-0.543
1	0.112	0.013	39	-1.834	3.364	-0.206
1	0.112	0.013	46	5.166	26.688	0.580
1	0.112	0.013	36	-4.834	23.368	-0.543
1	0.112	0.013	54	13.166	173.344	1.479
1	0.112	0.013	36	-4.834	23.368	-0.543
0	-0.888	0.788	44	3.166	10.024	-2.810
1	0.112	0.013	40	-0.834	0.696	-0.094
1	0.112	0.013	38	-2.834	8.032	-0.318

0	-0.888	0.788	23	-17.834	318.052	0.000
1	0.112	0.013	41	0.166	0.028	0.166
1	0.112	0.013	41	0.166	0.028	0.166
1	0.112	0.013	51	10.166	103.348	10.166
0	-0.888	0.788	29	-11.834	140.044	0.000
1	0.112	0.013	37	-3.834	14.700	-3.834
1	0.112	0.013	37	-3.834	14.700	-3.834
1	0.112	0.013	36	-4.834	23.368	-4.834
1	0.112	0.013	40	-0.834	0.696	-0.834
1	0.112	0.013	50	9.166	84.016	9.166
1	0.112	0.013	38	-2.834	8.032	-2.834
1	0.112	0.013	40	-0.834	0.696	-0.834
1	0.112	0.013	36	-4.834	23.368	-4.834
1	0.112	0.013	20	-20.834	434.056	-20.834
1	0.112	0.013	47	6.166	38.020	6.166
1	0.112	0.013	54	13.166	173.344	13.166
1	0.112	0.013	50	9.166	84.016	9.166
0	-0.888	0.788	25	-15.834	250.716	0.000
1	0.112	0.013	53	12.166	148.012	12.166
1	0.112	0.013	44	3.166	10.024	3.166
1	0.112	0.013	26	-14.834	220.048	-14.834
1	0.112	0.013	33	-7.834	61.372	-7.834
0	-0.888	0.788	36	-4.834	23.368	0.000
1	0.112	0.013	39	-1.834	3.364	-1.834
1	0.112	0.013	46	5.166	26.688	5.166
1	0.112	0.013	36	-4.834	23.368	-4.834
1	0.112	0.013	54	13.166	173.344	13.166
1	0.112	0.013	36	-4.834	23.368	-4.834
1	0.112	0.013	44	3.166	10.024	3.166
1	0.112	0.013	40	-0.834	0.696	-0.834
1	0.112	0.013	38	-2.834	8.032	-2.834

1	0.112	0.013	35	-5.834	34.036	-0.655
1	0.112	0.013	46	5.166	26.688	0.580
1	0.112	0.013	49	8.166	66.684	0.917
1	0.112	0.013	48	7.166	51.352	0.805
0	-0.888	0.788	41	0.166	0.028	-0.147
1	0.112	0.013	53	12.166	148.012	1.366
1	0.112	0.013	53	12.166	148.012	1.366
1	0.112	0.013	51	10.166	103.348	1.142
166	0.00010	18.642	7636	0.042	19431.861	216.519

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{216,519}{\sqrt{18,642 \times 19431,861}} = 0.3597$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

1	0.112	0.013	35	-5.834	34.036	-5.834
1	0.112	0.013	46	5.166	26.688	5.166
1	0.112	0.013	49	8.166	66.684	8.166
1	0.112	0.013	48	7.166	51.352	7.166
0	-0.888	0.788	41	0.166	0.028	0.000
1	0.112	0.013	53	12.166	148.012	12.166
1	0.112	0.013	53	12.166	148.012	12.166
1	0.112	0.013	51	10.166	103.348	10.166
166	0.00010	18.642	7636	0.042	19431.861	217.556

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{217.556}{\sqrt{18,642 \times 19431,861}} = 0,3615$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 3 dan No 4

Pertanyaan no 3

$$x = 163/187 = 0.8717$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.128	0.016	51	10.17	103.35	1.304
1	0.128	0.016	36	-4.83	23.37	-0.620
1	0.128	0.016	41	0.17	0.03	0.021
1	0.128	0.016	52	11.17	124.68	1.433
1	0.128	0.016	51	10.17	103.35	1.304
1	0.128	0.016	50	9.17	84.02	1.176
0	-0.872	0.760	46	5.17	26.69	-4.503
1	0.128	0.016	55	14.17	200.68	1.817
1	0.128	0.016	49	8.17	66.68	1.048
1	0.128	0.016	31	-9.83	96.71	-1.262
1	0.128	0.016	46	5.17	26.69	0.663
1	0.128	0.016	44	3.17	10.02	0.406
1	0.128	0.016	40	-0.83	0.70	-0.107
1	0.128	0.016	48	7.17	51.35	0.919
0	-0.872	0.760	31	-9.83	96.71	8.572
1	0.128	0.016	27	-13.83	191.38	-1.775
1	0.128	0.016	47	6.17	38.02	0.791
1	0.128	0.016	50	9.17	84.02	1.176
1	0.128	0.016	55	14.17	200.68	1.817
1	0.128	0.016	47	6.17	38.02	0.791
1	0.128	0.016	16	-24.83	616.73	-3.186
1	0.128	0.016	42	1.17	1.36	0.150
1	0.128	0.016	42	1.17	1.36	0.150
1	0.128	0.016	43	2.17	4.69	0.278

Pertanyaan no 4

$$x = 152/187 = 0.8128$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.187	0.035	51	10.17	103.35	1.903
1	0.187	0.035	36	-4.83	23.37	-0.905
1	0.187	0.035	41	0.17	0.03	0.031
1	0.187	0.035	52	11.17	124.68	2.090
1	0.187	0.035	51	10.17	103.35	1.903
1	0.187	0.035	50	9.17	84.02	1.716
1	0.187	0.035	46	5.17	26.69	0.967
1	0.187	0.035	55	14.17	200.68	2.652
0	-0.813	0.661	49	8.17	66.68	-6.637
0	-0.813	0.661	31	-9.83	96.71	7.993
1	0.187	0.035	46	5.17	26.69	0.967
1	0.187	0.035	44	3.17	10.02	0.593
1	0.187	0.035	40	-0.83	0.70	-0.156
1	0.187	0.035	48	7.17	51.35	1.341
1	0.187	0.035	31	-9.83	96.71	-1.841
0	-0.813	0.661	27	-13.83	191.38	11.244
1	0.187	0.035	47	6.17	38.02	1.154
1	0.187	0.035	50	9.17	84.02	1.716
1	0.187	0.035	55	14.17	200.68	2.652
0	-0.813	0.661	47	6.17	38.02	-5.012
1	0.187	0.035	16	-24.83	616.73	-4.649
1	0.187	0.035	42	1.17	1.36	0.218
1	0.187	0.035	42	1.17	1.36	0.218
0	-0.813	0.661	43	2.17	4.69	-1.761

Uji

Perta

$$x = 1$$

$$y = 7$$

xi
1
1
1
1
1
1
0
1
0
1
0
1
1
0
0
1
1
1
1
0
1
1
1
1

1	0.128	0.016	35	-5.83	34.04	-0.749
1	0.128	0.016	46	5.17	26.69	0.663
1	0.128	0.016	49	8.17	66.68	1.048
1	0.128	0.016	48	7.17	51.35	0.919
1	0.128	0.016	41	0.17	0.03	0.021
1	0.128	0.016	53	12.17	148.01	1.561
1	0.128	0.016	53	12.17	148.01	1.561
1	0.128	0.016	51	10.17	103.35	1.304
163	-0.008	20.920	7636	0.04	19431.86	245.021

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{245,021}{\sqrt{20,920 \times 19431,861}} = 0,3843$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

0	-0.813	0.661	35	-5.83	34.04	4.742
1	0.187	0.035	46	5.17	26.69	0.967
1	0.187	0.035	49	8.17	66.68	1.529
1	0.187	0.035	48	7.17	51.35	1.341
1	0.187	0.035	41	0.17	0.03	0.031
1	0.187	0.035	53	12.17	148.01	2.277
1	0.187	0.035	53	12.17	148.01	2.277
1	0.187	0.035	51	10.17	103.35	1.903
152	0.006	28.449	7636	0.04	19431.86	284.198

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{284,198}{\sqrt{28,449 \times 19431,861}} = 0.3822$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

1
0
1
1
1
1
1
1
1
151

Has

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{284,198}{\sqrt{28,449 \times 19431,861}} = 0.3822$$

karena r_{xy}

Validitas Manual Kuesioner Siswa untuk Pertanyaan No 5 dan No

nyaan no 5

$$51/187 = 0.8075$$

$$7636/187=40.834$$

x=xi-x	x2	yi	y	y2	xy
0.193	0.037	51	10.166	103.348	1.957
0.193	0.037	36	-4.834	23.368	-0.931
0.193	0.037	41	0.166	0.028	0.032
0.193	0.037	52	11.166	124.680	2.149
0.193	0.037	51	10.166	103.348	1.957
0.193	0.037	50	9.166	84.016	1.764
-0.808	0.652	46	5.166	26.688	-4.172
0.193	0.037	55	14.166	200.676	2.727
0.193	0.037	49	8.166	66.684	1.572
-0.808	0.652	31	-9.834	96.708	7.941
0.193	0.037	46	5.166	26.688	0.994
-0.808	0.652	44	3.166	10.024	-2.557
0.193	0.037	40	-0.834	0.696	-0.161
0.193	0.037	48	7.166	51.352	1.379
-0.808	0.652	31	-9.834	96.708	7.941
-0.808	0.652	27	-13.834	191.380	11.171
0.193	0.037	47	6.166	38.020	1.187
0.193	0.037	50	9.166	84.016	1.764
0.193	0.037	55	14.166	200.676	2.727
-0.808	0.652	47	6.166	38.020	-4.979
0.193	0.037	16	-24.834	616.728	-4.781
0.193	0.037	42	1.166	1.360	0.224
0.193	0.037	42	1.166	1.360	0.224
0.193	0.037	43	2.166	4.692	0.417

Pertanyaan no 6

$$x = 92/187 = 0.492$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
0	-0.492	0.242	51	10.166	103.348	-5.002
0	-0.492	0.242	36	-4.834	23.368	2.378
0	-0.492	0.242	41	0.166	0.028	-0.082
1	0.508	0.258	52	11.166	124.680	5.672
1	0.508	0.258	51	10.166	103.348	5.164
1	0.508	0.258	50	9.166	84.016	4.656
1	0.508	0.258	46	5.166	26.688	2.624
1	0.508	0.258	55	14.166	200.676	7.196
1	0.508	0.258	49	8.166	66.684	4.148
0	-0.492	0.242	31	-9.834	96.708	4.838
1	0.508	0.258	46	5.166	26.688	2.624
0	-0.492	0.242	44	3.166	10.024	-1.558
0	-0.492	0.242	40	-0.834	0.696	0.410
1	0.508	0.258	48	7.166	51.352	3.640
0	-0.492	0.242	31	-9.834	96.708	4.838
0	-0.492	0.242	27	-13.834	191.380	6.806
1	0.508	0.258	47	6.166	38.020	3.132
0	-0.492	0.242	50	9.166	84.016	-4.510
1	0.508	0.258	55	14.166	200.676	7.196
0	-0.492	0.242	47	6.166	38.020	-3.034
0	-0.492	0.242	16	-24.834	616.728	12.218
1	0.508	0.258	42	1.166	1.360	0.592
0	-0.492	0.242	42	1.166	1.360	-0.574
1	0.508	0.258	43	2.166	4.692	1.100

0.193	0.037	43	2.166	4.692	0.417
-0.808	0.652	38	-2.834	8.032	2.288
0.193	0.037	36	-4.834	23.368	-0.931
-0.808	0.652	37	-3.834	14.700	3.096
0.193	0.037	55	14.166	200.676	2.727
-0.808	0.652	28	-12.834	164.712	10.363
0.193	0.037	51	10.166	103.348	1.957
0.193	0.037	53	12.166	148.012	2.342
0.193	0.037	45	4.166	17.356	0.802
0.193	0.037	33	-7.834	61.372	-1.508
0.193	0.037	45	4.166	17.356	0.802
-0.808	0.652	44	3.166	10.024	-2.557
0.193	0.037	44	3.166	10.024	0.609
0.193	0.037	49	8.166	66.684	1.572
0.193	0.037	39	-1.834	3.364	-0.353
0.193	0.037	49	8.166	66.684	1.572
0.193	0.037	35	-5.834	34.036	-1.123
0.193	0.037	31	-9.834	96.708	-1.893
0.193	0.037	33	-7.834	61.372	-1.508
0.193	0.037	48	7.166	51.352	1.379
-0.808	0.652	12	-28.834	831.400	23.283
-0.808	0.652	35	-5.834	34.036	4.711
0.193	0.037	39	-1.834	3.364	-0.353
0.193	0.037	53	12.166	148.012	2.342
0.193	0.037	48	7.166	51.352	1.379
-0.808	0.652	48	7.166	51.352	-5.787
0.193	0.037	40	-0.834	0.696	-0.161
0.193	0.037	44	3.166	10.024	0.609
0.193	0.037	46	5.166	26.688	0.994
-0.808	0.652	21	-19.834	393.388	16.016
0.193	0.037	45	4.166	17.356	0.802

1	0.508	0.258	43	2.166	4.692	1.100
1	0.508	0.258	38	-2.834	8.032	-1.440
1	0.508	0.258	36	-4.834	23.368	-2.456
0	-0.492	0.242	37	-3.834	14.700	1.886
1	0.508	0.258	55	14.166	200.676	7.196
0	-0.492	0.242	28	-12.834	164.712	6.314
0	-0.492	0.242	51	10.166	103.348	-5.002
1	0.508	0.258	53	12.166	148.012	6.180
0	-0.492	0.242	45	4.166	17.356	-2.050
0	-0.492	0.242	33	-7.834	61.372	3.854
0	-0.492	0.242	45	4.166	17.356	-2.050
1	0.508	0.258	44	3.166	10.024	1.608
1	0.508	0.258	44	3.166	10.024	1.608
0	-0.492	0.242	49	8.166	66.684	-4.018
1	0.508	0.258	39	-1.834	3.364	-0.932
1	0.508	0.258	49	8.166	66.684	4.148
1	0.508	0.258	35	-5.834	34.036	-2.964
0	-0.492	0.242	31	-9.834	96.708	4.838
0	-0.492	0.242	33	-7.834	61.372	3.854
0	-0.492	0.242	48	7.166	51.352	-3.526
0	-0.492	0.242	12	-28.834	831.400	14.186
0	-0.492	0.242	35	-5.834	34.036	2.870
1	0.508	0.258	39	-1.834	3.364	-0.932
1	0.508	0.258	53	12.166	148.012	6.180
1	0.508	0.258	48	7.166	51.352	3.640
0	-0.492	0.242	48	7.166	51.352	-3.526
1	0.508	0.258	40	-0.834	0.696	-0.424
0	-0.492	0.242	44	3.166	10.024	-1.558
1	0.508	0.258	46	5.166	26.688	2.624
1	0.508	0.258	21	-19.834	393.388	-10.076
0	-0.492	0.242	45	4.166	17.356	-2.050

-0.808	0.652	2	-38.834	1508.080	31.358
0.193	0.037	37	-3.834	14.700	-0.738
0.193	0.037	34	-6.834	46.704	-1.316
-0.808	0.652	32	-8.834	78.040	7.133
-0.808	0.652	29	-11.834	140.044	9.556
0.193	0.037	48	7.166	51.352	1.379
0.193	0.037	48	7.166	51.352	1.379
-0.808	0.652	37	-3.834	14.700	3.096
0.193	0.037	53	12.166	148.012	2.342
0.193	0.037	42	1.166	1.360	0.224
0.193	0.037	48	7.166	51.352	1.379
-0.808	0.652	45	4.166	17.356	-3.364
0.193	0.037	52	11.166	124.680	2.149
-0.808	0.652	23	-17.834	318.052	14.401
0.193	0.037	38	-2.834	8.032	-0.546
0.193	0.037	51	10.166	103.348	1.957
0.193	0.037	38	-2.834	8.032	-0.546
0.193	0.037	29	-11.834	140.044	-2.278
-0.808	0.652	28	-12.834	164.712	10.363
0.193	0.037	39	-1.834	3.364	-0.353
0.193	0.037	33	-7.834	61.372	-1.508
0.193	0.037	44	3.166	10.024	0.609
-0.808	0.652	33	-7.834	61.372	6.326
0.193	0.037	47	6.166	38.020	1.187
0.193	0.037	31	-9.834	96.708	-1.893
0.193	0.037	47	6.166	38.020	1.187
0.193	0.037	41	0.166	0.028	0.032
0.193	0.037	54	13.166	173.344	2.534
0.193	0.037	48	7.166	51.352	1.379
0.193	0.037	53	12.166	148.012	2.342
0.193	0.037	43	2.166	4.692	0.417

0	-0.492	0.242	2	-38.834	1508.080	19.106
0	-0.492	0.242	37	-3.834	14.700	1.886
0	-0.492	0.242	34	-6.834	46.704	3.362
0	-0.492	0.242	32	-8.834	78.040	4.346
0	-0.492	0.242	29	-11.834	140.044	5.822
1	0.508	0.258	48	7.166	51.352	3.640
0	-0.492	0.242	48	7.166	51.352	-3.526
0	-0.492	0.242	37	-3.834	14.700	1.886
1	0.508	0.258	53	12.166	148.012	6.180
0	-0.492	0.242	42	1.166	1.360	-0.574
0	-0.492	0.242	48	7.166	51.352	-3.526
0	-0.492	0.242	45	4.166	17.356	-2.050
1	0.508	0.258	52	11.166	124.680	5.672
0	-0.492	0.242	23	-17.834	318.052	8.774
0	-0.492	0.242	38	-2.834	8.032	1.394
0	-0.492	0.242	51	10.166	103.348	-5.002
0	-0.492	0.242	38	-2.834	8.032	1.394
0	-0.492	0.242	29	-11.834	140.044	5.822
0	-0.492	0.242	28	-12.834	164.712	6.314
0	-0.492	0.242	39	-1.834	3.364	0.902
0	-0.492	0.242	33	-7.834	61.372	3.854
0	-0.492	0.242	44	3.166	10.024	-1.558
1	0.508	0.258	33	-7.834	61.372	-3.980
1	0.508	0.258	47	6.166	38.020	3.132
1	0.508	0.258	31	-9.834	96.708	-4.996
1	0.508	0.258	47	6.166	38.020	3.132
0	-0.492	0.242	41	0.166	0.028	-0.082
0	-0.492	0.242	54	13.166	173.344	-6.478
0	-0.492	0.242	48	7.166	51.352	-3.526
0	-0.492	0.242	53	12.166	148.012	-5.986
1	0.508	0.258	43	2.166	4.692	1.100

-0.808	0.652	50	9.166	84.016	-7.402
0.193	0.037	47	6.166	38.020	1.187
-0.808	0.652	42	1.166	1.360	-0.942
0.193	0.037	37	-3.834	14.700	-0.738
0.193	0.037	41	0.166	0.028	0.032
-0.808	0.652	18	-22.834	521.392	18.438
0.193	0.037	26	-14.834	220.048	-2.856
0.193	0.037	52	11.166	124.680	2.149
-0.808	0.652	44	3.166	10.024	-2.557
0.193	0.037	51	10.166	103.348	1.957
0.193	0.037	35	-5.834	34.036	-1.123
0.193	0.037	40	-0.834	0.696	-0.161
0.193	0.037	47	6.166	38.020	1.187
0.193	0.037	49	8.166	66.684	1.572
0.193	0.037	36	-4.834	23.368	-0.931
0.193	0.037	6	-34.834	1213.408	-6.706
0.193	0.037	55	14.166	200.676	2.727
0.193	0.037	50	9.166	84.016	1.764
0.193	0.037	48	7.166	51.352	1.379
0.193	0.037	44	3.166	10.024	0.609
0.193	0.037	52	11.166	124.680	2.149
0.193	0.037	46	5.166	26.688	0.994
0.193	0.037	49	8.166	66.684	1.572
0.193	0.037	47	6.166	38.020	1.187
0.193	0.037	54	13.166	173.344	2.534
0.193	0.037	25	-15.834	250.716	-3.048
0.193	0.037	55	14.166	200.676	2.727
0.193	0.037	55	14.166	200.676	2.727
0.193	0.037	41	0.166	0.028	0.032
0.193	0.037	31	-9.834	96.708	-1.893
0.193	0.037	13	-27.834	774.732	-5.358

0	-0.492	0.242	50	9.166	84.016	-4.510
1	0.508	0.258	47	6.166	38.020	3.132
0	-0.492	0.242	42	1.166	1.360	-0.574
0	-0.492	0.242	37	-3.834	14.700	1.886
1	0.508	0.258	41	0.166	0.028	0.084
0	-0.492	0.242	18	-22.834	521.392	11.234
1	0.508	0.258	26	-14.834	220.048	-7.536
1	0.508	0.258	52	11.166	124.680	5.672
1	0.508	0.258	44	3.166	10.024	1.608
1	0.508	0.258	51	10.166	103.348	5.164
1	0.508	0.258	35	-5.834	34.036	-2.964
0	-0.492	0.242	40	-0.834	0.696	0.410
1	0.508	0.258	47	6.166	38.020	3.132
1	0.508	0.258	49	8.166	66.684	4.148
1	0.508	0.258	36	-4.834	23.368	-2.456
1	0.508	0.258	6	-34.834	1213.408	-17.696
1	0.508	0.258	55	14.166	200.676	7.196
1	0.508	0.258	50	9.166	84.016	4.656
1	0.508	0.258	48	7.166	51.352	3.640
1	0.508	0.258	44	3.166	10.024	1.608
1	0.508	0.258	52	11.166	124.680	5.672
1	0.508	0.258	46	5.166	26.688	2.624
0	-0.492	0.242	49	8.166	66.684	-4.018
1	0.508	0.258	47	6.166	38.020	3.132
1	0.508	0.258	54	13.166	173.344	6.688
1	0.508	0.258	25	-15.834	250.716	-8.044
1	0.508	0.258	55	14.166	200.676	7.196
1	0.508	0.258	55	14.166	200.676	7.196
1	0.508	0.258	41	0.166	0.028	0.084
1	0.508	0.258	31	-9.834	96.708	-4.996
0	-0.492	0.242	13	-27.834	774.732	13.694

0.193	0.037	55	14.166	200.676	2.727
0.193	0.037	45	4.166	17.356	0.802
0.193	0.037	55	14.166	200.676	2.727
0.193	0.037	52	11.166	124.680	2.149
0.193	0.037	49	8.166	66.684	1.572
0.193	0.037	42	1.166	1.360	0.224
-0.808	0.652	37	-3.834	14.700	3.096
0.193	0.037	24	-16.834	283.384	-3.241
0.193	0.037	21	-19.834	393.388	-3.818
0.193	0.037	38	-2.834	8.032	-0.546
0.193	0.037	46	5.166	26.688	0.994
-0.808	0.652	29	-11.834	140.044	9.556
0.193	0.037	48	7.166	51.352	1.379
0.193	0.037	42	1.166	1.360	0.224
0.193	0.037	38	-2.834	8.032	-0.546
-0.808	0.652	18	-22.834	521.392	18.438
0.193	0.037	49	8.166	66.684	1.572
0.193	0.037	30	-10.834	117.376	-2.086
0.193	0.037	43	2.166	4.692	0.417
0.193	0.037	39	-1.834	3.364	-0.353
0.193	0.037	31	-9.834	96.708	-1.893
0.193	0.037	28	-12.834	164.712	-2.471
0.193	0.037	48	7.166	51.352	1.379
0.193	0.037	47	6.166	38.020	1.187
0.193	0.037	37	-3.834	14.700	-0.738
0.193	0.037	40	-0.834	0.696	-0.161
0.193	0.037	49	8.166	66.684	1.572
0.193	0.037	32	-8.834	78.040	-1.701
0.193	0.037	47	6.166	38.020	1.187
0.193	0.037	32	-8.834	78.040	-1.701
0.193	0.037	29	-11.834	140.044	-2.278

1	0.508	0.258	55	14.166	200.676	7.196
1	0.508	0.258	45	4.166	17.356	2.116
1	0.508	0.258	55	14.166	200.676	7.196
1	0.508	0.258	52	11.166	124.680	5.672
0	-0.492	0.242	49	8.166	66.684	-4.018
1	0.508	0.258	42	1.166	1.360	0.592
0	-0.492	0.242	37	-3.834	14.700	1.886
1	0.508	0.258	24	-16.834	283.384	-8.552
0	-0.492	0.242	21	-19.834	393.388	9.758
0	-0.492	0.242	38	-2.834	8.032	1.394
1	0.508	0.258	46	5.166	26.688	2.624
0	-0.492	0.242	29	-11.834	140.044	5.822
0	-0.492	0.242	48	7.166	51.352	-3.526
0	-0.492	0.242	42	1.166	1.360	-0.574
0	-0.492	0.242	38	-2.834	8.032	1.394
0	-0.492	0.242	18	-22.834	521.392	11.234
1	0.508	0.258	49	8.166	66.684	4.148
0	-0.492	0.242	30	-10.834	117.376	5.330
1	0.508	0.258	43	2.166	4.692	1.100
0	-0.492	0.242	39	-1.834	3.364	0.902
0	-0.492	0.242	31	-9.834	96.708	4.838
0	-0.492	0.242	28	-12.834	164.712	6.314
1	0.508	0.258	48	7.166	51.352	3.640
1	0.508	0.258	47	6.166	38.020	3.132
1	0.508	0.258	37	-3.834	14.700	-1.948
1	0.508	0.258	40	-0.834	0.696	-0.424
1	0.508	0.258	49	8.166	66.684	4.148
0	-0.492	0.242	32	-8.834	78.040	4.346
1	0.508	0.258	47	6.166	38.020	3.132
0	-0.492	0.242	32	-8.834	78.040	4.346
0	-0.492	0.242	29	-11.834	140.044	5.822

-0.808	0.652	23	-17.834	318.052	14.401
0.193	0.037	41	0.166	0.028	0.032
0.193	0.037	41	0.166	0.028	0.032
0.193	0.037	51	10.166	103.348	1.957
0.193	0.037	29	-11.834	140.044	-2.278
0.193	0.037	37	-3.834	14.700	-0.738
-0.808	0.652	37	-3.834	14.700	3.096
-0.808	0.652	36	-4.834	23.368	3.903
0.193	0.037	40	-0.834	0.696	-0.161
0.193	0.037	50	9.166	84.016	1.764
0.193	0.037	38	-2.834	8.032	-0.546
0.193	0.037	40	-0.834	0.696	-0.161
0.193	0.037	36	-4.834	23.368	-0.931
0.193	0.037	20	-20.834	434.056	-4.011
0.193	0.037	47	6.166	38.020	1.187
0.193	0.037	54	13.166	173.344	2.534
0.193	0.037	50	9.166	84.016	1.764
0.193	0.037	25	-15.834	250.716	-3.048
0.193	0.037	53	12.166	148.012	2.342
0.193	0.037	44	3.166	10.024	0.609
0.193	0.037	26	-14.834	220.048	-2.856
0.193	0.037	33	-7.834	61.372	-1.508
-0.808	0.652	36	-4.834	23.368	3.903
0.193	0.037	39	-1.834	3.364	-0.353
0.193	0.037	46	5.166	26.688	0.994
0.193	0.037	36	-4.834	23.368	-0.931
0.193	0.037	54	13.166	173.344	2.534
0.193	0.037	36	-4.834	23.368	-0.931
-0.808	0.652	44	3.166	10.024	-2.557
-0.808	0.652	40	-0.834	0.696	0.673
0.193	0.037	38	-2.834	8.032	-0.546

0	-0.492	0.242	23	-17.834	318.052	8.774
0	-0.492	0.242	41	0.166	0.028	-0.082
1	0.508	0.258	41	0.166	0.028	0.084
1	0.508	0.258	51	10.166	103.348	5.164
0	-0.492	0.242	29	-11.834	140.044	5.822
1	0.508	0.258	37	-3.834	14.700	-1.948
0	-0.492	0.242	37	-3.834	14.700	1.886
0	-0.492	0.242	36	-4.834	23.368	2.378
0	-0.492	0.242	40	-0.834	0.696	0.410
1	0.508	0.258	50	9.166	84.016	4.656
0	-0.492	0.242	38	-2.834	8.032	1.394
0	-0.492	0.242	40	-0.834	0.696	0.410
1	0.508	0.258	36	-4.834	23.368	-2.456
1	0.508	0.258	20	-20.834	434.056	-10.584
1	0.508	0.258	47	6.166	38.020	3.132
1	0.508	0.258	54	13.166	173.344	6.688
0	-0.492	0.242	50	9.166	84.016	-4.510
0	-0.492	0.242	25	-15.834	250.716	7.790
1	0.508	0.258	53	12.166	148.012	6.180
0	-0.492	0.242	44	3.166	10.024	-1.558
0	-0.492	0.242	26	-14.834	220.048	7.298
1	0.508	0.258	33	-7.834	61.372	-3.980
0	-0.492	0.242	36	-4.834	23.368	2.378
1	0.508	0.258	39	-1.834	3.364	-0.932
1	0.508	0.258	46	5.166	26.688	2.624
0	-0.492	0.242	36	-4.834	23.368	2.378
0	-0.492	0.242	54	13.166	173.344	-6.478
1	0.508	0.258	36	-4.834	23.368	-2.456
0	-0.492	0.242	44	3.166	10.024	-1.558
1	0.508	0.258	40	-0.834	0.696	-0.424
0	-0.492	0.242	38	-2.834	8.032	1.394

0.193	0.037	35	-5.834	34.036	-1.123
-0.808	0.652	46	5.166	26.688	-4.172
0.193	0.037	49	8.166	66.684	1.572
0.193	0.037	48	7.166	51.352	1.379
0.193	0.037	41	0.166	0.028	0.032
0.193	0.037	53	12.166	148.012	2.342
0.193	0.037	53	12.166	148.012	2.342
0.193	0.037	51	10.166	103.348	1.957
-0.003	29.070	7636	0.04	19431.86	252.032

il Uji Validitas Manual :

$$= \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{252,032}{\sqrt{129,070 \times 19431,861}} = 0.3353$$

ena $r_{xy} > 0.1432 \Rightarrow$ data valid

0	-0.492	0.242	35	-5.834	34.036	2.870
1	0.508	0.258	46	5.166	26.688	2.624
1	0.508	0.258	49	8.166	66.684	4.148
1	0.508	0.258	48	7.166	51.352	3.640
0	-0.492	0.242	41	0.166	0.028	-0.082
0	-0.492	0.242	53	12.166	148.012	-5.986
0	-0.492	0.242	53	12.166	148.012	-5.986
0	-0.492	0.242	51	10.166	103.348	-5.002
92	-0.004	46.738	7636	0.04	19431.86	306.251

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{306,251}{\sqrt{46,738 \times 19431,861}} = 0.3214$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 7 dan No 8

Pertanyaan no 7

$$x = 169/187 = 0.9037$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.096	0.009	51	10.166	103.348	0.979
1	0.096	0.009	36	-4.834	23.368	-0.466
1	0.096	0.009	41	0.166	0.028	0.016
1	0.096	0.009	52	11.166	124.680	1.075
1	0.096	0.009	51	10.166	103.348	0.979
1	0.096	0.009	50	9.166	84.016	0.883
1	0.096	0.009	46	5.166	26.688	0.497
1	0.096	0.009	55	14.166	200.676	1.364
1	0.096	0.009	49	8.166	66.684	0.786
0	-0.904	0.817	31	-9.834	96.708	8.887
1	0.096	0.009	46	5.166	26.688	0.497
1	0.096	0.009	44	3.166	10.024	0.305
1	0.096	0.009	40	-0.834	0.696	-0.080
1	0.096	0.009	48	7.166	51.352	0.690
1	0.096	0.009	31	-9.834	96.708	-0.947
1	0.096	0.009	27	-13.834	191.380	-1.332
1	0.096	0.009	47	6.166	38.020	0.594
1	0.096	0.009	50	9.166	84.016	0.883
1	0.096	0.009	55	14.166	200.676	1.364
1	0.096	0.009	47	6.166	38.020	0.594
1	0.096	0.009	16	-24.834	616.728	-2.392
1	0.096	0.009	42	1.166	1.360	0.112
1	0.096	0.009	42	1.166	1.360	0.112
0	-0.904	0.817	43	2.166	4.692	-1.957

Pertanyaan no 8

$$x = 161/187 = 0.8610$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.139	0.019	51	10.166	103.348	1.413
1	0.139	0.019	36	-4.834	23.368	-0.672
1	0.139	0.019	41	0.166	0.028	0.023
1	0.139	0.019	52	11.166	124.680	1.552
1	0.139	0.019	51	10.166	103.348	1.413
1	0.139	0.019	50	9.166	84.016	1.274
1	0.139	0.019	46	5.166	26.688	0.718
1	0.139	0.019	55	14.166	200.676	1.969
1	0.139	0.019	49	8.166	66.684	1.135
0	-0.861	0.741	31	-9.834	96.708	8.467
1	0.139	0.019	46	5.166	26.688	0.718
1	0.139	0.019	44	3.166	10.024	0.440
1	0.139	0.019	40	-0.834	0.696	-0.116
1	0.139	0.019	48	7.166	51.352	0.996
1	0.139	0.019	31	-9.834	96.708	-1.367
1	0.139	0.019	27	-13.834	191.380	-1.923
1	0.139	0.019	47	6.166	38.020	0.857
1	0.139	0.019	50	9.166	84.016	1.274
1	0.139	0.019	55	14.166	200.676	1.969
1	0.139	0.019	47	6.166	38.020	0.857
0	-0.861	0.741	16	-24.834	616.728	21.382
1	0.139	0.019	42	1.166	1.360	0.162
1	0.139	0.019	42	1.166	1.360	0.162
0	-0.861	0.741	43	2.166	4.692	-1.865

1	0.096	0.009	43	2.166	4.692	0.209
1	0.096	0.009	38	-2.834	8.032	-0.273
1	0.096	0.009	36	-4.834	23.368	-0.466
1	0.096	0.009	37	-3.834	14.700	-0.369
1	0.096	0.009	55	14.166	200.676	1.364
1	0.096	0.009	28	-12.834	164.712	-1.236
1	0.096	0.009	51	10.166	103.348	0.979
1	0.096	0.009	53	12.166	148.012	1.172
1	0.096	0.009	45	4.166	17.356	0.401
1	0.096	0.009	33	-7.834	61.372	-0.754
1	0.096	0.009	45	4.166	17.356	0.401
1	0.096	0.009	44	3.166	10.024	0.305
1	0.096	0.009	44	3.166	10.024	0.305
1	0.096	0.009	49	8.166	66.684	0.786
1	0.096	0.009	39	-1.834	3.364	-0.177
1	0.096	0.009	49	8.166	66.684	0.786
1	0.096	0.009	35	-5.834	34.036	-0.562
1	0.096	0.009	31	-9.834	96.708	-0.947
0	-0.904	0.817	33	-7.834	61.372	7.080
1	0.096	0.009	48	7.166	51.352	0.690
0	-0.904	0.817	12	-28.834	831.400	26.057
1	0.096	0.009	35	-5.834	34.036	-0.562
1	0.096	0.009	39	-1.834	3.364	-0.177
1	0.096	0.009	53	12.166	148.012	1.172
1	0.096	0.009	48	7.166	51.352	0.690
1	0.096	0.009	48	7.166	51.352	0.690
1	0.096	0.009	40	-0.834	0.696	-0.080
1	0.096	0.009	44	3.166	10.024	0.305
1	0.096	0.009	46	5.166	26.688	0.497
0	-0.904	0.817	21	-19.834	393.388	17.924
1	0.096	0.009	45	4.166	17.356	0.401

0	-0.861	0.741	43	2.166	4.692	-1.865
1	0.139	0.019	38	-2.834	8.032	-0.394
1	0.139	0.019	36	-4.834	23.368	-0.672
1	0.139	0.019	37	-3.834	14.700	-0.533
1	0.139	0.019	55	14.166	200.676	1.969
1	0.139	0.019	28	-12.834	164.712	-1.784
1	0.139	0.019	51	10.166	103.348	1.413
1	0.139	0.019	53	12.166	148.012	1.691
1	0.139	0.019	45	4.166	17.356	0.579
1	0.139	0.019	33	-7.834	61.372	-1.089
1	0.139	0.019	45	4.166	17.356	0.579
1	0.139	0.019	44	3.166	10.024	0.440
1	0.139	0.019	44	3.166	10.024	0.440
1	0.139	0.019	49	8.166	66.684	1.135
1	0.139	0.019	39	-1.834	3.364	-0.255
1	0.139	0.019	49	8.166	66.684	1.135
1	0.139	0.019	35	-5.834	34.036	-0.811
1	0.139	0.019	31	-9.834	96.708	-1.367
0	-0.861	0.741	33	-7.834	61.372	6.745
1	0.139	0.019	48	7.166	51.352	0.996
0	-0.861	0.741	12	-28.834	831.400	24.826
1	0.139	0.019	35	-5.834	34.036	-0.811
1	0.139	0.019	39	-1.834	3.364	-0.255
1	0.139	0.019	53	12.166	148.012	1.691
1	0.139	0.019	48	7.166	51.352	0.996
1	0.139	0.019	48	7.166	51.352	0.996
1	0.139	0.019	40	-0.834	0.696	-0.116
1	0.139	0.019	44	3.166	10.024	0.440
1	0.139	0.019	46	5.166	26.688	0.718
1	0.139	0.019	21	-19.834	393.388	-2.757
1	0.139	0.019	45	4.166	17.356	0.579

0	-0.904	0.817	2	-38.834	1508.080	35.094
1	0.096	0.009	37	-3.834	14.700	-0.369
1	0.096	0.009	34	-6.834	46.704	-0.658
1	0.096	0.009	32	-8.834	78.040	-0.851
0	-0.904	0.817	29	-11.834	140.044	10.694
1	0.096	0.009	48	7.166	51.352	0.690
1	0.096	0.009	48	7.166	51.352	0.690
1	0.096	0.009	37	-3.834	14.700	-0.369
1	0.096	0.009	53	12.166	148.012	1.172
1	0.096	0.009	42	1.166	1.360	0.112
1	0.096	0.009	48	7.166	51.352	0.690
1	0.096	0.009	45	4.166	17.356	0.401
1	0.096	0.009	52	11.166	124.680	1.075
1	0.096	0.009	23	-17.834	318.052	-1.717
0	-0.904	0.817	38	-2.834	8.032	2.561
1	0.096	0.009	51	10.166	103.348	0.979
1	0.096	0.009	38	-2.834	8.032	-0.273
1	0.096	0.009	29	-11.834	140.044	-1.140
1	0.096	0.009	28	-12.834	164.712	-1.236
1	0.096	0.009	39	-1.834	3.364	-0.177
1	0.096	0.009	33	-7.834	61.372	-0.754
1	0.096	0.009	44	3.166	10.024	0.305
1	0.096	0.009	33	-7.834	61.372	-0.754
1	0.096	0.009	47	6.166	38.020	0.594
0	-0.904	0.817	31	-9.834	96.708	8.887
1	0.096	0.009	47	6.166	38.020	0.594
1	0.096	0.009	41	0.166	0.028	0.016
1	0.096	0.009	54	13.166	173.344	1.268
1	0.096	0.009	48	7.166	51.352	0.690
1	0.096	0.009	53	12.166	148.012	1.172
1	0.096	0.009	43	2.166	4.692	0.209

0	-0.861	0.741	2	-38.834	1508.080	33.436
1	0.139	0.019	37	-3.834	14.700	-0.533
1	0.139	0.019	34	-6.834	46.704	-0.950
1	0.139	0.019	32	-8.834	78.040	-1.228
0	-0.861	0.741	29	-11.834	140.044	10.189
1	0.139	0.019	48	7.166	51.352	0.996
1	0.139	0.019	48	7.166	51.352	0.996
1	0.139	0.019	37	-3.834	14.700	-0.533
1	0.139	0.019	53	12.166	148.012	1.691
1	0.139	0.019	42	1.166	1.360	0.162
1	0.139	0.019	48	7.166	51.352	0.996
1	0.139	0.019	45	4.166	17.356	0.579
1	0.139	0.019	52	11.166	124.680	1.552
1	0.139	0.019	23	-17.834	318.052	-2.479
1	0.139	0.019	38	-2.834	8.032	-0.394
1	0.139	0.019	51	10.166	103.348	1.413
1	0.139	0.019	38	-2.834	8.032	-0.394
1	0.139	0.019	29	-11.834	140.044	-1.645
1	0.139	0.019	28	-12.834	164.712	-1.784
1	0.139	0.019	39	-1.834	3.364	-0.255
1	0.139	0.019	33	-7.834	61.372	-1.089
1	0.139	0.019	44	3.166	10.024	0.440
1	0.139	0.019	33	-7.834	61.372	-1.089
1	0.139	0.019	47	6.166	38.020	0.857
0	-0.861	0.741	31	-9.834	96.708	8.467
1	0.139	0.019	47	6.166	38.020	0.857
1	0.139	0.019	41	0.166	0.028	0.023
1	0.139	0.019	54	13.166	173.344	1.830
1	0.139	0.019	48	7.166	51.352	0.996
1	0.139	0.019	53	12.166	148.012	1.691
1	0.139	0.019	43	2.166	4.692	0.301

1	0.096	0.009	50	9.166	84.016	0.883
1	0.096	0.009	47	6.166	38.020	0.594
1	0.096	0.009	42	1.166	1.360	0.112
1	0.096	0.009	37	-3.834	14.700	-0.369
1	0.096	0.009	41	0.166	0.028	0.016
0	-0.904	0.817	18	-22.834	521.392	20.635
1	0.096	0.009	26	-14.834	220.048	-1.429
1	0.096	0.009	52	11.166	124.680	1.075
0	-0.904	0.817	44	3.166	10.024	-2.861
1	0.096	0.009	51	10.166	103.348	0.979
1	0.096	0.009	35	-5.834	34.036	-0.562
1	0.096	0.009	40	-0.834	0.696	-0.080
1	0.096	0.009	47	6.166	38.020	0.594
1	0.096	0.009	49	8.166	66.684	0.786
1	0.096	0.009	36	-4.834	23.368	-0.466
0	-0.904	0.817	6	-34.834	1213.408	31.479
1	0.096	0.009	55	14.166	200.676	1.364
1	0.096	0.009	50	9.166	84.016	0.883
1	0.096	0.009	48	7.166	51.352	0.690
0	-0.904	0.817	44	3.166	10.024	-2.861
1	0.096	0.009	52	11.166	124.680	1.075
1	0.096	0.009	46	5.166	26.688	0.497
1	0.096	0.009	49	8.166	66.684	0.786
1	0.096	0.009	47	6.166	38.020	0.594
1	0.096	0.009	54	13.166	173.344	1.268
1	0.096	0.009	25	-15.834	250.716	-1.525
1	0.096	0.009	55	14.166	200.676	1.364
1	0.096	0.009	55	14.166	200.676	1.364
1	0.096	0.009	41	0.166	0.028	0.016
1	0.096	0.009	31	-9.834	96.708	-0.947
1	0.096	0.009	13	-27.834	774.732	-2.680

0	-0.861	0.741	50	9.166	84.016	-7.892
1	0.139	0.019	47	6.166	38.020	0.857
0	-0.861	0.741	42	1.166	1.360	-1.004
1	0.139	0.019	37	-3.834	14.700	-0.533
1	0.139	0.019	41	0.166	0.028	0.023
0	-0.861	0.741	18	-22.834	521.392	19.660
0	-0.861	0.741	26	-14.834	220.048	12.772
0	-0.861	0.741	52	11.166	124.680	-9.614
0	-0.861	0.741	44	3.166	10.024	-2.726
1	0.139	0.019	51	10.166	103.348	1.413
1	0.139	0.019	35	-5.834	34.036	-0.811
1	0.139	0.019	40	-0.834	0.696	-0.116
1	0.139	0.019	47	6.166	38.020	0.857
1	0.139	0.019	49	8.166	66.684	1.135
0	-0.861	0.741	36	-4.834	23.368	4.162
1	0.139	0.019	6	-34.834	1213.408	-4.842
1	0.139	0.019	55	14.166	200.676	1.969
1	0.139	0.019	50	9.166	84.016	1.274
1	0.139	0.019	48	7.166	51.352	0.996
1	0.139	0.019	44	3.166	10.024	0.440
1	0.139	0.019	52	11.166	124.680	1.552
1	0.139	0.019	46	5.166	26.688	0.718
1	0.139	0.019	49	8.166	66.684	1.135
1	0.139	0.019	47	6.166	38.020	0.857
1	0.139	0.019	54	13.166	173.344	1.830
1	0.139	0.019	25	-15.834	250.716	-2.201
1	0.139	0.019	55	14.166	200.676	1.969
1	0.139	0.019	55	14.166	200.676	1.969
0	-0.861	0.741	41	0.166	0.028	-0.143
1	0.139	0.019	31	-9.834	96.708	-1.367
0	-0.861	0.741	13	-27.834	774.732	23.965

1	0.096	0.009	55	14.166	200.676	1.364
1	0.096	0.009	45	4.166	17.356	0.401
1	0.096	0.009	55	14.166	200.676	1.364
1	0.096	0.009	52	11.166	124.680	1.075
1	0.096	0.009	49	8.166	66.684	0.786
1	0.096	0.009	42	1.166	1.360	0.112
1	0.096	0.009	37	-3.834	14.700	-0.369
0	-0.904	0.817	24	-16.834	283.384	15.213
1	0.096	0.009	21	-19.834	393.388	-1.910
1	0.096	0.009	38	-2.834	8.032	-0.273
1	0.096	0.009	46	5.166	26.688	0.497
1	0.096	0.009	29	-11.834	140.044	-1.140
1	0.096	0.009	48	7.166	51.352	0.690
1	0.096	0.009	42	1.166	1.360	0.112
1	0.096	0.009	38	-2.834	8.032	-0.273
0	-0.904	0.817	18	-22.834	521.392	20.635
1	0.096	0.009	49	8.166	66.684	0.786
1	0.096	0.009	30	-10.834	117.376	-1.043
1	0.096	0.009	43	2.166	4.692	0.209
1	0.096	0.009	39	-1.834	3.364	-0.177
1	0.096	0.009	31	-9.834	96.708	-0.947
1	0.096	0.009	28	-12.834	164.712	-1.236
1	0.096	0.009	48	7.166	51.352	0.690
1	0.096	0.009	47	6.166	38.020	0.594
1	0.096	0.009	37	-3.834	14.700	-0.369
1	0.096	0.009	40	-0.834	0.696	-0.080
1	0.096	0.009	49	8.166	66.684	0.786
0	-0.904	0.817	32	-8.834	78.040	7.983
1	0.096	0.009	47	6.166	38.020	0.594
1	0.096	0.009	32	-8.834	78.040	-0.851
1	0.096	0.009	29	-11.834	140.044	-1.140

1	0.139	0.019	55	14.166	200.676	1.969
1	0.139	0.019	45	4.166	17.356	0.579
1	0.139	0.019	55	14.166	200.676	1.969
0	-0.861	0.741	52	11.166	124.680	-9.614
1	0.139	0.019	49	8.166	66.684	1.135
1	0.139	0.019	42	1.166	1.360	0.162
0	-0.861	0.741	37	-3.834	14.700	3.301
1	0.139	0.019	24	-16.834	283.384	-2.340
1	0.139	0.019	21	-19.834	393.388	-2.757
1	0.139	0.019	38	-2.834	8.032	-0.394
1	0.139	0.019	46	5.166	26.688	0.718
1	0.139	0.019	29	-11.834	140.044	-1.645
1	0.139	0.019	48	7.166	51.352	0.996
1	0.139	0.019	42	1.166	1.360	0.162
0	-0.861	0.741	38	-2.834	8.032	2.440
1	0.139	0.019	18	-22.834	521.392	-3.174
1	0.139	0.019	49	8.166	66.684	1.135
1	0.139	0.019	30	-10.834	117.376	-1.506
1	0.139	0.019	43	2.166	4.692	0.301
1	0.139	0.019	39	-1.834	3.364	-0.255
1	0.139	0.019	31	-9.834	96.708	-1.367
1	0.139	0.019	28	-12.834	164.712	-1.784
1	0.139	0.019	48	7.166	51.352	0.996
1	0.139	0.019	47	6.166	38.020	0.857
0	-0.861	0.741	37	-3.834	14.700	3.301
1	0.139	0.019	40	-0.834	0.696	-0.116
1	0.139	0.019	49	8.166	66.684	1.135
1	0.139	0.019	32	-8.834	78.040	-1.228
1	0.139	0.019	47	6.166	38.020	0.857
1	0.139	0.019	32	-8.834	78.040	-1.228
1	0.139	0.019	29	-11.834	140.044	-1.645

1	0.096	0.009	23	-17.834	318.052	-1.717
1	0.096	0.009	41	0.166	0.028	0.016
1	0.096	0.009	41	0.166	0.028	0.016
1	0.096	0.009	51	10.166	103.348	0.979
1	0.096	0.009	29	-11.834	140.044	-1.140
1	0.096	0.009	37	-3.834	14.700	-0.369
1	0.096	0.009	37	-3.834	14.700	-0.369
1	0.096	0.009	36	-4.834	23.368	-0.466
1	0.096	0.009	40	-0.834	0.696	-0.080
1	0.096	0.009	50	9.166	84.016	0.883
1	0.096	0.009	38	-2.834	8.032	-0.273
1	0.096	0.009	40	-0.834	0.696	-0.080
1	0.096	0.009	36	-4.834	23.368	-0.466
1	0.096	0.009	20	-20.834	434.056	-2.006
1	0.096	0.009	47	6.166	38.020	0.594
1	0.096	0.009	54	13.166	173.344	1.268
1	0.096	0.009	50	9.166	84.016	0.883
1	0.096	0.009	25	-15.834	250.716	-1.525
1	0.096	0.009	53	12.166	148.012	1.172
1	0.096	0.009	44	3.166	10.024	0.305
0	-0.904	0.817	26	-14.834	220.048	13.405
1	0.096	0.009	33	-7.834	61.372	-0.754
1	0.096	0.009	36	-4.834	23.368	-0.466
1	0.096	0.009	39	-1.834	3.364	-0.177
1	0.096	0.009	46	5.166	26.688	0.497
0	-0.904	0.817	36	-4.834	23.368	4.368
1	0.096	0.009	54	13.166	173.344	1.268
1	0.096	0.009	36	-4.834	23.368	-0.466
1	0.096	0.009	44	3.166	10.024	0.305
1	0.096	0.009	40	-0.834	0.696	-0.080
1	0.096	0.009	38	-2.834	8.032	-0.273

0	-0.861	0.741	23	-17.834	318.052	15.355
1	0.139	0.019	41	0.166	0.028	0.023
1	0.139	0.019	41	0.166	0.028	0.023
1	0.139	0.019	51	10.166	103.348	1.413
1	0.139	0.019	29	-11.834	140.044	-1.645
1	0.139	0.019	37	-3.834	14.700	-0.533
1	0.139	0.019	37	-3.834	14.700	-0.533
1	0.139	0.019	36	-4.834	23.368	-0.672
1	0.139	0.019	40	-0.834	0.696	-0.116
1	0.139	0.019	50	9.166	84.016	1.274
1	0.139	0.019	38	-2.834	8.032	-0.394
1	0.139	0.019	40	-0.834	0.696	-0.116
1	0.139	0.019	36	-4.834	23.368	-0.672
1	0.139	0.019	20	-20.834	434.056	-2.896
1	0.139	0.019	47	6.166	38.020	0.857
1	0.139	0.019	54	13.166	173.344	1.830
1	0.139	0.019	50	9.166	84.016	1.274
0	-0.861	0.741	25	-15.834	250.716	13.633
1	0.139	0.019	53	12.166	148.012	1.691
1	0.139	0.019	44	3.166	10.024	0.440
0	-0.861	0.741	26	-14.834	220.048	12.772
1	0.139	0.019	33	-7.834	61.372	-1.089
1	0.139	0.019	36	-4.834	23.368	-0.672
1	0.139	0.019	39	-1.834	3.364	-0.255
1	0.139	0.019	46	5.166	26.688	0.718
0	-0.861	0.741	36	-4.834	23.368	4.162
1	0.139	0.019	54	13.166	173.344	1.830
1	0.139	0.019	36	-4.834	23.368	-0.672
1	0.139	0.019	44	3.166	10.024	0.440
1	0.139	0.019	40	-0.834	0.696	-0.116
1	0.139	0.019	38	-2.834	8.032	-0.394

1	0.096	0.009	35	-5.834	34.036	-0.562
1	0.096	0.009	46	5.166	26.688	0.497
1	0.096	0.009	49	8.166	66.684	0.786
1	0.096	0.009	48	7.166	51.352	0.690
1	0.096	0.009	41	0.166	0.028	0.016
1	0.096	0.009	53	12.166	148.012	1.172
1	0.096	0.009	53	12.166	148.012	1.172
1	0.096	0.009	51	10.166	103.348	0.979
169	0.008	16.267	7636	0.042	19431.861	247.016

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{247,016}{\sqrt{16,367 \times 19431,861}} = 0,4393$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

1	0.139	0.019	35	-5.834	34.036	-0.811
1	0.139	0.019	46	5.166	26.688	0.718
1	0.139	0.019	49	8.166	66.684	1.135
1	0.139	0.019	48	7.166	51.352	0.996
1	0.139	0.019	41	0.166	0.028	0.023
1	0.139	0.019	53	12.166	148.012	1.691
1	0.139	0.019	53	12.166	148.012	1.691
1	0.139	0.019	51	10.166	103.348	1.413
161	-0.007	22.385	7636	0.042	19431.861	225.690

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{225,690}{\sqrt{22,385 \times 19431,861}} = 0.3422$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 9 dan No 10

Pertanyaan no 9

$$x = 154/187 = 0.8235$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.177	0.031	51	10.166	103.348	1.794
0	-0.824	0.678	36	-4.834	23.368	3.981
1	0.177	0.031	41	0.166	0.028	0.029
1	0.177	0.031	52	11.166	124.680	1.971
1	0.177	0.031	51	10.166	103.348	1.794
1	0.177	0.031	50	9.166	84.016	1.618
1	0.177	0.031	46	5.166	26.688	0.912
1	0.177	0.031	55	14.166	200.676	2.500
1	0.177	0.031	49	8.166	66.684	1.441
1	0.177	0.031	31	-9.834	96.708	-1.736
1	0.177	0.031	46	5.166	26.688	0.912
0	-0.824	0.678	44	3.166	10.024	-2.607
1	0.177	0.031	40	-0.834	0.696	-0.147
1	0.177	0.031	48	7.166	51.352	1.265
0	-0.824	0.678	31	-9.834	96.708	8.098
1	0.177	0.031	27	-13.834	191.380	-2.442
1	0.177	0.031	47	6.166	38.020	1.088
1	0.177	0.031	50	9.166	84.016	1.618
1	0.177	0.031	55	14.166	200.676	2.500
1	0.177	0.031	47	6.166	38.020	1.088
1	0.177	0.031	16	-24.834	616.728	-4.383
1	0.177	0.031	42	1.166	1.360	0.206
1	0.177	0.031	42	1.166	1.360	0.206
1	0.177	0.031	43	2.166	4.692	0.382

Pertanyaan no 10

$$x = 152/187 = 0.8128$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.187	0.035	51	10.166	103.348	1.903
1	0.187	0.035	36	-4.834	23.368	-0.905
1	0.187	0.035	41	0.166	0.028	0.031
1	0.187	0.035	52	11.166	124.680	2.090
1	0.187	0.035	51	10.166	103.348	1.903
1	0.187	0.035	50	9.166	84.016	1.716
1	0.187	0.035	46	5.166	26.688	0.967
1	0.187	0.035	55	14.166	200.676	2.652
1	0.187	0.035	49	8.166	66.684	1.529
1	0.187	0.035	31	-9.834	96.708	-1.841
1	0.187	0.035	46	5.166	26.688	0.967
0	-0.813	0.661	44	3.166	10.024	-2.573
1	0.187	0.035	40	-0.834	0.696	-0.156
1	0.187	0.035	48	7.166	51.352	1.341
1	0.187	0.035	31	-9.834	96.708	-1.841
1	0.187	0.035	27	-13.834	191.380	-2.590
1	0.187	0.035	47	6.166	38.020	1.154
1	0.187	0.035	50	9.166	84.016	1.716
1	0.187	0.035	55	14.166	200.676	2.652
1	0.187	0.035	47	6.166	38.020	1.154
0	-0.813	0.661	16	-24.834	616.728	20.185
1	0.187	0.035	42	1.166	1.360	0.218
1	0.187	0.035	42	1.166	1.360	0.218
0	-0.813	0.661	43	2.166	4.692	-1.761

0	-0.824	0.678	43	2.166	4.692	-1.784
1	0.177	0.031	38	-2.834	8.032	-0.500
1	0.177	0.031	36	-4.834	23.368	-0.853
1	0.177	0.031	37	-3.834	14.700	-0.677
1	0.177	0.031	55	14.166	200.676	2.500
1	0.177	0.031	28	-12.834	164.712	-2.265
1	0.177	0.031	51	10.166	103.348	1.794
1	0.177	0.031	53	12.166	148.012	2.147
1	0.177	0.031	45	4.166	17.356	0.735
1	0.177	0.031	33	-7.834	61.372	-1.383
1	0.177	0.031	45	4.166	17.356	0.735
1	0.177	0.031	44	3.166	10.024	0.559
1	0.177	0.031	44	3.166	10.024	0.559
1	0.177	0.031	49	8.166	66.684	1.441
1	0.177	0.031	39	-1.834	3.364	-0.324
0	-0.824	0.678	49	8.166	66.684	-6.725
1	0.177	0.031	35	-5.834	34.036	-1.030
1	0.177	0.031	31	-9.834	96.708	-1.736
1	0.177	0.031	33	-7.834	61.372	-1.383
1	0.177	0.031	48	7.166	51.352	1.265
0	-0.824	0.678	12	-28.834	831.400	23.745
1	0.177	0.031	35	-5.834	34.036	-1.030
1	0.177	0.031	39	-1.834	3.364	-0.324
1	0.177	0.031	53	12.166	148.012	2.147
1	0.177	0.031	48	7.166	51.352	1.265
1	0.177	0.031	48	7.166	51.352	1.265
1	0.177	0.031	40	-0.834	0.696	-0.147
1	0.177	0.031	44	3.166	10.024	0.559
1	0.177	0.031	46	5.166	26.688	0.912
0	-0.824	0.678	21	-19.834	393.388	16.333
1	0.177	0.031	45	4.166	17.356	0.735

1	0.187	0.035	43	2.166	4.692	0.405
1	0.187	0.035	38	-2.834	8.032	-0.531
1	0.187	0.035	36	-4.834	23.368	-0.905
1	0.187	0.035	37	-3.834	14.700	-0.718
1	0.187	0.035	55	14.166	200.676	2.652
1	0.187	0.035	28	-12.834	164.712	-2.403
1	0.187	0.035	51	10.166	103.348	1.903
1	0.187	0.035	53	12.166	148.012	2.277
0	-0.813	0.661	45	4.166	17.356	-3.386
0	-0.813	0.661	33	-7.834	61.372	6.367
1	0.187	0.035	45	4.166	17.356	0.780
1	0.187	0.035	44	3.166	10.024	0.593
1	0.187	0.035	44	3.166	10.024	0.593
1	0.187	0.035	49	8.166	66.684	1.529
1	0.187	0.035	39	-1.834	3.364	-0.343
1	0.187	0.035	49	8.166	66.684	1.529
1	0.187	0.035	35	-5.834	34.036	-1.092
1	0.187	0.035	31	-9.834	96.708	-1.841
0	-0.813	0.661	33	-7.834	61.372	6.367
1	0.187	0.035	48	7.166	51.352	1.341
0	-0.813	0.661	12	-28.834	831.400	23.436
1	0.187	0.035	35	-5.834	34.036	-1.092
1	0.187	0.035	39	-1.834	3.364	-0.343
1	0.187	0.035	53	12.166	148.012	2.277
1	0.187	0.035	48	7.166	51.352	1.341
1	0.187	0.035	48	7.166	51.352	1.341
1	0.187	0.035	40	-0.834	0.696	-0.156
1	0.187	0.035	44	3.166	10.024	0.593
1	0.187	0.035	46	5.166	26.688	0.967
0	-0.813	0.661	21	-19.834	393.388	16.121
1	0.187	0.035	45	4.166	17.356	0.780

0	-0.824	0.678	2	-38.834	1508.080	31.980
1	0.177	0.031	37	-3.834	14.700	-0.677
1	0.177	0.031	34	-6.834	46.704	-1.206
1	0.177	0.031	32	-8.834	78.040	-1.559
0	-0.824	0.678	29	-11.834	140.044	9.745
1	0.177	0.031	48	7.166	51.352	1.265
1	0.177	0.031	48	7.166	51.352	1.265
0	-0.824	0.678	37	-3.834	14.700	3.157
1	0.177	0.031	53	12.166	148.012	2.147
1	0.177	0.031	42	1.166	1.360	0.206
1	0.177	0.031	48	7.166	51.352	1.265
1	0.177	0.031	45	4.166	17.356	0.735
1	0.177	0.031	52	11.166	124.680	1.971
1	0.177	0.031	23	-17.834	318.052	-3.148
0	-0.824	0.678	38	-2.834	8.032	2.334
1	0.177	0.031	51	10.166	103.348	1.794
1	0.177	0.031	38	-2.834	8.032	-0.500
0	-0.824	0.678	29	-11.834	140.044	9.745
1	0.177	0.031	28	-12.834	164.712	-2.265
1	0.177	0.031	39	-1.834	3.364	-0.324
1	0.177	0.031	33	-7.834	61.372	-1.383
1	0.177	0.031	44	3.166	10.024	0.559
0	-0.824	0.678	33	-7.834	61.372	6.451
1	0.177	0.031	47	6.166	38.020	1.088
1	0.177	0.031	31	-9.834	96.708	-1.736
1	0.177	0.031	47	6.166	38.020	1.088
0	-0.824	0.678	41	0.166	0.028	-0.137
1	0.177	0.031	54	13.166	173.344	2.324
1	0.177	0.031	48	7.166	51.352	1.265
1	0.177	0.031	53	12.166	148.012	2.147
1	0.177	0.031	43	2.166	4.692	0.382

0	-0.813	0.661	2	-38.834	1508.080	31.564
1	0.187	0.035	37	-3.834	14.700	-0.718
1	0.187	0.035	34	-6.834	46.704	-1.279
1	0.187	0.035	32	-8.834	78.040	-1.654
0	-0.813	0.661	29	-11.834	140.044	9.619
1	0.187	0.035	48	7.166	51.352	1.341
0	-0.813	0.661	48	7.166	51.352	-5.825
0	-0.813	0.661	37	-3.834	14.700	3.116
1	0.187	0.035	53	12.166	148.012	2.277
1	0.187	0.035	42	1.166	1.360	0.218
1	0.187	0.035	48	7.166	51.352	1.341
1	0.187	0.035	45	4.166	17.356	0.780
1	0.187	0.035	52	11.166	124.680	2.090
0	-0.813	0.661	23	-17.834	318.052	14.495
0	-0.813	0.661	38	-2.834	8.032	2.303
1	0.187	0.035	51	10.166	103.348	1.903
1	0.187	0.035	38	-2.834	8.032	-0.531
1	0.187	0.035	29	-11.834	140.044	-2.215
0	-0.813	0.661	28	-12.834	164.712	10.431
1	0.187	0.035	39	-1.834	3.364	-0.343
1	0.187	0.035	33	-7.834	61.372	-1.467
1	0.187	0.035	44	3.166	10.024	0.593
1	0.187	0.035	33	-7.834	61.372	-1.467
1	0.187	0.035	47	6.166	38.020	1.154
1	0.187	0.035	31	-9.834	96.708	-1.841
1	0.187	0.035	47	6.166	38.020	1.154
0	-0.813	0.661	41	0.166	0.028	-0.135
1	0.187	0.035	54	13.166	173.344	2.465
1	0.187	0.035	48	7.166	51.352	1.341
1	0.187	0.035	53	12.166	148.012	2.277
1	0.187	0.035	43	2.166	4.692	0.405

1	0.177	0.031	50	9.166	84.016	1.618
1	0.177	0.031	47	6.166	38.020	1.088
1	0.177	0.031	42	1.166	1.360	0.206
1	0.177	0.031	37	-3.834	14.700	-0.677
1	0.177	0.031	41	0.166	0.028	0.029
0	-0.824	0.678	18	-22.834	521.392	18.804
0	-0.824	0.678	26	-14.834	220.048	12.216
1	0.177	0.031	52	11.166	124.680	1.971
1	0.177	0.031	44	3.166	10.024	0.559
1	0.177	0.031	51	10.166	103.348	1.794
1	0.177	0.031	35	-5.834	34.036	-1.030
1	0.177	0.031	40	-0.834	0.696	-0.147
1	0.177	0.031	47	6.166	38.020	1.088
1	0.177	0.031	49	8.166	66.684	1.441
0	-0.824	0.678	36	-4.834	23.368	3.981
0	-0.824	0.678	6	-34.834	1213.408	28.686
1	0.177	0.031	55	14.166	200.676	2.500
1	0.177	0.031	50	9.166	84.016	1.618
1	0.177	0.031	48	7.166	51.352	1.265
1	0.177	0.031	44	3.166	10.024	0.559
1	0.177	0.031	52	11.166	124.680	1.971
1	0.177	0.031	46	5.166	26.688	0.912
1	0.177	0.031	49	8.166	66.684	1.441
1	0.177	0.031	47	6.166	38.020	1.088
1	0.177	0.031	54	13.166	173.344	2.324
0	-0.824	0.678	25	-15.834	250.716	13.039
1	0.177	0.031	55	14.166	200.676	2.500
1	0.177	0.031	55	14.166	200.676	2.500
0	-0.824	0.678	41	0.166	0.028	-0.137
1	0.177	0.031	31	-9.834	96.708	-1.736
0	-0.824	0.678	13	-27.834	774.732	22.921

1	0.187	0.035	50	9.166	84.016	1.716
1	0.187	0.035	47	6.166	38.020	1.154
1	0.187	0.035	42	1.166	1.360	0.218
1	0.187	0.035	37	-3.834	14.700	-0.718
1	0.187	0.035	41	0.166	0.028	0.031
0	-0.813	0.661	18	-22.834	521.392	18.559
1	0.187	0.035	26	-14.834	220.048	-2.777
1	0.187	0.035	52	11.166	124.680	2.090
1	0.187	0.035	44	3.166	10.024	0.593
1	0.187	0.035	51	10.166	103.348	1.903
1	0.187	0.035	35	-5.834	34.036	-1.092
1	0.187	0.035	40	-0.834	0.696	-0.156
1	0.187	0.035	47	6.166	38.020	1.154
1	0.187	0.035	49	8.166	66.684	1.529
1	0.187	0.035	36	-4.834	23.368	-0.905
0	-0.813	0.661	6	-34.834	1213.408	28.313
1	0.187	0.035	55	14.166	200.676	2.652
1	0.187	0.035	50	9.166	84.016	1.716
1	0.187	0.035	48	7.166	51.352	1.341
1	0.187	0.035	44	3.166	10.024	0.593
1	0.187	0.035	52	11.166	124.680	2.090
0	-0.813	0.661	46	5.166	26.688	-4.199
1	0.187	0.035	49	8.166	66.684	1.529
1	0.187	0.035	47	6.166	38.020	1.154
1	0.187	0.035	54	13.166	173.344	2.465
0	-0.813	0.661	25	-15.834	250.716	12.870
1	0.187	0.035	55	14.166	200.676	2.652
1	0.187	0.035	55	14.166	200.676	2.652
0	-0.813	0.661	41	0.166	0.028	-0.135
1	0.187	0.035	31	-9.834	96.708	-1.841
0	-0.813	0.661	13	-27.834	774.732	22.623

1	0.177	0.031	55	14.166	200.676	2.500
1	0.177	0.031	45	4.166	17.356	0.735
1	0.177	0.031	55	14.166	200.676	2.500
1	0.177	0.031	52	11.166	124.680	1.971
1	0.177	0.031	49	8.166	66.684	1.441
1	0.177	0.031	42	1.166	1.360	0.206
0	-0.824	0.678	37	-3.834	14.700	3.157
1	0.177	0.031	24	-16.834	283.384	-2.971
0	-0.824	0.678	21	-19.834	393.388	16.333
0	-0.824	0.678	38	-2.834	8.032	2.334
1	0.177	0.031	46	5.166	26.688	0.912
1	0.177	0.031	29	-11.834	140.044	-2.089
1	0.177	0.031	48	7.166	51.352	1.265
0	-0.824	0.678	42	1.166	1.360	-0.960
1	0.177	0.031	38	-2.834	8.032	-0.500
1	0.177	0.031	18	-22.834	521.392	-4.030
1	0.177	0.031	49	8.166	66.684	1.441
0	-0.824	0.678	30	-10.834	117.376	8.922
1	0.177	0.031	43	2.166	4.692	0.382
1	0.177	0.031	39	-1.834	3.364	-0.324
1	0.177	0.031	31	-9.834	96.708	-1.736
1	0.177	0.031	28	-12.834	164.712	-2.265
1	0.177	0.031	48	7.166	51.352	1.265
1	0.177	0.031	47	6.166	38.020	1.088
0	-0.824	0.678	37	-3.834	14.700	3.157
1	0.177	0.031	40	-0.834	0.696	-0.147
1	0.177	0.031	49	8.166	66.684	1.441
0	-0.824	0.678	32	-8.834	78.040	7.275
1	0.177	0.031	47	6.166	38.020	1.088
1	0.177	0.031	32	-8.834	78.040	-1.559
1	0.177	0.031	29	-11.834	140.044	-2.089

1	0.187	0.035	55	14.166	200.676	2.652
1	0.187	0.035	45	4.166	17.356	0.780
1	0.187	0.035	55	14.166	200.676	2.652
1	0.187	0.035	52	11.166	124.680	2.090
1	0.187	0.035	49	8.166	66.684	1.529
0	-0.813	0.661	42	1.166	1.360	-0.948
1	0.187	0.035	37	-3.834	14.700	-0.718
1	0.187	0.035	24	-16.834	283.384	-3.151
0	-0.813	0.661	21	-19.834	393.388	16.121
1	0.187	0.035	38	-2.834	8.032	-0.531
1	0.187	0.035	46	5.166	26.688	0.967
1	0.187	0.035	29	-11.834	140.044	-2.215
1	0.187	0.035	48	7.166	51.352	1.341
1	0.187	0.035	42	1.166	1.360	0.218
1	0.187	0.035	38	-2.834	8.032	-0.531
1	0.187	0.035	18	-22.834	521.392	-4.275
1	0.187	0.035	49	8.166	66.684	1.529
0	-0.813	0.661	30	-10.834	117.376	8.806
0	-0.813	0.661	43	2.166	4.692	-1.761
1	0.187	0.035	39	-1.834	3.364	-0.343
1	0.187	0.035	31	-9.834	96.708	-1.841
1	0.187	0.035	28	-12.834	164.712	-2.403
1	0.187	0.035	48	7.166	51.352	1.341
1	0.187	0.035	47	6.166	38.020	1.154
0	-0.813	0.661	37	-3.834	14.700	3.116
1	0.187	0.035	40	-0.834	0.696	-0.156
1	0.187	0.035	49	8.166	66.684	1.529
1	0.187	0.035	32	-8.834	78.040	-1.654
1	0.187	0.035	47	6.166	38.020	1.154
1	0.187	0.035	32	-8.834	78.040	-1.654
0	-0.813	0.661	29	-11.834	140.044	9.619

1	0.177	0.031	23	-17.834	318.052	-3.148
1	0.177	0.031	41	0.166	0.028	0.029
1	0.177	0.031	41	0.166	0.028	0.029
1	0.177	0.031	51	10.166	103.348	1.794
1	0.177	0.031	29	-11.834	140.044	-2.089
1	0.177	0.031	37	-3.834	14.700	-0.677
0	-0.824	0.678	37	-3.834	14.700	3.157
1	0.177	0.031	36	-4.834	23.368	-0.853
1	0.177	0.031	40	-0.834	0.696	-0.147
1	0.177	0.031	50	9.166	84.016	1.618
1	0.177	0.031	38	-2.834	8.032	-0.500
1	0.177	0.031	40	-0.834	0.696	-0.147
1	0.177	0.031	36	-4.834	23.368	-0.853
0	-0.824	0.678	20	-20.834	434.056	17.157
0	-0.824	0.678	47	6.166	38.020	-5.078
1	0.177	0.031	54	13.166	173.344	2.324
1	0.177	0.031	50	9.166	84.016	1.618
0	-0.824	0.678	25	-15.834	250.716	13.039
1	0.177	0.031	53	12.166	148.012	2.147
1	0.177	0.031	44	3.166	10.024	0.559
1	0.177	0.031	26	-14.834	220.048	-2.618
1	0.177	0.031	33	-7.834	61.372	-1.383
0	-0.824	0.678	36	-4.834	23.368	3.981
1	0.177	0.031	39	-1.834	3.364	-0.324
1	0.177	0.031	46	5.166	26.688	0.912
1	0.177	0.031	36	-4.834	23.368	-0.853
1	0.177	0.031	54	13.166	173.344	2.324
1	0.177	0.031	36	-4.834	23.368	-0.853
1	0.177	0.031	44	3.166	10.024	0.559
1	0.177	0.031	40	-0.834	0.696	-0.147
1	0.177	0.031	38	-2.834	8.032	-0.500

1	0.187	0.035	23	-17.834	318.052	-3.339
1	0.187	0.035	41	0.166	0.028	0.031
1	0.187	0.035	41	0.166	0.028	0.031
1	0.187	0.035	51	10.166	103.348	1.903
1	0.187	0.035	29	-11.834	140.044	-2.215
1	0.187	0.035	37	-3.834	14.700	-0.718
0	-0.813	0.661	37	-3.834	14.700	3.116
1	0.187	0.035	36	-4.834	23.368	-0.905
1	0.187	0.035	40	-0.834	0.696	-0.156
0	-0.813	0.661	50	9.166	84.016	-7.450
1	0.187	0.035	38	-2.834	8.032	-0.531
1	0.187	0.035	40	-0.834	0.696	-0.156
1	0.187	0.035	36	-4.834	23.368	-0.905
0	-0.813	0.661	20	-20.834	434.056	16.934
1	0.187	0.035	47	6.166	38.020	1.154
1	0.187	0.035	54	13.166	173.344	2.465
1	0.187	0.035	50	9.166	84.016	1.716
0	-0.813	0.661	25	-15.834	250.716	12.870
1	0.187	0.035	53	12.166	148.012	2.277
1	0.187	0.035	44	3.166	10.024	0.593
1	0.187	0.035	26	-14.834	220.048	-2.777
0	-0.813	0.661	33	-7.834	61.372	6.367
0	-0.813	0.661	36	-4.834	23.368	3.929
1	0.187	0.035	39	-1.834	3.364	-0.343
1	0.187	0.035	46	5.166	26.688	0.967
1	0.187	0.035	36	-4.834	23.368	-0.905
1	0.187	0.035	54	13.166	173.344	2.465
1	0.187	0.035	36	-4.834	23.368	-0.905
0	-0.813	0.661	44	3.166	10.024	-2.573
1	0.187	0.035	40	-0.834	0.696	-0.156
1	0.187	0.035	38	-2.834	8.032	-0.531

1	0.177	0.031	35	-5.834	34.036	-1.030
1	0.177	0.031	46	5.166	26.688	0.912
1	0.177	0.031	49	8.166	66.684	1.441
1	0.177	0.031	48	7.166	51.352	1.265
1	0.177	0.031	41	0.166	0.028	0.029
1	0.177	0.031	53	12.166	148.012	2.147
1	0.177	0.031	53	12.166	148.012	2.147
1	0.177	0.031	51	10.166	103.348	1.794
154	0.005	27.176	7636	0.042	19431.861	335.529

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{335,529}{\sqrt{27,176 \times 19431,861}} = 0.4617$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

1	0.187	0.035	35	-5.834	34.036	-1.092
1	0.187	0.035	46	5.166	26.688	0.967
1	0.187	0.035	49	8.166	66.684	1.529
1	0.187	0.035	48	7.166	51.352	1.341
1	0.187	0.035	41	0.166	0.028	0.031
1	0.187	0.035	53	12.166	148.012	2.277
1	0.187	0.035	53	12.166	148.012	2.277
1	0.187	0.035	51	10.166	103.348	1.903
152	0.006	28.449	7636	0.042	19431.861	340.198

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{340,198}{\sqrt{28,449 \times 19431,861}} = 0.4576$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 11 dan No 12

Pertanyaan no 11

$$x = 148/187 = 0.7914$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.2086	0.044	51	10.166	103.348	2.121
1	0.2086	0.044	36	-4.834	23.368	-1.008
1	0.2086	0.044	41	0.166	0.028	0.035
1	0.2086	0.044	52	11.166	124.680	2.329
1	0.2086	0.044	51	10.166	103.348	2.121
1	0.2086	0.044	50	9.166	84.016	1.912
1	0.2086	0.044	46	5.166	26.688	1.078
1	0.2086	0.044	55	14.166	200.676	2.955
1	0.2086	0.044	49	8.166	66.684	1.703
0	-0.7914	0.626	31	-9.834	96.708	7.783
1	0.2086	0.044	46	5.166	26.688	1.078
1	0.2086	0.044	44	3.166	10.024	0.660
1	0.2086	0.044	40	-0.834	0.696	-0.174
1	0.2086	0.044	48	7.166	51.352	1.495
1	0.2086	0.044	31	-9.834	96.708	-2.051
1	0.2086	0.044	27	-13.834	191.380	-2.886
1	0.2086	0.044	47	6.166	38.020	1.286
1	0.2086	0.044	50	9.166	84.016	1.912
1	0.2086	0.044	55	14.166	200.676	2.955
1	0.2086	0.044	47	6.166	38.020	1.286
0	-0.7914	0.626	16	-24.834	616.728	19.654
1	0.2086	0.044	42	1.166	1.360	0.243
1	0.2086	0.044	42	1.166	1.360	0.243
0	-0.7914	0.626	43	2.166	4.692	-1.714

Pertanyaan no 12

$$x = 128/187 = 0.685$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.316	0.100	51	10.166	103.348	3.207
0	-0.685	0.469	36	-4.834	23.368	3.309
1	0.316	0.100	41	0.166	0.028	0.052
1	0.316	0.100	52	11.166	124.680	3.523
1	0.316	0.100	51	10.166	103.348	3.207
1	0.316	0.100	50	9.166	84.016	2.892
1	0.316	0.100	46	5.166	26.688	1.630
1	0.316	0.100	55	14.166	200.676	4.469
1	0.316	0.100	49	8.166	66.684	2.576
1	0.316	0.100	31	-9.834	96.708	-3.103
1	0.316	0.100	46	5.166	26.688	1.630
1	0.316	0.100	44	3.166	10.024	0.999
0	-0.685	0.469	40	-0.834	0.696	0.571
1	0.316	0.100	48	7.166	51.352	2.261
1	0.316	0.100	31	-9.834	96.708	-3.103
0	-0.685	0.469	27	-13.834	191.380	9.469
0	-0.685	0.469	47	6.166	38.020	-4.221
0	-0.685	0.469	50	9.166	84.016	-6.274
1	0.316	0.100	55	14.166	200.676	4.469
1	0.316	0.100	47	6.166	38.020	1.945
1	0.316	0.100	16	-24.834	616.728	-7.835
1	0.316	0.100	42	1.166	1.360	0.368
1	0.316	0.100	42	1.166	1.360	0.368
1	0.316	0.100	43	2.166	4.692	0.683

1	0.2086	0.044	43	2.166	4.692	0.452
1	0.2086	0.044	38	-2.834	8.032	-0.591
1	0.2086	0.044	36	-4.834	23.368	-1.008
1	0.2086	0.044	37	-3.834	14.700	-0.800
1	0.2086	0.044	55	14.166	200.676	2.955
1	0.2086	0.044	28	-12.834	164.712	-2.677
0	-0.7914	0.626	51	10.166	103.348	-8.045
1	0.2086	0.044	53	12.166	148.012	2.538
1	0.2086	0.044	45	4.166	17.356	0.869
0	-0.7914	0.626	33	-7.834	61.372	6.200
1	0.2086	0.044	45	4.166	17.356	0.869
1	0.2086	0.044	44	3.166	10.024	0.660
1	0.2086	0.044	44	3.166	10.024	0.660
1	0.2086	0.044	49	8.166	66.684	1.703
0	-0.7914	0.626	39	-1.834	3.364	1.451
1	0.2086	0.044	49	8.166	66.684	1.703
1	0.2086	0.044	35	-5.834	34.036	-1.217
1	0.2086	0.044	31	-9.834	96.708	-2.051
0	-0.7914	0.626	33	-7.834	61.372	6.200
1	0.2086	0.044	48	7.166	51.352	1.495
0	-0.7914	0.626	12	-28.834	831.400	22.819
1	0.2086	0.044	35	-5.834	34.036	-1.217
1	0.2086	0.044	39	-1.834	3.364	-0.383
1	0.2086	0.044	53	12.166	148.012	2.538
1	0.2086	0.044	48	7.166	51.352	1.495
1	0.2086	0.044	48	7.166	51.352	1.495
1	0.2086	0.044	40	-0.834	0.696	-0.174
1	0.2086	0.044	44	3.166	10.024	0.660
1	0.2086	0.044	46	5.166	26.688	1.078
0	-0.7914	0.626	21	-19.834	393.388	15.697
1	0.2086	0.044	45	4.166	17.356	0.869

0	-0.685	0.469	43	2.166	4.692	-1.483
0	-0.685	0.469	38	-2.834	8.032	1.940
1	0.316	0.100	36	-4.834	23.368	-1.525
1	0.316	0.100	37	-3.834	14.700	-1.210
1	0.316	0.100	55	14.166	200.676	4.469
0	-0.685	0.469	28	-12.834	164.712	8.785
0	-0.685	0.469	51	10.166	103.348	-6.959
0	-0.685	0.469	53	12.166	148.012	-8.328
1	0.316	0.100	45	4.166	17.356	1.314
1	0.316	0.100	33	-7.834	61.372	-2.472
0	-0.685	0.469	45	4.166	17.356	-2.852
1	0.316	0.100	44	3.166	10.024	0.999
1	0.316	0.100	44	3.166	10.024	0.999
1	0.316	0.100	49	8.166	66.684	2.576
0	-0.685	0.469	39	-1.834	3.364	1.255
1	0.316	0.100	49	8.166	66.684	2.576
0	-0.685	0.469	35	-5.834	34.036	3.993
1	0.316	0.100	31	-9.834	96.708	-3.103
1	0.316	0.100	33	-7.834	61.372	-2.472
0	-0.685	0.469	48	7.166	51.352	-4.905
0	-0.685	0.469	12	-28.834	831.400	19.737
0	-0.685	0.469	35	-5.834	34.036	3.993
0	-0.685	0.469	39	-1.834	3.364	1.255
1	0.316	0.100	53	12.166	148.012	3.838
1	0.316	0.100	48	7.166	51.352	2.261
1	0.316	0.100	48	7.166	51.352	2.261
1	0.316	0.100	40	-0.834	0.696	-0.263
0	-0.685	0.469	44	3.166	10.024	-2.167
1	0.316	0.100	46	5.166	26.688	1.630
1	0.316	0.100	21	-19.834	393.388	-6.258
1	0.316	0.100	45	4.166	17.356	1.314

0	-0.7914	0.626	2	-38.834	1508.080	30.733
1	0.2086	0.044	37	-3.834	14.700	-0.800
1	0.2086	0.044	34	-6.834	46.704	-1.426
1	0.2086	0.044	32	-8.834	78.040	-1.843
0	-0.7914	0.626	29	-11.834	140.044	9.365
1	0.2086	0.044	48	7.166	51.352	1.495
0	-0.7914	0.626	48	7.166	51.352	-5.671
0	-0.7914	0.626	37	-3.834	14.700	3.034
1	0.2086	0.044	53	12.166	148.012	2.538
1	0.2086	0.044	42	1.166	1.360	0.243
1	0.2086	0.044	48	7.166	51.352	1.495
1	0.2086	0.044	45	4.166	17.356	0.869
1	0.2086	0.044	52	11.166	124.680	2.329
1	0.2086	0.044	23	-17.834	318.052	-3.720
0	-0.7914	0.626	38	-2.834	8.032	2.243
1	0.2086	0.044	51	10.166	103.348	2.121
0	-0.7914	0.626	38	-2.834	8.032	2.243
0	-0.7914	0.626	29	-11.834	140.044	9.365
0	-0.7914	0.626	28	-12.834	164.712	10.157
1	0.2086	0.044	39	-1.834	3.364	-0.383
1	0.2086	0.044	33	-7.834	61.372	-1.634
1	0.2086	0.044	44	3.166	10.024	0.660
0	-0.7914	0.626	33	-7.834	61.372	6.200
1	0.2086	0.044	47	6.166	38.020	1.286
0	-0.7914	0.626	31	-9.834	96.708	7.783
1	0.2086	0.044	47	6.166	38.020	1.286
0	-0.7914	0.626	41	0.166	0.028	-0.131
1	0.2086	0.044	54	13.166	173.344	2.746
1	0.2086	0.044	48	7.166	51.352	1.495
1	0.2086	0.044	53	12.166	148.012	2.538
1	0.2086	0.044	43	2.166	4.692	0.452

0	-0.685	0.469	2	-38.834	1508.080	26.582
0	-0.685	0.469	37	-3.834	14.700	2.624
0	-0.685	0.469	34	-6.834	46.704	4.678
0	-0.685	0.469	32	-8.834	78.040	6.047
0	-0.685	0.469	29	-11.834	140.044	8.100
1	0.316	0.100	48	7.166	51.352	2.261
1	0.316	0.100	48	7.166	51.352	2.261
1	0.316	0.100	37	-3.834	14.700	-1.210
1	0.316	0.100	53	12.166	148.012	3.838
1	0.316	0.100	42	1.166	1.360	0.368
1	0.316	0.100	48	7.166	51.352	2.261
1	0.316	0.100	45	4.166	17.356	1.314
1	0.316	0.100	52	11.166	124.680	3.523
1	0.316	0.100	23	-17.834	318.052	-5.627
1	0.316	0.100	38	-2.834	8.032	-0.894
1	0.316	0.100	51	10.166	103.348	3.207
1	0.316	0.100	38	-2.834	8.032	-0.894
0	-0.685	0.469	29	-11.834	140.044	8.100
0	-0.685	0.469	28	-12.834	164.712	8.785
1	0.316	0.100	39	-1.834	3.364	-0.579
1	0.316	0.100	33	-7.834	61.372	-2.472
1	0.316	0.100	44	3.166	10.024	0.999
0	-0.685	0.469	33	-7.834	61.372	5.362
1	0.316	0.100	47	6.166	38.020	1.945
0	-0.685	0.469	31	-9.834	96.708	6.731
1	0.316	0.100	47	6.166	38.020	1.945
1	0.316	0.100	41	0.166	0.028	0.052
1	0.316	0.100	54	13.166	173.344	4.154
1	0.316	0.100	48	7.166	51.352	2.261
1	0.316	0.100	53	12.166	148.012	3.838
1	0.316	0.100	43	2.166	4.692	0.683

1	0.2086	0.044	50	9.166	84.016	1.912
1	0.2086	0.044	47	6.166	38.020	1.286
1	0.2086	0.044	42	1.166	1.360	0.243
1	0.2086	0.044	37	-3.834	14.700	-0.800
1	0.2086	0.044	41	0.166	0.028	0.035
0	-0.7914	0.626	18	-22.834	521.392	18.071
0	-0.7914	0.626	26	-14.834	220.048	11.740
1	0.2086	0.044	52	11.166	124.680	2.329
1	0.2086	0.044	44	3.166	10.024	0.660
1	0.2086	0.044	51	10.166	103.348	2.121
1	0.2086	0.044	35	-5.834	34.036	-1.217
1	0.2086	0.044	40	-0.834	0.696	-0.174
1	0.2086	0.044	47	6.166	38.020	1.286
1	0.2086	0.044	49	8.166	66.684	1.703
1	0.2086	0.044	36	-4.834	23.368	-1.008
0	-0.7914	0.626	6	-34.834	1213.408	27.568
1	0.2086	0.044	55	14.166	200.676	2.955
0	-0.7914	0.626	50	9.166	84.016	-7.254
1	0.2086	0.044	48	7.166	51.352	1.495
1	0.2086	0.044	44	3.166	10.024	0.660
1	0.2086	0.044	52	11.166	124.680	2.329
1	0.2086	0.044	46	5.166	26.688	1.078
0	-0.7914	0.626	49	8.166	66.684	-6.463
0	-0.7914	0.626	47	6.166	38.020	-4.880
1	0.2086	0.044	54	13.166	173.344	2.746
1	0.2086	0.044	25	-15.834	250.716	-3.303
1	0.2086	0.044	55	14.166	200.676	2.955
1	0.2086	0.044	55	14.166	200.676	2.955
1	0.2086	0.044	41	0.166	0.028	0.035
1	0.2086	0.044	31	-9.834	96.708	-2.051
0	-0.7914	0.626	13	-27.834	774.732	22.028

1	0.316	0.100	50	9.166	84.016	2.892
1	0.316	0.100	47	6.166	38.020	1.945
1	0.316	0.100	42	1.166	1.360	0.368
0	-0.685	0.469	37	-3.834	14.700	2.624
1	0.316	0.100	41	0.166	0.028	0.052
0	-0.685	0.469	18	-22.834	521.392	15.630
0	-0.685	0.469	26	-14.834	220.048	10.154
0	-0.685	0.469	52	11.166	124.680	-7.643
0	-0.685	0.469	44	3.166	10.024	-2.167
1	0.316	0.100	51	10.166	103.348	3.207
1	0.316	0.100	35	-5.834	34.036	-1.841
0	-0.685	0.469	40	-0.834	0.696	0.571
1	0.316	0.100	47	6.166	38.020	1.945
1	0.316	0.100	49	8.166	66.684	2.576
0	-0.685	0.469	36	-4.834	23.368	3.309
1	0.316	0.100	6	-34.834	1213.408	-10.990
1	0.316	0.100	55	14.166	200.676	4.469
0	-0.685	0.469	50	9.166	84.016	-6.274
1	0.316	0.100	48	7.166	51.352	2.261
1	0.316	0.100	44	3.166	10.024	0.999
0	-0.685	0.469	52	11.166	124.680	-7.643
1	0.316	0.100	46	5.166	26.688	1.630
1	0.316	0.100	49	8.166	66.684	2.576
1	0.316	0.100	47	6.166	38.020	1.945
1	0.316	0.100	54	13.166	173.344	4.154
0	-0.685	0.469	25	-15.834	250.716	10.838
1	0.316	0.100	55	14.166	200.676	4.469
1	0.316	0.100	55	14.166	200.676	4.469
0	-0.685	0.469	41	0.166	0.028	-0.114
1	0.316	0.100	31	-9.834	96.708	-3.103
0	-0.685	0.469	13	-27.834	774.732	19.052

1	0.2086	0.044	55	14.166	200.676	2.955
1	0.2086	0.044	45	4.166	17.356	0.869
1	0.2086	0.044	55	14.166	200.676	2.955
1	0.2086	0.044	52	11.166	124.680	2.329
1	0.2086	0.044	49	8.166	66.684	1.703
1	0.2086	0.044	42	1.166	1.360	0.243
1	0.2086	0.044	37	-3.834	14.700	-0.800
1	0.2086	0.044	24	-16.834	283.384	-3.512
0	-0.7914	0.626	21	-19.834	393.388	15.697
1	0.2086	0.044	38	-2.834	8.032	-0.591
1	0.2086	0.044	46	5.166	26.688	1.078
0	-0.7914	0.626	29	-11.834	140.044	9.365
1	0.2086	0.044	48	7.166	51.352	1.495
1	0.2086	0.044	42	1.166	1.360	0.243
1	0.2086	0.044	38	-2.834	8.032	-0.591
1	0.2086	0.044	18	-22.834	521.392	-4.763
1	0.2086	0.044	49	8.166	66.684	1.703
0	-0.7914	0.626	30	-10.834	117.376	8.574
1	0.2086	0.044	43	2.166	4.692	0.452
1	0.2086	0.044	39	-1.834	3.364	-0.383
1	0.2086	0.044	31	-9.834	96.708	-2.051
1	0.2086	0.044	28	-12.834	164.712	-2.677
1	0.2086	0.044	48	7.166	51.352	1.495
1	0.2086	0.044	47	6.166	38.020	1.286
1	0.2086	0.044	37	-3.834	14.700	-0.800
1	0.2086	0.044	40	-0.834	0.696	-0.174
1	0.2086	0.044	49	8.166	66.684	1.703
1	0.2086	0.044	32	-8.834	78.040	-1.843
1	0.2086	0.044	47	6.166	38.020	1.286
1	0.2086	0.044	32	-8.834	78.040	-1.843
0	-0.7914	0.626	29	-11.834	140.044	9.365

1	0.316	0.100	55	14.166	200.676	4.469
1	0.316	0.100	45	4.166	17.356	1.314
1	0.316	0.100	55	14.166	200.676	4.469
0	-0.685	0.469	52	11.166	124.680	-7.643
1	0.316	0.100	49	8.166	66.684	2.576
0	-0.685	0.469	42	1.166	1.360	-0.798
1	0.316	0.100	37	-3.834	14.700	-1.210
1	0.316	0.100	24	-16.834	283.384	-5.311
0	-0.685	0.469	21	-19.834	393.388	13.576
1	0.316	0.100	38	-2.834	8.032	-0.894
1	0.316	0.100	46	5.166	26.688	1.630
0	-0.685	0.469	29	-11.834	140.044	8.100
1	0.316	0.100	48	7.166	51.352	2.261
1	0.316	0.100	42	1.166	1.360	0.368
1	0.316	0.100	38	-2.834	8.032	-0.894
0	-0.685	0.469	18	-22.834	521.392	15.630
1	0.316	0.100	49	8.166	66.684	2.576
1	0.316	0.100	30	-10.834	117.376	-3.418
0	-0.685	0.469	43	2.166	4.692	-1.483
1	0.316	0.100	39	-1.834	3.364	-0.579
0	-0.685	0.469	31	-9.834	96.708	6.731
1	0.316	0.100	28	-12.834	164.712	-4.049
1	0.316	0.100	48	7.166	51.352	2.261
1	0.316	0.100	47	6.166	38.020	1.945
1	0.316	0.100	37	-3.834	14.700	-1.210
1	0.316	0.100	40	-0.834	0.696	-0.263
1	0.316	0.100	49	8.166	66.684	2.576
1	0.316	0.100	32	-8.834	78.040	-2.787
1	0.316	0.100	47	6.166	38.020	1.945
1	0.316	0.100	32	-8.834	78.040	-2.787
1	0.316	0.100	29	-11.834	140.044	-3.734

1	0.2086	0.044	23	-17.834	318.052	-3.720
1	0.2086	0.044	41	0.166	0.028	0.035
1	0.2086	0.044	41	0.166	0.028	0.035
1	0.2086	0.044	51	10.166	103.348	2.121
1	0.2086	0.044	29	-11.834	140.044	-2.469
0	-0.7914	0.626	37	-3.834	14.700	3.034
0	-0.7914	0.626	37	-3.834	14.700	3.034
1	0.2086	0.044	36	-4.834	23.368	-1.008
1	0.2086	0.044	40	-0.834	0.696	-0.174
1	0.2086	0.044	50	9.166	84.016	1.912
1	0.2086	0.044	38	-2.834	8.032	-0.591
1	0.2086	0.044	40	-0.834	0.696	-0.174
1	0.2086	0.044	36	-4.834	23.368	-1.008
0	-0.7914	0.626	20	-20.834	434.056	16.488
1	0.2086	0.044	47	6.166	38.020	1.286
1	0.2086	0.044	54	13.166	173.344	2.746
1	0.2086	0.044	50	9.166	84.016	1.912
0	-0.7914	0.626	25	-15.834	250.716	12.531
1	0.2086	0.044	53	12.166	148.012	2.538
0	-0.7914	0.626	44	3.166	10.024	-2.506
0	-0.7914	0.626	26	-14.834	220.048	11.740
0	-0.7914	0.626	33	-7.834	61.372	6.200
1	0.2086	0.044	36	-4.834	23.368	-1.008
1	0.2086	0.044	39	-1.834	3.364	-0.383
1	0.2086	0.044	46	5.166	26.688	1.078
1	0.2086	0.044	36	-4.834	23.368	-1.008
1	0.2086	0.044	54	13.166	173.344	2.746
1	0.2086	0.044	36	-4.834	23.368	-1.008
0	-0.7914	0.626	44	3.166	10.024	-2.506
1	0.2086	0.044	40	-0.834	0.696	-0.174
1	0.2086	0.044	38	-2.834	8.032	-0.591

0	-0.685	0.469	23	-17.834	318.052	12.207
1	0.316	0.100	41	0.166	0.028	0.052
1	0.316	0.100	41	0.166	0.028	0.052
1	0.316	0.100	51	10.166	103.348	3.207
1	0.316	0.100	29	-11.834	140.044	-3.734
1	0.316	0.100	37	-3.834	14.700	-1.210
0	-0.685	0.469	37	-3.834	14.700	2.624
1	0.316	0.100	36	-4.834	23.368	-1.525
1	0.316	0.100	40	-0.834	0.696	-0.263
1	0.316	0.100	50	9.166	84.016	2.892
0	-0.685	0.469	38	-2.834	8.032	1.940
1	0.316	0.100	40	-0.834	0.696	-0.263
1	0.316	0.100	36	-4.834	23.368	-1.525
1	0.316	0.100	20	-20.834	434.056	-6.573
1	0.316	0.100	47	6.166	38.020	1.945
1	0.316	0.100	54	13.166	173.344	4.154
1	0.316	0.100	50	9.166	84.016	2.892
0	-0.685	0.469	25	-15.834	250.716	10.838
1	0.316	0.100	53	12.166	148.012	3.838
1	0.316	0.100	44	3.166	10.024	0.999
0	-0.685	0.469	26	-14.834	220.048	10.154
0	-0.685	0.469	33	-7.834	61.372	5.362
0	-0.685	0.469	36	-4.834	23.368	3.309
1	0.316	0.100	39	-1.834	3.364	-0.579
0	-0.685	0.469	46	5.166	26.688	-3.536
0	-0.685	0.469	36	-4.834	23.368	3.309
1	0.316	0.100	54	13.166	173.344	4.154
1	0.316	0.100	36	-4.834	23.368	-1.525
0	-0.685	0.469	44	3.166	10.024	-2.167
1	0.316	0.100	40	-0.834	0.696	-0.263
1	0.316	0.100	38	-2.834	8.032	-0.894

1	0.2086	0.044	35	-5.834	34.036	-1.217
1	0.2086	0.044	46	5.166	26.688	1.078
1	0.2086	0.044	49	8.166	66.684	1.703
1	0.2086	0.044	48	7.166	51.352	1.495
1	0.2086	0.044	41	0.166	0.028	0.035
1	0.2086	0.044	53	12.166	148.012	2.538
1	0.2086	0.044	53	12.166	148.012	2.538
1	0.2086	0.044	51	10.166	103.348	2.121
148	0.0082	30.866	7636	0.042	19431.861	375.535

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{375,535}{\sqrt{30,886 \times 19431,861}} = 0.4849$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

0	-0.685	0.469	35	-5.834	34.036	3.993
0	-0.685	0.469	46	5.166	26.688	-3.536
1	0.316	0.100	49	8.166	66.684	2.576
1	0.316	0.100	48	7.166	51.352	2.261
1	0.316	0.100	41	0.166	0.028	0.052
1	0.316	0.100	53	12.166	148.012	3.838
0	-0.685	0.469	53	12.166	148.012	-8.328
1	0.316	0.100	51	10.166	103.348	3.207
128	-0.001	40.385	7636	0.042	19431.861	296.219

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{296,219}{\sqrt{40,385 \times 19431,861}} = 0.3344$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 13 dan No 14

Pertanyaan no 13

$$x = 137/187 = 0.7326$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.267	0.072	51	10.166	103.348	2.718
1	0.267	0.072	36	-4.834	23.368	-1.293
1	0.267	0.072	41	0.166	0.028	0.044
1	0.267	0.072	52	11.166	124.680	2.986
1	0.267	0.072	51	10.166	103.348	2.718
1	0.267	0.072	50	9.166	84.016	2.451
1	0.267	0.072	46	5.166	26.688	1.381
1	0.267	0.072	55	14.166	200.676	3.788
1	0.267	0.072	49	8.166	66.684	2.184
1	0.267	0.072	31	-9.834	96.708	-2.630
1	0.267	0.072	46	5.166	26.688	1.381
1	0.267	0.072	44	3.166	10.024	0.847
1	0.267	0.072	40	-0.834	0.696	-0.223
1	0.267	0.072	48	7.166	51.352	1.916
0	-0.733	0.537	31	-9.834	96.708	7.204
0	-0.733	0.537	27	-13.834	191.380	10.135
0	-0.733	0.537	47	6.166	38.020	-4.517
1	0.267	0.072	50	9.166	84.016	2.451
1	0.267	0.072	55	14.166	200.676	3.788
1	0.267	0.072	47	6.166	38.020	1.649
1	0.267	0.072	16	-24.834	616.728	-6.641
1	0.267	0.072	42	1.166	1.360	0.312
1	0.267	0.072	42	1.166	1.360	0.312
1	0.267	0.072	43	2.166	4.692	0.579

Pertanyaan no 14

$$x = 158/187 = 0.8449$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.155	0.024	51	10.166	103.348	1.577
1	0.155	0.024	36	-4.834	23.368	-0.750
1	0.155	0.024	41	0.166	0.028	0.026
1	0.155	0.024	52	11.166	124.680	1.732
1	0.155	0.024	51	10.166	103.348	1.577
1	0.155	0.024	50	9.166	84.016	1.422
1	0.155	0.024	46	5.166	26.688	0.801
1	0.155	0.024	55	14.166	200.676	2.197
1	0.155	0.024	49	8.166	66.684	1.267
1	0.155	0.024	31	-9.834	96.708	-1.525
1	0.155	0.024	46	5.166	26.688	0.801
1	0.155	0.024	44	3.166	10.024	0.491
1	0.155	0.024	40	-0.834	0.696	-0.129
1	0.155	0.024	48	7.166	51.352	1.111
0	-0.845	0.714	31	-9.834	96.708	8.309
1	0.155	0.024	27	-13.834	191.380	-2.146
1	0.155	0.024	47	6.166	38.020	0.956
1	0.155	0.024	50	9.166	84.016	1.422
1	0.155	0.024	55	14.166	200.676	2.197
1	0.155	0.024	47	6.166	38.020	0.956
0	-0.845	0.714	16	-24.834	616.728	20.982
1	0.155	0.024	42	1.166	1.360	0.181
1	0.155	0.024	42	1.166	1.360	0.181
1	0.155	0.024	43	2.166	4.692	0.336

0	-0.733	0.537	43	2.166	4.692	-1.587
1	0.267	0.072	38	-2.834	8.032	-0.758
1	0.267	0.072	36	-4.834	23.368	-1.293
1	0.267	0.072	37	-3.834	14.700	-1.025
1	0.267	0.072	55	14.166	200.676	3.788
0	-0.733	0.537	28	-12.834	164.712	9.402
0	-0.733	0.537	51	10.166	103.348	-7.448
0	-0.733	0.537	53	12.166	148.012	-8.913
1	0.267	0.072	45	4.166	17.356	1.114
0	-0.733	0.537	33	-7.834	61.372	5.739
0	-0.733	0.537	45	4.166	17.356	-3.052
1	0.267	0.072	44	3.166	10.024	0.847
1	0.267	0.072	44	3.166	10.024	0.847
1	0.267	0.072	49	8.166	66.684	2.184
1	0.267	0.072	39	-1.834	3.364	-0.490
1	0.267	0.072	49	8.166	66.684	2.184
0	-0.733	0.537	35	-5.834	34.036	4.274
1	0.267	0.072	31	-9.834	96.708	-2.630
1	0.267	0.072	33	-7.834	61.372	-2.095
1	0.267	0.072	48	7.166	51.352	1.916
0	-0.733	0.537	12	-28.834	831.400	21.124
1	0.267	0.072	35	-5.834	34.036	-1.560
0	-0.733	0.537	39	-1.834	3.364	1.344
1	0.267	0.072	53	12.166	148.012	3.253
1	0.267	0.072	48	7.166	51.352	1.916
1	0.267	0.072	48	7.166	51.352	1.916
1	0.267	0.072	40	-0.834	0.696	-0.223
1	0.267	0.072	44	3.166	10.024	0.847
1	0.267	0.072	46	5.166	26.688	1.381
1	0.267	0.072	21	-19.834	393.388	-5.304
0	-0.733	0.537	45	4.166	17.356	-3.052

1	0.155	0.024	43	2.166	4.692	0.336
1	0.155	0.024	38	-2.834	8.032	-0.440
1	0.155	0.024	36	-4.834	23.368	-0.750
0	-0.845	0.714	37	-3.834	14.700	3.239
1	0.155	0.024	55	14.166	200.676	2.197
0	-0.845	0.714	28	-12.834	164.712	10.843
1	0.155	0.024	51	10.166	103.348	1.577
1	0.155	0.024	53	12.166	148.012	1.887
1	0.155	0.024	45	4.166	17.356	0.646
0	-0.845	0.714	33	-7.834	61.372	6.619
1	0.155	0.024	45	4.166	17.356	0.646
1	0.155	0.024	44	3.166	10.024	0.491
1	0.155	0.024	44	3.166	10.024	0.491
1	0.155	0.024	49	8.166	66.684	1.267
1	0.155	0.024	39	-1.834	3.364	-0.284
1	0.155	0.024	49	8.166	66.684	1.267
0	-0.845	0.714	35	-5.834	34.036	4.929
1	0.155	0.024	31	-9.834	96.708	-1.525
1	0.155	0.024	33	-7.834	61.372	-1.215
1	0.155	0.024	48	7.166	51.352	1.111
0	-0.845	0.714	12	-28.834	831.400	24.362
0	-0.845	0.714	35	-5.834	34.036	4.929
1	0.155	0.024	39	-1.834	3.364	-0.284
1	0.155	0.024	53	12.166	148.012	1.887
1	0.155	0.024	48	7.166	51.352	1.111
1	0.155	0.024	48	7.166	51.352	1.111
1	0.155	0.024	40	-0.834	0.696	-0.129
1	0.155	0.024	44	3.166	10.024	0.491
1	0.155	0.024	46	5.166	26.688	0.801
0	-0.845	0.714	21	-19.834	393.388	16.758
1	0.155	0.024	45	4.166	17.356	0.646

0	-0.733	0.537	2	-38.834	1508.080	28.450
0	-0.733	0.537	37	-3.834	14.700	2.809
1	0.267	0.072	34	-6.834	46.704	-1.827
0	-0.733	0.537	32	-8.834	78.040	6.472
0	-0.733	0.537	29	-11.834	140.044	8.670
1	0.267	0.072	48	7.166	51.352	1.916
0	-0.733	0.537	48	7.166	51.352	-5.250
1	0.267	0.072	37	-3.834	14.700	-1.025
1	0.267	0.072	53	12.166	148.012	3.253
1	0.267	0.072	42	1.166	1.360	0.312
1	0.267	0.072	48	7.166	51.352	1.916
1	0.267	0.072	45	4.166	17.356	1.114
1	0.267	0.072	52	11.166	124.680	2.986
1	0.267	0.072	23	-17.834	318.052	-4.769
1	0.267	0.072	38	-2.834	8.032	-0.758
1	0.267	0.072	51	10.166	103.348	2.718
1	0.267	0.072	38	-2.834	8.032	-0.758
1	0.267	0.072	29	-11.834	140.044	-3.164
0	-0.733	0.537	28	-12.834	164.712	9.402
1	0.267	0.072	39	-1.834	3.364	-0.490
1	0.267	0.072	33	-7.834	61.372	-2.095
1	0.267	0.072	44	3.166	10.024	0.847
0	-0.733	0.537	33	-7.834	61.372	5.739
1	0.267	0.072	47	6.166	38.020	1.649
1	0.267	0.072	31	-9.834	96.708	-2.630
1	0.267	0.072	47	6.166	38.020	1.649
1	0.267	0.072	41	0.166	0.028	0.044
1	0.267	0.072	54	13.166	173.344	3.521
1	0.267	0.072	48	7.166	51.352	1.916
1	0.267	0.072	53	12.166	148.012	3.253
1	0.267	0.072	43	2.166	4.692	0.579

0	-0.845	0.714	2	-38.834	1508.080	32.811
1	0.155	0.024	37	-3.834	14.700	-0.595
1	0.155	0.024	34	-6.834	46.704	-1.060
1	0.155	0.024	32	-8.834	78.040	-1.370
0	-0.845	0.714	29	-11.834	140.044	9.999
1	0.155	0.024	48	7.166	51.352	1.111
1	0.155	0.024	48	7.166	51.352	1.111
1	0.155	0.024	37	-3.834	14.700	-0.595
1	0.155	0.024	53	12.166	148.012	1.887
1	0.155	0.024	42	1.166	1.360	0.181
1	0.155	0.024	48	7.166	51.352	1.111
1	0.155	0.024	45	4.166	17.356	0.646
1	0.155	0.024	52	11.166	124.680	1.732
1	0.155	0.024	23	-17.834	318.052	-2.766
1	0.155	0.024	38	-2.834	8.032	-0.440
1	0.155	0.024	51	10.166	103.348	1.577
0	-0.845	0.714	38	-2.834	8.032	2.394
1	0.155	0.024	29	-11.834	140.044	-1.835
1	0.155	0.024	28	-12.834	164.712	-1.991
0	-0.845	0.714	39	-1.834	3.364	1.550
1	0.155	0.024	33	-7.834	61.372	-1.215
1	0.155	0.024	44	3.166	10.024	0.491
1	0.155	0.024	33	-7.834	61.372	-1.215
1	0.155	0.024	47	6.166	38.020	0.956
0	-0.845	0.714	31	-9.834	96.708	8.309
1	0.155	0.024	47	6.166	38.020	0.956
1	0.155	0.024	41	0.166	0.028	0.026
1	0.155	0.024	54	13.166	173.344	2.042
1	0.155	0.024	48	7.166	51.352	1.111
1	0.155	0.024	53	12.166	148.012	1.887
0	-0.845	0.714	43	2.166	4.692	-1.830

1	0.267	0.072	50	9.166	84.016	2.451
1	0.267	0.072	47	6.166	38.020	1.649
1	0.267	0.072	42	1.166	1.360	0.312
0	-0.733	0.537	37	-3.834	14.700	2.809
1	0.267	0.072	41	0.166	0.028	0.044
0	-0.733	0.537	18	-22.834	521.392	16.728
0	-0.733	0.537	26	-14.834	220.048	10.867
1	0.267	0.072	52	11.166	124.680	2.986
1	0.267	0.072	44	3.166	10.024	0.847
1	0.267	0.072	51	10.166	103.348	2.718
1	0.267	0.072	35	-5.834	34.036	-1.560
0	-0.733	0.537	40	-0.834	0.696	0.611
0	-0.733	0.537	47	6.166	38.020	-4.517
1	0.267	0.072	49	8.166	66.684	2.184
0	-0.733	0.537	36	-4.834	23.368	3.541
0	-0.733	0.537	6	-34.834	1213.408	25.519
1	0.267	0.072	55	14.166	200.676	3.788
0	-0.733	0.537	50	9.166	84.016	-6.715
1	0.267	0.072	48	7.166	51.352	1.916
1	0.267	0.072	44	3.166	10.024	0.847
0	-0.733	0.537	52	11.166	124.680	-8.180
0	-0.733	0.537	46	5.166	26.688	-3.785
1	0.267	0.072	49	8.166	66.684	2.184
0	-0.733	0.537	47	6.166	38.020	-4.517
1	0.267	0.072	54	13.166	173.344	3.521
0	-0.733	0.537	25	-15.834	250.716	11.600
1	0.267	0.072	55	14.166	200.676	3.788
1	0.267	0.072	55	14.166	200.676	3.788
1	0.267	0.072	41	0.166	0.028	0.044
1	0.267	0.072	31	-9.834	96.708	-2.630
0	-0.733	0.537	13	-27.834	774.732	20.391

1	0.155	0.024	50	9.166	84.016	1.422
1	0.155	0.024	47	6.166	38.020	0.956
1	0.155	0.024	42	1.166	1.360	0.181
1	0.155	0.024	37	-3.834	14.700	-0.595
1	0.155	0.024	41	0.166	0.028	0.026
0	-0.845	0.714	18	-22.834	521.392	19.292
0	-0.845	0.714	26	-14.834	220.048	12.533
1	0.155	0.024	52	11.166	124.680	1.732
1	0.155	0.024	44	3.166	10.024	0.491
1	0.155	0.024	51	10.166	103.348	1.577
1	0.155	0.024	35	-5.834	34.036	-0.905
0	-0.845	0.714	40	-0.834	0.696	0.705
1	0.155	0.024	47	6.166	38.020	0.956
1	0.155	0.024	49	8.166	66.684	1.267
1	0.155	0.024	36	-4.834	23.368	-0.750
0	-0.845	0.714	6	-34.834	1213.408	29.431
1	0.155	0.024	55	14.166	200.676	2.197
1	0.155	0.024	50	9.166	84.016	1.422
1	0.155	0.024	48	7.166	51.352	1.111
1	0.155	0.024	44	3.166	10.024	0.491
1	0.155	0.024	52	11.166	124.680	1.732
1	0.155	0.024	46	5.166	26.688	0.801
1	0.155	0.024	49	8.166	66.684	1.267
1	0.155	0.024	47	6.166	38.020	0.956
1	0.155	0.024	54	13.166	173.344	2.042
0	-0.845	0.714	25	-15.834	250.716	13.378
1	0.155	0.024	55	14.166	200.676	2.197
1	0.155	0.024	55	14.166	200.676	2.197
1	0.155	0.024	41	0.166	0.028	0.026
1	0.155	0.024	31	-9.834	96.708	-1.525
0	-0.845	0.714	13	-27.834	774.732	23.517

1	0.267	0.072	55	14.166	200.676	3.788
1	0.267	0.072	45	4.166	17.356	1.114
1	0.267	0.072	55	14.166	200.676	3.788
0	-0.733	0.537	52	11.166	124.680	-8.180
1	0.267	0.072	49	8.166	66.684	2.184
1	0.267	0.072	42	1.166	1.360	0.312
1	0.267	0.072	37	-3.834	14.700	-1.025
1	0.267	0.072	24	-16.834	283.384	-4.501
1	0.267	0.072	21	-19.834	393.388	-5.304
1	0.267	0.072	38	-2.834	8.032	-0.758
1	0.267	0.072	46	5.166	26.688	1.381
0	-0.733	0.537	29	-11.834	140.044	8.670
1	0.267	0.072	48	7.166	51.352	1.916
1	0.267	0.072	42	1.166	1.360	0.312
1	0.267	0.072	38	-2.834	8.032	-0.758
1	0.267	0.072	18	-22.834	521.392	-6.106
1	0.267	0.072	49	8.166	66.684	2.184
0	-0.733	0.537	30	-10.834	117.376	7.937
0	-0.733	0.537	43	2.166	4.692	-1.587
1	0.267	0.072	39	-1.834	3.364	-0.490
0	-0.733	0.537	31	-9.834	96.708	7.204
1	0.267	0.072	28	-12.834	164.712	-3.432
1	0.267	0.072	48	7.166	51.352	1.916
1	0.267	0.072	47	6.166	38.020	1.649
1	0.267	0.072	37	-3.834	14.700	-1.025
1	0.267	0.072	40	-0.834	0.696	-0.223
1	0.267	0.072	49	8.166	66.684	2.184
0	-0.733	0.537	32	-8.834	78.040	6.472
1	0.267	0.072	47	6.166	38.020	1.649
1	0.267	0.072	32	-8.834	78.040	-2.362
1	0.267	0.072	29	-11.834	140.044	-3.164

1	0.155	0.024	55	14.166	200.676	2.197
1	0.155	0.024	45	4.166	17.356	0.646
1	0.155	0.024	55	14.166	200.676	2.197
1	0.155	0.024	52	11.166	124.680	1.732
1	0.155	0.024	49	8.166	66.684	1.267
1	0.155	0.024	42	1.166	1.360	0.181
1	0.155	0.024	37	-3.834	14.700	-0.595
0	-0.845	0.714	24	-16.834	283.384	14.223
1	0.155	0.024	21	-19.834	393.388	-3.076
1	0.155	0.024	38	-2.834	8.032	-0.440
1	0.155	0.024	46	5.166	26.688	0.801
1	0.155	0.024	29	-11.834	140.044	-1.835
1	0.155	0.024	48	7.166	51.352	1.111
1	0.155	0.024	42	1.166	1.360	0.181
1	0.155	0.024	38	-2.834	8.032	-0.440
1	0.155	0.024	18	-22.834	521.392	-3.542
1	0.155	0.024	49	8.166	66.684	1.267
1	0.155	0.024	30	-10.834	117.376	-1.680
1	0.155	0.024	43	2.166	4.692	0.336
1	0.155	0.024	39	-1.834	3.364	-0.284
1	0.155	0.024	31	-9.834	96.708	-1.525
1	0.155	0.024	28	-12.834	164.712	-1.991
1	0.155	0.024	48	7.166	51.352	1.111
1	0.155	0.024	47	6.166	38.020	0.956
1	0.155	0.024	37	-3.834	14.700	-0.595
1	0.155	0.024	40	-0.834	0.696	-0.129
0	-0.845	0.714	49	8.166	66.684	-6.899
1	0.155	0.024	32	-8.834	78.040	-1.370
1	0.155	0.024	47	6.166	38.020	0.956
1	0.155	0.024	32	-8.834	78.040	-1.370
1	0.155	0.024	29	-11.834	140.044	-1.835

1	0.267	0.072	23	-17.834	318.052	-4.769
0	-0.733	0.537	41	0.166	0.028	-0.122
1	0.267	0.072	41	0.166	0.028	0.044
1	0.267	0.072	51	10.166	103.348	2.718
1	0.267	0.072	29	-11.834	140.044	-3.164
1	0.267	0.072	37	-3.834	14.700	-1.025
0	-0.733	0.537	37	-3.834	14.700	2.809
1	0.267	0.072	36	-4.834	23.368	-1.293
1	0.267	0.072	40	-0.834	0.696	-0.223
1	0.267	0.072	50	9.166	84.016	2.451
1	0.267	0.072	38	-2.834	8.032	-0.758
1	0.267	0.072	40	-0.834	0.696	-0.223
1	0.267	0.072	36	-4.834	23.368	-1.293
0	-0.733	0.537	20	-20.834	434.056	15.263
1	0.267	0.072	47	6.166	38.020	1.649
1	0.267	0.072	54	13.166	173.344	3.521
1	0.267	0.072	50	9.166	84.016	2.451
0	-0.733	0.537	25	-15.834	250.716	11.600
1	0.267	0.072	53	12.166	148.012	3.253
1	0.267	0.072	44	3.166	10.024	0.847
0	-0.733	0.537	26	-14.834	220.048	10.867
0	-0.733	0.537	33	-7.834	61.372	5.739
0	-0.733	0.537	36	-4.834	23.368	3.541
1	0.267	0.072	39	-1.834	3.364	-0.490
0	-0.733	0.537	46	5.166	26.688	-3.785
1	0.267	0.072	36	-4.834	23.368	-1.293
1	0.267	0.072	54	13.166	173.344	3.521
1	0.267	0.072	36	-4.834	23.368	-1.293
0	-0.733	0.537	44	3.166	10.024	-2.319
1	0.267	0.072	40	-0.834	0.696	-0.223
1	0.267	0.072	38	-2.834	8.032	-0.758

1	0.155	0.024	23	-17.834	318.052	-2.766
1	0.155	0.024	41	0.166	0.028	0.026
1	0.155	0.024	41	0.166	0.028	0.026
1	0.155	0.024	51	10.166	103.348	1.577
1	0.155	0.024	29	-11.834	140.044	-1.835
0	-0.845	0.714	37	-3.834	14.700	3.239
1	0.155	0.024	37	-3.834	14.700	-0.595
1	0.155	0.024	36	-4.834	23.368	-0.750
1	0.155	0.024	40	-0.834	0.696	-0.129
1	0.155	0.024	50	9.166	84.016	1.422
1	0.155	0.024	38	-2.834	8.032	-0.440
1	0.155	0.024	40	-0.834	0.696	-0.129
1	0.155	0.024	36	-4.834	23.368	-0.750
1	0.155	0.024	20	-20.834	434.056	-3.231
1	0.155	0.024	47	6.166	38.020	0.956
1	0.155	0.024	54	13.166	173.344	2.042
1	0.155	0.024	50	9.166	84.016	1.422
0	-0.845	0.714	25	-15.834	250.716	13.378
1	0.155	0.024	53	12.166	148.012	1.887
1	0.155	0.024	44	3.166	10.024	0.491
1	0.155	0.024	26	-14.834	220.048	-2.301
0	-0.845	0.714	33	-7.834	61.372	6.619
1	0.155	0.024	36	-4.834	23.368	-0.750
1	0.155	0.024	39	-1.834	3.364	-0.284
1	0.155	0.024	46	5.166	26.688	0.801
0	-0.845	0.714	36	-4.834	23.368	4.084
1	0.155	0.024	54	13.166	173.344	2.042
1	0.155	0.024	36	-4.834	23.368	-0.750
1	0.155	0.024	44	3.166	10.024	0.491
1	0.155	0.024	40	-0.834	0.696	-0.129
1	0.155	0.024	38	-2.834	8.032	-0.440

0	-0.733	0.537	35	-5.834	34.036	4.274
0	-0.733	0.537	46	5.166	26.688	-3.785
1	0.267	0.072	49	8.166	66.684	2.184
1	0.267	0.072	48	7.166	51.352	1.916
1	0.267	0.072	41	0.166	0.028	0.044
1	0.267	0.072	53	12.166	148.012	3.253
1	0.267	0.072	53	12.166	148.012	3.253
1	0.267	0.072	51	10.166	103.348	2.718
137	0.004	36.631	7636	0.042	19431.861	294.711

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$

$$= \frac{294,711}{\sqrt{36,631 \times 19431,861}} = 0.3493$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

0	-0.845	0.714	35	-5.834	34.036	4.929
1	0.155	0.024	46	5.166	26.688	0.801
1	0.155	0.024	49	8.166	66.684	1.267
1	0.155	0.024	48	7.166	51.352	1.111
0	-0.845	0.714	41	0.166	0.028	-0.140
1	0.155	0.024	53	12.166	148.012	1.887
1	0.155	0.024	53	12.166	148.012	1.887
1	0.155	0.024	51	10.166	103.348	1.577
158	0.004	24.503	7636	0.042	19431.861	346.193

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$

$$= \frac{346,193}{\sqrt{24,503 \times 19431,861}} = 0.5017$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 15 dan No 16

Pertanyaan no 15

$$x = 154/187 = 0.8235$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.1765	0.031	51	10.166	103.348	1.794
1	0.1765	0.031	36	-4.834	23.368	-0.853
1	0.1765	0.031	41	0.166	0.028	0.029
1	0.1765	0.031	52	11.166	124.680	1.971
1	0.1765	0.031	51	10.166	103.348	1.794
1	0.1765	0.031	50	9.166	84.016	1.618
1	0.1765	0.031	46	5.166	26.688	0.912
1	0.1765	0.031	55	14.166	200.676	2.500
1	0.1765	0.031	49	8.166	66.684	1.441
1	0.1765	0.031	31	-9.834	96.708	-1.736
1	0.1765	0.031	46	5.166	26.688	0.912
1	0.1765	0.031	44	3.166	10.024	0.559
1	0.1765	0.031	40	-0.834	0.696	-0.147
1	0.1765	0.031	48	7.166	51.352	1.265
1	0.1765	0.031	31	-9.834	96.708	-1.736
1	0.1765	0.031	27	-13.834	191.380	-2.442
1	0.1765	0.031	47	6.166	38.020	1.088
1	0.1765	0.031	50	9.166	84.016	1.618
1	0.1765	0.031	55	14.166	200.676	2.500
1	0.1765	0.031	47	6.166	38.020	1.088
0	-0.8235	0.678	16	-24.834	616.728	20.451
1	0.1765	0.031	42	1.166	1.360	0.206
1	0.1765	0.031	42	1.166	1.360	0.206
1	0.1765	0.031	43	2.166	4.692	0.382

Pertanyaan no 16

$$x = 131/187 = 0.7005$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.300	0.090	51	10.17	103.35	3.045
0	-0.701	0.491	36	-4.83	23.37	3.386
0	-0.701	0.491	41	0.17	0.03	-0.116
1	0.300	0.090	52	11.17	124.68	3.344
0	-0.701	0.491	51	10.17	103.35	-7.121
1	0.300	0.090	50	9.17	84.02	2.745
1	0.300	0.090	46	5.17	26.69	1.547
1	0.300	0.090	55	14.17	200.68	4.243
1	0.300	0.090	49	8.17	66.68	2.446
1	0.300	0.090	31	-9.83	96.71	-2.945
1	0.300	0.090	46	5.17	26.69	1.547
1	0.300	0.090	44	3.17	10.02	0.948
1	0.300	0.090	40	-0.83	0.70	-0.250
1	0.300	0.090	48	7.17	51.35	2.146
0	-0.701	0.491	31	-9.83	96.71	6.889
1	0.300	0.090	27	-13.83	191.38	-4.143
1	0.300	0.090	47	6.17	38.02	1.847
1	0.300	0.090	50	9.17	84.02	2.745
1	0.300	0.090	55	14.17	200.68	4.243
1	0.300	0.090	47	6.17	38.02	1.847
0	-0.701	0.491	16	-24.83	616.73	17.396
1	0.300	0.090	42	1.17	1.36	0.349
1	0.300	0.090	42	1.17	1.36	0.349
1	0.300	0.090	43	2.17	4.69	0.649

1	0.1765	0.031	43	2.166	4.692	0.382
0	-0.8235	0.678	38	-2.834	8.032	2.334
1	0.1765	0.031	36	-4.834	23.368	-0.853
0	-0.8235	0.678	37	-3.834	14.700	3.157
1	0.1765	0.031	55	14.166	200.676	2.500
1	0.1765	0.031	28	-12.834	164.712	-2.265
1	0.1765	0.031	51	10.166	103.348	1.794
1	0.1765	0.031	53	12.166	148.012	2.147
1	0.1765	0.031	45	4.166	17.356	0.735
0	-0.8235	0.678	33	-7.834	61.372	6.451
1	0.1765	0.031	45	4.166	17.356	0.735
1	0.1765	0.031	44	3.166	10.024	0.559
1	0.1765	0.031	44	3.166	10.024	0.559
1	0.1765	0.031	49	8.166	66.684	1.441
0	-0.8235	0.678	39	-1.834	3.364	1.510
1	0.1765	0.031	49	8.166	66.684	1.441
0	-0.8235	0.678	35	-5.834	34.036	4.804
1	0.1765	0.031	31	-9.834	96.708	-1.736
1	0.1765	0.031	33	-7.834	61.372	-1.383
0	-0.8235	0.678	48	7.166	51.352	-5.901
0	-0.8235	0.678	12	-28.834	831.400	23.745
0	-0.8235	0.678	35	-5.834	34.036	4.804
1	0.1765	0.031	39	-1.834	3.364	-0.324
1	0.1765	0.031	53	12.166	148.012	2.147
1	0.1765	0.031	48	7.166	51.352	1.265
1	0.1765	0.031	48	7.166	51.352	1.265
1	0.1765	0.031	40	-0.834	0.696	-0.147
1	0.1765	0.031	44	3.166	10.024	0.559
1	0.1765	0.031	46	5.166	26.688	0.912
1	0.1765	0.031	21	-19.834	393.388	-3.501
1	0.1765	0.031	45	4.166	17.356	0.735

1	0.300	0.090	43	2.17	4.69	0.649
1	0.300	0.090	38	-2.83	8.03	-0.849
1	0.300	0.090	36	-4.83	23.37	-1.448
1	0.300	0.090	37	-3.83	14.70	-1.148
1	0.300	0.090	55	14.17	200.68	4.243
1	0.300	0.090	28	-12.83	164.71	-3.844
1	0.300	0.090	51	10.17	103.35	3.045
1	0.300	0.090	53	12.17	148.01	3.644
0	-0.701	0.491	45	4.17	17.36	-2.918
1	0.300	0.090	33	-7.83	61.37	-2.346
1	0.300	0.090	45	4.17	17.36	1.248
0	-0.701	0.491	44	3.17	10.02	-2.218
0	-0.701	0.491	44	3.17	10.02	-2.218
1	0.300	0.090	49	8.17	66.68	2.446
1	0.300	0.090	39	-1.83	3.36	-0.549
0	-0.701	0.491	49	8.17	66.68	-5.720
0	-0.701	0.491	35	-5.83	34.04	4.087
1	0.300	0.090	31	-9.83	96.71	-2.945
1	0.300	0.090	33	-7.83	61.37	-2.346
1	0.300	0.090	48	7.17	51.35	2.146
0	-0.701	0.491	12	-28.83	831.40	20.198
1	0.300	0.090	35	-5.83	34.04	-1.747
1	0.300	0.090	39	-1.83	3.36	-0.549
1	0.300	0.090	53	12.17	148.01	3.644
1	0.300	0.090	48	7.17	51.35	2.146
1	0.300	0.090	48	7.17	51.35	2.146
1	0.300	0.090	40	-0.83	0.70	-0.250
1	0.300	0.090	44	3.17	10.02	0.948
1	0.300	0.090	46	5.17	26.69	1.547
0	-0.701	0.491	21	-19.83	393.39	13.894
1	0.300	0.090	45	4.17	17.36	1.248

0	-0.8235	0.678	2	-38.834	1508.080	31.980
1	0.1765	0.031	37	-3.834	14.700	-0.677
1	0.1765	0.031	34	-6.834	46.704	-1.206
1	0.1765	0.031	32	-8.834	78.040	-1.559
0	-0.8235	0.678	29	-11.834	140.044	9.745
1	0.1765	0.031	48	7.166	51.352	1.265
1	0.1765	0.031	48	7.166	51.352	1.265
1	0.1765	0.031	37	-3.834	14.700	-0.677
1	0.1765	0.031	53	12.166	148.012	2.147
1	0.1765	0.031	42	1.166	1.360	0.206
1	0.1765	0.031	48	7.166	51.352	1.265
1	0.1765	0.031	45	4.166	17.356	0.735
1	0.1765	0.031	52	11.166	124.680	1.971
1	0.1765	0.031	23	-17.834	318.052	-3.148
1	0.1765	0.031	38	-2.834	8.032	-0.500
1	0.1765	0.031	51	10.166	103.348	1.794
0	-0.8235	0.678	38	-2.834	8.032	2.334
0	-0.8235	0.678	29	-11.834	140.044	9.745
1	0.1765	0.031	28	-12.834	164.712	-2.265
1	0.1765	0.031	39	-1.834	3.364	-0.324
1	0.1765	0.031	33	-7.834	61.372	-1.383
1	0.1765	0.031	44	3.166	10.024	0.559
1	0.1765	0.031	33	-7.834	61.372	-1.383
1	0.1765	0.031	47	6.166	38.020	1.088
0	-0.8235	0.678	31	-9.834	96.708	8.098
1	0.1765	0.031	47	6.166	38.020	1.088
1	0.1765	0.031	41	0.166	0.028	0.029
1	0.1765	0.031	54	13.166	173.344	2.324
1	0.1765	0.031	48	7.166	51.352	1.265
1	0.1765	0.031	53	12.166	148.012	2.147
0	-0.8235	0.678	43	2.166	4.692	-1.784

0	-0.701	0.491	2	-38.83	1508.08	27.203
1	0.300	0.090	37	-3.83	14.70	-1.148
0	-0.701	0.491	34	-6.83	46.70	4.787
1	0.300	0.090	32	-8.83	78.04	-2.646
0	-0.701	0.491	29	-11.83	140.04	8.290
1	0.300	0.090	48	7.17	51.35	2.146
1	0.300	0.090	48	7.17	51.35	2.146
0	-0.701	0.491	37	-3.83	14.70	2.686
1	0.300	0.090	53	12.17	148.01	3.644
0	-0.701	0.491	42	1.17	1.36	-0.817
1	0.300	0.090	48	7.17	51.35	2.146
1	0.300	0.090	45	4.17	17.36	1.248
1	0.300	0.090	52	11.17	124.68	3.344
0	-0.701	0.491	23	-17.83	318.05	12.493
0	-0.701	0.491	38	-2.83	8.03	1.985
1	0.300	0.090	51	10.17	103.35	3.045
0	-0.701	0.491	38	-2.83	8.03	1.985
0	-0.701	0.491	29	-11.83	140.04	8.290
1	0.300	0.090	28	-12.83	164.71	-3.844
0	-0.701	0.491	39	-1.83	3.36	1.285
0	-0.701	0.491	33	-7.83	61.37	5.488
0	-0.701	0.491	44	3.17	10.02	-2.218
1	0.300	0.090	33	-7.83	61.37	-2.346
0	-0.701	0.491	47	6.17	38.02	-4.319
0	-0.701	0.491	31	-9.83	96.71	6.889
1	0.300	0.090	47	6.17	38.02	1.847
1	0.300	0.090	41	0.17	0.03	0.050
1	0.300	0.090	54	13.17	173.34	3.943
1	0.300	0.090	48	7.17	51.35	2.146
1	0.300	0.090	53	12.17	148.01	3.644
0	-0.701	0.491	43	2.17	4.69	-1.517

1	0.1765	0.031	50	9.166	84.016	1.618
1	0.1765	0.031	47	6.166	38.020	1.088
1	0.1765	0.031	42	1.166	1.360	0.206
1	0.1765	0.031	37	-3.834	14.700	-0.677
1	0.1765	0.031	41	0.166	0.028	0.029
0	-0.8235	0.678	18	-22.834	521.392	18.804
0	-0.8235	0.678	26	-14.834	220.048	12.216
1	0.1765	0.031	52	11.166	124.680	1.971
1	0.1765	0.031	44	3.166	10.024	0.559
1	0.1765	0.031	51	10.166	103.348	1.794
1	0.1765	0.031	35	-5.834	34.036	-1.030
0	-0.8235	0.678	40	-0.834	0.696	0.687
1	0.1765	0.031	47	6.166	38.020	1.088
1	0.1765	0.031	49	8.166	66.684	1.441
0	-0.8235	0.678	36	-4.834	23.368	3.981
0	-0.8235	0.678	6	-34.834	1213.408	28.686
1	0.1765	0.031	55	14.166	200.676	2.500
1	0.1765	0.031	50	9.166	84.016	1.618
1	0.1765	0.031	48	7.166	51.352	1.265
1	0.1765	0.031	44	3.166	10.024	0.559
1	0.1765	0.031	52	11.166	124.680	1.971
1	0.1765	0.031	46	5.166	26.688	0.912
1	0.1765	0.031	49	8.166	66.684	1.441
1	0.1765	0.031	47	6.166	38.020	1.088
1	0.1765	0.031	54	13.166	173.344	2.324
0	-0.8235	0.678	25	-15.834	250.716	13.039
1	0.1765	0.031	55	14.166	200.676	2.500
1	0.1765	0.031	55	14.166	200.676	2.500
1	0.1765	0.031	41	0.166	0.028	0.029
0	-0.8235	0.678	31	-9.834	96.708	8.098
0	-0.8235	0.678	13	-27.834	774.732	22.921

1	0.300	0.090	50	9.17	84.02	2.745
0	-0.701	0.491	47	6.17	38.02	-4.319
1	0.300	0.090	42	1.17	1.36	0.349
1	0.300	0.090	37	-3.83	14.70	-1.148
1	0.300	0.090	41	0.17	0.03	0.050
0	-0.701	0.491	18	-22.83	521.39	15.995
1	0.300	0.090	26	-14.83	220.05	-4.443
1	0.300	0.090	52	11.17	124.68	3.344
1	0.300	0.090	44	3.17	10.02	0.948
1	0.300	0.090	51	10.17	103.35	3.045
1	0.300	0.090	35	-5.83	34.04	-1.747
1	0.300	0.090	40	-0.83	0.70	-0.250
1	0.300	0.090	47	6.17	38.02	1.847
1	0.300	0.090	49	8.17	66.68	2.446
0	-0.701	0.491	36	-4.83	23.37	3.386
0	-0.701	0.491	6	-34.83	1213.41	24.401
1	0.300	0.090	55	14.17	200.68	4.243
1	0.300	0.090	50	9.17	84.02	2.745
1	0.300	0.090	48	7.17	51.35	2.146
1	0.300	0.090	44	3.17	10.02	0.948
1	0.300	0.090	52	11.17	124.68	3.344
1	0.300	0.090	46	5.17	26.69	1.547
1	0.300	0.090	49	8.17	66.68	2.446
1	0.300	0.090	47	6.17	38.02	1.847
1	0.300	0.090	54	13.17	173.34	3.943
0	-0.701	0.491	25	-15.83	250.72	11.092
1	0.300	0.090	55	14.17	200.68	4.243
1	0.300	0.090	55	14.17	200.68	4.243
1	0.300	0.090	41	0.17	0.03	0.050
1	0.300	0.090	31	-9.83	96.71	-2.945
1	0.300	0.090	13	-27.83	774.73	-8.336

1	0.1765	0.031	55	14.166	200.676	2.500
1	0.1765	0.031	45	4.166	17.356	0.735
1	0.1765	0.031	55	14.166	200.676	2.500
1	0.1765	0.031	52	11.166	124.680	1.971
1	0.1765	0.031	49	8.166	66.684	1.441
1	0.1765	0.031	42	1.166	1.360	0.206
0	-0.8235	0.678	37	-3.834	14.700	3.157
0	-0.8235	0.678	24	-16.834	283.384	13.863
1	0.1765	0.031	21	-19.834	393.388	-3.501
1	0.1765	0.031	38	-2.834	8.032	-0.500
1	0.1765	0.031	46	5.166	26.688	0.912
1	0.1765	0.031	29	-11.834	140.044	-2.089
1	0.1765	0.031	48	7.166	51.352	1.265
1	0.1765	0.031	42	1.166	1.360	0.206
1	0.1765	0.031	38	-2.834	8.032	-0.500
1	0.1765	0.031	18	-22.834	521.392	-4.030
1	0.1765	0.031	49	8.166	66.684	1.441
1	0.1765	0.031	30	-10.834	117.376	-1.912
1	0.1765	0.031	43	2.166	4.692	0.382
1	0.1765	0.031	39	-1.834	3.364	-0.324
1	0.1765	0.031	31	-9.834	96.708	-1.736
1	0.1765	0.031	28	-12.834	164.712	-2.265
1	0.1765	0.031	48	7.166	51.352	1.265
1	0.1765	0.031	47	6.166	38.020	1.088
1	0.1765	0.031	37	-3.834	14.700	-0.677
1	0.1765	0.031	40	-0.834	0.696	-0.147
1	0.1765	0.031	49	8.166	66.684	1.441
1	0.1765	0.031	32	-8.834	78.040	-1.559
1	0.1765	0.031	47	6.166	38.020	1.088
1	0.1765	0.031	32	-8.834	78.040	-1.559
1	0.1765	0.031	29	-11.834	140.044	-2.089

1	0.300	0.090	55	14.17	200.68	4.243
1	0.300	0.090	45	4.17	17.36	1.248
1	0.300	0.090	55	14.17	200.68	4.243
1	0.300	0.090	52	11.17	124.68	3.344
1	0.300	0.090	49	8.17	66.68	2.446
1	0.300	0.090	42	1.17	1.36	0.349
0	-0.701	0.491	37	-3.83	14.70	2.686
0	-0.701	0.491	24	-16.83	283.38	11.792
1	0.300	0.090	21	-19.83	393.39	-5.940
0	-0.701	0.491	38	-2.83	8.03	1.985
0	-0.701	0.491	46	5.17	26.69	-3.619
0	-0.701	0.491	29	-11.83	140.04	8.290
1	0.300	0.090	48	7.17	51.35	2.146
1	0.300	0.090	42	1.17	1.36	0.349
1	0.300	0.090	38	-2.83	8.03	-0.849
0	-0.701	0.491	18	-22.83	521.39	15.995
0	-0.701	0.491	49	8.17	66.68	-5.720
0	-0.701	0.491	30	-10.83	117.38	7.589
1	0.300	0.090	43	2.17	4.69	0.649
1	0.300	0.090	39	-1.83	3.36	-0.549
1	0.300	0.090	31	-9.83	96.71	-2.945
0	-0.701	0.491	28	-12.83	164.71	8.990
1	0.300	0.090	48	7.17	51.35	2.146
1	0.300	0.090	47	6.17	38.02	1.847
1	0.300	0.090	37	-3.83	14.70	-1.148
1	0.300	0.090	40	-0.83	0.70	-0.250
1	0.300	0.090	49	8.17	66.68	2.446
0	-0.701	0.491	32	-8.83	78.04	6.188
1	0.300	0.090	47	6.17	38.02	1.847
0	-0.701	0.491	32	-8.83	78.04	6.188
0	-0.701	0.491	29	-11.83	140.04	8.290

0	-0.8235	0.678	23	-17.834	318.052	14.686
1	0.1765	0.031	41	0.166	0.028	0.029
1	0.1765	0.031	41	0.166	0.028	0.029
1	0.1765	0.031	51	10.166	103.348	1.794
0	-0.8235	0.678	29	-11.834	140.044	9.745
0	-0.8235	0.678	37	-3.834	14.700	3.157
1	0.1765	0.031	37	-3.834	14.700	-0.677
1	0.1765	0.031	36	-4.834	23.368	-0.853
1	0.1765	0.031	40	-0.834	0.696	-0.147
1	0.1765	0.031	50	9.166	84.016	1.618
0	-0.8235	0.678	38	-2.834	8.032	2.334
1	0.1765	0.031	40	-0.834	0.696	-0.147
1	0.1765	0.031	36	-4.834	23.368	-0.853
1	0.1765	0.031	20	-20.834	434.056	-3.677
1	0.1765	0.031	47	6.166	38.020	1.088
1	0.1765	0.031	54	13.166	173.344	2.324
1	0.1765	0.031	50	9.166	84.016	1.618
0	-0.8235	0.678	25	-15.834	250.716	13.039
1	0.1765	0.031	53	12.166	148.012	2.147
1	0.1765	0.031	44	3.166	10.024	0.559
0	-0.8235	0.678	26	-14.834	220.048	12.216
0	-0.8235	0.678	33	-7.834	61.372	6.451
1	0.1765	0.031	36	-4.834	23.368	-0.853
1	0.1765	0.031	39	-1.834	3.364	-0.324
1	0.1765	0.031	46	5.166	26.688	0.912
0	-0.8235	0.678	36	-4.834	23.368	3.981
1	0.1765	0.031	54	13.166	173.344	2.324
1	0.1765	0.031	36	-4.834	23.368	-0.853
1	0.1765	0.031	44	3.166	10.024	0.559
1	0.1765	0.031	40	-0.834	0.696	-0.147
1	0.1765	0.031	38	-2.834	8.032	-0.500

0	-0.701	0.491	23	-17.83	318.05	12.493
0	-0.701	0.491	41	0.17	0.03	-0.116
1	0.300	0.090	41	0.17	0.03	0.050
1	0.300	0.090	51	10.17	103.35	3.045
0	-0.701	0.491	29	-11.83	140.04	8.290
0	-0.701	0.491	37	-3.83	14.70	2.686
1	0.300	0.090	37	-3.83	14.70	-1.148
1	0.300	0.090	36	-4.83	23.37	-1.448
1	0.300	0.090	40	-0.83	0.70	-0.250
1	0.300	0.090	50	9.17	84.02	2.745
1	0.300	0.090	38	-2.83	8.03	-0.849
1	0.300	0.090	40	-0.83	0.70	-0.250
1	0.300	0.090	36	-4.83	23.37	-1.448
0	-0.701	0.491	20	-20.83	434.06	14.594
0	-0.701	0.491	47	6.17	38.02	-4.319
1	0.300	0.090	54	13.17	173.34	3.943
1	0.300	0.090	50	9.17	84.02	2.745
0	-0.701	0.491	25	-15.83	250.72	11.092
1	0.300	0.090	53	12.17	148.01	3.644
1	0.300	0.090	44	3.17	10.02	0.948
1	0.300	0.090	26	-14.83	220.05	-4.443
0	-0.701	0.491	33	-7.83	61.37	5.488
0	-0.701	0.491	36	-4.83	23.37	3.386
1	0.300	0.090	39	-1.83	3.36	-0.549
1	0.300	0.090	46	5.17	26.69	1.547
1	0.300	0.090	36	-4.83	23.37	-1.448
1	0.300	0.090	54	13.17	173.34	3.943
1	0.300	0.090	36	-4.83	23.37	-1.448
1	0.300	0.090	44	3.17	10.02	0.948
0	-0.701	0.491	40	-0.83	0.70	0.584
1	0.300	0.090	38	-2.83	8.03	-0.849

1	0.1765	0.031	35	-5.834	34.036	-1.030
1	0.1765	0.031	46	5.166	26.688	0.912
1	0.1765	0.031	49	8.166	66.684	1.441
1	0.1765	0.031	48	7.166	51.352	1.265
1	0.1765	0.031	41	0.166	0.028	0.029
1	0.1765	0.031	53	12.166	148.012	2.147
1	0.1765	0.031	53	12.166	148.012	2.147
1	0.1765	0.031	51	10.166	103.348	1.794
154	0.0055	27.176	7636	0.042	19431.861	379.529

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{379,529}{\sqrt{27,176 \times 19431,861}} = 0.5223$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

1	0.300	0.090	35	-5.83	34.04	-1.747
1	0.300	0.090	46	5.17	26.69	1.547
0	-0.701	0.491	49	8.17	66.68	-5.720
1	0.300	0.090	48	7.17	51.35	2.146
0	-0.701	0.491	41	0.17	0.03	-0.116
1	0.300	0.090	53	12.17	148.01	3.644
1	0.300	0.090	53	12.17	148.01	3.644
1	0.300	0.090	51	10.17	103.35	3.045
131	0.007	39.230	7636	0.04	19431.86	407.717

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{407,717}{\sqrt{39,230 \times 19431,861}} = 0.4670$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 17 dan No 18

Pertanyaan no 17

$$x = 119/187 = 0.6364$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.364	0.132	51	10.166	103.348	3.696
0	-0.636	0.405	36	-4.834	23.368	3.076
0	-0.636	0.405	41	0.166	0.028	-0.106
1	0.364	0.132	52	11.166	124.680	4.060
0	-0.636	0.405	51	10.166	103.348	-6.470
1	0.364	0.132	50	9.166	84.016	3.333
1	0.364	0.132	46	5.166	26.688	1.878
1	0.364	0.132	55	14.166	200.676	5.151
1	0.364	0.132	49	8.166	66.684	2.969
1	0.364	0.132	31	-9.834	96.708	-3.576
0	-0.636	0.405	46	5.166	26.688	-3.288
0	-0.636	0.405	44	3.166	10.024	-2.015
0	-0.636	0.405	40	-0.834	0.696	0.531
1	0.364	0.132	48	7.166	51.352	2.606
1	0.364	0.132	31	-9.834	96.708	-3.576
1	0.364	0.132	27	-13.834	191.380	-5.030
1	0.364	0.132	47	6.166	38.020	2.242
1	0.364	0.132	50	9.166	84.016	3.333
1	0.364	0.132	55	14.166	200.676	5.151
1	0.364	0.132	47	6.166	38.020	2.242
1	0.364	0.132	16	-24.834	616.728	-9.030
0	-0.636	0.405	42	1.166	1.360	-0.742
1	0.364	0.132	42	1.166	1.360	0.424
1	0.364	0.132	43	2.166	4.692	0.788

Pertanyaan no 18

$$x = 113/187 = 0.6043$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.3957	0.1566	51	10.166	103.348	4.023
1	0.3957	0.1566	36	-4.834	23.368	-1.913
1	0.3957	0.1566	41	0.166	0.028	0.066
1	0.3957	0.1566	52	11.166	124.680	4.418
1	0.3957	0.1566	51	10.166	103.348	4.023
1	0.3957	0.1566	50	9.166	84.016	3.627
1	0.3957	0.1566	46	5.166	26.688	2.044
1	0.3957	0.1566	55	14.166	200.676	5.605
1	0.3957	0.1566	49	8.166	66.684	3.231
0	-0.604	0.3652	31	-9.834	96.708	5.943
0	-0.604	0.3652	46	5.166	26.688	-3.122
1	0.3957	0.1566	44	3.166	10.024	1.253
0	-0.604	0.3652	40	-0.834	0.696	0.504
1	0.3957	0.1566	48	7.166	51.352	2.836
1	0.3957	0.1566	31	-9.834	96.708	-3.891
1	0.3957	0.1566	27	-13.834	191.380	-5.474
0	-0.604	0.3652	47	6.166	38.020	-3.726
0	-0.604	0.3652	50	9.166	84.016	-5.539
1	0.3957	0.1566	55	14.166	200.676	5.605
1	0.3957	0.1566	47	6.166	38.020	2.440
1	0.3957	0.1566	16	-24.834	616.728	-9.827
0	-0.604	0.3652	42	1.166	1.360	-0.705
1	0.3957	0.1566	42	1.166	1.360	0.461
1	0.3957	0.1566	43	2.166	4.692	0.857

0	-0.636	0.405	43	2.166	4.692	-1.378
0	-0.636	0.405	38	-2.834	8.032	1.804
1	0.364	0.132	36	-4.834	23.368	-1.758
0	-0.636	0.405	37	-3.834	14.700	2.440
1	0.364	0.132	55	14.166	200.676	5.151
1	0.364	0.132	28	-12.834	164.712	-4.666
1	0.364	0.132	51	10.166	103.348	3.696
1	0.364	0.132	53	12.166	148.012	4.424
0	-0.636	0.405	45	4.166	17.356	-2.651
0	-0.636	0.405	33	-7.834	61.372	4.986
1	0.364	0.132	45	4.166	17.356	1.515
1	0.364	0.132	44	3.166	10.024	1.151
0	-0.636	0.405	44	3.166	10.024	-2.015
1	0.364	0.132	49	8.166	66.684	2.969
1	0.364	0.132	39	-1.834	3.364	-0.667
1	0.364	0.132	49	8.166	66.684	2.969
0	-0.636	0.405	35	-5.834	34.036	3.713
0	-0.636	0.405	31	-9.834	96.708	6.258
1	0.364	0.132	33	-7.834	61.372	-2.848
1	0.364	0.132	48	7.166	51.352	2.606
0	-0.636	0.405	12	-28.834	831.400	18.350
1	0.364	0.132	35	-5.834	34.036	-2.121
1	0.364	0.132	39	-1.834	3.364	-0.667
1	0.364	0.132	53	12.166	148.012	4.424
1	0.364	0.132	48	7.166	51.352	2.606
1	0.364	0.132	48	7.166	51.352	2.606
1	0.364	0.132	40	-0.834	0.696	-0.303
1	0.364	0.132	44	3.166	10.024	1.151
1	0.364	0.132	46	5.166	26.688	1.878
0	-0.636	0.405	21	-19.834	393.388	12.622
1	0.364	0.132	45	4.166	17.356	1.515

0	-0.604	0.3652	43	2.166	4.692	-1.309
1	0.3957	0.1566	38	-2.834	8.032	-1.121
1	0.3957	0.1566	36	-4.834	23.368	-1.913
0	-0.604	0.3652	37	-3.834	14.700	2.317
1	0.3957	0.1566	55	14.166	200.676	5.605
0	-0.604	0.3652	28	-12.834	164.712	7.756
1	0.3957	0.1566	51	10.166	103.348	4.023
1	0.3957	0.1566	53	12.166	148.012	4.814
0	-0.604	0.3652	45	4.166	17.356	-2.518
0	-0.604	0.3652	33	-7.834	61.372	4.734
0	-0.604	0.3652	45	4.166	17.356	-2.518
1	0.3957	0.1566	44	3.166	10.024	1.253
1	0.3957	0.1566	44	3.166	10.024	1.253
1	0.3957	0.1566	49	8.166	66.684	3.231
1	0.3957	0.1566	39	-1.834	3.364	-0.726
1	0.3957	0.1566	49	8.166	66.684	3.231
0	-0.604	0.3652	35	-5.834	34.036	3.525
0	-0.604	0.3652	31	-9.834	96.708	5.943
1	0.3957	0.1566	33	-7.834	61.372	-3.100
1	0.3957	0.1566	48	7.166	51.352	2.836
0	-0.604	0.3652	12	-28.834	831.400	17.424
1	0.3957	0.1566	35	-5.834	34.036	-2.309
0	-0.604	0.3652	39	-1.834	3.364	1.108
1	0.3957	0.1566	53	12.166	148.012	4.814
1	0.3957	0.1566	48	7.166	51.352	2.836
1	0.3957	0.1566	48	7.166	51.352	2.836
1	0.3957	0.1566	40	-0.834	0.696	-0.330
0	-0.604	0.3652	44	3.166	10.024	-1.913
0	-0.604	0.3652	46	5.166	26.688	-3.122
1	0.3957	0.1566	21	-19.834	393.388	-7.848
1	0.3957	0.1566	45	4.166	17.356	1.648

0	-0.636	0.405	2	-38.834	1508.080	24.714
1	0.364	0.132	37	-3.834	14.700	-1.394
1	0.364	0.132	34	-6.834	46.704	-2.485
1	0.364	0.132	32	-8.834	78.040	-3.212
0	-0.636	0.405	29	-11.834	140.044	7.531
1	0.364	0.132	48	7.166	51.352	2.606
1	0.364	0.132	48	7.166	51.352	2.606
0	-0.636	0.405	37	-3.834	14.700	2.440
1	0.364	0.132	53	12.166	148.012	4.424
0	-0.636	0.405	42	1.166	1.360	-0.742
1	0.364	0.132	48	7.166	51.352	2.606
1	0.364	0.132	45	4.166	17.356	1.515
0	-0.636	0.405	52	11.166	124.680	-7.106
1	0.364	0.132	23	-17.834	318.052	-6.484
0	-0.636	0.405	38	-2.834	8.032	1.804
1	0.364	0.132	51	10.166	103.348	3.696
0	-0.636	0.405	38	-2.834	8.032	1.804
0	-0.636	0.405	29	-11.834	140.044	7.531
1	0.364	0.132	28	-12.834	164.712	-4.666
0	-0.636	0.405	39	-1.834	3.364	1.167
0	-0.636	0.405	33	-7.834	61.372	4.986
0	-0.636	0.405	44	3.166	10.024	-2.015
1	0.364	0.132	33	-7.834	61.372	-2.848
0	-0.636	0.405	47	6.166	38.020	-3.924
0	-0.636	0.405	31	-9.834	96.708	6.258
1	0.364	0.132	47	6.166	38.020	2.242
0	-0.636	0.405	41	0.166	0.028	-0.106
1	0.364	0.132	54	13.166	173.344	4.787
1	0.364	0.132	48	7.166	51.352	2.606
1	0.364	0.132	53	12.166	148.012	4.424
0	-0.636	0.405	43	2.166	4.692	-1.378

0	-0.604	0.3652	2	-38.834	1508.080	23.467
0	-0.604	0.3652	37	-3.834	14.700	2.317
0	-0.604	0.3652	34	-6.834	46.704	4.130
0	-0.604	0.3652	32	-8.834	78.040	5.338
0	-0.604	0.3652	29	-11.834	140.044	7.151
1	0.3957	0.1566	48	7.166	51.352	2.836
1	0.3957	0.1566	48	7.166	51.352	2.836
0	-0.604	0.3652	37	-3.834	14.700	2.317
1	0.3957	0.1566	53	12.166	148.012	4.814
0	-0.604	0.3652	42	1.166	1.360	-0.705
1	0.3957	0.1566	48	7.166	51.352	2.836
0	-0.604	0.3652	45	4.166	17.356	-2.518
1	0.3957	0.1566	52	11.166	124.680	4.418
0	-0.604	0.3652	23	-17.834	318.052	10.777
0	-0.604	0.3652	38	-2.834	8.032	1.713
1	0.3957	0.1566	51	10.166	103.348	4.023
0	-0.604	0.3652	38	-2.834	8.032	1.713
0	-0.604	0.3652	29	-11.834	140.044	7.151
1	0.3957	0.1566	28	-12.834	164.712	-5.078
0	-0.604	0.3652	39	-1.834	3.364	1.108
1	0.3957	0.1566	33	-7.834	61.372	-3.100
1	0.3957	0.1566	44	3.166	10.024	1.253
0	-0.604	0.3652	33	-7.834	61.372	4.734
1	0.3957	0.1566	47	6.166	38.020	2.440
0	-0.604	0.3652	31	-9.834	96.708	5.943
1	0.3957	0.1566	47	6.166	38.020	2.440
1	0.3957	0.1566	41	0.166	0.028	0.066
1	0.3957	0.1566	54	13.166	173.344	5.210
1	0.3957	0.1566	48	7.166	51.352	2.836
1	0.3957	0.1566	53	12.166	148.012	4.814
0	-0.604	0.3652	43	2.166	4.692	-1.309

1	0.364	0.132	50	9.166	84.016	3.333
0	-0.636	0.405	47	6.166	38.020	-3.924
1	0.364	0.132	42	1.166	1.360	0.424
1	0.364	0.132	37	-3.834	14.700	-1.394
1	0.364	0.132	41	0.166	0.028	0.060
0	-0.636	0.405	18	-22.834	521.392	14.532
0	-0.636	0.405	26	-14.834	220.048	9.440
1	0.364	0.132	52	11.166	124.680	4.060
1	0.364	0.132	44	3.166	10.024	1.151
1	0.364	0.132	51	10.166	103.348	3.696
1	0.364	0.132	35	-5.834	34.036	-2.121
1	0.364	0.132	40	-0.834	0.696	-0.303
1	0.364	0.132	47	6.166	38.020	2.242
1	0.364	0.132	49	8.166	66.684	2.969
0	-0.636	0.405	36	-4.834	23.368	3.076
0	-0.636	0.405	6	-34.834	1213.408	22.168
1	0.364	0.132	55	14.166	200.676	5.151
1	0.364	0.132	50	9.166	84.016	3.333
1	0.364	0.132	48	7.166	51.352	2.606
1	0.364	0.132	44	3.166	10.024	1.151
1	0.364	0.132	52	11.166	124.680	4.060
1	0.364	0.132	46	5.166	26.688	1.878
1	0.364	0.132	49	8.166	66.684	2.969
1	0.364	0.132	47	6.166	38.020	2.242
1	0.364	0.132	54	13.166	173.344	4.787
0	-0.636	0.405	25	-15.834	250.716	10.077
1	0.364	0.132	55	14.166	200.676	5.151
1	0.364	0.132	55	14.166	200.676	5.151
0	-0.636	0.405	41	0.166	0.028	-0.106
1	0.364	0.132	31	-9.834	96.708	-3.576
1	0.364	0.132	13	-27.834	774.732	-10.120

1	0.3957	0.1566	50	9.166	84.016	3.627
0	-0.604	0.3652	47	6.166	38.020	-3.726
1	0.3957	0.1566	42	1.166	1.360	0.461
1	0.3957	0.1566	37	-3.834	14.700	-1.517
1	0.3957	0.1566	41	0.166	0.028	0.066
0	-0.604	0.3652	18	-22.834	521.392	13.799
0	-0.604	0.3652	26	-14.834	220.048	8.964
1	0.3957	0.1566	52	11.166	124.680	4.418
1	0.3957	0.1566	44	3.166	10.024	1.253
1	0.3957	0.1566	51	10.166	103.348	4.023
1	0.3957	0.1566	35	-5.834	34.036	-2.309
0	-0.604	0.3652	40	-0.834	0.696	0.504
1	0.3957	0.1566	47	6.166	38.020	2.440
1	0.3957	0.1566	49	8.166	66.684	3.231
0	-0.604	0.3652	36	-4.834	23.368	2.921
0	-0.604	0.3652	6	-34.834	1213.408	21.050
1	0.3957	0.1566	55	14.166	200.676	5.605
1	0.3957	0.1566	50	9.166	84.016	3.627
1	0.3957	0.1566	48	7.166	51.352	2.836
1	0.3957	0.1566	44	3.166	10.024	1.253
1	0.3957	0.1566	52	11.166	124.680	4.418
1	0.3957	0.1566	46	5.166	26.688	2.044
1	0.3957	0.1566	49	8.166	66.684	3.231
0	-0.604	0.3652	47	6.166	38.020	-3.726
1	0.3957	0.1566	54	13.166	173.344	5.210
0	-0.604	0.3652	25	-15.834	250.716	9.568
1	0.3957	0.1566	55	14.166	200.676	5.605
1	0.3957	0.1566	55	14.166	200.676	5.605
0	-0.604	0.3652	41	0.166	0.028	-0.100
0	-0.604	0.3652	31	-9.834	96.708	5.943
0	-0.604	0.3652	13	-27.834	774.732	16.820

1	0.364	0.132	55	14.166	200.676	5.151
1	0.364	0.132	45	4.166	17.356	1.515
1	0.364	0.132	55	14.166	200.676	5.151
1	0.364	0.132	52	11.166	124.680	4.060
1	0.364	0.132	49	8.166	66.684	2.969
1	0.364	0.132	42	1.166	1.360	0.424
1	0.364	0.132	37	-3.834	14.700	-1.394
0	-0.636	0.405	24	-16.834	283.384	10.713
0	-0.636	0.405	21	-19.834	393.388	12.622
1	0.364	0.132	38	-2.834	8.032	-1.030
0	-0.636	0.405	46	5.166	26.688	-3.288
0	-0.636	0.405	29	-11.834	140.044	7.531
1	0.364	0.132	48	7.166	51.352	2.606
0	-0.636	0.405	42	1.166	1.360	-0.742
1	0.364	0.132	38	-2.834	8.032	-1.030
0	-0.636	0.405	18	-22.834	521.392	14.532
1	0.364	0.132	49	8.166	66.684	2.969
0	-0.636	0.405	30	-10.834	117.376	6.895
0	-0.636	0.405	43	2.166	4.692	-1.378
1	0.364	0.132	39	-1.834	3.364	-0.667
1	0.364	0.132	31	-9.834	96.708	-3.576
0	-0.636	0.405	28	-12.834	164.712	8.168
1	0.364	0.132	48	7.166	51.352	2.606
1	0.364	0.132	47	6.166	38.020	2.242
0	-0.636	0.405	37	-3.834	14.700	2.440
1	0.364	0.132	40	-0.834	0.696	-0.303
1	0.364	0.132	49	8.166	66.684	2.969
0	-0.636	0.405	32	-8.834	78.040	5.622
1	0.364	0.132	47	6.166	38.020	2.242
0	-0.636	0.405	32	-8.834	78.040	5.622
0	-0.636	0.405	29	-11.834	140.044	7.531

1	0.3957	0.1566	55	14.166	200.676	5.605
1	0.3957	0.1566	45	4.166	17.356	1.648
1	0.3957	0.1566	55	14.166	200.676	5.605
1	0.3957	0.1566	52	11.166	124.680	4.418
0	-0.604	0.3652	49	8.166	66.684	-4.935
0	-0.604	0.3652	42	1.166	1.360	-0.705
1	0.3957	0.1566	37	-3.834	14.700	-1.517
0	-0.604	0.3652	24	-16.834	283.384	10.173
0	-0.604	0.3652	21	-19.834	393.388	11.986
1	0.3957	0.1566	38	-2.834	8.032	-1.121
0	-0.604	0.3652	46	5.166	26.688	-3.122
0	-0.604	0.3652	29	-11.834	140.044	7.151
1	0.3957	0.1566	48	7.166	51.352	2.836
1	0.3957	0.1566	42	1.166	1.360	0.461
1	0.3957	0.1566	38	-2.834	8.032	-1.121
0	-0.604	0.3652	18	-22.834	521.392	13.799
1	0.3957	0.1566	49	8.166	66.684	3.231
0	-0.604	0.3652	30	-10.834	117.376	6.547
0	-0.604	0.3652	43	2.166	4.692	-1.309
1	0.3957	0.1566	39	-1.834	3.364	-0.726
0	-0.604	0.3652	31	-9.834	96.708	5.943
1	0.3957	0.1566	28	-12.834	164.712	-5.078
1	0.3957	0.1566	48	7.166	51.352	2.836
1	0.3957	0.1566	47	6.166	38.020	2.440
1	0.3957	0.1566	37	-3.834	14.700	-1.517
1	0.3957	0.1566	40	-0.834	0.696	-0.330
1	0.3957	0.1566	49	8.166	66.684	3.231
1	0.3957	0.1566	32	-8.834	78.040	-3.496
1	0.3957	0.1566	47	6.166	38.020	2.440
0	-0.604	0.3652	32	-8.834	78.040	5.338
0	-0.604	0.3652	29	-11.834	140.044	7.151

0	-0.636	0.405	23	-17.834	318.052	11.350
1	0.364	0.132	41	0.166	0.028	0.060
1	0.364	0.132	41	0.166	0.028	0.060
1	0.364	0.132	51	10.166	103.348	3.696
0	-0.636	0.405	29	-11.834	140.044	7.531
0	-0.636	0.405	37	-3.834	14.700	2.440
0	-0.636	0.405	37	-3.834	14.700	2.440
1	0.364	0.132	36	-4.834	23.368	-1.758
1	0.364	0.132	40	-0.834	0.696	-0.303
1	0.364	0.132	50	9.166	84.016	3.333
1	0.364	0.132	38	-2.834	8.032	-1.030
0	-0.636	0.405	40	-0.834	0.696	0.531
1	0.364	0.132	36	-4.834	23.368	-1.758
0	-0.636	0.405	20	-20.834	434.056	13.259
1	0.364	0.132	47	6.166	38.020	2.242
1	0.364	0.132	54	13.166	173.344	4.787
1	0.364	0.132	50	9.166	84.016	3.333
0	-0.636	0.405	25	-15.834	250.716	10.077
1	0.364	0.132	53	12.166	148.012	4.424
1	0.364	0.132	44	3.166	10.024	1.151
0	-0.636	0.405	26	-14.834	220.048	9.440
0	-0.636	0.405	33	-7.834	61.372	4.986
0	-0.636	0.405	36	-4.834	23.368	3.076
0	-0.636	0.405	39	-1.834	3.364	1.167
1	0.364	0.132	46	5.166	26.688	1.878
1	0.364	0.132	36	-4.834	23.368	-1.758
1	0.364	0.132	54	13.166	173.344	4.787
1	0.364	0.132	36	-4.834	23.368	-1.758
1	0.364	0.132	44	3.166	10.024	1.151
0	-0.636	0.405	40	-0.834	0.696	0.531
1	0.364	0.132	38	-2.834	8.032	-1.030

0	-0.604	0.3652	23	-17.834	318.052	10.777
0	-0.604	0.3652	41	0.166	0.028	-0.100
1	0.3957	0.1566	41	0.166	0.028	0.066
1	0.3957	0.1566	51	10.166	103.348	4.023
0	-0.604	0.3652	29	-11.834	140.044	7.151
0	-0.604	0.3652	37	-3.834	14.700	2.317
0	-0.604	0.3652	37	-3.834	14.700	2.317
1	0.3957	0.1566	36	-4.834	23.368	-1.913
1	0.3957	0.1566	40	-0.834	0.696	-0.330
1	0.3957	0.1566	50	9.166	84.016	3.627
1	0.3957	0.1566	38	-2.834	8.032	-1.121
0	-0.604	0.3652	40	-0.834	0.696	0.504
1	0.3957	0.1566	36	-4.834	23.368	-1.913
0	-0.604	0.3652	20	-20.834	434.056	12.590
0	-0.604	0.3652	47	6.166	38.020	-3.726
1	0.3957	0.1566	54	13.166	173.344	5.210
1	0.3957	0.1566	50	9.166	84.016	3.627
0	-0.604	0.3652	25	-15.834	250.716	9.568
1	0.3957	0.1566	53	12.166	148.012	4.814
1	0.3957	0.1566	44	3.166	10.024	1.253
1	0.3957	0.1566	26	-14.834	220.048	-5.870
0	-0.604	0.3652	33	-7.834	61.372	4.734
0	-0.604	0.3652	36	-4.834	23.368	2.921
0	-0.604	0.3652	39	-1.834	3.364	1.108
1	0.3957	0.1566	46	5.166	26.688	2.044
1	0.3957	0.1566	36	-4.834	23.368	-1.913
1	0.3957	0.1566	54	13.166	173.344	5.210
1	0.3957	0.1566	36	-4.834	23.368	-1.913
1	0.3957	0.1566	44	3.166	10.024	1.253
0	-0.604	0.3652	40	-0.834	0.696	0.504
1	0.3957	0.1566	38	-2.834	8.032	-1.121

0	-0.636	0.405	35	-5.834	34.036	3.713
0	-0.636	0.405	46	5.166	26.688	-3.288
0	-0.636	0.405	49	8.166	66.684	-5.197
1	0.364	0.132	48	7.166	51.352	2.606
0	-0.636	0.405	41	0.166	0.028	-0.106
1	0.364	0.132	53	12.166	148.012	4.424
1	0.364	0.132	53	12.166	148.012	4.424
1	0.364	0.132	51	10.166	103.348	3.696
119	-0.007	43.273	7636	0.042	19431.861	426.727

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{426,727}{\sqrt{43,273 \times 19431,861}} = 0.4654$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

0	-0.604	0.3652	35	-5.834	34.036	3.525
0	-0.604	0.3652	46	5.166	26.688	-3.122
1	0.3957	0.1566	49	8.166	66.684	3.231
1	0.3957	0.1566	48	7.166	51.352	2.836
0	-0.604	0.3652	41	0.166	0.028	-0.100
1	0.3957	0.1566	53	12.166	148.012	4.814
1	0.3957	0.1566	53	12.166	148.012	4.814
0	-0.604	0.3652	51	10.166	103.348	-6.143
113	-0.004	44.717	7636	0.042	19431.861	451.733

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{451,733}{\sqrt{44,72 \times 19431,861}} = 0.4846$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 19 dan No 20

Pertanyaan no 19

$$x = 108/187 = 0.5775$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.423	0.179	51	10.17	103.35	4.295
1	0.423	0.179	36	-4.83	23.37	-2.042
1	0.423	0.179	41	0.17	0.03	0.070
1	0.423	0.179	52	11.17	124.68	4.718
1	0.423	0.179	51	10.17	103.35	4.295
1	0.423	0.179	50	9.17	84.02	3.873
1	0.423	0.179	46	5.17	26.69	2.183
1	0.423	0.179	55	14.17	200.68	5.985
1	0.423	0.179	49	8.17	66.68	3.450
0	-0.578	0.334	31	-9.83	96.71	5.679
0	-0.578	0.334	46	5.17	26.69	-2.983
1	0.423	0.179	44	3.17	10.02	1.338
0	-0.578	0.334	40	-0.83	0.70	0.482
1	0.423	0.179	48	7.17	51.35	3.028
0	-0.578	0.334	31	-9.83	96.71	5.679
0	-0.578	0.334	27	-13.83	191.38	7.989
0	-0.578	0.334	47	6.17	38.02	-3.561
1	0.423	0.179	50	9.17	84.02	3.873
1	0.423	0.179	55	14.17	200.68	5.985
0	-0.578	0.334	47	6.17	38.02	-3.561
0	-0.578	0.334	16	-24.83	616.73	14.342
0	-0.578	0.334	42	1.17	1.36	-0.673
1	0.423	0.179	42	1.17	1.36	0.493
1	0.423	0.179	43	2.17	4.69	0.915

Pertanyaan no 20

$$x = 131/187 = 0.7005$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.300	0.090	51	10.166	103.348	3.045
0	-0.701	0.491	36	-4.834	23.368	3.386
1	0.300	0.090	41	0.166	0.028	0.050
1	0.300	0.090	52	11.166	124.680	3.344
1	0.300	0.090	51	10.166	103.348	3.045
1	0.300	0.090	50	9.166	84.016	2.745
1	0.300	0.090	46	5.166	26.688	1.547
1	0.300	0.090	55	14.166	200.676	4.243
1	0.300	0.090	49	8.166	66.684	2.446
1	0.300	0.090	31	-9.834	96.708	-2.945
1	0.300	0.090	46	5.166	26.688	1.547
1	0.300	0.090	44	3.166	10.024	0.948
1	0.300	0.090	40	-0.834	0.696	-0.250
0	-0.701	0.491	48	7.166	51.352	-5.020
0	-0.701	0.491	31	-9.834	96.708	6.889
1	0.300	0.090	27	-13.834	191.380	-4.143
1	0.300	0.090	47	6.166	38.020	1.847
1	0.300	0.090	50	9.166	84.016	2.745
1	0.300	0.090	55	14.166	200.676	4.243
1	0.300	0.090	47	6.166	38.020	1.847
0	-0.701	0.491	16	-24.834	616.728	17.396
0	-0.701	0.491	42	1.166	1.360	-0.817
1	0.300	0.090	42	1.166	1.360	0.349
1	0.300	0.090	43	2.166	4.692	0.649

0	-0.578	0.334	43	2.17	4.69	-1.251
0	-0.578	0.334	38	-2.83	8.03	1.637
1	0.423	0.179	36	-4.83	23.37	-2.042
0	-0.578	0.334	37	-3.83	14.70	2.214
1	0.423	0.179	55	14.17	200.68	5.985
0	-0.578	0.334	28	-12.83	164.71	7.412
1	0.423	0.179	51	10.17	103.35	4.295
1	0.423	0.179	53	12.17	148.01	5.140
0	-0.578	0.334	45	4.17	17.36	-2.406
1	0.423	0.179	33	-7.83	61.37	-3.310
0	-0.578	0.334	45	4.17	17.36	-2.406
1	0.423	0.179	44	3.17	10.02	1.338
1	0.423	0.179	44	3.17	10.02	1.338
1	0.423	0.179	49	8.17	66.68	3.450
1	0.423	0.179	39	-1.83	3.36	-0.775
0	-0.578	0.334	49	8.17	66.68	-4.716
0	-0.578	0.334	35	-5.83	34.04	3.369
0	-0.578	0.334	31	-9.83	96.71	5.679
0	-0.578	0.334	33	-7.83	61.37	4.524
1	0.423	0.179	48	7.17	51.35	3.028
0	-0.578	0.334	12	-28.83	831.40	16.652
1	0.423	0.179	35	-5.83	34.04	-2.465
0	-0.578	0.334	39	-1.83	3.36	1.059
1	0.423	0.179	53	12.17	148.01	5.140
1	0.423	0.179	48	7.17	51.35	3.028
1	0.423	0.179	48	7.17	51.35	3.028
1	0.423	0.179	40	-0.83	0.70	-0.352
1	0.423	0.179	44	3.17	10.02	1.338
0	-0.578	0.334	46	5.17	26.69	-2.983
1	0.423	0.179	21	-19.83	393.39	-8.380
0	-0.578	0.334	45	4.17	17.36	-2.406

1	0.300	0.090	43	2.166	4.692	0.649
1	0.300	0.090	38	-2.834	8.032	-0.849
1	0.300	0.090	36	-4.834	23.368	-1.448
0	-0.701	0.491	37	-3.834	14.700	2.686
1	0.300	0.090	55	14.166	200.676	4.243
0	-0.701	0.491	28	-12.834	164.712	8.990
1	0.300	0.090	51	10.166	103.348	3.045
1	0.300	0.090	53	12.166	148.012	3.644
1	0.300	0.090	45	4.166	17.356	1.248
0	-0.701	0.491	33	-7.834	61.372	5.488
1	0.300	0.090	45	4.166	17.356	1.248
1	0.300	0.090	44	3.166	10.024	0.948
1	0.300	0.090	44	3.166	10.024	0.948
1	0.300	0.090	49	8.166	66.684	2.446
0	-0.701	0.491	39	-1.834	3.364	1.285
1	0.300	0.090	49	8.166	66.684	2.446
1	0.300	0.090	35	-5.834	34.036	-1.747
1	0.300	0.090	31	-9.834	96.708	-2.945
1	0.300	0.090	33	-7.834	61.372	-2.346
0	-0.701	0.491	48	7.166	51.352	-5.020
1	0.300	0.090	12	-28.834	831.400	-8.636
0	-0.701	0.491	35	-5.834	34.036	4.087
1	0.300	0.090	39	-1.834	3.364	-0.549
0	-0.701	0.491	53	12.166	148.012	-8.522
1	0.300	0.090	48	7.166	51.352	2.146
1	0.300	0.090	48	7.166	51.352	2.146
1	0.300	0.090	40	-0.834	0.696	-0.250
1	0.300	0.090	44	3.166	10.024	0.948
1	0.300	0.090	46	5.166	26.688	1.547
0	-0.701	0.491	21	-19.834	393.388	13.894
1	0.300	0.090	45	4.166	17.356	1.248

0	-0.578	0.334	2	-38.83	1508.08	22.427
0	-0.578	0.334	37	-3.83	14.70	2.214
1	0.423	0.179	34	-6.83	46.70	-2.887
0	-0.578	0.334	32	-8.83	78.04	5.102
0	-0.578	0.334	29	-11.83	140.04	6.834
1	0.423	0.179	48	7.17	51.35	3.028
1	0.423	0.179	48	7.17	51.35	3.028
0	-0.578	0.334	37	-3.83	14.70	2.214
0	-0.578	0.334	53	12.17	148.01	-7.026
0	-0.578	0.334	42	1.17	1.36	-0.673
1	0.423	0.179	48	7.17	51.35	3.028
0	-0.578	0.334	45	4.17	17.36	-2.406
1	0.423	0.179	52	11.17	124.68	4.718
0	-0.578	0.334	23	-17.83	318.05	10.299
0	-0.578	0.334	38	-2.83	8.03	1.637
1	0.423	0.179	51	10.17	103.35	4.295
0	-0.578	0.334	38	-2.83	8.03	1.637
0	-0.578	0.334	29	-11.83	140.04	6.834
1	0.423	0.179	28	-12.83	164.71	-5.422
0	-0.578	0.334	39	-1.83	3.36	1.059
1	0.423	0.179	33	-7.83	61.37	-3.310
1	0.423	0.179	44	3.17	10.02	1.338
1	0.423	0.179	33	-7.83	61.37	-3.310
1	0.423	0.179	47	6.17	38.02	2.605
0	-0.578	0.334	31	-9.83	96.71	5.679
1	0.423	0.179	47	6.17	38.02	2.605
0	-0.578	0.334	41	0.17	0.03	-0.096
1	0.423	0.179	54	13.17	173.34	5.563
1	0.423	0.179	48	7.17	51.35	3.028
1	0.423	0.179	53	12.17	148.01	5.140
1	0.423	0.179	43	2.17	4.69	0.915

0	-0.701	0.491	2	-38.834	1508.080	27.203
0	-0.701	0.491	37	-3.834	14.700	2.686
0	-0.701	0.491	34	-6.834	46.704	4.787
1	0.300	0.090	32	-8.834	78.040	-2.646
1	0.300	0.090	29	-11.834	140.044	-3.544
1	0.300	0.090	48	7.166	51.352	2.146
1	0.300	0.090	48	7.166	51.352	2.146
1	0.300	0.090	37	-3.834	14.700	-1.148
1	0.300	0.090	53	12.166	148.012	3.644
1	0.300	0.090	42	1.166	1.360	0.349
1	0.300	0.090	48	7.166	51.352	2.146
1	0.300	0.090	45	4.166	17.356	1.248
0	-0.701	0.491	52	11.166	124.680	-7.822
0	-0.701	0.491	23	-17.834	318.052	12.493
0	-0.701	0.491	38	-2.834	8.032	1.985
1	0.300	0.090	51	10.166	103.348	3.045
1	0.300	0.090	38	-2.834	8.032	-0.849
1	0.300	0.090	29	-11.834	140.044	-3.544
0	-0.701	0.491	28	-12.834	164.712	8.990
1	0.300	0.090	39	-1.834	3.364	-0.549
0	-0.701	0.491	33	-7.834	61.372	5.488
0	-0.701	0.491	44	3.166	10.024	-2.218
0	-0.701	0.491	33	-7.834	61.372	5.488
1	0.300	0.090	47	6.166	38.020	1.847
1	0.300	0.090	31	-9.834	96.708	-2.945
1	0.300	0.090	47	6.166	38.020	1.847
1	0.300	0.090	41	0.166	0.028	0.050
1	0.300	0.090	54	13.166	173.344	3.943
0	-0.701	0.491	48	7.166	51.352	-5.020
1	0.300	0.090	53	12.166	148.012	3.644
0	-0.701	0.491	43	2.166	4.692	-1.517

1	0.423	0.179	50	9.17	84.02	3.873
0	-0.578	0.334	47	6.17	38.02	-3.561
1	0.423	0.179	42	1.17	1.36	0.493
1	0.423	0.179	37	-3.83	14.70	-1.620
1	0.423	0.179	41	0.17	0.03	0.070
0	-0.578	0.334	18	-22.83	521.39	13.187
1	0.423	0.179	26	-14.83	220.05	-6.267
1	0.423	0.179	52	11.17	124.68	4.718
1	0.423	0.179	44	3.17	10.02	1.338
1	0.423	0.179	51	10.17	103.35	4.295
1	0.423	0.179	35	-5.83	34.04	-2.465
0	-0.578	0.334	40	-0.83	0.70	0.482
1	0.423	0.179	47	6.17	38.02	2.605
1	0.423	0.179	49	8.17	66.68	3.450
0	-0.578	0.334	36	-4.83	23.37	2.792
0	-0.578	0.334	6	-34.83	1213.41	20.117
1	0.423	0.179	55	14.17	200.68	5.985
1	0.423	0.179	50	9.17	84.02	3.873
1	0.423	0.179	48	7.17	51.35	3.028
1	0.423	0.179	44	3.17	10.02	1.338
1	0.423	0.179	52	11.17	124.68	4.718
1	0.423	0.179	46	5.17	26.69	2.183
1	0.423	0.179	49	8.17	66.68	3.450
0	-0.578	0.334	47	6.17	38.02	-3.561
1	0.423	0.179	54	13.17	173.34	5.563
0	-0.578	0.334	25	-15.83	250.72	9.144
1	0.423	0.179	55	14.17	200.68	5.985
1	0.423	0.179	55	14.17	200.68	5.985
1	0.423	0.179	41	0.17	0.03	0.070
0	-0.578	0.334	31	-9.83	96.71	5.679
0	-0.578	0.334	13	-27.83	774.73	16.074

1	0.300	0.090	50	9.166	84.016	2.745
1	0.300	0.090	47	6.166	38.020	1.847
0	-0.701	0.491	42	1.166	1.360	-0.817
1	0.300	0.090	37	-3.834	14.700	-1.148
1	0.300	0.090	41	0.166	0.028	0.050
0	-0.701	0.491	18	-22.834	521.392	15.995
0	-0.701	0.491	26	-14.834	220.048	10.391
1	0.300	0.090	52	11.166	124.680	3.344
0	-0.701	0.491	44	3.166	10.024	-2.218
0	-0.701	0.491	51	10.166	103.348	-7.121
1	0.300	0.090	35	-5.834	34.036	-1.747
1	0.300	0.090	40	-0.834	0.696	-0.250
1	0.300	0.090	47	6.166	38.020	1.847
0	-0.701	0.491	49	8.166	66.684	-5.720
0	-0.701	0.491	36	-4.834	23.368	3.386
0	-0.701	0.491	6	-34.834	1213.408	24.401
1	0.300	0.090	55	14.166	200.676	4.243
1	0.300	0.090	50	9.166	84.016	2.745
0	-0.701	0.491	48	7.166	51.352	-5.020
0	-0.701	0.491	44	3.166	10.024	-2.218
1	0.300	0.090	52	11.166	124.680	3.344
1	0.300	0.090	46	5.166	26.688	1.547
0	-0.701	0.491	49	8.166	66.684	-5.720
1	0.300	0.090	47	6.166	38.020	1.847
1	0.300	0.090	54	13.166	173.344	3.943
1	0.300	0.090	25	-15.834	250.716	-4.742
1	0.300	0.090	55	14.166	200.676	4.243
1	0.300	0.090	55	14.166	200.676	4.243
0	-0.701	0.491	41	0.166	0.028	-0.116
0	-0.701	0.491	31	-9.834	96.708	6.889
0	-0.701	0.491	13	-27.834	774.732	19.498

1	0.423	0.179	55	14.17	200.68	5.985
1	0.423	0.179	45	4.17	17.36	1.760
1	0.423	0.179	55	14.17	200.68	5.985
1	0.423	0.179	52	11.17	124.68	4.718
0	-0.578	0.334	49	8.17	66.68	-4.716
0	-0.578	0.334	42	1.17	1.36	-0.673
1	0.423	0.179	37	-3.83	14.70	-1.620
0	-0.578	0.334	24	-16.83	283.38	9.722
0	-0.578	0.334	21	-19.83	393.39	11.454
1	0.423	0.179	38	-2.83	8.03	-1.197
0	-0.578	0.334	46	5.17	26.69	-2.983
0	-0.578	0.334	29	-11.83	140.04	6.834
1	0.423	0.179	48	7.17	51.35	3.028
1	0.423	0.179	42	1.17	1.36	0.493
1	0.423	0.179	38	-2.83	8.03	-1.197
0	-0.578	0.334	18	-22.83	521.39	13.187
1	0.423	0.179	49	8.17	66.68	3.450
0	-0.578	0.334	30	-10.83	117.38	6.257
0	-0.578	0.334	43	2.17	4.69	-1.251
1	0.423	0.179	39	-1.83	3.36	-0.775
0	-0.578	0.334	31	-9.83	96.71	5.679
1	0.423	0.179	28	-12.83	164.71	-5.422
1	0.423	0.179	48	7.17	51.35	3.028
1	0.423	0.179	47	6.17	38.02	2.605
0	-0.578	0.334	37	-3.83	14.70	2.214
1	0.423	0.179	40	-0.83	0.70	-0.352
1	0.423	0.179	49	8.17	66.68	3.450
1	0.423	0.179	32	-8.83	78.04	-3.732
0	-0.578	0.334	47	6.17	38.02	-3.561
0	-0.578	0.334	32	-8.83	78.04	5.102
0	-0.578	0.334	29	-11.83	140.04	6.834

1	0.300	0.090	55	14.166	200.676	4.243
0	-0.701	0.491	45	4.166	17.356	-2.918
1	0.300	0.090	55	14.166	200.676	4.243
1	0.300	0.090	52	11.166	124.680	3.344
1	0.300	0.090	49	8.166	66.684	2.446
1	0.300	0.090	42	1.166	1.360	0.349
1	0.300	0.090	37	-3.834	14.700	-1.148
1	0.300	0.090	24	-16.834	283.384	-5.042
0	-0.701	0.491	21	-19.834	393.388	13.894
0	-0.701	0.491	38	-2.834	8.032	1.985
1	0.300	0.090	46	5.166	26.688	1.547
1	0.300	0.090	29	-11.834	140.044	-3.544
1	0.300	0.090	48	7.166	51.352	2.146
1	0.300	0.090	42	1.166	1.360	0.349
0	-0.701	0.491	38	-2.834	8.032	1.985
1	0.300	0.090	18	-22.834	521.392	-6.839
1	0.300	0.090	49	8.166	66.684	2.446
1	0.300	0.090	30	-10.834	117.376	-3.245
1	0.300	0.090	43	2.166	4.692	0.649
0	-0.701	0.491	39	-1.834	3.364	1.285
1	0.300	0.090	31	-9.834	96.708	-2.945
1	0.300	0.090	28	-12.834	164.712	-3.844
1	0.300	0.090	48	7.166	51.352	2.146
1	0.300	0.090	47	6.166	38.020	1.847
0	-0.701	0.491	37	-3.834	14.700	2.686
1	0.300	0.090	40	-0.834	0.696	-0.250
1	0.300	0.090	49	8.166	66.684	2.446
0	-0.701	0.491	32	-8.834	78.040	6.188
1	0.300	0.090	47	6.166	38.020	1.847
1	0.300	0.090	32	-8.834	78.040	-2.646
1	0.300	0.090	29	-11.834	140.044	-3.544

0	-0.578	0.334	23	-17.83	318.05	10.299
0	-0.578	0.334	41	0.17	0.03	-0.096
1	0.423	0.179	41	0.17	0.03	0.070
1	0.423	0.179	51	10.17	103.35	4.295
0	-0.578	0.334	29	-11.83	140.04	6.834
0	-0.578	0.334	37	-3.83	14.70	2.214
0	-0.578	0.334	37	-3.83	14.70	2.214
1	0.423	0.179	36	-4.83	23.37	-2.042
1	0.423	0.179	40	-0.83	0.70	-0.352
1	0.423	0.179	50	9.17	84.02	3.873
0	-0.578	0.334	38	-2.83	8.03	1.637
0	-0.578	0.334	40	-0.83	0.70	0.482
1	0.423	0.179	36	-4.83	23.37	-2.042
0	-0.578	0.334	20	-20.83	434.06	12.032
0	-0.578	0.334	47	6.17	38.02	-3.561
1	0.423	0.179	54	13.17	173.34	5.563
1	0.423	0.179	50	9.17	84.02	3.873
0	-0.578	0.334	25	-15.83	250.72	9.144
1	0.423	0.179	53	12.17	148.01	5.140
1	0.423	0.179	44	3.17	10.02	1.338
0	-0.578	0.334	26	-14.83	220.05	8.567
0	-0.578	0.334	33	-7.83	61.37	4.524
0	-0.578	0.334	36	-4.83	23.37	2.792
0	-0.578	0.334	39	-1.83	3.36	1.059
1	0.423	0.179	46	5.17	26.69	2.183
1	0.423	0.179	36	-4.83	23.37	-2.042
1	0.423	0.179	54	13.17	173.34	5.563
1	0.423	0.179	36	-4.83	23.37	-2.042
1	0.423	0.179	44	3.17	10.02	1.338
0	-0.578	0.334	40	-0.83	0.70	0.482
1	0.423	0.179	38	-2.83	8.03	-1.197

1	0.300	0.090	23	-17.834	318.052	-5.341
1	0.300	0.090	41	0.166	0.028	0.050
1	0.300	0.090	41	0.166	0.028	0.050
0	-0.701	0.491	51	10.166	103.348	-7.121
0	-0.701	0.491	29	-11.834	140.044	8.290
1	0.300	0.090	37	-3.834	14.700	-1.148
1	0.300	0.090	37	-3.834	14.700	-1.148
0	-0.701	0.491	36	-4.834	23.368	3.386
1	0.300	0.090	40	-0.834	0.696	-0.250
1	0.300	0.090	50	9.166	84.016	2.745
1	0.300	0.090	38	-2.834	8.032	-0.849
0	-0.701	0.491	40	-0.834	0.696	0.584
0	-0.701	0.491	36	-4.834	23.368	3.386
0	-0.701	0.491	20	-20.834	434.056	14.594
1	0.300	0.090	47	6.166	38.020	1.847
1	0.300	0.090	54	13.166	173.344	3.943
1	0.300	0.090	50	9.166	84.016	2.745
0	-0.701	0.491	25	-15.834	250.716	11.092
1	0.300	0.090	53	12.166	148.012	3.644
0	-0.701	0.491	44	3.166	10.024	-2.218
1	0.300	0.090	26	-14.834	220.048	-4.443
1	0.300	0.090	33	-7.834	61.372	-2.346
0	-0.701	0.491	36	-4.834	23.368	3.386
1	0.300	0.090	39	-1.834	3.364	-0.549
1	0.300	0.090	46	5.166	26.688	1.547
0	-0.701	0.491	36	-4.834	23.368	3.386
1	0.300	0.090	54	13.166	173.344	3.943
1	0.300	0.090	36	-4.834	23.368	-1.448
1	0.300	0.090	44	3.166	10.024	0.948
1	0.300	0.090	40	-0.834	0.696	-0.250
1	0.300	0.090	38	-2.834	8.032	-0.849

0	-0.578	0.334	35	-5.83	34.04	3.369
0	-0.578	0.334	46	5.17	26.69	-2.983
1	0.423	0.179	49	8.17	66.68	3.450
1	0.423	0.179	48	7.17	51.35	3.028
0	-0.578	0.334	41	0.17	0.03	-0.096
1	0.423	0.179	53	12.17	148.01	5.140
1	0.423	0.179	53	12.17	148.01	5.140
1	0.423	0.179	51	10.17	103.35	4.295
108	0.007	45.626	7636	0.04	19431.86	482.904

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{482,904}{\sqrt{45,626 \times 19431,861}} = 0.5129$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

1	0.300	0.090	35	-5.834	34.036	-1.747
1	0.300	0.090	46	5.166	26.688	1.547
1	0.300	0.090	49	8.166	66.684	2.446
1	0.300	0.090	48	7.166	51.352	2.146
1	0.300	0.090	41	0.166	0.028	0.050
1	0.300	0.090	53	12.166	148.012	3.644
1	0.300	0.090	53	12.166	148.012	3.644
1	0.300	0.090	51	10.166	103.348	3.045
131	0.007	39.230	7636	0.042	19431.861	303.717

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{303,717}{\sqrt{39,320 \times 19431,861}} = 0.3479$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 21 dan No 22

Pertanyaan no 21

$$x = 132/187 = 0.7059$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.294	0.086	51	10.166	103.348	2.990
0	-0.706	0.498	36	-4.834	23.368	3.412
1	0.294	0.086	41	0.166	0.028	0.049
1	0.294	0.086	52	11.166	124.680	3.284
1	0.294	0.086	51	10.166	103.348	2.990
1	0.294	0.086	50	9.166	84.016	2.696
1	0.294	0.086	46	5.166	26.688	1.519
1	0.294	0.086	55	14.166	200.676	4.166
1	0.294	0.086	49	8.166	66.684	2.402
1	0.294	0.086	31	-9.834	96.708	-2.892
1	0.294	0.086	46	5.166	26.688	1.519
1	0.294	0.086	44	3.166	10.024	0.931
1	0.294	0.086	40	-0.834	0.696	-0.245
0	-0.706	0.498	48	7.166	51.352	-5.058
0	-0.706	0.498	31	-9.834	96.708	6.942
1	0.294	0.086	27	-13.834	191.380	-4.069
0	-0.706	0.498	47	6.166	38.020	-4.353
1	0.294	0.086	50	9.166	84.016	2.696
1	0.294	0.086	55	14.166	200.676	4.166
1	0.294	0.086	47	6.166	38.020	1.813
0	-0.706	0.498	16	-24.834	616.728	17.530
0	-0.706	0.498	42	1.166	1.360	-0.823
1	0.294	0.086	42	1.166	1.360	0.343
1	0.294	0.086	43	2.166	4.692	0.637

Pertanyaan no 22

$$x = 114/187 = 0.6096$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.390	0.152	51	10.166	103.348	3.969
0	-0.610	0.372	36	-4.834	23.368	2.947
1	0.390	0.152	41	0.166	0.028	0.065
1	0.390	0.152	52	11.166	124.680	4.359
1	0.390	0.152	51	10.166	103.348	3.969
1	0.390	0.152	50	9.166	84.016	3.578
1	0.390	0.152	46	5.166	26.688	2.017
1	0.390	0.152	55	14.166	200.676	5.530
0	-0.610	0.372	49	8.166	66.684	-4.978
0	-0.610	0.372	31	-9.834	96.708	5.995
0	-0.610	0.372	46	5.166	26.688	-3.149
1	0.390	0.152	44	3.166	10.024	1.236
1	0.390	0.152	40	-0.834	0.696	-0.326
1	0.390	0.152	48	7.166	51.352	2.798
0	-0.610	0.372	31	-9.834	96.708	5.995
1	0.390	0.152	27	-13.834	191.380	-5.401
1	0.390	0.152	47	6.166	38.020	2.407
1	0.390	0.152	50	9.166	84.016	3.578
1	0.390	0.152	55	14.166	200.676	5.530
1	0.390	0.152	47	6.166	38.020	2.407
0	-0.610	0.372	16	-24.834	616.728	15.139
1	0.390	0.152	42	1.166	1.360	0.455
0	-0.610	0.372	42	1.166	1.360	-0.711
1	0.390	0.152	43	2.166	4.692	0.846

1	0.294	0.086	43	2.166	4.692	0.637
1	0.294	0.086	38	-2.834	8.032	-0.833
0	-0.706	0.498	36	-4.834	23.368	3.412
1	0.294	0.086	37	-3.834	14.700	-1.128
1	0.294	0.086	55	14.166	200.676	4.166
0	-0.706	0.498	28	-12.834	164.712	9.060
1	0.294	0.086	51	10.166	103.348	2.990
1	0.294	0.086	53	12.166	148.012	3.578
1	0.294	0.086	45	4.166	17.356	1.225
0	-0.706	0.498	33	-7.834	61.372	5.530
0	-0.706	0.498	45	4.166	17.356	-2.941
1	0.294	0.086	44	3.166	10.024	0.931
1	0.294	0.086	44	3.166	10.024	0.931
1	0.294	0.086	49	8.166	66.684	2.402
1	0.294	0.086	39	-1.834	3.364	-0.539
0	-0.706	0.498	49	8.166	66.684	-5.764
1	0.294	0.086	35	-5.834	34.036	-1.716
1	0.294	0.086	31	-9.834	96.708	-2.892
0	-0.706	0.498	33	-7.834	61.372	5.530
0	-0.706	0.498	48	7.166	51.352	-5.058
1	0.294	0.086	12	-28.834	831.400	-8.480
1	0.294	0.086	35	-5.834	34.036	-1.716
1	0.294	0.086	39	-1.834	3.364	-0.539
1	0.294	0.086	53	12.166	148.012	3.578
0	-0.706	0.498	48	7.166	51.352	-5.058
1	0.294	0.086	48	7.166	51.352	2.108
0	-0.706	0.498	40	-0.834	0.696	0.589
1	0.294	0.086	44	3.166	10.024	0.931
1	0.294	0.086	46	5.166	26.688	1.519
0	-0.706	0.498	21	-19.834	393.388	14.001
0	-0.706	0.498	45	4.166	17.356	-2.941

1	0.390	0.152	43	2.166	4.692	0.846
1	0.390	0.152	38	-2.834	8.032	-1.106
0	-0.610	0.372	36	-4.834	23.368	2.947
0	-0.610	0.372	37	-3.834	14.700	2.337
1	0.390	0.152	55	14.166	200.676	5.530
0	-0.610	0.372	28	-12.834	164.712	7.824
1	0.390	0.152	51	10.166	103.348	3.969
1	0.390	0.152	53	12.166	148.012	4.750
1	0.390	0.152	45	4.166	17.356	1.626
1	0.390	0.152	33	-7.834	61.372	-3.058
1	0.390	0.152	45	4.166	17.356	1.626
1	0.390	0.152	44	3.166	10.024	1.236
0	-0.610	0.372	44	3.166	10.024	-1.930
1	0.390	0.152	49	8.166	66.684	3.188
0	-0.610	0.372	39	-1.834	3.364	1.118
1	0.390	0.152	49	8.166	66.684	3.188
1	0.390	0.152	35	-5.834	34.036	-2.278
0	-0.610	0.372	31	-9.834	96.708	5.995
1	0.390	0.152	33	-7.834	61.372	-3.058
0	-0.610	0.372	48	7.166	51.352	-4.368
1	0.390	0.152	12	-28.834	831.400	-11.257
1	0.390	0.152	35	-5.834	34.036	-2.278
1	0.390	0.152	39	-1.834	3.364	-0.716
1	0.390	0.152	53	12.166	148.012	4.750
0	-0.610	0.372	48	7.166	51.352	-4.368
1	0.390	0.152	48	7.166	51.352	2.798
1	0.390	0.152	40	-0.834	0.696	-0.326
0	-0.610	0.372	44	3.166	10.024	-1.930
1	0.390	0.152	46	5.166	26.688	2.017
1	0.390	0.152	21	-19.834	393.388	-7.743
1	0.390	0.152	45	4.166	17.356	1.626

0	-0.706	0.498	2	-38.834	1508.080	27.413
0	-0.706	0.498	37	-3.834	14.700	2.706
1	0.294	0.086	34	-6.834	46.704	-2.010
1	0.294	0.086	32	-8.834	78.040	-2.598
0	-0.706	0.498	29	-11.834	140.044	8.354
1	0.294	0.086	48	7.166	51.352	2.108
1	0.294	0.086	48	7.166	51.352	2.108
1	0.294	0.086	37	-3.834	14.700	-1.128
1	0.294	0.086	53	12.166	148.012	3.578
1	0.294	0.086	42	1.166	1.360	0.343
0	-0.706	0.498	48	7.166	51.352	-5.058
1	0.294	0.086	45	4.166	17.356	1.225
0	-0.706	0.498	52	11.166	124.680	-7.882
0	-0.706	0.498	23	-17.834	318.052	12.589
0	-0.706	0.498	38	-2.834	8.032	2.001
1	0.294	0.086	51	10.166	103.348	2.990
1	0.294	0.086	38	-2.834	8.032	-0.833
1	0.294	0.086	29	-11.834	140.044	-3.480
0	-0.706	0.498	28	-12.834	164.712	9.060
1	0.294	0.086	39	-1.834	3.364	-0.539
0	-0.706	0.498	33	-7.834	61.372	5.530
1	0.294	0.086	44	3.166	10.024	0.931
0	-0.706	0.498	33	-7.834	61.372	5.530
1	0.294	0.086	47	6.166	38.020	1.813
0	-0.706	0.498	31	-9.834	96.708	6.942
1	0.294	0.086	47	6.166	38.020	1.813
0	-0.706	0.498	41	0.166	0.028	-0.117
1	0.294	0.086	54	13.166	173.344	3.872
1	0.294	0.086	48	7.166	51.352	2.108
1	0.294	0.086	53	12.166	148.012	3.578
1	0.294	0.086	43	2.166	4.692	0.637

0	-0.610	0.372	2	-38.834	1508.080	23.673
0	-0.610	0.372	37	-3.834	14.700	2.337
0	-0.610	0.372	34	-6.834	46.704	4.166
0	-0.610	0.372	32	-8.834	78.040	5.385
0	-0.610	0.372	29	-11.834	140.044	7.214
1	0.390	0.152	48	7.166	51.352	2.798
1	0.390	0.152	48	7.166	51.352	2.798
1	0.390	0.152	37	-3.834	14.700	-1.497
0	-0.610	0.372	53	12.166	148.012	-7.416
0	-0.610	0.372	42	1.166	1.360	-0.711
1	0.390	0.152	48	7.166	51.352	2.798
1	0.390	0.152	45	4.166	17.356	1.626
1	0.390	0.152	52	11.166	124.680	4.359
0	-0.610	0.372	23	-17.834	318.052	10.872
0	-0.610	0.372	38	-2.834	8.032	1.728
1	0.390	0.152	51	10.166	103.348	3.969
1	0.390	0.152	38	-2.834	8.032	-1.106
0	-0.610	0.372	29	-11.834	140.044	7.214
0	-0.610	0.372	28	-12.834	164.712	7.824
1	0.390	0.152	39	-1.834	3.364	-0.716
0	-0.610	0.372	33	-7.834	61.372	4.776
0	-0.610	0.372	44	3.166	10.024	-1.930
0	-0.610	0.372	33	-7.834	61.372	4.776
1	0.390	0.152	47	6.166	38.020	2.407
1	0.390	0.152	31	-9.834	96.708	-3.839
1	0.390	0.152	47	6.166	38.020	2.407
0	-0.610	0.372	41	0.166	0.028	-0.101
1	0.390	0.152	54	13.166	173.344	5.140
0	-0.610	0.372	48	7.166	51.352	-4.368
1	0.390	0.152	53	12.166	148.012	4.750
1	0.390	0.152	43	2.166	4.692	0.846

1	0.294	0.086	50	9.166	84.016	2.696
1	0.294	0.086	47	6.166	38.020	1.813
0	-0.706	0.498	42	1.166	1.360	-0.823
1	0.294	0.086	37	-3.834	14.700	-1.128
1	0.294	0.086	41	0.166	0.028	0.049
0	-0.706	0.498	18	-22.834	521.392	16.119
1	0.294	0.086	26	-14.834	220.048	-4.363
1	0.294	0.086	52	11.166	124.680	3.284
1	0.294	0.086	44	3.166	10.024	0.931
0	-0.706	0.498	51	10.166	103.348	-7.176
1	0.294	0.086	35	-5.834	34.036	-1.716
1	0.294	0.086	40	-0.834	0.696	-0.245
1	0.294	0.086	47	6.166	38.020	1.813
1	0.294	0.086	49	8.166	66.684	2.402
1	0.294	0.086	36	-4.834	23.368	-1.422
0	-0.706	0.498	6	-34.834	1213.408	24.589
1	0.294	0.086	55	14.166	200.676	4.166
1	0.294	0.086	50	9.166	84.016	2.696
0	-0.706	0.498	48	7.166	51.352	-5.058
0	-0.706	0.498	44	3.166	10.024	-2.235
1	0.294	0.086	52	11.166	124.680	3.284
1	0.294	0.086	46	5.166	26.688	1.519
1	0.294	0.086	49	8.166	66.684	2.402
1	0.294	0.086	47	6.166	38.020	1.813
1	0.294	0.086	54	13.166	173.344	3.872
0	-0.706	0.498	25	-15.834	250.716	11.177
1	0.294	0.086	55	14.166	200.676	4.166
1	0.294	0.086	55	14.166	200.676	4.166
1	0.294	0.086	41	0.166	0.028	0.049
0	-0.706	0.498	31	-9.834	96.708	6.942
0	-0.706	0.498	13	-27.834	774.732	19.648

1	0.390	0.152	50	9.166	84.016	3.578
1	0.390	0.152	47	6.166	38.020	2.407
1	0.390	0.152	42	1.166	1.360	0.455
1	0.390	0.152	37	-3.834	14.700	-1.497
0	-0.610	0.372	41	0.166	0.028	-0.101
0	-0.610	0.372	18	-22.834	521.392	13.920
0	-0.610	0.372	26	-14.834	220.048	9.043
1	0.390	0.152	52	11.166	124.680	4.359
0	-0.610	0.372	44	3.166	10.024	-1.930
0	-0.610	0.372	51	10.166	103.348	-6.197
1	0.390	0.152	35	-5.834	34.036	-2.278
0	-0.610	0.372	40	-0.834	0.696	0.508
1	0.390	0.152	47	6.166	38.020	2.407
0	-0.610	0.372	49	8.166	66.684	-4.978
0	-0.610	0.372	36	-4.834	23.368	2.947
0	-0.610	0.372	6	-34.834	1213.408	21.235
1	0.390	0.152	55	14.166	200.676	5.530
1	0.390	0.152	50	9.166	84.016	3.578
1	0.390	0.152	48	7.166	51.352	2.798
0	-0.610	0.372	44	3.166	10.024	-1.930
1	0.390	0.152	52	11.166	124.680	4.359
1	0.390	0.152	46	5.166	26.688	2.017
0	-0.610	0.372	49	8.166	66.684	-4.978
1	0.390	0.152	47	6.166	38.020	2.407
0	-0.610	0.372	54	13.166	173.344	-8.026
0	-0.610	0.372	25	-15.834	250.716	9.652
1	0.390	0.152	55	14.166	200.676	5.530
1	0.390	0.152	55	14.166	200.676	5.530
1	0.390	0.152	41	0.166	0.028	0.065
0	-0.610	0.372	31	-9.834	96.708	5.995
0	-0.610	0.372	13	-27.834	774.732	16.968

1	0.294	0.086	55	14.166	200.676	4.166
0	-0.706	0.498	45	4.166	17.356	-2.941
1	0.294	0.086	55	14.166	200.676	4.166
1	0.294	0.086	52	11.166	124.680	3.284
1	0.294	0.086	49	8.166	66.684	2.402
1	0.294	0.086	42	1.166	1.360	0.343
1	0.294	0.086	37	-3.834	14.700	-1.128
1	0.294	0.086	24	-16.834	283.384	-4.951
0	-0.706	0.498	21	-19.834	393.388	14.001
1	0.294	0.086	38	-2.834	8.032	-0.833
1	0.294	0.086	46	5.166	26.688	1.519
0	-0.706	0.498	29	-11.834	140.044	8.354
1	0.294	0.086	48	7.166	51.352	2.108
0	-0.706	0.498	42	1.166	1.360	-0.823
0	-0.706	0.498	38	-2.834	8.032	2.001
1	0.294	0.086	18	-22.834	521.392	-6.715
1	0.294	0.086	49	8.166	66.684	2.402
1	0.294	0.086	30	-10.834	117.376	-3.186
1	0.294	0.086	43	2.166	4.692	0.637
1	0.294	0.086	39	-1.834	3.364	-0.539
1	0.294	0.086	31	-9.834	96.708	-2.892
1	0.294	0.086	28	-12.834	164.712	-3.774
0	-0.706	0.498	48	7.166	51.352	-5.058
1	0.294	0.086	47	6.166	38.020	1.813
0	-0.706	0.498	37	-3.834	14.700	2.706
0	-0.706	0.498	40	-0.834	0.696	0.589
1	0.294	0.086	49	8.166	66.684	2.402
0	-0.706	0.498	32	-8.834	78.040	6.236
1	0.294	0.086	47	6.166	38.020	1.813
1	0.294	0.086	32	-8.834	78.040	-2.598
1	0.294	0.086	29	-11.834	140.044	-3.480

1	0.390	0.152	55	14.166	200.676	5.530
1	0.390	0.152	45	4.166	17.356	1.626
1	0.390	0.152	55	14.166	200.676	5.530
1	0.390	0.152	52	11.166	124.680	4.359
1	0.390	0.152	49	8.166	66.684	3.188
1	0.390	0.152	42	1.166	1.360	0.455
1	0.390	0.152	37	-3.834	14.700	-1.497
0	-0.610	0.372	24	-16.834	283.384	10.262
0	-0.610	0.372	21	-19.834	393.388	12.091
1	0.390	0.152	38	-2.834	8.032	-1.106
1	0.390	0.152	46	5.166	26.688	2.017
0	-0.610	0.372	29	-11.834	140.044	7.214
1	0.390	0.152	48	7.166	51.352	2.798
0	-0.610	0.372	42	1.166	1.360	-0.711
0	-0.610	0.372	38	-2.834	8.032	1.728
0	-0.610	0.372	18	-22.834	521.392	13.920
1	0.390	0.152	49	8.166	66.684	3.188
0	-0.610	0.372	30	-10.834	117.376	6.604
1	0.390	0.152	43	2.166	4.692	0.846
0	-0.610	0.372	39	-1.834	3.364	1.118
1	0.390	0.152	31	-9.834	96.708	-3.839
1	0.390	0.152	28	-12.834	164.712	-5.010
0	-0.610	0.372	48	7.166	51.352	-4.368
1	0.390	0.152	47	6.166	38.020	2.407
1	0.390	0.152	37	-3.834	14.700	-1.497
0	-0.610	0.372	40	-0.834	0.696	0.508
1	0.390	0.152	49	8.166	66.684	3.188
0	-0.610	0.372	32	-8.834	78.040	5.385
1	0.390	0.152	47	6.166	38.020	2.407
0	-0.610	0.372	32	-8.834	78.040	5.385
0	-0.610	0.372	29	-11.834	140.044	7.214

1	0.294	0.086	23	-17.834	318.052	-5.245
1	0.294	0.086	41	0.166	0.028	0.049
1	0.294	0.086	41	0.166	0.028	0.049
1	0.294	0.086	51	10.166	103.348	2.990
0	-0.706	0.498	29	-11.834	140.044	8.354
1	0.294	0.086	37	-3.834	14.700	-1.128
0	-0.706	0.498	37	-3.834	14.700	2.706
1	0.294	0.086	36	-4.834	23.368	-1.422
1	0.294	0.086	40	-0.834	0.696	-0.245
1	0.294	0.086	50	9.166	84.016	2.696
1	0.294	0.086	38	-2.834	8.032	-0.833
1	0.294	0.086	40	-0.834	0.696	-0.245
1	0.294	0.086	36	-4.834	23.368	-1.422
0	-0.706	0.498	20	-20.834	434.056	14.707
0	-0.706	0.498	47	6.166	38.020	-4.353
1	0.294	0.086	54	13.166	173.344	3.872
1	0.294	0.086	50	9.166	84.016	2.696
0	-0.706	0.498	25	-15.834	250.716	11.177
1	0.294	0.086	53	12.166	148.012	3.578
1	0.294	0.086	44	3.166	10.024	0.931
0	-0.706	0.498	26	-14.834	220.048	10.471
1	0.294	0.086	33	-7.834	61.372	-2.304
1	0.294	0.086	36	-4.834	23.368	-1.422
1	0.294	0.086	39	-1.834	3.364	-0.539
1	0.294	0.086	46	5.166	26.688	1.519
0	-0.706	0.498	36	-4.834	23.368	3.412
1	0.294	0.086	54	13.166	173.344	3.872
1	0.294	0.086	36	-4.834	23.368	-1.422
1	0.294	0.086	44	3.166	10.024	0.931
1	0.294	0.086	40	-0.834	0.696	-0.245
0	-0.706	0.498	38	-2.834	8.032	2.001

0	-0.610	0.372	23	-17.834	318.052	10.872
0	-0.610	0.372	41	0.166	0.028	-0.101
0	-0.610	0.372	41	0.166	0.028	-0.101
1	0.390	0.152	51	10.166	103.348	3.969
0	-0.610	0.372	29	-11.834	140.044	7.214
1	0.390	0.152	37	-3.834	14.700	-1.497
1	0.390	0.152	37	-3.834	14.700	-1.497
0	-0.610	0.372	36	-4.834	23.368	2.947
1	0.390	0.152	40	-0.834	0.696	-0.326
1	0.390	0.152	50	9.166	84.016	3.578
1	0.390	0.152	38	-2.834	8.032	-1.106
0	-0.610	0.372	40	-0.834	0.696	0.508
0	-0.610	0.372	36	-4.834	23.368	2.947
0	-0.610	0.372	20	-20.834	434.056	12.700
1	0.390	0.152	47	6.166	38.020	2.407
1	0.390	0.152	54	13.166	173.344	5.140
1	0.390	0.152	50	9.166	84.016	3.578
1	0.390	0.152	25	-15.834	250.716	-6.182
0	-0.610	0.372	53	12.166	148.012	-7.416
0	-0.610	0.372	44	3.166	10.024	-1.930
0	-0.610	0.372	26	-14.834	220.048	9.043
1	0.390	0.152	33	-7.834	61.372	-3.058
1	0.390	0.152	36	-4.834	23.368	-1.887
1	0.390	0.152	39	-1.834	3.364	-0.716
0	-0.610	0.372	46	5.166	26.688	-3.149
1	0.390	0.152	36	-4.834	23.368	-1.887
1	0.390	0.152	54	13.166	173.344	5.140
1	0.390	0.152	36	-4.834	23.368	-1.887
1	0.390	0.152	44	3.166	10.024	1.236
1	0.390	0.152	40	-0.834	0.696	-0.326
0	-0.610	0.372	38	-2.834	8.032	1.728

1	0.294	0.086	35	-5.834	34.036	-1.716
1	0.294	0.086	46	5.166	26.688	1.519
1	0.294	0.086	49	8.166	66.684	2.402
1	0.294	0.086	48	7.166	51.352	2.108
1	0.294	0.086	41	0.166	0.028	0.049
1	0.294	0.086	53	12.166	148.012	3.578
1	0.294	0.086	53	12.166	148.012	3.578
1	0.294	0.086	51	10.166	103.348	2.990
132	-0.003	38.824	7636	0.042	19431.861	336.882

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$

$$= \frac{336,882}{\sqrt{38,824 \times 19431,861}} = 0.3879$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

1	0.390	0.152	35	-5.834	34.036	-2.278
1	0.390	0.152	46	5.166	26.688	2.017
1	0.390	0.152	49	8.166	66.684	3.188
1	0.390	0.152	48	7.166	51.352	2.798
1	0.390	0.152	41	0.166	0.028	0.065
1	0.390	0.152	53	12.166	148.012	4.750
1	0.390	0.152	53	12.166	148.012	4.750
1	0.390	0.152	51	10.166	103.348	3.969
114	0.005	44.503	7636	0.042	19431.861	406.898

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$

$$= \frac{406,898}{\sqrt{44,503 \times 19431,861}} = 0.4376$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 23 dan No 24

Pertanyaan no 23

$$x = 97/187 = 0.5187$$

$$y = 7636/187 = 40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.481	0.232	51	10.166	103.348	4.893
1	0.481	0.232	36	-4.834	23.368	-2.327
0	-0.519	0.269	41	0.166	0.028	-0.086
1	0.481	0.232	52	11.166	124.680	5.374
1	0.481	0.232	51	10.166	103.348	4.893
1	0.481	0.232	50	9.166	84.016	4.412
0	-0.519	0.269	46	5.166	26.688	-2.680
1	0.481	0.232	55	14.166	200.676	6.818
1	0.481	0.232	49	8.166	66.684	3.930
0	-0.519	0.269	31	-9.834	96.708	5.101
0	-0.519	0.269	46	5.166	26.688	-2.680
1	0.481	0.232	44	3.166	10.024	1.524
0	-0.519	0.269	40	-0.834	0.696	0.433
0	-0.519	0.269	48	7.166	51.352	-3.717
0	-0.519	0.269	31	-9.834	96.708	5.101
0	-0.519	0.269	27	-13.834	191.380	7.176
0	-0.519	0.269	47	6.166	38.020	-3.198
0	-0.519	0.269	50	9.166	84.016	-4.754
1	0.481	0.232	55	14.166	200.676	6.818
1	0.481	0.232	47	6.166	38.020	2.968
1	0.481	0.232	16	-24.834	616.728	-11.953
0	-0.519	0.269	42	1.166	1.360	-0.605
0	-0.519	0.269	42	1.166	1.360	-0.605
1	0.481	0.232	43	2.166	4.692	1.042

Pertanyaan no 24

$$x = 167/187 = 0.8930$$

$$y = 7636/187 = 40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.107	0.011	51	10.166	103.348	1.088
1	0.107	0.011	36	-4.834	23.368	-0.517
1	0.107	0.011	41	0.166	0.028	0.018
1	0.107	0.011	52	11.166	124.680	1.195
1	0.107	0.011	51	10.166	103.348	1.088
1	0.107	0.011	50	9.166	84.016	0.981
1	0.107	0.011	46	5.166	26.688	0.553
1	0.107	0.011	55	14.166	200.676	1.516
1	0.107	0.011	49	8.166	66.684	0.874
0	-0.893	0.797	31	-9.834	96.708	8.782
1	0.107	0.011	46	5.166	26.688	0.553
1	0.107	0.011	44	3.166	10.024	0.339
1	0.107	0.011	40	-0.834	0.696	-0.089
1	0.107	0.011	48	7.166	51.352	0.767
0	-0.893	0.797	31	-9.834	96.708	8.782
0	-0.893	0.797	27	-13.834	191.380	12.354
1	0.107	0.011	47	6.166	38.020	0.660
1	0.107	0.011	50	9.166	84.016	0.981
1	0.107	0.011	55	14.166	200.676	1.516
1	0.107	0.011	47	6.166	38.020	0.660
0	-0.893	0.797	16	-24.834	616.728	22.177
1	0.107	0.011	42	1.166	1.360	0.125
0	-0.893	0.797	42	1.166	1.360	-1.041
1	0.107	0.011	43	2.166	4.692	0.232

1	0.481	0.232	43	2.166	4.692	1.042
1	0.481	0.232	38	-2.834	8.032	-1.364
0	-0.519	0.269	36	-4.834	23.368	2.507
0	-0.519	0.269	37	-3.834	14.700	1.989
1	0.481	0.232	55	14.166	200.676	6.818
0	-0.519	0.269	28	-12.834	164.712	6.657
1	0.481	0.232	51	10.166	103.348	4.893
1	0.481	0.232	53	12.166	148.012	5.855
1	0.481	0.232	45	4.166	17.356	2.005
0	-0.519	0.269	33	-7.834	61.372	4.063
1	0.481	0.232	45	4.166	17.356	2.005
0	-0.519	0.269	44	3.166	10.024	-1.642
0	-0.519	0.269	44	3.166	10.024	-1.642
1	0.481	0.232	49	8.166	66.684	3.930
0	-0.519	0.269	39	-1.834	3.364	0.951
1	0.481	0.232	49	8.166	66.684	3.930
1	0.481	0.232	35	-5.834	34.036	-2.808
0	-0.519	0.269	31	-9.834	96.708	5.101
1	0.481	0.232	33	-7.834	61.372	-3.771
0	-0.519	0.269	48	7.166	51.352	-3.717
1	0.481	0.232	12	-28.834	831.400	-13.878
0	-0.519	0.269	35	-5.834	34.036	3.026
1	0.481	0.232	39	-1.834	3.364	-0.883
1	0.481	0.232	53	12.166	148.012	5.855
0	-0.519	0.269	48	7.166	51.352	-3.717
1	0.481	0.232	48	7.166	51.352	3.449
0	-0.519	0.269	40	-0.834	0.696	0.433
1	0.481	0.232	44	3.166	10.024	1.524
1	0.481	0.232	46	5.166	26.688	2.486
1	0.481	0.232	21	-19.834	393.388	-9.546
0	-0.519	0.269	45	4.166	17.356	-2.161

1	0.107	0.011	43	2.166	4.692	0.232
1	0.107	0.011	38	-2.834	8.032	-0.303
1	0.107	0.011	36	-4.834	23.368	-0.517
1	0.107	0.011	37	-3.834	14.700	-0.410
1	0.107	0.011	55	14.166	200.676	1.516
0	-0.893	0.797	28	-12.834	164.712	11.461
1	0.107	0.011	51	10.166	103.348	1.088
1	0.107	0.011	53	12.166	148.012	1.302
1	0.107	0.011	45	4.166	17.356	0.446
1	0.107	0.011	33	-7.834	61.372	-0.838
1	0.107	0.011	45	4.166	17.356	0.446
1	0.107	0.011	44	3.166	10.024	0.339
1	0.107	0.011	44	3.166	10.024	0.339
1	0.107	0.011	49	8.166	66.684	0.874
1	0.107	0.011	39	-1.834	3.364	-0.196
1	0.107	0.011	49	8.166	66.684	0.874
1	0.107	0.011	35	-5.834	34.036	-0.624
1	0.107	0.011	31	-9.834	96.708	-1.052
1	0.107	0.011	33	-7.834	61.372	-0.838
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	12	-28.834	831.400	-3.085
1	0.107	0.011	35	-5.834	34.036	-0.624
1	0.107	0.011	39	-1.834	3.364	-0.196
1	0.107	0.011	53	12.166	148.012	1.302
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	40	-0.834	0.696	-0.089
1	0.107	0.011	44	3.166	10.024	0.339
1	0.107	0.011	46	5.166	26.688	0.553
1	0.107	0.011	21	-19.834	393.388	-2.122
1	0.107	0.011	45	4.166	17.356	0.446

0	-0.519	0.269	2	-38.834	1508.080	20.143
0	-0.519	0.269	37	-3.834	14.700	1.989
0	-0.519	0.269	34	-6.834	46.704	3.545
0	-0.519	0.269	32	-8.834	78.040	4.582
0	-0.519	0.269	29	-11.834	140.044	6.138
1	0.481	0.232	48	7.166	51.352	3.449
0	-0.519	0.269	48	7.166	51.352	-3.717
1	0.481	0.232	37	-3.834	14.700	-1.845
1	0.481	0.232	53	12.166	148.012	5.855
0	-0.519	0.269	42	1.166	1.360	-0.605
1	0.481	0.232	48	7.166	51.352	3.449
1	0.481	0.232	45	4.166	17.356	2.005
1	0.481	0.232	52	11.166	124.680	5.374
0	-0.519	0.269	23	-17.834	318.052	9.250
0	-0.519	0.269	38	-2.834	8.032	1.470
0	-0.519	0.269	51	10.166	103.348	-5.273
0	-0.519	0.269	38	-2.834	8.032	1.470
0	-0.519	0.269	29	-11.834	140.044	6.138
0	-0.519	0.269	28	-12.834	164.712	6.657
1	0.481	0.232	39	-1.834	3.364	-0.883
0	-0.519	0.269	33	-7.834	61.372	4.063
0	-0.519	0.269	44	3.166	10.024	-1.642
0	-0.519	0.269	33	-7.834	61.372	4.063
1	0.481	0.232	47	6.166	38.020	2.968
0	-0.519	0.269	31	-9.834	96.708	5.101
1	0.481	0.232	47	6.166	38.020	2.968
1	0.481	0.232	41	0.166	0.028	0.080
1	0.481	0.232	54	13.166	173.344	6.337
0	-0.519	0.269	48	7.166	51.352	-3.717
1	0.481	0.232	53	12.166	148.012	5.855
0	-0.519	0.269	43	2.166	4.692	-1.124

0	-0.893	0.797	2	-38.834	1508.080	34.679
1	0.107	0.011	37	-3.834	14.700	-0.410
0	-0.893	0.797	34	-6.834	46.704	6.103
1	0.107	0.011	32	-8.834	78.040	-0.945
1	0.107	0.011	29	-11.834	140.044	-1.266
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	37	-3.834	14.700	-0.410
1	0.107	0.011	53	12.166	148.012	1.302
1	0.107	0.011	42	1.166	1.360	0.125
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	45	4.166	17.356	0.446
1	0.107	0.011	52	11.166	124.680	1.195
1	0.107	0.011	23	-17.834	318.052	-1.908
1	0.107	0.011	38	-2.834	8.032	-0.303
1	0.107	0.011	51	10.166	103.348	1.088
1	0.107	0.011	38	-2.834	8.032	-0.303
1	0.107	0.011	29	-11.834	140.044	-1.266
0	-0.893	0.797	28	-12.834	164.712	11.461
1	0.107	0.011	39	-1.834	3.364	-0.196
0	-0.893	0.797	33	-7.834	61.372	6.996
1	0.107	0.011	44	3.166	10.024	0.339
0	-0.893	0.797	33	-7.834	61.372	6.996
1	0.107	0.011	47	6.166	38.020	0.660
1	0.107	0.011	31	-9.834	96.708	-1.052
1	0.107	0.011	47	6.166	38.020	0.660
1	0.107	0.011	41	0.166	0.028	0.018
1	0.107	0.011	54	13.166	173.344	1.409
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	53	12.166	148.012	1.302
1	0.107	0.011	43	2.166	4.692	0.232

1	0.481	0.232	50	9.166	84.016	4.412
1	0.481	0.232	47	6.166	38.020	2.968
0	-0.519	0.269	42	1.166	1.360	-0.605
1	0.481	0.232	37	-3.834	14.700	-1.845
0	-0.519	0.269	41	0.166	0.028	-0.086
0	-0.519	0.269	18	-22.834	521.392	11.844
0	-0.519	0.269	26	-14.834	220.048	7.694
1	0.481	0.232	52	11.166	124.680	5.374
0	-0.519	0.269	44	3.166	10.024	-1.642
0	-0.519	0.269	51	10.166	103.348	-5.273
1	0.481	0.232	35	-5.834	34.036	-2.808
0	-0.519	0.269	40	-0.834	0.696	0.433
0	-0.519	0.269	47	6.166	38.020	-3.198
0	-0.519	0.269	49	8.166	66.684	-4.236
0	-0.519	0.269	36	-4.834	23.368	2.507
0	-0.519	0.269	6	-34.834	1213.408	18.068
1	0.481	0.232	55	14.166	200.676	6.818
1	0.481	0.232	50	9.166	84.016	4.412
1	0.481	0.232	48	7.166	51.352	3.449
1	0.481	0.232	44	3.166	10.024	1.524
0	-0.519	0.269	52	11.166	124.680	-5.792
1	0.481	0.232	46	5.166	26.688	2.486
1	0.481	0.232	49	8.166	66.684	3.930
0	-0.519	0.269	47	6.166	38.020	-3.198
1	0.481	0.232	54	13.166	173.344	6.337
1	0.481	0.232	25	-15.834	250.716	-7.621
1	0.481	0.232	55	14.166	200.676	6.818
1	0.481	0.232	55	14.166	200.676	6.818
0	-0.519	0.269	41	0.166	0.028	-0.086
0	-0.519	0.269	31	-9.834	96.708	5.101
0	-0.519	0.269	13	-27.834	774.732	14.437

1	0.107	0.011	50	9.166	84.016	0.981
1	0.107	0.011	47	6.166	38.020	0.660
1	0.107	0.011	42	1.166	1.360	0.125
0	-0.893	0.797	37	-3.834	14.700	3.424
0	-0.893	0.797	41	0.166	0.028	-0.148
1	0.107	0.011	18	-22.834	521.392	-2.443
1	0.107	0.011	26	-14.834	220.048	-1.587
1	0.107	0.011	52	11.166	124.680	1.195
1	0.107	0.011	44	3.166	10.024	0.339
1	0.107	0.011	51	10.166	103.348	1.088
1	0.107	0.011	35	-5.834	34.036	-0.624
1	0.107	0.011	40	-0.834	0.696	-0.089
0	-0.893	0.797	47	6.166	38.020	-5.506
1	0.107	0.011	49	8.166	66.684	0.874
1	0.107	0.011	36	-4.834	23.368	-0.517
1	0.107	0.011	6	-34.834	1213.408	-3.727
1	0.107	0.011	55	14.166	200.676	1.516
1	0.107	0.011	50	9.166	84.016	0.981
1	0.107	0.011	48	7.166	51.352	0.767
0	-0.893	0.797	44	3.166	10.024	-2.827
1	0.107	0.011	52	11.166	124.680	1.195
1	0.107	0.011	46	5.166	26.688	0.553
1	0.107	0.011	49	8.166	66.684	0.874
1	0.107	0.011	47	6.166	38.020	0.660
1	0.107	0.011	54	13.166	173.344	1.409
0	-0.893	0.797	25	-15.834	250.716	14.140
1	0.107	0.011	55	14.166	200.676	1.516
1	0.107	0.011	55	14.166	200.676	1.516
1	0.107	0.011	41	0.166	0.028	0.018
0	-0.893	0.797	31	-9.834	96.708	8.782
1	0.107	0.011	13	-27.834	774.732	-2.978

1	0.481	0.232	55	14.166	200.676	6.818
1	0.481	0.232	45	4.166	17.356	2.005
1	0.481	0.232	55	14.166	200.676	6.818
1	0.481	0.232	52	11.166	124.680	5.374
1	0.481	0.232	49	8.166	66.684	3.930
0	-0.519	0.269	42	1.166	1.360	-0.605
1	0.481	0.232	37	-3.834	14.700	-1.845
0	-0.519	0.269	24	-16.834	283.384	8.732
0	-0.519	0.269	21	-19.834	393.388	10.288
1	0.481	0.232	38	-2.834	8.032	-1.364
0	-0.519	0.269	46	5.166	26.688	-2.680
1	0.481	0.232	29	-11.834	140.044	-5.696
1	0.481	0.232	48	7.166	51.352	3.449
1	0.481	0.232	42	1.166	1.360	0.561
0	-0.519	0.269	38	-2.834	8.032	1.470
0	-0.519	0.269	18	-22.834	521.392	11.844
1	0.481	0.232	49	8.166	66.684	3.930
0	-0.519	0.269	30	-10.834	117.376	5.620
0	-0.519	0.269	43	2.166	4.692	-1.124
0	-0.519	0.269	39	-1.834	3.364	0.951
0	-0.519	0.269	31	-9.834	96.708	5.101
0	-0.519	0.269	28	-12.834	164.712	6.657
0	-0.519	0.269	48	7.166	51.352	-3.717
1	0.481	0.232	47	6.166	38.020	2.968
1	0.481	0.232	37	-3.834	14.700	-1.845
1	0.481	0.232	40	-0.834	0.696	-0.401
1	0.481	0.232	49	8.166	66.684	3.930
0	-0.519	0.269	32	-8.834	78.040	4.582
1	0.481	0.232	47	6.166	38.020	2.968
1	0.481	0.232	32	-8.834	78.040	-4.252
0	-0.519	0.269	29	-11.834	140.044	6.138

1	0.107	0.011	55	14.166	200.676	1.516
1	0.107	0.011	45	4.166	17.356	0.446
1	0.107	0.011	55	14.166	200.676	1.516
1	0.107	0.011	52	11.166	124.680	1.195
1	0.107	0.011	49	8.166	66.684	0.874
1	0.107	0.011	42	1.166	1.360	0.125
1	0.107	0.011	37	-3.834	14.700	-0.410
1	0.107	0.011	24	-16.834	283.384	-1.801
1	0.107	0.011	21	-19.834	393.388	-2.122
1	0.107	0.011	38	-2.834	8.032	-0.303
1	0.107	0.011	46	5.166	26.688	0.553
1	0.107	0.011	29	-11.834	140.044	-1.266
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	42	1.166	1.360	0.125
1	0.107	0.011	38	-2.834	8.032	-0.303
1	0.107	0.011	18	-22.834	521.392	-2.443
1	0.107	0.011	49	8.166	66.684	0.874
1	0.107	0.011	30	-10.834	117.376	-1.159
1	0.107	0.011	43	2.166	4.692	0.232
1	0.107	0.011	39	-1.834	3.364	-0.196
0	-0.893	0.797	31	-9.834	96.708	8.782
0	-0.893	0.797	28	-12.834	164.712	11.461
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	47	6.166	38.020	0.660
1	0.107	0.011	37	-3.834	14.700	-0.410
0	-0.893	0.797	40	-0.834	0.696	0.745
1	0.107	0.011	49	8.166	66.684	0.874
1	0.107	0.011	32	-8.834	78.040	-0.945
1	0.107	0.011	47	6.166	38.020	0.660
1	0.107	0.011	32	-8.834	78.040	-0.945
1	0.107	0.011	29	-11.834	140.044	-1.266

0	-0.519	0.269	23	-17.834	318.052	9.250
0	-0.519	0.269	41	0.166	0.028	-0.086
0	-0.519	0.269	41	0.166	0.028	-0.086
1	0.481	0.232	51	10.166	103.348	4.893
0	-0.519	0.269	29	-11.834	140.044	6.138
1	0.481	0.232	37	-3.834	14.700	-1.845
0	-0.519	0.269	37	-3.834	14.700	1.989
0	-0.519	0.269	36	-4.834	23.368	2.507
1	0.481	0.232	40	-0.834	0.696	-0.401
0	-0.519	0.269	50	9.166	84.016	-4.754
1	0.481	0.232	38	-2.834	8.032	-1.364
0	-0.519	0.269	40	-0.834	0.696	0.433
0	-0.519	0.269	36	-4.834	23.368	2.507
0	-0.519	0.269	20	-20.834	434.056	10.807
1	0.481	0.232	47	6.166	38.020	2.968
1	0.481	0.232	54	13.166	173.344	6.337
1	0.481	0.232	50	9.166	84.016	4.412
1	0.481	0.232	25	-15.834	250.716	-7.621
1	0.481	0.232	53	12.166	148.012	5.855
0	-0.519	0.269	44	3.166	10.024	-1.642
1	0.481	0.232	26	-14.834	220.048	-7.140
1	0.481	0.232	33	-7.834	61.372	-3.771
1	0.481	0.232	36	-4.834	23.368	-2.327
1	0.481	0.232	39	-1.834	3.364	-0.883
0	-0.519	0.269	46	5.166	26.688	-2.680
0	-0.519	0.269	36	-4.834	23.368	2.507
1	0.481	0.232	54	13.166	173.344	6.337
0	-0.519	0.269	36	-4.834	23.368	2.507
1	0.481	0.232	44	3.166	10.024	1.524
1	0.481	0.232	40	-0.834	0.696	-0.401
0	-0.519	0.269	38	-2.834	8.032	1.470

1	0.107	0.011	23	-17.834	318.052	-1.908
1	0.107	0.011	41	0.166	0.028	0.018
1	0.107	0.011	41	0.166	0.028	0.018
1	0.107	0.011	51	10.166	103.348	1.088
1	0.107	0.011	29	-11.834	140.044	-1.266
1	0.107	0.011	37	-3.834	14.700	-0.410
1	0.107	0.011	37	-3.834	14.700	-0.410
1	0.107	0.011	36	-4.834	23.368	-0.517
1	0.107	0.011	40	-0.834	0.696	-0.089
1	0.107	0.011	50	9.166	84.016	0.981
1	0.107	0.011	38	-2.834	8.032	-0.303
1	0.107	0.011	40	-0.834	0.696	-0.089
1	0.107	0.011	36	-4.834	23.368	-0.517
1	0.107	0.011	20	-20.834	434.056	-2.229
1	0.107	0.011	47	6.166	38.020	0.660
1	0.107	0.011	54	13.166	173.344	1.409
1	0.107	0.011	50	9.166	84.016	0.981
1	0.107	0.011	25	-15.834	250.716	-1.694
1	0.107	0.011	53	12.166	148.012	1.302
1	0.107	0.011	44	3.166	10.024	0.339
1	0.107	0.011	26	-14.834	220.048	-1.587
1	0.107	0.011	33	-7.834	61.372	-0.838
1	0.107	0.011	36	-4.834	23.368	-0.517
1	0.107	0.011	39	-1.834	3.364	-0.196
1	0.107	0.011	46	5.166	26.688	0.553
1	0.107	0.011	36	-4.834	23.368	-0.517
1	0.107	0.011	54	13.166	173.344	1.409
1	0.107	0.011	36	-4.834	23.368	-0.517
1	0.107	0.011	44	3.166	10.024	0.339
1	0.107	0.011	40	-0.834	0.696	-0.089
1	0.107	0.011	38	-2.834	8.032	-0.303

1	0.481	0.232	35	-5.834	34.036	-2.808
1	0.481	0.232	46	5.166	26.688	2.486
1	0.481	0.232	49	8.166	66.684	3.930
0	-0.519	0.269	48	7.166	51.352	-3.717
1	0.481	0.232	41	0.166	0.028	0.080
1	0.481	0.232	53	12.166	148.012	5.855
1	0.481	0.232	53	12.166	148.012	5.855
1	0.481	0.232	51	10.166	103.348	4.893
97	0.003	46.684	7636	0.042	19431.861	359.080

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{359,080}{\sqrt{46,684 \times 19431,861}} = 0.3770$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

1	0.107	0.011	35	-5.834	34.036	-0.624
1	0.107	0.011	46	5.166	26.688	0.553
1	0.107	0.011	49	8.166	66.684	0.874
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	41	0.166	0.028	0.018
1	0.107	0.011	53	12.166	148.012	1.302
1	0.107	0.011	53	12.166	148.012	1.302
1	0.107	0.011	51	10.166	103.348	1.088
167	0.009	17.861	7636	0.042	19431.861	187.684

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{187,684}{\sqrt{17,861 \times 19431,861}} = 0.3186$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 25 dan No 26

Pertanyaan no 25

$$x = 152/187 = 0.8128$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.187	0.035	51	10.166	103.348	1.903
1	0.187	0.035	36	-4.834	23.368	-0.905
1	0.187	0.035	41	0.166	0.028	0.031
1	0.187	0.035	52	11.166	124.680	2.090
1	0.187	0.035	51	10.166	103.348	1.903
1	0.187	0.035	50	9.166	84.016	1.716
1	0.187	0.035	46	5.166	26.688	0.967
1	0.187	0.035	55	14.166	200.676	2.652
1	0.187	0.035	49	8.166	66.684	1.529
1	0.187	0.035	31	-9.834	96.708	-1.841
1	0.187	0.035	46	5.166	26.688	0.967
1	0.187	0.035	44	3.166	10.024	0.593
0	-0.813	0.661	40	-0.834	0.696	0.678
1	0.187	0.035	48	7.166	51.352	1.341
0	-0.813	0.661	31	-9.834	96.708	7.993
1	0.187	0.035	27	-13.834	191.380	-2.590
1	0.187	0.035	47	6.166	38.020	1.154
1	0.187	0.035	50	9.166	84.016	1.716
1	0.187	0.035	55	14.166	200.676	2.652
1	0.187	0.035	47	6.166	38.020	1.154
1	0.187	0.035	16	-24.834	616.728	-4.649
0	-0.813	0.661	42	1.166	1.360	-0.948
1	0.187	0.035	42	1.166	1.360	0.218
0	-0.813	0.661	43	2.166	4.692	-1.761

Pertanyaan no 26

$$x = 141/187 = 0.7540$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.246	0.061	51	10.166	103.348	2.501
1	0.246	0.061	36	-4.834	23.368	-1.189
1	0.246	0.061	41	0.166	0.028	0.041
1	0.246	0.061	52	11.166	124.680	2.747
1	0.246	0.061	51	10.166	103.348	2.501
1	0.246	0.061	50	9.166	84.016	2.255
1	0.246	0.061	46	5.166	26.688	1.271
1	0.246	0.061	55	14.166	200.676	3.485
1	0.246	0.061	49	8.166	66.684	2.009
1	0.246	0.061	31	-9.834	96.708	-2.419
1	0.246	0.061	46	5.166	26.688	1.271
1	0.246	0.061	44	3.166	10.024	0.779
1	0.246	0.061	40	-0.834	0.696	-0.205
0	-0.754	0.569	48	7.166	51.352	-5.403
0	-0.754	0.569	31	-9.834	96.708	7.415
1	0.246	0.061	27	-13.834	191.380	-3.403
1	0.246	0.061	47	6.166	38.020	1.517
1	0.246	0.061	50	9.166	84.016	2.255
1	0.246	0.061	55	14.166	200.676	3.485
1	0.246	0.061	47	6.166	38.020	1.517
0	-0.754	0.569	16	-24.834	616.728	18.725
1	0.246	0.061	42	1.166	1.360	0.287
0	-0.754	0.569	42	1.166	1.360	-0.879
0	-0.754	0.569	43	2.166	4.692	-1.633

Uji

Perta

$$x = 1$$

$$y = 7$$

xi
1
1
1
1
1
0
0
1
1
0
1
1
1
1
1
1
0
0
1
1

1	0.187	0.035	43	2.166	4.692	0.405
0	-0.813	0.661	38	-2.834	8.032	2.303
1	0.187	0.035	36	-4.834	23.368	-0.905
1	0.187	0.035	37	-3.834	14.700	-0.718
1	0.187	0.035	55	14.166	200.676	2.652
1	0.187	0.035	28	-12.834	164.712	-2.403
1	0.187	0.035	51	10.166	103.348	1.903
1	0.187	0.035	53	12.166	148.012	2.277
1	0.187	0.035	45	4.166	17.356	0.780
1	0.187	0.035	33	-7.834	61.372	-1.467
1	0.187	0.035	45	4.166	17.356	0.780
1	0.187	0.035	44	3.166	10.024	0.593
1	0.187	0.035	44	3.166	10.024	0.593
1	0.187	0.035	49	8.166	66.684	1.529
0	-0.813	0.661	39	-1.834	3.364	1.491
1	0.187	0.035	49	8.166	66.684	1.529
0	-0.813	0.661	35	-5.834	34.036	4.742
1	0.187	0.035	31	-9.834	96.708	-1.841
1	0.187	0.035	33	-7.834	61.372	-1.467
1	0.187	0.035	48	7.166	51.352	1.341
1	0.187	0.035	12	-28.834	831.400	-5.398
0	-0.813	0.661	35	-5.834	34.036	4.742
1	0.187	0.035	39	-1.834	3.364	-0.343
1	0.187	0.035	53	12.166	148.012	2.277
1	0.187	0.035	48	7.166	51.352	1.341
1	0.187	0.035	48	7.166	51.352	1.341
1	0.187	0.035	40	-0.834	0.696	-0.156
1	0.187	0.035	44	3.166	10.024	0.593
1	0.187	0.035	46	5.166	26.688	0.967
0	-0.813	0.661	21	-19.834	393.388	16.121
1	0.187	0.035	45	4.166	17.356	0.780

1	0.246	0.061	43	2.166	4.692	0.533
1	0.246	0.061	38	-2.834	8.032	-0.697
1	0.246	0.061	36	-4.834	23.368	-1.189
1	0.246	0.061	37	-3.834	14.700	-0.943
1	0.246	0.061	55	14.166	200.676	3.485
1	0.246	0.061	28	-12.834	164.712	-3.157
1	0.246	0.061	51	10.166	103.348	2.501
1	0.246	0.061	53	12.166	148.012	2.993
1	0.246	0.061	45	4.166	17.356	1.025
0	-0.754	0.569	33	-7.834	61.372	5.907
1	0.246	0.061	45	4.166	17.356	1.025
0	-0.754	0.569	44	3.166	10.024	-2.387
1	0.246	0.061	44	3.166	10.024	0.779
0	-0.754	0.569	49	8.166	66.684	-6.157
1	0.246	0.061	39	-1.834	3.364	-0.451
1	0.246	0.061	49	8.166	66.684	2.009
0	-0.754	0.569	35	-5.834	34.036	4.399
1	0.246	0.061	31	-9.834	96.708	-2.419
0	-0.754	0.569	33	-7.834	61.372	5.907
1	0.246	0.061	48	7.166	51.352	1.763
1	0.246	0.061	12	-28.834	831.400	-7.093
0	-0.754	0.569	35	-5.834	34.036	4.399
1	0.246	0.061	39	-1.834	3.364	-0.451
1	0.246	0.061	53	12.166	148.012	2.993
0	-0.754	0.569	48	7.166	51.352	-5.403
1	0.246	0.061	48	7.166	51.352	1.763
0	-0.754	0.569	40	-0.834	0.696	0.629
1	0.246	0.061	44	3.166	10.024	0.779
1	0.246	0.061	46	5.166	26.688	1.271
0	-0.754	0.569	21	-19.834	393.388	14.955
1	0.246	0.061	45	4.166	17.356	1.025

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1	0.187	0.035	55	14.166	200.676	2.652
1	0.187	0.035	45	4.166	17.356	0.780
1	0.187	0.035	55	14.166	200.676	2.652
1	0.187	0.035	52	11.166	124.680	2.090
1	0.187	0.035	49	8.166	66.684	1.529
1	0.187	0.035	42	1.166	1.360	0.218
1	0.187	0.035	37	-3.834	14.700	-0.718
0	-0.813	0.661	24	-16.834	283.384	13.683
0	-0.813	0.661	21	-19.834	393.388	16.121
0	-0.813	0.661	38	-2.834	8.032	2.303
1	0.187	0.035	46	5.166	26.688	0.967
1	0.187	0.035	29	-11.834	140.044	-2.215
1	0.187	0.035	48	7.166	51.352	1.341
0	-0.813	0.661	42	1.166	1.360	-0.948
1	0.187	0.035	38	-2.834	8.032	-0.531
1	0.187	0.035	18	-22.834	521.392	-4.275
1	0.187	0.035	49	8.166	66.684	1.529
1	0.187	0.035	30	-10.834	117.376	-2.028
1	0.187	0.035	43	2.166	4.692	0.405
0	-0.813	0.661	39	-1.834	3.364	1.491
0	-0.813	0.661	31	-9.834	96.708	7.993
1	0.187	0.035	28	-12.834	164.712	-2.403
1	0.187	0.035	48	7.166	51.352	1.341
1	0.187	0.035	47	6.166	38.020	1.154
1	0.187	0.035	37	-3.834	14.700	-0.718
1	0.187	0.035	40	-0.834	0.696	-0.156
1	0.187	0.035	49	8.166	66.684	1.529
1	0.187	0.035	32	-8.834	78.040	-1.654
1	0.187	0.035	47	6.166	38.020	1.154
1	0.187	0.035	32	-8.834	78.040	-1.654
1	0.187	0.035	29	-11.834	140.044	-2.215

1	0.246	0.061	55	14.166	200.676	3.485
1	0.246	0.061	45	4.166	17.356	1.025
1	0.246	0.061	55	14.166	200.676	3.485
1	0.246	0.061	52	11.166	124.680	2.747
1	0.246	0.061	49	8.166	66.684	2.009
1	0.246	0.061	42	1.166	1.360	0.287
1	0.246	0.061	37	-3.834	14.700	-0.943
1	0.246	0.061	24	-16.834	283.384	-4.141
0	-0.754	0.569	21	-19.834	393.388	14.955
1	0.246	0.061	38	-2.834	8.032	-0.697
1	0.246	0.061	46	5.166	26.688	1.271
1	0.246	0.061	29	-11.834	140.044	-2.911
1	0.246	0.061	48	7.166	51.352	1.763
1	0.246	0.061	42	1.166	1.360	0.287
1	0.246	0.061	38	-2.834	8.032	-0.697
0	-0.754	0.569	18	-22.834	521.392	17.217
1	0.246	0.061	49	8.166	66.684	2.009
1	0.246	0.061	30	-10.834	117.376	-2.665
1	0.246	0.061	43	2.166	4.692	0.533
0	-0.754	0.569	39	-1.834	3.364	1.383
1	0.246	0.061	31	-9.834	96.708	-2.419
1	0.246	0.061	28	-12.834	164.712	-3.157
0	-0.754	0.569	48	7.166	51.352	-5.403
1	0.246	0.061	47	6.166	38.020	1.517
1	0.246	0.061	37	-3.834	14.700	-0.943
0	-0.754	0.569	40	-0.834	0.696	0.629
1	0.246	0.061	49	8.166	66.684	2.009
1	0.246	0.061	32	-8.834	78.040	-2.173
1	0.246	0.061	47	6.166	38.020	1.517
0	-0.754	0.569	32	-8.834	78.040	6.661
1	0.246	0.061	29	-11.834	140.044	-2.911

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1	0.187	0.035	35	-5.834	34.036	-1.092
1	0.187	0.035	46	5.166	26.688	0.967
1	0.187	0.035	49	8.166	66.684	1.529
1	0.187	0.035	48	7.166	51.352	1.341
1	0.187	0.035	41	0.166	0.028	0.031
1	0.187	0.035	53	12.166	148.012	2.277
1	0.187	0.035	53	12.166	148.012	2.277
1	0.187	0.035	51	10.166	103.348	1.903
152	0.006	28.449	7636	0.042	19431.861	318.198

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{318,918}{\sqrt{28,449 \times 19431,861}} = 0.4280$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

1	0.246	0.061	35	-5.834	34.036	-1.435
1	0.246	0.061	46	5.166	26.688	1.271
1	0.246	0.061	49	8.166	66.684	2.009
0	-0.754	0.569	48	7.166	51.352	-5.403
1	0.246	0.061	41	0.166	0.028	0.041
1	0.246	0.061	53	12.166	148.012	2.993
1	0.246	0.061	53	12.166	148.012	2.993
1	0.246	0.061	51	10.166	103.348	2.501
141	0.002	34.684	7636	0.042	19431.861	353.374

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{353,374}{\sqrt{34,684 \times 19431,861}} = 0.4304$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

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$$r_{xy} = -$$

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Validitas Manual Kuesioner Siswa untuk Pertanyaan No 27 dan No 2

nyaan no 27

$$31/187 = 0.7005$$

$$636/187=40.834$$

x=xi-x	x2	yi	y	y2	xy
0.300	0.090	51	10.166	103.348	3.045
0.300	0.090	36	-4.834	23.368	-1.448
0.300	0.090	41	0.166	0.028	0.050
0.300	0.090	52	11.166	124.680	3.344
0.300	0.090	51	10.166	103.348	3.045
-0.701	0.491	50	9.166	84.016	-6.421
-0.701	0.491	46	5.166	26.688	-3.619
0.300	0.090	55	14.166	200.676	4.243
0.300	0.090	49	8.166	66.684	2.446
-0.701	0.491	31	-9.834	96.708	6.889
0.300	0.090	46	5.166	26.688	1.547
0.300	0.090	44	3.166	10.024	0.948
0.300	0.090	40	-0.834	0.696	-0.250
0.300	0.090	48	7.166	51.352	2.146
0.300	0.090	31	-9.834	96.708	-2.945
0.300	0.090	27	-13.834	191.380	-4.143
0.300	0.090	47	6.166	38.020	1.847
0.300	0.090	50	9.166	84.016	2.745
0.300	0.090	55	14.166	200.676	4.243
0.300	0.090	47	6.166	38.020	1.847
-0.701	0.491	16	-24.834	616.728	17.396
-0.701	0.491	42	1.166	1.360	-0.817
0.300	0.090	42	1.166	1.360	0.349
0.300	0.090	43	2.166	4.692	0.649

Pertanyaan no 28

$$x = 150/187 = 0.8021$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.198	0.039	51	10.166	103.348	2.012
1	0.198	0.039	36	-4.834	23.368	-0.957
1	0.198	0.039	41	0.166	0.028	0.033
1	0.198	0.039	52	11.166	124.680	2.210
1	0.198	0.039	51	10.166	103.348	2.012
1	0.198	0.039	50	9.166	84.016	1.814
0	-0.802	0.643	46	5.166	26.688	-4.144
1	0.198	0.039	55	14.166	200.676	2.803
0	-0.802	0.643	49	8.166	66.684	-6.550
0	-0.802	0.643	31	-9.834	96.708	7.888
1	0.198	0.039	46	5.166	26.688	1.022
1	0.198	0.039	44	3.166	10.024	0.627
1	0.198	0.039	40	-0.834	0.696	-0.165
1	0.198	0.039	48	7.166	51.352	1.418
1	0.198	0.039	31	-9.834	96.708	-1.946
1	0.198	0.039	27	-13.834	191.380	-2.738
1	0.198	0.039	47	6.166	38.020	1.220
1	0.198	0.039	50	9.166	84.016	1.814
1	0.198	0.039	55	14.166	200.676	2.803
1	0.198	0.039	47	6.166	38.020	1.220
1	0.198	0.039	16	-24.834	616.728	-4.915
1	0.198	0.039	42	1.166	1.360	0.231
1	0.198	0.039	42	1.166	1.360	0.231
1	0.198	0.039	43	2.166	4.692	0.429

0.300	0.090	43	2.166	4.692	0.649
-0.701	0.491	38	-2.834	8.032	1.985
0.300	0.090	36	-4.834	23.368	-1.448
0.300	0.090	37	-3.834	14.700	-1.148
0.300	0.090	55	14.166	200.676	4.243
0.300	0.090	28	-12.834	164.712	-3.844
0.300	0.090	51	10.166	103.348	3.045
0.300	0.090	53	12.166	148.012	3.644
-0.701	0.491	45	4.166	17.356	-2.918
-0.701	0.491	33	-7.834	61.372	5.488
0.300	0.090	45	4.166	17.356	1.248
-0.701	0.491	44	3.166	10.024	-2.218
0.300	0.090	44	3.166	10.024	0.948
0.300	0.090	49	8.166	66.684	2.446
0.300	0.090	39	-1.834	3.364	-0.549
0.300	0.090	49	8.166	66.684	2.446
-0.701	0.491	35	-5.834	34.036	4.087
0.300	0.090	31	-9.834	96.708	-2.945
-0.701	0.491	33	-7.834	61.372	5.488
0.300	0.090	48	7.166	51.352	2.146
0.300	0.090	12	-28.834	831.400	-8.636
-0.701	0.491	35	-5.834	34.036	4.087
0.300	0.090	39	-1.834	3.364	-0.549
0.300	0.090	53	12.166	148.012	3.644
-0.701	0.491	48	7.166	51.352	-5.020
-0.701	0.491	48	7.166	51.352	-5.020
-0.701	0.491	40	-0.834	0.696	0.584
0.300	0.090	44	3.166	10.024	0.948
0.300	0.090	46	5.166	26.688	1.547
0.300	0.090	21	-19.834	393.388	-5.940
0.300	0.090	45	4.166	17.356	1.248

1	0.198	0.039	43	2.166	4.692	0.429
1	0.198	0.039	38	-2.834	8.032	-0.561
1	0.198	0.039	36	-4.834	23.368	-0.957
1	0.198	0.039	37	-3.834	14.700	-0.759
1	0.198	0.039	55	14.166	200.676	2.803
0	-0.802	0.643	28	-12.834	164.712	10.294
1	0.198	0.039	51	10.166	103.348	2.012
1	0.198	0.039	53	12.166	148.012	2.408
1	0.198	0.039	45	4.166	17.356	0.824
1	0.198	0.039	33	-7.834	61.372	-1.550
1	0.198	0.039	45	4.166	17.356	0.824
1	0.198	0.039	44	3.166	10.024	0.627
1	0.198	0.039	44	3.166	10.024	0.627
1	0.198	0.039	49	8.166	66.684	1.616
1	0.198	0.039	39	-1.834	3.364	-0.363
1	0.198	0.039	49	8.166	66.684	1.616
0	-0.802	0.643	35	-5.834	34.036	4.679
0	-0.802	0.643	31	-9.834	96.708	7.888
1	0.198	0.039	33	-7.834	61.372	-1.550
1	0.198	0.039	48	7.166	51.352	1.418
1	0.198	0.039	12	-28.834	831.400	-5.706
0	-0.802	0.643	35	-5.834	34.036	4.679
1	0.198	0.039	39	-1.834	3.364	-0.363
1	0.198	0.039	53	12.166	148.012	2.408
1	0.198	0.039	48	7.166	51.352	1.418
1	0.198	0.039	48	7.166	51.352	1.418
1	0.198	0.039	40	-0.834	0.696	-0.165
1	0.198	0.039	44	3.166	10.024	0.627
1	0.198	0.039	46	5.166	26.688	1.022
1	0.198	0.039	21	-19.834	393.388	-3.925
1	0.198	0.039	45	4.166	17.356	0.824

-0.701	0.491	2	-38.834	1508.080	27.203
0.300	0.090	37	-3.834	14.700	-1.148
-0.701	0.491	34	-6.834	46.704	4.787
0.300	0.090	32	-8.834	78.040	-2.646
-0.701	0.491	29	-11.834	140.044	8.290
0.300	0.090	48	7.166	51.352	2.146
0.300	0.090	48	7.166	51.352	2.146
0.300	0.090	37	-3.834	14.700	-1.148
0.300	0.090	53	12.166	148.012	3.644
0.300	0.090	42	1.166	1.360	0.349
0.300	0.090	48	7.166	51.352	2.146
0.300	0.090	45	4.166	17.356	1.248
0.300	0.090	52	11.166	124.680	3.344
-0.701	0.491	23	-17.834	318.052	12.493
0.300	0.090	38	-2.834	8.032	-0.849
0.300	0.090	51	10.166	103.348	3.045
-0.701	0.491	38	-2.834	8.032	1.985
0.300	0.090	29	-11.834	140.044	-3.544
-0.701	0.491	28	-12.834	164.712	8.990
-0.701	0.491	39	-1.834	3.364	1.285
0.300	0.090	33	-7.834	61.372	-2.346
0.300	0.090	44	3.166	10.024	0.948
0.300	0.090	33	-7.834	61.372	-2.346
0.300	0.090	47	6.166	38.020	1.847
0.300	0.090	31	-9.834	96.708	-2.945
0.300	0.090	47	6.166	38.020	1.847
0.300	0.090	41	0.166	0.028	0.050
0.300	0.090	54	13.166	173.344	3.943
0.300	0.090	48	7.166	51.352	2.146
0.300	0.090	53	12.166	148.012	3.644
0.300	0.090	43	2.166	4.692	0.649

0	-0.802	0.643	2	-38.834	1508.080	31.149
0	-0.802	0.643	37	-3.834	14.700	3.075
1	0.198	0.039	34	-6.834	46.704	-1.352
1	0.198	0.039	32	-8.834	78.040	-1.748
1	0.198	0.039	29	-11.834	140.044	-2.342
1	0.198	0.039	48	7.166	51.352	1.418
1	0.198	0.039	48	7.166	51.352	1.418
1	0.198	0.039	37	-3.834	14.700	-0.759
1	0.198	0.039	53	12.166	148.012	2.408
1	0.198	0.039	42	1.166	1.360	0.231
1	0.198	0.039	48	7.166	51.352	1.418
1	0.198	0.039	45	4.166	17.356	0.824
1	0.198	0.039	52	11.166	124.680	2.210
1	0.198	0.039	23	-17.834	318.052	-3.529
1	0.198	0.039	38	-2.834	8.032	-0.561
1	0.198	0.039	51	10.166	103.348	2.012
0	-0.802	0.643	38	-2.834	8.032	2.273
0	-0.802	0.643	29	-11.834	140.044	9.492
0	-0.802	0.643	28	-12.834	164.712	10.294
0	-0.802	0.643	39	-1.834	3.364	1.471
1	0.198	0.039	33	-7.834	61.372	-1.550
1	0.198	0.039	44	3.166	10.024	0.627
1	0.198	0.039	33	-7.834	61.372	-1.550
1	0.198	0.039	47	6.166	38.020	1.220
0	-0.802	0.643	31	-9.834	96.708	7.888
1	0.198	0.039	47	6.166	38.020	1.220
1	0.198	0.039	41	0.166	0.028	0.033
1	0.198	0.039	54	13.166	173.344	2.606
1	0.198	0.039	48	7.166	51.352	1.418
1	0.198	0.039	53	12.166	148.012	2.408
1	0.198	0.039	43	2.166	4.692	0.429

0.300	0.090	50	9.166	84.016	2.745
0.300	0.090	47	6.166	38.020	1.847
0.300	0.090	42	1.166	1.360	0.349
-0.701	0.491	37	-3.834	14.700	2.686
-0.701	0.491	41	0.166	0.028	-0.116
-0.701	0.491	18	-22.834	521.392	15.995
-0.701	0.491	26	-14.834	220.048	10.391
0.300	0.090	52	11.166	124.680	3.344
0.300	0.090	44	3.166	10.024	0.948
0.300	0.090	51	10.166	103.348	3.045
0.300	0.090	35	-5.834	34.036	-1.747
-0.701	0.491	40	-0.834	0.696	0.584
-0.701	0.491	47	6.166	38.020	-4.319
0.300	0.090	49	8.166	66.684	2.446
0.300	0.090	36	-4.834	23.368	-1.448
-0.701	0.491	6	-34.834	1213.408	24.401
0.300	0.090	55	14.166	200.676	4.243
0.300	0.090	50	9.166	84.016	2.745
0.300	0.090	48	7.166	51.352	2.146
0.300	0.090	44	3.166	10.024	0.948
0.300	0.090	52	11.166	124.680	3.344
0.300	0.090	46	5.166	26.688	1.547
0.300	0.090	49	8.166	66.684	2.446
-0.701	0.491	47	6.166	38.020	-4.319
0.300	0.090	54	13.166	173.344	3.943
0.300	0.090	25	-15.834	250.716	-4.742
0.300	0.090	55	14.166	200.676	4.243
0.300	0.090	55	14.166	200.676	4.243
0.300	0.090	41	0.166	0.028	0.050
-0.701	0.491	31	-9.834	96.708	6.889
-0.701	0.491	13	-27.834	774.732	19.498

1	0.198	0.039	50	9.166	84.016	1.814
1	0.198	0.039	47	6.166	38.020	1.220
1	0.198	0.039	42	1.166	1.360	0.231
1	0.198	0.039	37	-3.834	14.700	-0.759
0	-0.802	0.643	41	0.166	0.028	-0.133
1	0.198	0.039	18	-22.834	521.392	-4.519
1	0.198	0.039	26	-14.834	220.048	-2.936
1	0.198	0.039	52	11.166	124.680	2.210
1	0.198	0.039	44	3.166	10.024	0.627
1	0.198	0.039	51	10.166	103.348	2.012
1	0.198	0.039	35	-5.834	34.036	-1.155
0	-0.802	0.643	40	-0.834	0.696	0.669
0	-0.802	0.643	47	6.166	38.020	-4.946
1	0.198	0.039	49	8.166	66.684	1.616
1	0.198	0.039	36	-4.834	23.368	-0.957
0	-0.802	0.643	6	-34.834	1213.408	27.940
1	0.198	0.039	55	14.166	200.676	2.803
0	-0.802	0.643	50	9.166	84.016	-7.352
1	0.198	0.039	48	7.166	51.352	1.418
1	0.198	0.039	44	3.166	10.024	0.627
1	0.198	0.039	52	11.166	124.680	2.210
1	0.198	0.039	46	5.166	26.688	1.022
1	0.198	0.039	49	8.166	66.684	1.616
1	0.198	0.039	47	6.166	38.020	1.220
1	0.198	0.039	54	13.166	173.344	2.606
0	-0.802	0.643	25	-15.834	250.716	12.700
1	0.198	0.039	55	14.166	200.676	2.803
1	0.198	0.039	55	14.166	200.676	2.803
1	0.198	0.039	41	0.166	0.028	0.033
0	-0.802	0.643	31	-9.834	96.708	7.888
0	-0.802	0.643	13	-27.834	774.732	22.326

0.300	0.090	55	14.166	200.676	4.243
0.300	0.090	45	4.166	17.356	1.248
0.300	0.090	55	14.166	200.676	4.243
0.300	0.090	52	11.166	124.680	3.344
0.300	0.090	49	8.166	66.684	2.446
0.300	0.090	42	1.166	1.360	0.349
0.300	0.090	37	-3.834	14.700	-1.148
0.300	0.090	24	-16.834	283.384	-5.042
-0.701	0.491	21	-19.834	393.388	13.894
0.300	0.090	38	-2.834	8.032	-0.849
0.300	0.090	46	5.166	26.688	1.547
0.300	0.090	29	-11.834	140.044	-3.544
0.300	0.090	48	7.166	51.352	2.146
0.300	0.090	42	1.166	1.360	0.349
0.300	0.090	38	-2.834	8.032	-0.849
-0.701	0.491	18	-22.834	521.392	15.995
-0.701	0.491	49	8.166	66.684	-5.720
0.300	0.090	30	-10.834	117.376	-3.245
0.300	0.090	43	2.166	4.692	0.649
-0.701	0.491	39	-1.834	3.364	1.285
-0.701	0.491	31	-9.834	96.708	6.889
-0.701	0.491	28	-12.834	164.712	8.990
0.300	0.090	48	7.166	51.352	2.146
0.300	0.090	47	6.166	38.020	1.847
0.300	0.090	37	-3.834	14.700	-1.148
-0.701	0.491	40	-0.834	0.696	0.584
0.300	0.090	49	8.166	66.684	2.446
-0.701	0.491	32	-8.834	78.040	6.188
0.300	0.090	47	6.166	38.020	1.847
-0.701	0.491	32	-8.834	78.040	6.188
-0.701	0.491	29	-11.834	140.044	8.290

1	0.198	0.039	55	14.166	200.676	2.803
1	0.198	0.039	45	4.166	17.356	0.824
1	0.198	0.039	55	14.166	200.676	2.803
1	0.198	0.039	52	11.166	124.680	2.210
1	0.198	0.039	49	8.166	66.684	1.616
1	0.198	0.039	42	1.166	1.360	0.231
1	0.198	0.039	37	-3.834	14.700	-0.759
0	-0.802	0.643	24	-16.834	283.384	13.503
1	0.198	0.039	21	-19.834	393.388	-3.925
1	0.198	0.039	38	-2.834	8.032	-0.561
1	0.198	0.039	46	5.166	26.688	1.022
1	0.198	0.039	29	-11.834	140.044	-2.342
1	0.198	0.039	48	7.166	51.352	1.418
1	0.198	0.039	42	1.166	1.360	0.231
1	0.198	0.039	38	-2.834	8.032	-0.561
1	0.198	0.039	18	-22.834	521.392	-4.519
1	0.198	0.039	49	8.166	66.684	1.616
1	0.198	0.039	30	-10.834	117.376	-2.144
1	0.198	0.039	43	2.166	4.692	0.429
0	-0.802	0.643	39	-1.834	3.364	1.471
1	0.198	0.039	31	-9.834	96.708	-1.946
0	-0.802	0.643	28	-12.834	164.712	10.294
1	0.198	0.039	48	7.166	51.352	1.418
1	0.198	0.039	47	6.166	38.020	1.220
1	0.198	0.039	37	-3.834	14.700	-0.759
1	0.198	0.039	40	-0.834	0.696	-0.165
1	0.198	0.039	49	8.166	66.684	1.616
0	-0.802	0.643	32	-8.834	78.040	7.086
1	0.198	0.039	47	6.166	38.020	1.220
0	-0.802	0.643	32	-8.834	78.040	7.086
0	-0.802	0.643	29	-11.834	140.044	9.492

-0.701	0.491	23	-17.834	318.052	12.493
0.300	0.090	41	0.166	0.028	0.050
-0.701	0.491	41	0.166	0.028	-0.116
0.300	0.090	51	10.166	103.348	3.045
0.300	0.090	29	-11.834	140.044	-3.544
-0.701	0.491	37	-3.834	14.700	2.686
0.300	0.090	37	-3.834	14.700	-1.148
-0.701	0.491	36	-4.834	23.368	3.386
0.300	0.090	40	-0.834	0.696	-0.250
-0.701	0.491	50	9.166	84.016	-6.421
-0.701	0.491	38	-2.834	8.032	1.985
0.300	0.090	40	-0.834	0.696	-0.250
-0.701	0.491	36	-4.834	23.368	3.386
0.300	0.090	20	-20.834	434.056	-6.240
0.300	0.090	47	6.166	38.020	1.847
0.300	0.090	54	13.166	173.344	3.943
0.300	0.090	50	9.166	84.016	2.745
0.300	0.090	25	-15.834	250.716	-4.742
0.300	0.090	53	12.166	148.012	3.644
-0.701	0.491	44	3.166	10.024	-2.218
0.300	0.090	26	-14.834	220.048	-4.443
0.300	0.090	33	-7.834	61.372	-2.346
0.300	0.090	36	-4.834	23.368	-1.448
-0.701	0.491	39	-1.834	3.364	1.285
0.300	0.090	46	5.166	26.688	1.547
-0.701	0.491	36	-4.834	23.368	3.386
0.300	0.090	54	13.166	173.344	3.943
-0.701	0.491	36	-4.834	23.368	3.386
0.300	0.090	44	3.166	10.024	0.948
0.300	0.090	40	-0.834	0.696	-0.250
-0.701	0.491	38	-2.834	8.032	1.985

0	-0.802	0.643	23	-17.834	318.052	14.305
1	0.198	0.039	41	0.166	0.028	0.033
1	0.198	0.039	41	0.166	0.028	0.033
1	0.198	0.039	51	10.166	103.348	2.012
1	0.198	0.039	29	-11.834	140.044	-2.342
1	0.198	0.039	37	-3.834	14.700	-0.759
1	0.198	0.039	37	-3.834	14.700	-0.759
0	-0.802	0.643	36	-4.834	23.368	3.877
1	0.198	0.039	40	-0.834	0.696	-0.165
1	0.198	0.039	50	9.166	84.016	1.814
0	-0.802	0.643	38	-2.834	8.032	2.273
1	0.198	0.039	40	-0.834	0.696	-0.165
1	0.198	0.039	36	-4.834	23.368	-0.957
0	-0.802	0.643	20	-20.834	434.056	16.711
1	0.198	0.039	47	6.166	38.020	1.220
1	0.198	0.039	54	13.166	173.344	2.606
1	0.198	0.039	50	9.166	84.016	1.814
1	0.198	0.039	25	-15.834	250.716	-3.134
1	0.198	0.039	53	12.166	148.012	2.408
1	0.198	0.039	44	3.166	10.024	0.627
1	0.198	0.039	26	-14.834	220.048	-2.936
1	0.198	0.039	33	-7.834	61.372	-1.550
1	0.198	0.039	36	-4.834	23.368	-0.957
0	-0.802	0.643	39	-1.834	3.364	1.471
1	0.198	0.039	46	5.166	26.688	1.022
1	0.198	0.039	36	-4.834	23.368	-0.957
1	0.198	0.039	54	13.166	173.344	2.606
0	-0.802	0.643	36	-4.834	23.368	3.877
1	0.198	0.039	44	3.166	10.024	0.627
1	0.198	0.039	40	-0.834	0.696	-0.165
0	-0.802	0.643	38	-2.834	8.032	2.273

-0.701	0.491	35	-5.834	34.036	4.087
0.300	0.090	46	5.166	26.688	1.547
0.300	0.090	49	8.166	66.684	2.446
-0.701	0.491	48	7.166	51.352	-5.020
0.300	0.090	41	0.166	0.028	0.050
0.300	0.090	53	12.166	148.012	3.644
0.300	0.090	53	12.166	148.012	3.644
0.300	0.090	51	10.166	103.348	3.045
0.007	39.230	7636	0.042	19431.861	347.717

il Uji Validitas Manual :

$$= \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$

$$= \frac{347,717}{\sqrt{39,230 \times 19431,861}} = 0.3983$$

ena $r_{xy} > 0.1432 \Rightarrow$ data valid

0	-0.802	0.643	35	-5.834	34.036	4.679
1	0.198	0.039	46	5.166	26.688	1.022
1	0.198	0.039	49	8.166	66.684	1.616
1	0.198	0.039	48	7.166	51.352	1.418
0	-0.802	0.643	41	0.166	0.028	-0.133
1	0.198	0.039	53	12.166	148.012	2.408
1	0.198	0.039	53	12.166	148.012	2.408
1	0.198	0.039	51	10.166	103.348	2.012
150	0.007	29.679	7636	0.042	19431.861	308.866

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$

$$= \frac{308,866}{\sqrt{26,679 \times 19431,861}} = 0.4067$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 29 dan No 30

Pertanyaan no 29

$$x = 154/187 = 0.8235$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.177	0.031	51	10.166	103.348	1.794
0	-0.824	0.678	36	-4.834	23.368	3.981
0	-0.824	0.678	41	0.166	0.028	-0.137
1	0.177	0.031	52	11.166	124.680	1.971
1	0.177	0.031	51	10.166	103.348	1.794
1	0.177	0.031	50	9.166	84.016	1.618
1	0.177	0.031	46	5.166	26.688	0.912
1	0.177	0.031	55	14.166	200.676	2.500
1	0.177	0.031	49	8.166	66.684	1.441
1	0.177	0.031	31	-9.834	96.708	-1.736
1	0.177	0.031	46	5.166	26.688	0.912
1	0.177	0.031	44	3.166	10.024	0.559
1	0.177	0.031	40	-0.834	0.696	-0.147
1	0.177	0.031	48	7.166	51.352	1.265
0	-0.824	0.678	31	-9.834	96.708	8.098
1	0.177	0.031	27	-13.834	191.380	-2.442
1	0.177	0.031	47	6.166	38.020	1.088
1	0.177	0.031	50	9.166	84.016	1.618
1	0.177	0.031	55	14.166	200.676	2.500
1	0.177	0.031	47	6.166	38.020	1.088
0	-0.824	0.678	16	-24.834	616.728	20.451
1	0.177	0.031	42	1.166	1.360	0.206
1	0.177	0.031	42	1.166	1.360	0.206
1	0.177	0.031	43	2.166	4.692	0.382

Pertanyaan no 30

$$x = 99/187 = 0.5294$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.471	0.221	51	10.166	103.348	4.784
0	-0.529	0.280	36	-4.834	23.368	2.559
0	-0.529	0.280	41	0.166	0.028	-0.088
0	-0.529	0.280	52	11.166	124.680	-5.911
1	0.471	0.221	51	10.166	103.348	4.784
1	0.471	0.221	50	9.166	84.016	4.314
1	0.471	0.221	46	5.166	26.688	2.431
1	0.471	0.221	55	14.166	200.676	6.667
1	0.471	0.221	49	8.166	66.684	3.843
0	-0.529	0.280	31	-9.834	96.708	5.206
1	0.471	0.221	46	5.166	26.688	2.431
1	0.471	0.221	44	3.166	10.024	1.490
1	0.471	0.221	40	-0.834	0.696	-0.392
1	0.471	0.221	48	7.166	51.352	3.372
0	-0.529	0.280	31	-9.834	96.708	5.206
0	-0.529	0.280	27	-13.834	191.380	7.324
1	0.471	0.221	47	6.166	38.020	2.902
1	0.471	0.221	50	9.166	84.016	4.314
1	0.471	0.221	55	14.166	200.676	6.667
1	0.471	0.221	47	6.166	38.020	2.902
0	-0.529	0.280	16	-24.834	616.728	13.147
1	0.471	0.221	42	1.166	1.360	0.549
0	-0.529	0.280	42	1.166	1.360	-0.617
1	0.471	0.221	43	2.166	4.692	1.019

1	0.177	0.031	43	2.166	4.692	0.382
1	0.177	0.031	38	-2.834	8.032	-0.500
1	0.177	0.031	36	-4.834	23.368	-0.853
1	0.177	0.031	37	-3.834	14.700	-0.677
1	0.177	0.031	55	14.166	200.676	2.500
1	0.177	0.031	28	-12.834	164.712	-2.265
1	0.177	0.031	51	10.166	103.348	1.794
1	0.177	0.031	53	12.166	148.012	2.147
1	0.177	0.031	45	4.166	17.356	0.735
1	0.177	0.031	33	-7.834	61.372	-1.383
1	0.177	0.031	45	4.166	17.356	0.735
1	0.177	0.031	44	3.166	10.024	0.559
1	0.177	0.031	44	3.166	10.024	0.559
1	0.177	0.031	49	8.166	66.684	1.441
1	0.177	0.031	39	-1.834	3.364	-0.324
1	0.177	0.031	49	8.166	66.684	1.441
1	0.177	0.031	35	-5.834	34.036	-1.030
0	-0.824	0.678	31	-9.834	96.708	8.098
1	0.177	0.031	33	-7.834	61.372	-1.383
1	0.177	0.031	48	7.166	51.352	1.265
0	-0.824	0.678	12	-28.834	831.400	23.745
1	0.177	0.031	35	-5.834	34.036	-1.030
1	0.177	0.031	39	-1.834	3.364	-0.324
1	0.177	0.031	53	12.166	148.012	2.147
1	0.177	0.031	48	7.166	51.352	1.265
1	0.177	0.031	48	7.166	51.352	1.265
1	0.177	0.031	40	-0.834	0.696	-0.147
1	0.177	0.031	44	3.166	10.024	0.559
1	0.177	0.031	46	5.166	26.688	0.912
1	0.177	0.031	21	-19.834	393.388	-3.501
1	0.177	0.031	45	4.166	17.356	0.735

1	0.471	0.221	43	2.166	4.692	1.019
0	-0.529	0.280	38	-2.834	8.032	1.500
0	-0.529	0.280	36	-4.834	23.368	2.559
0	-0.529	0.280	37	-3.834	14.700	2.030
1	0.471	0.221	55	14.166	200.676	6.667
1	0.471	0.221	28	-12.834	164.712	-6.040
1	0.471	0.221	51	10.166	103.348	4.784
1	0.471	0.221	53	12.166	148.012	5.725
0	-0.529	0.280	45	4.166	17.356	-2.205
1	0.471	0.221	33	-7.834	61.372	-3.687
1	0.471	0.221	45	4.166	17.356	1.961
1	0.471	0.221	44	3.166	10.024	1.490
0	-0.529	0.280	44	3.166	10.024	-1.676
1	0.471	0.221	49	8.166	66.684	3.843
0	-0.529	0.280	39	-1.834	3.364	0.971
1	0.471	0.221	49	8.166	66.684	3.843
1	0.471	0.221	35	-5.834	34.036	-2.745
0	-0.529	0.280	31	-9.834	96.708	5.206
0	-0.529	0.280	33	-7.834	61.372	4.147
1	0.471	0.221	48	7.166	51.352	3.372
0	-0.529	0.280	12	-28.834	831.400	15.265
0	-0.529	0.280	35	-5.834	34.036	3.089
0	-0.529	0.280	39	-1.834	3.364	0.971
0	-0.529	0.280	53	12.166	148.012	-6.441
1	0.471	0.221	48	7.166	51.352	3.372
1	0.471	0.221	48	7.166	51.352	3.372
1	0.471	0.221	40	-0.834	0.696	-0.392
0	-0.529	0.280	44	3.166	10.024	-1.676
1	0.471	0.221	46	5.166	26.688	2.431
0	-0.529	0.280	21	-19.834	393.388	10.500
1	0.471	0.221	45	4.166	17.356	1.961

0	-0.824	0.678	2	-38.834	1508.080	31.980
1	0.177	0.031	37	-3.834	14.700	-0.677
0	-0.824	0.678	34	-6.834	46.704	5.628
1	0.177	0.031	32	-8.834	78.040	-1.559
0	-0.824	0.678	29	-11.834	140.044	9.745
1	0.177	0.031	48	7.166	51.352	1.265
1	0.177	0.031	48	7.166	51.352	1.265
1	0.177	0.031	37	-3.834	14.700	-0.677
1	0.177	0.031	53	12.166	148.012	2.147
1	0.177	0.031	42	1.166	1.360	0.206
1	0.177	0.031	48	7.166	51.352	1.265
1	0.177	0.031	45	4.166	17.356	0.735
1	0.177	0.031	52	11.166	124.680	1.971
0	-0.824	0.678	23	-17.834	318.052	14.686
1	0.177	0.031	38	-2.834	8.032	-0.500
1	0.177	0.031	51	10.166	103.348	1.794
0	-0.824	0.678	38	-2.834	8.032	2.334
0	-0.824	0.678	29	-11.834	140.044	9.745
1	0.177	0.031	28	-12.834	164.712	-2.265
1	0.177	0.031	39	-1.834	3.364	-0.324
1	0.177	0.031	33	-7.834	61.372	-1.383
1	0.177	0.031	44	3.166	10.024	0.559
1	0.177	0.031	33	-7.834	61.372	-1.383
0	-0.824	0.678	47	6.166	38.020	-5.078
1	0.177	0.031	31	-9.834	96.708	-1.736
1	0.177	0.031	47	6.166	38.020	1.088
1	0.177	0.031	41	0.166	0.028	0.029
1	0.177	0.031	54	13.166	173.344	2.324
0	-0.824	0.678	48	7.166	51.352	-5.901
1	0.177	0.031	53	12.166	148.012	2.147
0	-0.824	0.678	43	2.166	4.692	-1.784

0	-0.529	0.280	2	-38.834	1508.080	20.559
1	0.471	0.221	37	-3.834	14.700	-1.804
0	-0.529	0.280	34	-6.834	46.704	3.618
0	-0.529	0.280	32	-8.834	78.040	4.677
0	-0.529	0.280	29	-11.834	140.044	6.265
1	0.471	0.221	48	7.166	51.352	3.372
1	0.471	0.221	48	7.166	51.352	3.372
0	-0.529	0.280	37	-3.834	14.700	2.030
1	0.471	0.221	53	12.166	148.012	5.725
0	-0.529	0.280	42	1.166	1.360	-0.617
1	0.471	0.221	48	7.166	51.352	3.372
1	0.471	0.221	45	4.166	17.356	1.961
1	0.471	0.221	52	11.166	124.680	5.255
0	-0.529	0.280	23	-17.834	318.052	9.441
1	0.471	0.221	38	-2.834	8.032	-1.334
1	0.471	0.221	51	10.166	103.348	4.784
0	-0.529	0.280	38	-2.834	8.032	1.500
0	-0.529	0.280	29	-11.834	140.044	6.265
1	0.471	0.221	28	-12.834	164.712	-6.040
0	-0.529	0.280	39	-1.834	3.364	0.971
1	0.471	0.221	33	-7.834	61.372	-3.687
0	-0.529	0.280	44	3.166	10.024	-1.676
1	0.471	0.221	33	-7.834	61.372	-3.687
0	-0.529	0.280	47	6.166	38.020	-3.264
0	-0.529	0.280	31	-9.834	96.708	5.206
0	-0.529	0.280	47	6.166	38.020	-3.264
1	0.471	0.221	41	0.166	0.028	0.078
1	0.471	0.221	54	13.166	173.344	6.196
0	-0.529	0.280	48	7.166	51.352	-3.794
1	0.471	0.221	53	12.166	148.012	5.725
0	-0.529	0.280	43	2.166	4.692	-1.147

1	0.177	0.031	50	9.166	84.016	1.618
1	0.177	0.031	47	6.166	38.020	1.088
1	0.177	0.031	42	1.166	1.360	0.206
1	0.177	0.031	37	-3.834	14.700	-0.677
1	0.177	0.031	41	0.166	0.028	0.029
1	0.177	0.031	18	-22.834	521.392	-4.030
1	0.177	0.031	26	-14.834	220.048	-2.618
1	0.177	0.031	52	11.166	124.680	1.971
1	0.177	0.031	44	3.166	10.024	0.559
1	0.177	0.031	51	10.166	103.348	1.794
1	0.177	0.031	35	-5.834	34.036	-1.030
1	0.177	0.031	40	-0.834	0.696	-0.147
1	0.177	0.031	47	6.166	38.020	1.088
1	0.177	0.031	49	8.166	66.684	1.441
0	-0.824	0.678	36	-4.834	23.368	3.981
0	-0.824	0.678	6	-34.834	1213.408	28.686
1	0.177	0.031	55	14.166	200.676	2.500
1	0.177	0.031	50	9.166	84.016	1.618
0	-0.824	0.678	48	7.166	51.352	-5.901
1	0.177	0.031	44	3.166	10.024	0.559
1	0.177	0.031	52	11.166	124.680	1.971
1	0.177	0.031	46	5.166	26.688	0.912
1	0.177	0.031	49	8.166	66.684	1.441
1	0.177	0.031	47	6.166	38.020	1.088
1	0.177	0.031	54	13.166	173.344	2.324
0	-0.824	0.678	25	-15.834	250.716	13.039
1	0.177	0.031	55	14.166	200.676	2.500
1	0.177	0.031	55	14.166	200.676	2.500
1	0.177	0.031	41	0.166	0.028	0.029
1	0.177	0.031	31	-9.834	96.708	-1.736
0	-0.824	0.678	13	-27.834	774.732	22.921

1	0.471	0.221	50	9.166	84.016	4.314
0	-0.529	0.280	47	6.166	38.020	-3.264
0	-0.529	0.280	42	1.166	1.360	-0.617
0	-0.529	0.280	37	-3.834	14.700	2.030
1	0.471	0.221	41	0.166	0.028	0.078
0	-0.529	0.280	18	-22.834	521.392	12.088
0	-0.529	0.280	26	-14.834	220.048	7.853
1	0.471	0.221	52	11.166	124.680	5.255
1	0.471	0.221	44	3.166	10.024	1.490
1	0.471	0.221	51	10.166	103.348	4.784
1	0.471	0.221	35	-5.834	34.036	-2.745
1	0.471	0.221	40	-0.834	0.696	-0.392
1	0.471	0.221	47	6.166	38.020	2.902
1	0.471	0.221	49	8.166	66.684	3.843
1	0.471	0.221	36	-4.834	23.368	-2.275
0	-0.529	0.280	6	-34.834	1213.408	18.441
1	0.471	0.221	55	14.166	200.676	6.667
1	0.471	0.221	50	9.166	84.016	4.314
0	-0.529	0.280	48	7.166	51.352	-3.794
1	0.471	0.221	44	3.166	10.024	1.490
1	0.471	0.221	52	11.166	124.680	5.255
0	-0.529	0.280	46	5.166	26.688	-2.735
1	0.471	0.221	49	8.166	66.684	3.843
1	0.471	0.221	47	6.166	38.020	2.902
1	0.471	0.221	54	13.166	173.344	6.196
1	0.471	0.221	25	-15.834	250.716	-7.451
1	0.471	0.221	55	14.166	200.676	6.667
1	0.471	0.221	55	14.166	200.676	6.667
0	-0.529	0.280	41	0.166	0.028	-0.088
0	-0.529	0.280	31	-9.834	96.708	5.206
0	-0.529	0.280	13	-27.834	774.732	14.735

1	0.177	0.031	55	14.166	200.676	2.500
1	0.177	0.031	45	4.166	17.356	0.735
1	0.177	0.031	55	14.166	200.676	2.500
1	0.177	0.031	52	11.166	124.680	1.971
1	0.177	0.031	49	8.166	66.684	1.441
0	-0.824	0.678	42	1.166	1.360	-0.960
1	0.177	0.031	37	-3.834	14.700	-0.677
1	0.177	0.031	24	-16.834	283.384	-2.971
1	0.177	0.031	21	-19.834	393.388	-3.501
0	-0.824	0.678	38	-2.834	8.032	2.334
0	-0.824	0.678	46	5.166	26.688	-4.254
1	0.177	0.031	29	-11.834	140.044	-2.089
1	0.177	0.031	48	7.166	51.352	1.265
1	0.177	0.031	42	1.166	1.360	0.206
1	0.177	0.031	38	-2.834	8.032	-0.500
0	-0.824	0.678	18	-22.834	521.392	18.804
1	0.177	0.031	49	8.166	66.684	1.441
1	0.177	0.031	30	-10.834	117.376	-1.912
1	0.177	0.031	43	2.166	4.692	0.382
1	0.177	0.031	39	-1.834	3.364	-0.324
0	-0.824	0.678	31	-9.834	96.708	8.098
1	0.177	0.031	28	-12.834	164.712	-2.265
1	0.177	0.031	48	7.166	51.352	1.265
1	0.177	0.031	47	6.166	38.020	1.088
1	0.177	0.031	37	-3.834	14.700	-0.677
1	0.177	0.031	40	-0.834	0.696	-0.147
1	0.177	0.031	49	8.166	66.684	1.441
1	0.177	0.031	32	-8.834	78.040	-1.559
0	-0.824	0.678	47	6.166	38.020	-5.078
1	0.177	0.031	32	-8.834	78.040	-1.559
1	0.177	0.031	29	-11.834	140.044	-2.089

1	0.471	0.221	55	14.166	200.676	6.667
1	0.471	0.221	45	4.166	17.356	1.961
1	0.471	0.221	55	14.166	200.676	6.667
1	0.471	0.221	52	11.166	124.680	5.255
1	0.471	0.221	49	8.166	66.684	3.843
0	-0.529	0.280	42	1.166	1.360	-0.617
1	0.471	0.221	37	-3.834	14.700	-1.804
0	-0.529	0.280	24	-16.834	283.384	8.912
1	0.471	0.221	21	-19.834	393.388	-9.334
0	-0.529	0.280	38	-2.834	8.032	1.500
0	-0.529	0.280	46	5.166	26.688	-2.735
0	-0.529	0.280	29	-11.834	140.044	6.265
1	0.471	0.221	48	7.166	51.352	3.372
0	-0.529	0.280	42	1.166	1.360	-0.617
0	-0.529	0.280	38	-2.834	8.032	1.500
0	-0.529	0.280	18	-22.834	521.392	12.088
0	-0.529	0.280	49	8.166	66.684	-4.323
0	-0.529	0.280	30	-10.834	117.376	5.736
0	-0.529	0.280	43	2.166	4.692	-1.147
0	-0.529	0.280	39	-1.834	3.364	0.971
0	-0.529	0.280	31	-9.834	96.708	5.206
0	-0.529	0.280	28	-12.834	164.712	6.794
1	0.471	0.221	48	7.166	51.352	3.372
0	-0.529	0.280	47	6.166	38.020	-3.264
1	0.471	0.221	37	-3.834	14.700	-1.804
1	0.471	0.221	40	-0.834	0.696	-0.392
1	0.471	0.221	49	8.166	66.684	3.843
1	0.471	0.221	32	-8.834	78.040	-4.157
0	-0.529	0.280	47	6.166	38.020	-3.264
0	-0.529	0.280	32	-8.834	78.040	4.677
0	-0.529	0.280	29	-11.834	140.044	6.265

1	0.177	0.031	23	-17.834	318.052	-3.148
1	0.177	0.031	41	0.166	0.028	0.029
1	0.177	0.031	41	0.166	0.028	0.029
1	0.177	0.031	51	10.166	103.348	1.794
0	-0.824	0.678	29	-11.834	140.044	9.745
1	0.177	0.031	37	-3.834	14.700	-0.677
1	0.177	0.031	37	-3.834	14.700	-0.677
1	0.177	0.031	36	-4.834	23.368	-0.853
0	-0.824	0.678	40	-0.834	0.696	0.687
1	0.177	0.031	50	9.166	84.016	1.618
1	0.177	0.031	38	-2.834	8.032	-0.500
1	0.177	0.031	40	-0.834	0.696	-0.147
1	0.177	0.031	36	-4.834	23.368	-0.853
0	-0.824	0.678	20	-20.834	434.056	17.157
1	0.177	0.031	47	6.166	38.020	1.088
1	0.177	0.031	54	13.166	173.344	2.324
1	0.177	0.031	50	9.166	84.016	1.618
1	0.177	0.031	25	-15.834	250.716	-2.795
1	0.177	0.031	53	12.166	148.012	2.147
1	0.177	0.031	44	3.166	10.024	0.559
1	0.177	0.031	26	-14.834	220.048	-2.618
1	0.177	0.031	33	-7.834	61.372	-1.383
0	-0.824	0.678	36	-4.834	23.368	3.981
1	0.177	0.031	39	-1.834	3.364	-0.324
1	0.177	0.031	46	5.166	26.688	0.912
1	0.177	0.031	36	-4.834	23.368	-0.853
1	0.177	0.031	54	13.166	173.344	2.324
0	-0.824	0.678	36	-4.834	23.368	3.981
1	0.177	0.031	44	3.166	10.024	0.559
0	-0.824	0.678	40	-0.834	0.696	0.687
1	0.177	0.031	38	-2.834	8.032	-0.500

1	0.471	0.221	23	-17.834	318.052	-8.393
0	-0.529	0.280	41	0.166	0.028	-0.088
0	-0.529	0.280	41	0.166	0.028	-0.088
1	0.471	0.221	51	10.166	103.348	4.784
0	-0.529	0.280	29	-11.834	140.044	6.265
0	-0.529	0.280	37	-3.834	14.700	2.030
0	-0.529	0.280	37	-3.834	14.700	2.030
0	-0.529	0.280	36	-4.834	23.368	2.559
0	-0.529	0.280	40	-0.834	0.696	0.442
1	0.471	0.221	50	9.166	84.016	4.314
0	-0.529	0.280	38	-2.834	8.032	1.500
1	0.471	0.221	40	-0.834	0.696	-0.392
0	-0.529	0.280	36	-4.834	23.368	2.559
0	-0.529	0.280	20	-20.834	434.056	11.030
0	-0.529	0.280	47	6.166	38.020	-3.264
1	0.471	0.221	54	13.166	173.344	6.196
1	0.471	0.221	50	9.166	84.016	4.314
0	-0.529	0.280	25	-15.834	250.716	8.383
1	0.471	0.221	53	12.166	148.012	5.725
1	0.471	0.221	44	3.166	10.024	1.490
0	-0.529	0.280	26	-14.834	220.048	7.853
0	-0.529	0.280	33	-7.834	61.372	4.147
0	-0.529	0.280	36	-4.834	23.368	2.559
0	-0.529	0.280	39	-1.834	3.364	0.971
1	0.471	0.221	46	5.166	26.688	2.431
1	0.471	0.221	36	-4.834	23.368	-2.275
1	0.471	0.221	54	13.166	173.344	6.196
0	-0.529	0.280	36	-4.834	23.368	2.559
1	0.471	0.221	44	3.166	10.024	1.490
0	-0.529	0.280	40	-0.834	0.696	0.442
1	0.471	0.221	38	-2.834	8.032	-1.334

0	-0.824	0.678	35	-5.834	34.036	4.804
1	0.177	0.031	46	5.166	26.688	0.912
1	0.177	0.031	49	8.166	66.684	1.441
1	0.177	0.031	48	7.166	51.352	1.265
1	0.177	0.031	41	0.166	0.028	0.029
1	0.177	0.031	53	12.166	148.012	2.147
1	0.177	0.031	53	12.166	148.012	2.147
1	0.177	0.031	51	10.166	103.348	1.794
154	0.005	27.176	7636	0.042	19431.861	301.529

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{301,529}{\sqrt{27,716 \times 19431,861}} = 0.4150$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

0	-0.529	0.280	35	-5.834	34.036	3.089
0	-0.529	0.280	46	5.166	26.688	-2.735
1	0.471	0.221	49	8.166	66.684	3.843
1	0.471	0.221	48	7.166	51.352	3.372
0	-0.529	0.280	41	0.166	0.028	-0.088
1	0.471	0.221	53	12.166	148.012	5.725
1	0.471	0.221	53	12.166	148.012	5.725
1	0.471	0.221	51	10.166	103.348	4.784
99	0.002	46.588	7636	0.042	19431.861	479.412

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{479,412}{\sqrt{46,588 \times 19431,861}} = 0.5039$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 31 dan No 32

Pertanyaan no 31

$$x = 135/187 = 0.7219$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.278	0.077	51	10.166	103.348	2.827
0	-0.722	0.521	36	-4.834	23.368	3.490
1	0.278	0.077	41	0.166	0.028	0.046
1	0.278	0.077	52	11.166	124.680	3.105
1	0.278	0.077	51	10.166	103.348	2.827
1	0.278	0.077	50	9.166	84.016	2.549
1	0.278	0.077	46	5.166	26.688	1.437
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	49	8.166	66.684	2.271
1	0.278	0.077	31	-9.834	96.708	-2.735
1	0.278	0.077	46	5.166	26.688	1.437
1	0.278	0.077	44	3.166	10.024	0.880
1	0.278	0.077	40	-0.834	0.696	-0.232
1	0.278	0.077	48	7.166	51.352	1.993
0	-0.722	0.521	31	-9.834	96.708	7.099
1	0.278	0.077	27	-13.834	191.380	-3.847
1	0.278	0.077	47	6.166	38.020	1.715
1	0.278	0.077	50	9.166	84.016	2.549
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	47	6.166	38.020	1.715
0	-0.722	0.521	16	-24.834	616.728	17.928
1	0.278	0.077	42	1.166	1.360	0.324
0	-0.722	0.521	42	1.166	1.360	-0.842
1	0.278	0.077	43	2.166	4.692	0.602
0	-0.722	0.521	43	2.166	4.692	-1.564

Pertanyaan no 32

$$x = 111/187 = 0.5936$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.406	0.165	51	10.166	103.348	4.131
0	-0.594	0.352	36	-4.834	23.368	2.869
1	0.406	0.165	41	0.166	0.028	0.067
1	0.406	0.165	52	11.166	124.680	4.538
1	0.406	0.165	51	10.166	103.348	4.131
0	-0.594	0.352	50	9.166	84.016	-5.441
0	-0.594	0.352	46	5.166	26.688	-3.067
1	0.406	0.165	55	14.166	200.676	5.757
1	0.406	0.165	49	8.166	66.684	3.319
1	0.406	0.165	31	-9.834	96.708	-3.997
1	0.406	0.165	46	5.166	26.688	2.099
1	0.406	0.165	44	3.166	10.024	1.287
0	-0.594	0.352	40	-0.834	0.696	0.495
0	-0.594	0.352	48	7.166	51.352	-4.254
0	-0.594	0.352	31	-9.834	96.708	5.837
0	-0.594	0.352	27	-13.834	191.380	8.212
0	-0.594	0.352	47	6.166	38.020	-3.660
0	-0.594	0.352	50	9.166	84.016	-5.441
1	0.406	0.165	55	14.166	200.676	5.757
0	-0.594	0.352	47	6.166	38.020	-3.660
0	-0.594	0.352	16	-24.834	616.728	14.741
0	-0.594	0.352	42	1.166	1.360	-0.692
0	-0.594	0.352	42	1.166	1.360	-0.692
1	0.406	0.165	43	2.166	4.692	0.880
0	-0.594	0.352	43	2.166	4.692	-1.286

1	0.278	0.077	38	-2.834	8.032	-0.788
0	-0.722	0.521	36	-4.834	23.368	3.490
0	-0.722	0.521	37	-3.834	14.700	2.768
1	0.278	0.077	55	14.166	200.676	3.940
0	-0.722	0.521	28	-12.834	164.712	9.265
1	0.278	0.077	51	10.166	103.348	2.827
1	0.278	0.077	53	12.166	148.012	3.383
1	0.278	0.077	45	4.166	17.356	1.159
1	0.278	0.077	33	-7.834	61.372	-2.179
1	0.278	0.077	45	4.166	17.356	1.159
1	0.278	0.077	44	3.166	10.024	0.880
0	-0.722	0.521	44	3.166	10.024	-2.286
1	0.278	0.077	49	8.166	66.684	2.271
1	0.278	0.077	39	-1.834	3.364	-0.510
1	0.278	0.077	49	8.166	66.684	2.271
1	0.278	0.077	35	-5.834	34.036	-1.622
0	-0.722	0.521	31	-9.834	96.708	7.099
0	-0.722	0.521	33	-7.834	61.372	5.655
1	0.278	0.077	48	7.166	51.352	1.993
0	-0.722	0.521	12	-28.834	831.400	20.815
1	0.278	0.077	35	-5.834	34.036	-1.622
0	-0.722	0.521	39	-1.834	3.364	1.324
1	0.278	0.077	53	12.166	148.012	3.383
0	-0.722	0.521	48	7.166	51.352	-5.173
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	40	-0.834	0.696	-0.232
1	0.278	0.077	44	3.166	10.024	0.880
0	-0.722	0.521	46	5.166	26.688	-3.729
0	-0.722	0.521	21	-19.834	393.388	14.318
1	0.278	0.077	45	4.166	17.356	1.159
0	-0.722	0.521	2	-38.834	1508.080	28.034
1	0.278	0.077	37	-3.834	14.700	-1.066
1	0.278	0.077	34	-6.834	46.704	-1.901

0	-0.594	0.352	38	-2.834	8.032	1.682
1	0.406	0.165	36	-4.834	23.368	-1.965
0	-0.594	0.352	37	-3.834	14.700	2.276
1	0.406	0.165	55	14.166	200.676	5.757
0	-0.594	0.352	28	-12.834	164.712	7.618
1	0.406	0.165	51	10.166	103.348	4.131
1	0.406	0.165	53	12.166	148.012	4.944
1	0.406	0.165	45	4.166	17.356	1.693
1	0.406	0.165	33	-7.834	61.372	-3.184
1	0.406	0.165	45	4.166	17.356	1.693
1	0.406	0.165	44	3.166	10.024	1.287
1	0.406	0.165	44	3.166	10.024	1.287
1	0.406	0.165	49	8.166	66.684	3.319
1	0.406	0.165	39	-1.834	3.364	-0.745
1	0.406	0.165	49	8.166	66.684	3.319
1	0.406	0.165	35	-5.834	34.036	-2.371
0	-0.594	0.352	31	-9.834	96.708	5.837
0	-0.594	0.352	33	-7.834	61.372	4.650
1	0.406	0.165	48	7.166	51.352	2.912
0	-0.594	0.352	12	-28.834	831.400	17.116
0	-0.594	0.352	35	-5.834	34.036	3.463
0	-0.594	0.352	39	-1.834	3.364	1.089
1	0.406	0.165	53	12.166	148.012	4.944
0	-0.594	0.352	48	7.166	51.352	-4.254
1	0.406	0.165	48	7.166	51.352	2.912
0	-0.594	0.352	40	-0.834	0.696	0.495
1	0.406	0.165	44	3.166	10.024	1.287
0	-0.594	0.352	46	5.166	26.688	-3.067
1	0.406	0.165	21	-19.834	393.388	-8.061
0	-0.594	0.352	45	4.166	17.356	-2.473
0	-0.594	0.352	2	-38.834	1508.080	23.052
0	-0.594	0.352	37	-3.834	14.700	2.276
1	0.406	0.165	34	-6.834	46.704	-2.777

0	-0.722	0.521	32	-8.834	78.040	6.377
1	0.278	0.077	29	-11.834	140.044	-3.291
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	48	7.166	51.352	1.993
0	-0.722	0.521	37	-3.834	14.700	2.768
1	0.278	0.077	53	12.166	148.012	3.383
1	0.278	0.077	42	1.166	1.360	0.324
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	45	4.166	17.356	1.159
1	0.278	0.077	52	11.166	124.680	3.105
0	-0.722	0.521	23	-17.834	318.052	12.874
1	0.278	0.077	38	-2.834	8.032	-0.788
1	0.278	0.077	51	10.166	103.348	2.827
0	-0.722	0.521	38	-2.834	8.032	2.046
1	0.278	0.077	29	-11.834	140.044	-3.291
1	0.278	0.077	28	-12.834	164.712	-3.569
0	-0.722	0.521	39	-1.834	3.364	1.324
1	0.278	0.077	33	-7.834	61.372	-2.179
1	0.278	0.077	44	3.166	10.024	0.880
0	-0.722	0.521	33	-7.834	61.372	5.655
0	-0.722	0.521	47	6.166	38.020	-4.451
1	0.278	0.077	31	-9.834	96.708	-2.735
0	-0.722	0.521	47	6.166	38.020	-4.451
0	-0.722	0.521	41	0.166	0.028	-0.120
1	0.278	0.077	54	13.166	173.344	3.661
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	53	12.166	148.012	3.383
1	0.278	0.077	43	2.166	4.692	0.602
1	0.278	0.077	50	9.166	84.016	2.549
1	0.278	0.077	47	6.166	38.020	1.715
1	0.278	0.077	42	1.166	1.360	0.324
0	-0.722	0.521	37	-3.834	14.700	2.768
1	0.278	0.077	41	0.166	0.028	0.046

0	-0.594	0.352	32	-8.834	78.040	5.244
1	0.406	0.165	29	-11.834	140.044	-4.809
1	0.406	0.165	48	7.166	51.352	2.912
1	0.406	0.165	48	7.166	51.352	2.912
0	-0.594	0.352	37	-3.834	14.700	2.276
1	0.406	0.165	53	12.166	148.012	4.944
1	0.406	0.165	42	1.166	1.360	0.474
1	0.406	0.165	48	7.166	51.352	2.912
1	0.406	0.165	45	4.166	17.356	1.693
1	0.406	0.165	52	11.166	124.680	4.538
0	-0.594	0.352	23	-17.834	318.052	10.586
1	0.406	0.165	38	-2.834	8.032	-1.152
1	0.406	0.165	51	10.166	103.348	4.131
0	-0.594	0.352	38	-2.834	8.032	1.682
1	0.406	0.165	29	-11.834	140.044	-4.809
1	0.406	0.165	28	-12.834	164.712	-5.216
0	-0.594	0.352	39	-1.834	3.364	1.089
1	0.406	0.165	33	-7.834	61.372	-3.184
1	0.406	0.165	44	3.166	10.024	1.287
0	-0.594	0.352	33	-7.834	61.372	4.650
0	-0.594	0.352	47	6.166	38.020	-3.660
1	0.406	0.165	31	-9.834	96.708	-3.997
0	-0.594	0.352	47	6.166	38.020	-3.660
1	0.406	0.165	41	0.166	0.028	0.067
1	0.406	0.165	54	13.166	173.344	5.351
0	-0.594	0.352	48	7.166	51.352	-4.254
1	0.406	0.165	53	12.166	148.012	4.944
1	0.406	0.165	43	2.166	4.692	0.880
1	0.406	0.165	50	9.166	84.016	3.725
1	0.406	0.165	47	6.166	38.020	2.506
1	0.406	0.165	42	1.166	1.360	0.474
0	-0.594	0.352	37	-3.834	14.700	2.276
1	0.406	0.165	41	0.166	0.028	0.067

1	0.278	0.077	18	-22.834	521.392	-6.350
0	-0.722	0.521	26	-14.834	220.048	10.709
1	0.278	0.077	52	11.166	124.680	3.105
1	0.278	0.077	44	3.166	10.024	0.880
1	0.278	0.077	51	10.166	103.348	2.827
0	-0.722	0.521	35	-5.834	34.036	4.212
1	0.278	0.077	40	-0.834	0.696	-0.232
1	0.278	0.077	47	6.166	38.020	1.715
1	0.278	0.077	49	8.166	66.684	2.271
0	-0.722	0.521	36	-4.834	23.368	3.490
0	-0.722	0.521	6	-34.834	1213.408	25.147
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	50	9.166	84.016	2.549
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	44	3.166	10.024	0.880
1	0.278	0.077	52	11.166	124.680	3.105
0	-0.722	0.521	46	5.166	26.688	-3.729
1	0.278	0.077	49	8.166	66.684	2.271
1	0.278	0.077	47	6.166	38.020	1.715
1	0.278	0.077	54	13.166	173.344	3.661
0	-0.722	0.521	25	-15.834	250.716	11.431
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	41	0.166	0.028	0.046
1	0.278	0.077	31	-9.834	96.708	-2.735
0	-0.722	0.521	13	-27.834	774.732	20.093
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	45	4.166	17.356	1.159
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	52	11.166	124.680	3.105
1	0.278	0.077	49	8.166	66.684	2.271
1	0.278	0.077	42	1.166	1.360	0.324
1	0.278	0.077	37	-3.834	14.700	-1.066

1	0.406	0.165	18	-22.834	521.392	-9.280
1	0.406	0.165	26	-14.834	220.048	-6.029
1	0.406	0.165	52	11.166	124.680	4.538
1	0.406	0.165	44	3.166	10.024	1.287
1	0.406	0.165	51	10.166	103.348	4.131
0	-0.594	0.352	35	-5.834	34.036	3.463
0	-0.594	0.352	40	-0.834	0.696	0.495
0	-0.594	0.352	47	6.166	38.020	-3.660
1	0.406	0.165	49	8.166	66.684	3.319
0	-0.594	0.352	36	-4.834	23.368	2.869
0	-0.594	0.352	6	-34.834	1213.408	20.677
1	0.406	0.165	55	14.166	200.676	5.757
1	0.406	0.165	50	9.166	84.016	3.725
1	0.406	0.165	48	7.166	51.352	2.912
1	0.406	0.165	44	3.166	10.024	1.287
1	0.406	0.165	52	11.166	124.680	4.538
1	0.406	0.165	46	5.166	26.688	2.099
1	0.406	0.165	49	8.166	66.684	3.319
0	-0.594	0.352	47	6.166	38.020	-3.660
1	0.406	0.165	54	13.166	173.344	5.351
0	-0.594	0.352	25	-15.834	250.716	9.399
1	0.406	0.165	55	14.166	200.676	5.757
1	0.406	0.165	55	14.166	200.676	5.757
0	-0.594	0.352	41	0.166	0.028	-0.099
1	0.406	0.165	31	-9.834	96.708	-3.997
0	-0.594	0.352	13	-27.834	774.732	16.522
1	0.406	0.165	55	14.166	200.676	5.757
1	0.406	0.165	45	4.166	17.356	1.693
1	0.406	0.165	55	14.166	200.676	5.757
1	0.406	0.165	52	11.166	124.680	4.538
1	0.406	0.165	49	8.166	66.684	3.319
1	0.406	0.165	42	1.166	1.360	0.474
1	0.406	0.165	37	-3.834	14.700	-1.558

0	-0.722	0.521	24	-16.834	283.384	12.152
1	0.278	0.077	21	-19.834	393.388	-5.516
1	0.278	0.077	38	-2.834	8.032	-0.788
1	0.278	0.077	46	5.166	26.688	1.437
1	0.278	0.077	29	-11.834	140.044	-3.291
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	42	1.166	1.360	0.324
1	0.278	0.077	38	-2.834	8.032	-0.788
0	-0.722	0.521	18	-22.834	521.392	16.484
1	0.278	0.077	49	8.166	66.684	2.271
1	0.278	0.077	30	-10.834	117.376	-3.013
1	0.278	0.077	43	2.166	4.692	0.602
1	0.278	0.077	39	-1.834	3.364	-0.510
1	0.278	0.077	31	-9.834	96.708	-2.735
0	-0.722	0.521	28	-12.834	164.712	9.265
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	47	6.166	38.020	1.715
1	0.278	0.077	37	-3.834	14.700	-1.066
1	0.278	0.077	40	-0.834	0.696	-0.232
1	0.278	0.077	49	8.166	66.684	2.271
0	-0.722	0.521	32	-8.834	78.040	6.377
1	0.278	0.077	47	6.166	38.020	1.715
1	0.278	0.077	32	-8.834	78.040	-2.457
0	-0.722	0.521	29	-11.834	140.044	8.543
1	0.278	0.077	23	-17.834	318.052	-4.960
1	0.278	0.077	41	0.166	0.028	0.046
0	-0.722	0.521	41	0.166	0.028	-0.120
1	0.278	0.077	51	10.166	103.348	2.827
0	-0.722	0.521	29	-11.834	140.044	8.543
1	0.278	0.077	37	-3.834	14.700	-1.066
0	-0.722	0.521	37	-3.834	14.700	2.768
0	-0.722	0.521	36	-4.834	23.368	3.490
1	0.278	0.077	40	-0.834	0.696	-0.232

0	-0.594	0.352	24	-16.834	283.384	9.993
0	-0.594	0.352	21	-19.834	393.388	11.773
1	0.406	0.165	38	-2.834	8.032	-1.152
1	0.406	0.165	46	5.166	26.688	2.099
1	0.406	0.165	29	-11.834	140.044	-4.809
1	0.406	0.165	48	7.166	51.352	2.912
1	0.406	0.165	42	1.166	1.360	0.474
1	0.406	0.165	38	-2.834	8.032	-1.152
0	-0.594	0.352	18	-22.834	521.392	13.554
1	0.406	0.165	49	8.166	66.684	3.319
0	-0.594	0.352	30	-10.834	117.376	6.431
0	-0.594	0.352	43	2.166	4.692	-1.286
1	0.406	0.165	39	-1.834	3.364	-0.745
0	-0.594	0.352	31	-9.834	96.708	5.837
0	-0.594	0.352	28	-12.834	164.712	7.618
1	0.406	0.165	48	7.166	51.352	2.912
1	0.406	0.165	47	6.166	38.020	2.506
1	0.406	0.165	37	-3.834	14.700	-1.558
1	0.406	0.165	40	-0.834	0.696	-0.339
1	0.406	0.165	49	8.166	66.684	3.319
0	-0.594	0.352	32	-8.834	78.040	5.244
1	0.406	0.165	47	6.166	38.020	2.506
1	0.406	0.165	32	-8.834	78.040	-3.590
1	0.406	0.165	29	-11.834	140.044	-4.809
1	0.406	0.165	23	-17.834	318.052	-7.248
0	-0.594	0.352	41	0.166	0.028	-0.099
0	-0.594	0.352	41	0.166	0.028	-0.099
1	0.406	0.165	51	10.166	103.348	4.131
0	-0.594	0.352	29	-11.834	140.044	7.025
0	-0.594	0.352	37	-3.834	14.700	2.276
0	-0.594	0.352	37	-3.834	14.700	2.276
0	-0.594	0.352	36	-4.834	23.368	2.869
0	-0.594	0.352	40	-0.834	0.696	0.495

1	0.278	0.077	50	9.166	84.016	2.549
0	-0.722	0.521	38	-2.834	8.032	2.046
1	0.278	0.077	40	-0.834	0.696	-0.232
1	0.278	0.077	36	-4.834	23.368	-1.344
1	0.278	0.077	20	-20.834	434.056	-5.794
0	-0.722	0.521	47	6.166	38.020	-4.451
1	0.278	0.077	54	13.166	173.344	3.661
0	-0.722	0.521	50	9.166	84.016	-6.617
1	0.278	0.077	25	-15.834	250.716	-4.403
1	0.278	0.077	53	12.166	148.012	3.383
1	0.278	0.077	44	3.166	10.024	0.880
0	-0.722	0.521	26	-14.834	220.048	10.709
0	-0.722	0.521	33	-7.834	61.372	5.655
1	0.278	0.077	36	-4.834	23.368	-1.344
1	0.278	0.077	39	-1.834	3.364	-0.510
1	0.278	0.077	46	5.166	26.688	1.437
1	0.278	0.077	36	-4.834	23.368	-1.344
1	0.278	0.077	54	13.166	173.344	3.661
0	-0.722	0.521	36	-4.834	23.368	3.490
1	0.278	0.077	44	3.166	10.024	0.880
0	-0.722	0.521	40	-0.834	0.696	0.602
0	-0.722	0.521	38	-2.834	8.032	2.046
1	0.278	0.077	35	-5.834	34.036	-1.622
1	0.278	0.077	46	5.166	26.688	1.437
0	-0.722	0.521	49	8.166	66.684	-5.895
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	41	0.166	0.028	0.046
1	0.278	0.077	53	12.166	148.012	3.383
1	0.278	0.077	53	12.166	148.012	3.383
1	0.278	0.077	51	10.166	103.348	2.827
135	0.005	37.540	7636	0.042	19431.861	386.380

0	-0.594	0.352	50	9.166	84.016	-5.441
0	-0.594	0.352	38	-2.834	8.032	1.682
1	0.406	0.165	40	-0.834	0.696	-0.339
0	-0.594	0.352	36	-4.834	23.368	2.869
1	0.406	0.165	20	-20.834	434.056	-8.467
1	0.406	0.165	47	6.166	38.020	2.506
1	0.406	0.165	54	13.166	173.344	5.351
0	-0.594	0.352	50	9.166	84.016	-5.441
0	-0.594	0.352	25	-15.834	250.716	9.399
1	0.406	0.165	53	12.166	148.012	4.944
1	0.406	0.165	44	3.166	10.024	1.287
1	0.406	0.165	26	-14.834	220.048	-6.029
0	-0.594	0.352	33	-7.834	61.372	4.650
0	-0.594	0.352	36	-4.834	23.368	2.869
0	-0.594	0.352	39	-1.834	3.364	1.089
1	0.406	0.165	46	5.166	26.688	2.099
0	-0.594	0.352	36	-4.834	23.368	2.869
1	0.406	0.165	54	13.166	173.344	5.351
0	-0.594	0.352	36	-4.834	23.368	2.869
1	0.406	0.165	44	3.166	10.024	1.287
0	-0.594	0.352	40	-0.834	0.696	0.495
0	-0.594	0.352	38	-2.834	8.032	1.682
1	0.406	0.165	35	-5.834	34.036	-2.371
1	0.406	0.165	46	5.166	26.688	2.099
0	-0.594	0.352	49	8.166	66.684	-4.847
0	-0.594	0.352	48	7.166	51.352	-4.254
1	0.406	0.165	41	0.166	0.028	0.067
1	0.406	0.165	53	12.166	148.012	4.944
1	0.406	0.165	53	12.166	148.012	4.944
1	0.406	0.165	51	10.166	103.348	4.131
111	-0.003	45.112	7636	0.042	19431.861	354.401

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$
$$= \frac{386,380}{\sqrt{37,540 \times 19431,861}} = 0.4529$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$
$$= \frac{354,401}{\sqrt{45,112 \times 19431,861}} = 0.3785$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 33 dan No 34

Pertanyaan no 33

$$x = 160/187 = 0.8556$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.144	0.021	51	10.166	103.348	1.468
1	0.144	0.021	36	-4.834	23.368	-0.698
1	0.144	0.021	41	0.166	0.028	0.024
1	0.144	0.021	52	11.166	124.680	1.612
1	0.144	0.021	51	10.166	103.348	1.468
1	0.144	0.021	50	9.166	84.016	1.324
0	-0.856	0.732	46	5.166	26.688	-4.420
1	0.144	0.021	55	14.166	200.676	2.046
1	0.144	0.021	49	8.166	66.684	1.179
1	0.144	0.021	31	-9.834	96.708	-1.420
1	0.144	0.021	46	5.166	26.688	0.746
1	0.144	0.021	44	3.166	10.024	0.457
1	0.144	0.021	40	-0.834	0.696	-0.120
1	0.144	0.021	48	7.166	51.352	1.035
1	0.144	0.021	31	-9.834	96.708	-1.420
0	-0.856	0.732	27	-13.834	191.380	11.836
1	0.144	0.021	47	6.166	38.020	0.890
1	0.144	0.021	50	9.166	84.016	1.324
1	0.144	0.021	55	14.166	200.676	2.046
1	0.144	0.021	47	6.166	38.020	0.890
0	-0.856	0.732	16	-24.834	616.728	21.248
1	0.144	0.021	42	1.166	1.360	0.168
1	0.144	0.021	42	1.166	1.360	0.168
1	0.144	0.021	43	2.166	4.692	0.313
1	0.144	0.021	43	2.166	4.692	0.313

Pertanyaan no 34

$$x = 151/187 = 0.8075$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.193	0.037	51	10.166	103.348	1.957
1	0.193	0.037	36	-4.834	23.368	-0.931
1	0.193	0.037	41	0.166	0.028	0.032
1	0.193	0.037	52	11.166	124.680	2.149
1	0.193	0.037	51	10.166	103.348	1.957
1	0.193	0.037	50	9.166	84.016	1.764
1	0.193	0.037	46	5.166	26.688	0.994
1	0.193	0.037	55	14.166	200.676	2.727
1	0.193	0.037	49	8.166	66.684	1.572
1	0.193	0.037	31	-9.834	96.708	-1.893
1	0.193	0.037	46	5.166	26.688	0.994
1	0.193	0.037	44	3.166	10.024	0.609
1	0.193	0.037	40	-0.834	0.696	-0.161
1	0.193	0.037	48	7.166	51.352	1.379
1	0.193	0.037	31	-9.834	96.708	-1.893
1	0.193	0.037	27	-13.834	191.380	-2.663
1	0.193	0.037	47	6.166	38.020	1.187
1	0.193	0.037	50	9.166	84.016	1.764
1	0.193	0.037	55	14.166	200.676	2.727
1	0.193	0.037	47	6.166	38.020	1.187
0	-0.808	0.652	16	-24.834	616.728	20.053
0	-0.808	0.652	42	1.166	1.360	-0.942
1	0.193	0.037	42	1.166	1.360	0.224
1	0.193	0.037	43	2.166	4.692	0.417
1	0.193	0.037	43	2.166	4.692	0.417

1	0.144	0.021	38	-2.834	8.032	-0.409
1	0.144	0.021	36	-4.834	23.368	-0.698
1	0.144	0.021	37	-3.834	14.700	-0.554
1	0.144	0.021	55	14.166	200.676	2.046
1	0.144	0.021	28	-12.834	164.712	-1.853
1	0.144	0.021	51	10.166	103.348	1.468
1	0.144	0.021	53	12.166	148.012	1.757
1	0.144	0.021	45	4.166	17.356	0.602
1	0.144	0.021	33	-7.834	61.372	-1.131
1	0.144	0.021	45	4.166	17.356	0.602
1	0.144	0.021	44	3.166	10.024	0.457
1	0.144	0.021	44	3.166	10.024	0.457
1	0.144	0.021	49	8.166	66.684	1.179
1	0.144	0.021	39	-1.834	3.364	-0.265
1	0.144	0.021	49	8.166	66.684	1.179
1	0.144	0.021	35	-5.834	34.036	-0.842
0	-0.856	0.732	31	-9.834	96.708	8.414
1	0.144	0.021	33	-7.834	61.372	-1.131
1	0.144	0.021	48	7.166	51.352	1.035
0	-0.856	0.732	12	-28.834	831.400	24.670
1	0.144	0.021	35	-5.834	34.036	-0.842
0	-0.856	0.732	39	-1.834	3.364	1.569
1	0.144	0.021	53	12.166	148.012	1.757
1	0.144	0.021	48	7.166	51.352	1.035
1	0.144	0.021	48	7.166	51.352	1.035
1	0.144	0.021	40	-0.834	0.696	-0.120
1	0.144	0.021	44	3.166	10.024	0.457
1	0.144	0.021	46	5.166	26.688	0.746
1	0.144	0.021	21	-19.834	393.388	-2.864
1	0.144	0.021	45	4.166	17.356	0.602
0	-0.856	0.732	2	-38.834	1508.080	33.226
0	-0.856	0.732	37	-3.834	14.700	3.280
1	0.144	0.021	34	-6.834	46.704	-0.987

1	0.193	0.037	38	-2.834	8.032	-0.546
0	-0.808	0.652	36	-4.834	23.368	3.903
1	0.193	0.037	37	-3.834	14.700	-0.738
1	0.193	0.037	55	14.166	200.676	2.727
0	-0.808	0.652	28	-12.834	164.712	10.363
1	0.193	0.037	51	10.166	103.348	1.957
1	0.193	0.037	53	12.166	148.012	2.342
1	0.193	0.037	45	4.166	17.356	0.802
1	0.193	0.037	33	-7.834	61.372	-1.508
0	-0.808	0.652	45	4.166	17.356	-3.364
1	0.193	0.037	44	3.166	10.024	0.609
1	0.193	0.037	44	3.166	10.024	0.609
1	0.193	0.037	49	8.166	66.684	1.572
1	0.193	0.037	39	-1.834	3.364	-0.353
1	0.193	0.037	49	8.166	66.684	1.572
0	-0.808	0.652	35	-5.834	34.036	4.711
0	-0.808	0.652	31	-9.834	96.708	7.941
1	0.193	0.037	33	-7.834	61.372	-1.508
1	0.193	0.037	48	7.166	51.352	1.379
0	-0.808	0.652	12	-28.834	831.400	23.283
0	-0.808	0.652	35	-5.834	34.036	4.711
1	0.193	0.037	39	-1.834	3.364	-0.353
1	0.193	0.037	53	12.166	148.012	2.342
1	0.193	0.037	48	7.166	51.352	1.379
1	0.193	0.037	48	7.166	51.352	1.379
1	0.193	0.037	40	-0.834	0.696	-0.161
0	-0.808	0.652	44	3.166	10.024	-2.557
1	0.193	0.037	46	5.166	26.688	0.994
0	-0.808	0.652	21	-19.834	393.388	16.016
0	-0.808	0.652	45	4.166	17.356	-3.364
0	-0.808	0.652	2	-38.834	1508.080	31.358
1	0.193	0.037	37	-3.834	14.700	-0.738
1	0.193	0.037	34	-6.834	46.704	-1.316

1	0.144	0.021	32	-8.834	78.040	-1.276
1	0.144	0.021	29	-11.834	140.044	-1.709
1	0.144	0.021	48	7.166	51.352	1.035
1	0.144	0.021	48	7.166	51.352	1.035
1	0.144	0.021	37	-3.834	14.700	-0.554
1	0.144	0.021	53	12.166	148.012	1.757
1	0.144	0.021	42	1.166	1.360	0.168
1	0.144	0.021	48	7.166	51.352	1.035
1	0.144	0.021	45	4.166	17.356	0.602
1	0.144	0.021	52	11.166	124.680	1.612
1	0.144	0.021	23	-17.834	318.052	-2.575
1	0.144	0.021	38	-2.834	8.032	-0.409
1	0.144	0.021	51	10.166	103.348	1.468
0	-0.856	0.732	38	-2.834	8.032	2.425
1	0.144	0.021	29	-11.834	140.044	-1.709
1	0.144	0.021	28	-12.834	164.712	-1.853
0	-0.856	0.732	39	-1.834	3.364	1.569
1	0.144	0.021	33	-7.834	61.372	-1.131
1	0.144	0.021	44	3.166	10.024	0.457
1	0.144	0.021	33	-7.834	61.372	-1.131
1	0.144	0.021	47	6.166	38.020	0.890
0	-0.856	0.732	31	-9.834	96.708	8.414
1	0.144	0.021	47	6.166	38.020	0.890
0	-0.856	0.732	41	0.166	0.028	-0.142
1	0.144	0.021	54	13.166	173.344	1.901
1	0.144	0.021	48	7.166	51.352	1.035
1	0.144	0.021	53	12.166	148.012	1.757
1	0.144	0.021	43	2.166	4.692	0.313
1	0.144	0.021	50	9.166	84.016	1.324
1	0.144	0.021	47	6.166	38.020	0.890
1	0.144	0.021	42	1.166	1.360	0.168
0	-0.856	0.732	37	-3.834	14.700	3.280
1	0.144	0.021	41	0.166	0.028	0.024

1	0.193	0.037	32	-8.834	78.040	-1.701
1	0.193	0.037	29	-11.834	140.044	-2.278
1	0.193	0.037	48	7.166	51.352	1.379
1	0.193	0.037	48	7.166	51.352	1.379
1	0.193	0.037	37	-3.834	14.700	-0.738
1	0.193	0.037	53	12.166	148.012	2.342
1	0.193	0.037	42	1.166	1.360	0.224
0	-0.808	0.652	48	7.166	51.352	-5.787
1	0.193	0.037	45	4.166	17.356	0.802
1	0.193	0.037	52	11.166	124.680	2.149
1	0.193	0.037	23	-17.834	318.052	-3.433
1	0.193	0.037	38	-2.834	8.032	-0.546
1	0.193	0.037	51	10.166	103.348	1.957
1	0.193	0.037	38	-2.834	8.032	-0.546
0	-0.808	0.652	29	-11.834	140.044	9.556
0	-0.808	0.652	28	-12.834	164.712	10.363
1	0.193	0.037	39	-1.834	3.364	-0.353
0	-0.808	0.652	33	-7.834	61.372	6.326
1	0.193	0.037	44	3.166	10.024	0.609
1	0.193	0.037	33	-7.834	61.372	-1.508
1	0.193	0.037	47	6.166	38.020	1.187
1	0.193	0.037	31	-9.834	96.708	-1.893
0	-0.808	0.652	47	6.166	38.020	-4.979
1	0.193	0.037	41	0.166	0.028	0.032
1	0.193	0.037	54	13.166	173.344	2.534
1	0.193	0.037	48	7.166	51.352	1.379
1	0.193	0.037	53	12.166	148.012	2.342
1	0.193	0.037	43	2.166	4.692	0.417
1	0.193	0.037	50	9.166	84.016	1.764
1	0.193	0.037	47	6.166	38.020	1.187
1	0.193	0.037	42	1.166	1.360	0.224
1	0.193	0.037	37	-3.834	14.700	-0.738
1	0.193	0.037	41	0.166	0.028	0.032

1	0.144	0.021	18	-22.834	521.392	-3.297
1	0.144	0.021	26	-14.834	220.048	-2.142
1	0.144	0.021	52	11.166	124.680	1.612
1	0.144	0.021	44	3.166	10.024	0.457
1	0.144	0.021	51	10.166	103.348	1.468
0	-0.856	0.732	35	-5.834	34.036	4.992
0	-0.856	0.732	40	-0.834	0.696	0.714
1	0.144	0.021	47	6.166	38.020	0.890
1	0.144	0.021	49	8.166	66.684	1.179
1	0.144	0.021	36	-4.834	23.368	-0.698
0	-0.856	0.732	6	-34.834	1213.408	29.804
1	0.144	0.021	55	14.166	200.676	2.046
1	0.144	0.021	50	9.166	84.016	1.324
1	0.144	0.021	48	7.166	51.352	1.035
1	0.144	0.021	44	3.166	10.024	0.457
1	0.144	0.021	52	11.166	124.680	1.612
1	0.144	0.021	46	5.166	26.688	0.746
1	0.144	0.021	49	8.166	66.684	1.179
1	0.144	0.021	47	6.166	38.020	0.890
1	0.144	0.021	54	13.166	173.344	1.901
0	-0.856	0.732	25	-15.834	250.716	13.548
1	0.144	0.021	55	14.166	200.676	2.046
1	0.144	0.021	55	14.166	200.676	2.046
1	0.144	0.021	41	0.166	0.028	0.024
0	-0.856	0.732	31	-9.834	96.708	8.414
1	0.144	0.021	13	-27.834	774.732	-4.019
1	0.144	0.021	55	14.166	200.676	2.046
1	0.144	0.021	45	4.166	17.356	0.602
1	0.144	0.021	55	14.166	200.676	2.046
1	0.144	0.021	52	11.166	124.680	1.612
1	0.144	0.021	49	8.166	66.684	1.179
1	0.144	0.021	42	1.166	1.360	0.168
1	0.144	0.021	37	-3.834	14.700	-0.554

0	-0.808	0.652	18	-22.834	521.392	18.438
1	0.193	0.037	26	-14.834	220.048	-2.856
1	0.193	0.037	52	11.166	124.680	2.149
1	0.193	0.037	44	3.166	10.024	0.609
1	0.193	0.037	51	10.166	103.348	1.957
1	0.193	0.037	35	-5.834	34.036	-1.123
0	-0.808	0.652	40	-0.834	0.696	0.673
1	0.193	0.037	47	6.166	38.020	1.187
1	0.193	0.037	49	8.166	66.684	1.572
1	0.193	0.037	36	-4.834	23.368	-0.931
0	-0.808	0.652	6	-34.834	1213.408	28.128
1	0.193	0.037	55	14.166	200.676	2.727
1	0.193	0.037	50	9.166	84.016	1.764
1	0.193	0.037	48	7.166	51.352	1.379
0	-0.808	0.652	44	3.166	10.024	-2.557
1	0.193	0.037	52	11.166	124.680	2.149
1	0.193	0.037	46	5.166	26.688	0.994
1	0.193	0.037	49	8.166	66.684	1.572
1	0.193	0.037	47	6.166	38.020	1.187
1	0.193	0.037	54	13.166	173.344	2.534
0	-0.808	0.652	25	-15.834	250.716	12.786
1	0.193	0.037	55	14.166	200.676	2.727
1	0.193	0.037	55	14.166	200.676	2.727
1	0.193	0.037	41	0.166	0.028	0.032
0	-0.808	0.652	31	-9.834	96.708	7.941
1	0.193	0.037	13	-27.834	774.732	-5.358
1	0.193	0.037	55	14.166	200.676	2.727
1	0.193	0.037	45	4.166	17.356	0.802
1	0.193	0.037	55	14.166	200.676	2.727
1	0.193	0.037	52	11.166	124.680	2.149
1	0.193	0.037	49	8.166	66.684	1.572
1	0.193	0.037	42	1.166	1.360	0.224
0	-0.808	0.652	37	-3.834	14.700	3.096

0	-0.856	0.732	24	-16.834	283.384	14.403
0	-0.856	0.732	21	-19.834	393.388	16.970
1	0.144	0.021	38	-2.834	8.032	-0.409
1	0.144	0.021	46	5.166	26.688	0.746
1	0.144	0.021	29	-11.834	140.044	-1.709
1	0.144	0.021	48	7.166	51.352	1.035
1	0.144	0.021	42	1.166	1.360	0.168
1	0.144	0.021	38	-2.834	8.032	-0.409
0	-0.856	0.732	18	-22.834	521.392	19.537
1	0.144	0.021	49	8.166	66.684	1.179
1	0.144	0.021	30	-10.834	117.376	-1.564
1	0.144	0.021	43	2.166	4.692	0.313
1	0.144	0.021	39	-1.834	3.364	-0.265
0	-0.856	0.732	31	-9.834	96.708	8.414
0	-0.856	0.732	28	-12.834	164.712	10.981
1	0.144	0.021	48	7.166	51.352	1.035
1	0.144	0.021	47	6.166	38.020	0.890
1	0.144	0.021	37	-3.834	14.700	-0.554
1	0.144	0.021	40	-0.834	0.696	-0.120
1	0.144	0.021	49	8.166	66.684	1.179
1	0.144	0.021	32	-8.834	78.040	-1.276
1	0.144	0.021	47	6.166	38.020	0.890
1	0.144	0.021	32	-8.834	78.040	-1.276
1	0.144	0.021	29	-11.834	140.044	-1.709
1	0.144	0.021	23	-17.834	318.052	-2.575
1	0.144	0.021	41	0.166	0.028	0.024
1	0.144	0.021	41	0.166	0.028	0.024
1	0.144	0.021	51	10.166	103.348	1.468
0	-0.856	0.732	29	-11.834	140.044	10.125
0	-0.856	0.732	37	-3.834	14.700	3.280
1	0.144	0.021	37	-3.834	14.700	-0.554
1	0.144	0.021	36	-4.834	23.368	-0.698
0	-0.856	0.732	40	-0.834	0.696	0.714

0	-0.808	0.652	24	-16.834	283.384	13.593
1	0.193	0.037	21	-19.834	393.388	-3.818
1	0.193	0.037	38	-2.834	8.032	-0.546
1	0.193	0.037	46	5.166	26.688	0.994
1	0.193	0.037	29	-11.834	140.044	-2.278
0	-0.808	0.652	48	7.166	51.352	-5.787
1	0.193	0.037	42	1.166	1.360	0.224
1	0.193	0.037	38	-2.834	8.032	-0.546
0	-0.808	0.652	18	-22.834	521.392	18.438
1	0.193	0.037	49	8.166	66.684	1.572
1	0.193	0.037	30	-10.834	117.376	-2.086
1	0.193	0.037	43	2.166	4.692	0.417
1	0.193	0.037	39	-1.834	3.364	-0.353
0	-0.808	0.652	31	-9.834	96.708	7.941
1	0.193	0.037	28	-12.834	164.712	-2.471
1	0.193	0.037	48	7.166	51.352	1.379
1	0.193	0.037	47	6.166	38.020	1.187
1	0.193	0.037	37	-3.834	14.700	-0.738
1	0.193	0.037	40	-0.834	0.696	-0.161
1	0.193	0.037	49	8.166	66.684	1.572
1	0.193	0.037	32	-8.834	78.040	-1.701
1	0.193	0.037	47	6.166	38.020	1.187
0	-0.808	0.652	32	-8.834	78.040	7.133
1	0.193	0.037	29	-11.834	140.044	-2.278
1	0.193	0.037	23	-17.834	318.052	-3.433
1	0.193	0.037	41	0.166	0.028	0.032
0	-0.808	0.652	41	0.166	0.028	-0.134
1	0.193	0.037	51	10.166	103.348	1.957
1	0.193	0.037	29	-11.834	140.044	-2.278
1	0.193	0.037	37	-3.834	14.700	-0.738
1	0.193	0.037	37	-3.834	14.700	-0.738
1	0.193	0.037	36	-4.834	23.368	-0.931
1	0.193	0.037	40	-0.834	0.696	-0.161

1	0.144	0.021	50	9.166	84.016	1.324
0	-0.856	0.732	38	-2.834	8.032	2.425
1	0.144	0.021	40	-0.834	0.696	-0.120
1	0.144	0.021	36	-4.834	23.368	-0.698
1	0.144	0.021	20	-20.834	434.056	-3.008
1	0.144	0.021	47	6.166	38.020	0.890
1	0.144	0.021	54	13.166	173.344	1.901
1	0.144	0.021	50	9.166	84.016	1.324
1	0.144	0.021	25	-15.834	250.716	-2.286
1	0.144	0.021	53	12.166	148.012	1.757
1	0.144	0.021	44	3.166	10.024	0.457
1	0.144	0.021	26	-14.834	220.048	-2.142
1	0.144	0.021	33	-7.834	61.372	-1.131
1	0.144	0.021	36	-4.834	23.368	-0.698
1	0.144	0.021	39	-1.834	3.364	-0.265
1	0.144	0.021	46	5.166	26.688	0.746
1	0.144	0.021	36	-4.834	23.368	-0.698
1	0.144	0.021	54	13.166	173.344	1.901
1	0.144	0.021	36	-4.834	23.368	-0.698
1	0.144	0.021	44	3.166	10.024	0.457
1	0.144	0.021	40	-0.834	0.696	-0.120
1	0.144	0.021	38	-2.834	8.032	-0.409
1	0.144	0.021	35	-5.834	34.036	-0.842
1	0.144	0.021	46	5.166	26.688	0.746
1	0.144	0.021	49	8.166	66.684	1.179
1	0.144	0.021	48	7.166	51.352	1.035
1	0.144	0.021	41	0.166	0.028	0.024
1	0.144	0.021	53	12.166	148.012	1.757
1	0.144	0.021	53	12.166	148.012	1.757
1	0.144	0.021	51	10.166	103.348	1.468
160	0.003	23.102	7636	0.042	19431.861	303.524

1	0.193	0.037	50	9.166	84.016	1.764
1	0.193	0.037	38	-2.834	8.032	-0.546
0	-0.808	0.652	40	-0.834	0.696	0.673
0	-0.808	0.652	36	-4.834	23.368	3.903
1	0.193	0.037	20	-20.834	434.056	-4.011
1	0.193	0.037	47	6.166	38.020	1.187
1	0.193	0.037	54	13.166	173.344	2.534
1	0.193	0.037	50	9.166	84.016	1.764
1	0.193	0.037	25	-15.834	250.716	-3.048
1	0.193	0.037	53	12.166	148.012	2.342
1	0.193	0.037	44	3.166	10.024	0.609
0	-0.808	0.652	26	-14.834	220.048	11.978
1	0.193	0.037	33	-7.834	61.372	-1.508
1	0.193	0.037	36	-4.834	23.368	-0.931
1	0.193	0.037	39	-1.834	3.364	-0.353
1	0.193	0.037	46	5.166	26.688	0.994
1	0.193	0.037	36	-4.834	23.368	-0.931
1	0.193	0.037	54	13.166	173.344	2.534
1	0.193	0.037	36	-4.834	23.368	-0.931
0	-0.808	0.652	44	3.166	10.024	-2.557
1	0.193	0.037	40	-0.834	0.696	-0.161
1	0.193	0.037	38	-2.834	8.032	-0.546
1	0.193	0.037	35	-5.834	34.036	-1.123
1	0.193	0.037	46	5.166	26.688	0.994
1	0.193	0.037	49	8.166	66.684	1.572
0	-0.808	0.652	48	7.166	51.352	-5.787
1	0.193	0.037	41	0.166	0.028	0.032
1	0.193	0.037	53	12.166	148.012	2.342
1	0.193	0.037	53	12.166	148.012	2.342
1	0.193	0.037	51	10.166	103.348	1.957
151	-0.003	29.070	7636	0.042	19431.861	304.032

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$
$$= \frac{303,524}{\sqrt{23,102 \times 19431,861}} = 0.4530$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$
$$= \frac{304,032}{\sqrt{29,070 \times 19431,861}} = 0.4045$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 35 dan No 36

Pertanyaan no 35

$$x = 135/187 = 0.7219$$

$$y = 7636/187 = 40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.278	0.077	51	10.166	103.348	2.827
0	-0.722	0.521	36	-4.834	23.368	3.490
1	0.278	0.077	41	0.166	0.028	0.046
1	0.278	0.077	52	11.166	124.680	3.105
1	0.278	0.077	51	10.166	103.348	2.827
0	-0.722	0.521	50	9.166	84.016	-6.617
1	0.278	0.077	46	5.166	26.688	1.437
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	49	8.166	66.684	2.271
1	0.278	0.077	31	-9.834	96.708	-2.735
1	0.278	0.077	46	5.166	26.688	1.437
1	0.278	0.077	44	3.166	10.024	0.880
1	0.278	0.077	40	-0.834	0.696	-0.232
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	31	-9.834	96.708	-2.735
0	-0.722	0.521	27	-13.834	191.380	9.987
1	0.278	0.077	47	6.166	38.020	1.715
1	0.278	0.077	50	9.166	84.016	2.549
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	47	6.166	38.020	1.715
0	-0.722	0.521	16	-24.834	616.728	17.928
1	0.278	0.077	42	1.166	1.360	0.324
1	0.278	0.077	42	1.166	1.360	0.324
1	0.278	0.077	43	2.166	4.692	0.602
1	0.278	0.077	43	2.166	4.692	0.602

Pertanyaan no 36

$$x = 136/187 = 0.7273$$

$$y = 7636/187 = 40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.273	0.074	51	10.166	103.348	2.772
1	0.273	0.074	36	-4.834	23.368	-1.318
1	0.273	0.074	41	0.166	0.028	0.045
1	0.273	0.074	52	11.166	124.680	3.045
1	0.273	0.074	51	10.166	103.348	2.772
0	-0.727	0.529	50	9.166	84.016	-6.666
1	0.273	0.074	46	5.166	26.688	1.409
1	0.273	0.074	55	14.166	200.676	3.863
1	0.273	0.074	49	8.166	66.684	2.227
1	0.273	0.074	31	-9.834	96.708	-2.682
0	-0.727	0.529	46	5.166	26.688	-3.757
1	0.273	0.074	44	3.166	10.024	0.863
0	-0.727	0.529	40	-0.834	0.696	0.607
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	31	-9.834	96.708	-2.682
0	-0.727	0.529	27	-13.834	191.380	10.061
0	-0.727	0.529	47	6.166	38.020	-4.485
1	0.273	0.074	50	9.166	84.016	2.500
1	0.273	0.074	55	14.166	200.676	3.863
1	0.273	0.074	47	6.166	38.020	1.681
1	0.273	0.074	16	-24.834	616.728	-6.772
0	-0.727	0.529	42	1.166	1.360	-0.848
1	0.273	0.074	42	1.166	1.360	0.318
1	0.273	0.074	43	2.166	4.692	0.591
1	0.273	0.074	43	2.166	4.692	0.591

1	0.278	0.077	38	-2.834	8.032	-0.788
0	-0.722	0.521	36	-4.834	23.368	3.490
1	0.278	0.077	37	-3.834	14.700	-1.066
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	28	-12.834	164.712	-3.569
1	0.278	0.077	51	10.166	103.348	2.827
1	0.278	0.077	53	12.166	148.012	3.383
0	-0.722	0.521	45	4.166	17.356	-3.007
1	0.278	0.077	33	-7.834	61.372	-2.179
0	-0.722	0.521	45	4.166	17.356	-3.007
1	0.278	0.077	44	3.166	10.024	0.880
1	0.278	0.077	44	3.166	10.024	0.880
1	0.278	0.077	49	8.166	66.684	2.271
1	0.278	0.077	39	-1.834	3.364	-0.510
1	0.278	0.077	49	8.166	66.684	2.271
0	-0.722	0.521	35	-5.834	34.036	4.212
0	-0.722	0.521	31	-9.834	96.708	7.099
1	0.278	0.077	33	-7.834	61.372	-2.179
1	0.278	0.077	48	7.166	51.352	1.993
0	-0.722	0.521	12	-28.834	831.400	20.815
1	0.278	0.077	35	-5.834	34.036	-1.622
0	-0.722	0.521	39	-1.834	3.364	1.324
1	0.278	0.077	53	12.166	148.012	3.383
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	40	-0.834	0.696	-0.232
0	-0.722	0.521	44	3.166	10.024	-2.286
1	0.278	0.077	46	5.166	26.688	1.437
0	-0.722	0.521	21	-19.834	393.388	14.318
1	0.278	0.077	45	4.166	17.356	1.159
0	-0.722	0.521	2	-38.834	1508.080	28.034
0	-0.722	0.521	37	-3.834	14.700	2.768
1	0.278	0.077	34	-6.834	46.704	-1.901

1	0.273	0.074	38	-2.834	8.032	-0.773
1	0.273	0.074	36	-4.834	23.368	-1.318
1	0.273	0.074	37	-3.834	14.700	-1.046
1	0.273	0.074	55	14.166	200.676	3.863
0	-0.727	0.529	28	-12.834	164.712	9.334
1	0.273	0.074	51	10.166	103.348	2.772
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	45	4.166	17.356	1.136
1	0.273	0.074	33	-7.834	61.372	-2.136
1	0.273	0.074	45	4.166	17.356	1.136
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	49	8.166	66.684	2.227
0	-0.727	0.529	39	-1.834	3.364	1.334
1	0.273	0.074	49	8.166	66.684	2.227
0	-0.727	0.529	35	-5.834	34.036	4.243
1	0.273	0.074	31	-9.834	96.708	-2.682
1	0.273	0.074	33	-7.834	61.372	-2.136
1	0.273	0.074	48	7.166	51.352	1.954
0	-0.727	0.529	12	-28.834	831.400	20.971
1	0.273	0.074	35	-5.834	34.036	-1.591
1	0.273	0.074	39	-1.834	3.364	-0.500
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	48	7.166	51.352	1.954
0	-0.727	0.529	40	-0.834	0.696	0.607
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	46	5.166	26.688	1.409
0	-0.727	0.529	21	-19.834	393.388	14.425
0	-0.727	0.529	45	4.166	17.356	-3.030
0	-0.727	0.529	2	-38.834	1508.080	28.244
1	0.273	0.074	37	-3.834	14.700	-1.046
0	-0.727	0.529	34	-6.834	46.704	4.970

1	0.278	0.077	32	-8.834	78.040	-2.457
1	0.278	0.077	29	-11.834	140.044	-3.291
1	0.278	0.077	48	7.166	51.352	1.993
0	-0.722	0.521	48	7.166	51.352	-5.173
0	-0.722	0.521	37	-3.834	14.700	2.768
1	0.278	0.077	53	12.166	148.012	3.383
1	0.278	0.077	42	1.166	1.360	0.324
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	45	4.166	17.356	1.159
1	0.278	0.077	52	11.166	124.680	3.105
1	0.278	0.077	23	-17.834	318.052	-4.960
1	0.278	0.077	38	-2.834	8.032	-0.788
1	0.278	0.077	51	10.166	103.348	2.827
1	0.278	0.077	38	-2.834	8.032	-0.788
0	-0.722	0.521	29	-11.834	140.044	8.543
1	0.278	0.077	28	-12.834	164.712	-3.569
1	0.278	0.077	39	-1.834	3.364	-0.510
0	-0.722	0.521	33	-7.834	61.372	5.655
1	0.278	0.077	44	3.166	10.024	0.880
1	0.278	0.077	33	-7.834	61.372	-2.179
0	-0.722	0.521	47	6.166	38.020	-4.451
1	0.278	0.077	31	-9.834	96.708	-2.735
0	-0.722	0.521	47	6.166	38.020	-4.451
1	0.278	0.077	41	0.166	0.028	0.046
1	0.278	0.077	54	13.166	173.344	3.661
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	53	12.166	148.012	3.383
1	0.278	0.077	43	2.166	4.692	0.602
1	0.278	0.077	50	9.166	84.016	2.549
0	-0.722	0.521	47	6.166	38.020	-4.451
1	0.278	0.077	42	1.166	1.360	0.324
1	0.278	0.077	37	-3.834	14.700	-1.066
1	0.278	0.077	41	0.166	0.028	0.046

0	-0.727	0.529	32	-8.834	78.040	6.425
0	-0.727	0.529	29	-11.834	140.044	8.607
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	37	-3.834	14.700	-1.046
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	42	1.166	1.360	0.318
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	45	4.166	17.356	1.136
1	0.273	0.074	52	11.166	124.680	3.045
1	0.273	0.074	23	-17.834	318.052	-4.863
1	0.273	0.074	38	-2.834	8.032	-0.773
1	0.273	0.074	51	10.166	103.348	2.772
1	0.273	0.074	38	-2.834	8.032	-0.773
1	0.273	0.074	29	-11.834	140.044	-3.227
0	-0.727	0.529	28	-12.834	164.712	9.334
1	0.273	0.074	39	-1.834	3.364	-0.500
0	-0.727	0.529	33	-7.834	61.372	5.698
1	0.273	0.074	44	3.166	10.024	0.863
0	-0.727	0.529	33	-7.834	61.372	5.698
1	0.273	0.074	47	6.166	38.020	1.681
0	-0.727	0.529	31	-9.834	96.708	7.152
0	-0.727	0.529	47	6.166	38.020	-4.485
1	0.273	0.074	41	0.166	0.028	0.045
1	0.273	0.074	54	13.166	173.344	3.590
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	43	2.166	4.692	0.591
1	0.273	0.074	50	9.166	84.016	2.500
1	0.273	0.074	47	6.166	38.020	1.681
0	-0.727	0.529	42	1.166	1.360	-0.848
0	-0.727	0.529	37	-3.834	14.700	2.788
1	0.273	0.074	41	0.166	0.028	0.045

1	0.278	0.077	18	-22.834	521.392	-6.350
0	-0.722	0.521	26	-14.834	220.048	10.709
1	0.278	0.077	52	11.166	124.680	3.105
1	0.278	0.077	44	3.166	10.024	0.880
1	0.278	0.077	51	10.166	103.348	2.827
1	0.278	0.077	35	-5.834	34.036	-1.622
1	0.278	0.077	40	-0.834	0.696	-0.232
1	0.278	0.077	47	6.166	38.020	1.715
1	0.278	0.077	49	8.166	66.684	2.271
0	-0.722	0.521	36	-4.834	23.368	3.490
0	-0.722	0.521	6	-34.834	1213.408	25.147
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	50	9.166	84.016	2.549
1	0.278	0.077	48	7.166	51.352	1.993
0	-0.722	0.521	44	3.166	10.024	-2.286
1	0.278	0.077	52	11.166	124.680	3.105
1	0.278	0.077	46	5.166	26.688	1.437
1	0.278	0.077	49	8.166	66.684	2.271
1	0.278	0.077	47	6.166	38.020	1.715
1	0.278	0.077	54	13.166	173.344	3.661
0	-0.722	0.521	25	-15.834	250.716	11.431
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	55	14.166	200.676	3.940
0	-0.722	0.521	41	0.166	0.028	-0.120
1	0.278	0.077	31	-9.834	96.708	-2.735
1	0.278	0.077	13	-27.834	774.732	-7.741
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	45	4.166	17.356	1.159
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	52	11.166	124.680	3.105
1	0.278	0.077	49	8.166	66.684	2.271
0	-0.722	0.521	42	1.166	1.360	-0.842
0	-0.722	0.521	37	-3.834	14.700	2.768

0	-0.727	0.529	18	-22.834	521.392	16.607
0	-0.727	0.529	26	-14.834	220.048	10.789
1	0.273	0.074	52	11.166	124.680	3.045
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	51	10.166	103.348	2.772
0	-0.727	0.529	35	-5.834	34.036	4.243
1	0.273	0.074	40	-0.834	0.696	-0.227
1	0.273	0.074	47	6.166	38.020	1.681
1	0.273	0.074	49	8.166	66.684	2.227
1	0.273	0.074	36	-4.834	23.368	-1.318
0	-0.727	0.529	6	-34.834	1213.408	25.335
1	0.273	0.074	55	14.166	200.676	3.863
1	0.273	0.074	50	9.166	84.016	2.500
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	52	11.166	124.680	3.045
0	-0.727	0.529	46	5.166	26.688	-3.757
1	0.273	0.074	49	8.166	66.684	2.227
1	0.273	0.074	47	6.166	38.020	1.681
1	0.273	0.074	54	13.166	173.344	3.590
1	0.273	0.074	25	-15.834	250.716	-4.318
1	0.273	0.074	55	14.166	200.676	3.863
1	0.273	0.074	55	14.166	200.676	3.863
1	0.273	0.074	41	0.166	0.028	0.045
1	0.273	0.074	31	-9.834	96.708	-2.682
1	0.273	0.074	13	-27.834	774.732	-7.590
1	0.273	0.074	55	14.166	200.676	3.863
1	0.273	0.074	45	4.166	17.356	1.136
1	0.273	0.074	55	14.166	200.676	3.863
1	0.273	0.074	52	11.166	124.680	3.045
1	0.273	0.074	49	8.166	66.684	2.227
1	0.273	0.074	42	1.166	1.360	0.318
0	-0.727	0.529	37	-3.834	14.700	2.788

0	-0.722	0.521	24	-16.834	283.384	12.152
1	0.278	0.077	21	-19.834	393.388	-5.516
0	-0.722	0.521	38	-2.834	8.032	2.046
1	0.278	0.077	46	5.166	26.688	1.437
1	0.278	0.077	29	-11.834	140.044	-3.291
1	0.278	0.077	48	7.166	51.352	1.993
0	-0.722	0.521	42	1.166	1.360	-0.842
0	-0.722	0.521	38	-2.834	8.032	2.046
0	-0.722	0.521	18	-22.834	521.392	16.484
1	0.278	0.077	49	8.166	66.684	2.271
1	0.278	0.077	30	-10.834	117.376	-3.013
1	0.278	0.077	43	2.166	4.692	0.602
1	0.278	0.077	39	-1.834	3.364	-0.510
1	0.278	0.077	31	-9.834	96.708	-2.735
0	-0.722	0.521	28	-12.834	164.712	9.265
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	47	6.166	38.020	1.715
1	0.278	0.077	37	-3.834	14.700	-1.066
0	-0.722	0.521	40	-0.834	0.696	0.602
1	0.278	0.077	49	8.166	66.684	2.271
1	0.278	0.077	32	-8.834	78.040	-2.457
1	0.278	0.077	47	6.166	38.020	1.715
0	-0.722	0.521	32	-8.834	78.040	6.377
0	-0.722	0.521	29	-11.834	140.044	8.543
0	-0.722	0.521	23	-17.834	318.052	12.874
1	0.278	0.077	41	0.166	0.028	0.046
0	-0.722	0.521	41	0.166	0.028	-0.120
1	0.278	0.077	51	10.166	103.348	2.827
0	-0.722	0.521	29	-11.834	140.044	8.543
1	0.278	0.077	37	-3.834	14.700	-1.066
1	0.278	0.077	37	-3.834	14.700	-1.066
1	0.278	0.077	36	-4.834	23.368	-1.344
1	0.278	0.077	40	-0.834	0.696	-0.232

1	0.273	0.074	24	-16.834	283.384	-4.591
0	-0.727	0.529	21	-19.834	393.388	14.425
1	0.273	0.074	38	-2.834	8.032	-0.773
1	0.273	0.074	46	5.166	26.688	1.409
0	-0.727	0.529	29	-11.834	140.044	8.607
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	42	1.166	1.360	0.318
0	-0.727	0.529	38	-2.834	8.032	2.061
1	0.273	0.074	18	-22.834	521.392	-6.227
1	0.273	0.074	49	8.166	66.684	2.227
1	0.273	0.074	30	-10.834	117.376	-2.954
1	0.273	0.074	43	2.166	4.692	0.591
0	-0.727	0.529	39	-1.834	3.364	1.334
0	-0.727	0.529	31	-9.834	96.708	7.152
1	0.273	0.074	28	-12.834	164.712	-3.500
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	47	6.166	38.020	1.681
0	-0.727	0.529	37	-3.834	14.700	2.788
0	-0.727	0.529	40	-0.834	0.696	0.607
1	0.273	0.074	49	8.166	66.684	2.227
0	-0.727	0.529	32	-8.834	78.040	6.425
1	0.273	0.074	47	6.166	38.020	1.681
1	0.273	0.074	32	-8.834	78.040	-2.409
0	-0.727	0.529	29	-11.834	140.044	8.607
1	0.273	0.074	23	-17.834	318.052	-4.863
1	0.273	0.074	41	0.166	0.028	0.045
0	-0.727	0.529	41	0.166	0.028	-0.121
1	0.273	0.074	51	10.166	103.348	2.772
0	-0.727	0.529	29	-11.834	140.044	8.607
1	0.273	0.074	37	-3.834	14.700	-1.046
1	0.273	0.074	37	-3.834	14.700	-1.046
0	-0.727	0.529	36	-4.834	23.368	3.516
1	0.273	0.074	40	-0.834	0.696	-0.227

1	0.278	0.077	50	9.166	84.016	2.549
1	0.278	0.077	38	-2.834	8.032	-0.788
1	0.278	0.077	40	-0.834	0.696	-0.232
0	-0.722	0.521	36	-4.834	23.368	3.490
1	0.278	0.077	20	-20.834	434.056	-5.794
1	0.278	0.077	47	6.166	38.020	1.715
1	0.278	0.077	54	13.166	173.344	3.661
1	0.278	0.077	50	9.166	84.016	2.549
1	0.278	0.077	25	-15.834	250.716	-4.403
1	0.278	0.077	53	12.166	148.012	3.383
1	0.278	0.077	44	3.166	10.024	0.880
0	-0.722	0.521	26	-14.834	220.048	10.709
1	0.278	0.077	33	-7.834	61.372	-2.179
0	-0.722	0.521	36	-4.834	23.368	3.490
0	-0.722	0.521	39	-1.834	3.364	1.324
1	0.278	0.077	46	5.166	26.688	1.437
0	-0.722	0.521	36	-4.834	23.368	3.490
1	0.278	0.077	54	13.166	173.344	3.661
1	0.278	0.077	36	-4.834	23.368	-1.344
1	0.278	0.077	44	3.166	10.024	0.880
0	-0.722	0.521	40	-0.834	0.696	0.602
0	-0.722	0.521	38	-2.834	8.032	2.046
1	0.278	0.077	35	-5.834	34.036	-1.622
0	-0.722	0.521	46	5.166	26.688	-3.729
0	-0.722	0.521	49	8.166	66.684	-5.895
0	-0.722	0.521	48	7.166	51.352	-5.173
1	0.278	0.077	41	0.166	0.028	0.046
1	0.278	0.077	53	12.166	148.012	3.383
1	0.278	0.077	53	12.166	148.012	3.383
1	0.278	0.077	51	10.166	103.348	2.827
135	0.005	37.540	7636	0.042	19431.861	326.380

1	0.273	0.074	50	9.166	84.016	2.500
1	0.273	0.074	38	-2.834	8.032	-0.773
1	0.273	0.074	40	-0.834	0.696	-0.227
0	-0.727	0.529	36	-4.834	23.368	3.516
0	-0.727	0.529	20	-20.834	434.056	15.153
0	-0.727	0.529	47	6.166	38.020	-4.485
1	0.273	0.074	54	13.166	173.344	3.590
1	0.273	0.074	50	9.166	84.016	2.500
0	-0.727	0.529	25	-15.834	250.716	11.516
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	44	3.166	10.024	0.863
0	-0.727	0.529	26	-14.834	220.048	10.789
1	0.273	0.074	33	-7.834	61.372	-2.136
0	-0.727	0.529	36	-4.834	23.368	3.516
1	0.273	0.074	39	-1.834	3.364	-0.500
1	0.273	0.074	46	5.166	26.688	1.409
0	-0.727	0.529	36	-4.834	23.368	3.516
1	0.273	0.074	54	13.166	173.344	3.590
1	0.273	0.074	36	-4.834	23.368	-1.318
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	40	-0.834	0.696	-0.227
1	0.273	0.074	38	-2.834	8.032	-0.773
0	-0.727	0.529	35	-5.834	34.036	4.243
1	0.273	0.074	46	5.166	26.688	1.409
1	0.273	0.074	49	8.166	66.684	2.227
0	-0.727	0.529	48	7.166	51.352	-5.212
1	0.273	0.074	41	0.166	0.028	0.045
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	51	10.166	103.348	2.772
136	-0.005	37.091	7636	0.042	19431.861	383.545

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$
$$= \frac{326,380}{\sqrt{37,540 \times 19431,861}} = 0.3821$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$
$$= \frac{383,545}{\sqrt{37,091 \times 19431,861}} = 0.4518$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 37 dan No 38

Pertanyaan no 37

$$x = 101/187 = 0.5401$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
0	-0.540	0.292	51	10.166	103.348	-5.491
0	-0.540	0.292	36	-4.834	23.368	2.611
0	-0.540	0.292	41	0.166	0.028	-0.090
1	0.460	0.212	52	11.166	124.680	5.135
0	-0.540	0.292	51	10.166	103.348	-5.491
0	-0.540	0.292	50	9.166	84.016	-4.951
1	0.460	0.212	46	5.166	26.688	2.376
1	0.460	0.212	55	14.166	200.676	6.515
1	0.460	0.212	49	8.166	66.684	3.756
1	0.460	0.212	31	-9.834	96.708	-4.523
1	0.460	0.212	46	5.166	26.688	2.376
1	0.460	0.212	44	3.166	10.024	1.456
1	0.460	0.212	40	-0.834	0.696	-0.384
1	0.460	0.212	48	7.166	51.352	3.296
0	-0.540	0.292	31	-9.834	96.708	5.311
0	-0.540	0.292	27	-13.834	191.380	7.472
1	0.460	0.212	47	6.166	38.020	2.836
1	0.460	0.212	50	9.166	84.016	4.215
1	0.460	0.212	55	14.166	200.676	6.515
1	0.460	0.212	47	6.166	38.020	2.836
0	-0.540	0.292	16	-24.834	616.728	13.413
1	0.460	0.212	42	1.166	1.360	0.536
1	0.460	0.212	42	1.166	1.360	0.536
1	0.460	0.212	43	2.166	4.692	0.996
1	0.460	0.212	43	2.166	4.692	0.996

Pertanyaan no 38

$$x = 143/187 = 0.7647$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.235	0.055	51	10.166	103.348	2.392
1	0.235	0.055	36	-4.834	23.368	-1.137
1	0.235	0.055	41	0.166	0.028	0.039
1	0.235	0.055	52	11.166	124.680	2.627
1	0.235	0.055	51	10.166	103.348	2.392
1	0.235	0.055	50	9.166	84.016	2.157
1	0.235	0.055	46	5.166	26.688	1.216
1	0.235	0.055	55	14.166	200.676	3.333
1	0.235	0.055	49	8.166	66.684	1.921
1	0.235	0.055	31	-9.834	96.708	-2.314
1	0.235	0.055	46	5.166	26.688	1.216
1	0.235	0.055	44	3.166	10.024	0.745
1	0.235	0.055	40	-0.834	0.696	-0.196
1	0.235	0.055	48	7.166	51.352	1.686
1	0.235	0.055	31	-9.834	96.708	-2.314
0	-0.765	0.585	27	-13.834	191.380	10.579
1	0.235	0.055	47	6.166	38.020	1.451
1	0.235	0.055	50	9.166	84.016	2.157
1	0.235	0.055	55	14.166	200.676	3.333
0	-0.765	0.585	47	6.166	38.020	-4.715
0	-0.765	0.585	16	-24.834	616.728	18.991
1	0.235	0.055	42	1.166	1.360	0.274
0	-0.765	0.585	42	1.166	1.360	-0.892
1	0.235	0.055	43	2.166	4.692	0.510
1	0.235	0.055	43	2.166	4.692	0.510

0	-0.540	0.292	38	-2.834	8.032	1.531
1	0.460	0.212	36	-4.834	23.368	-2.223
0	-0.540	0.292	37	-3.834	14.700	2.071
1	0.460	0.212	55	14.166	200.676	6.515
1	0.460	0.212	28	-12.834	164.712	-5.902
1	0.460	0.212	51	10.166	103.348	4.675
1	0.460	0.212	53	12.166	148.012	5.595
0	-0.540	0.292	45	4.166	17.356	-2.250
0	-0.540	0.292	33	-7.834	61.372	4.231
1	0.460	0.212	45	4.166	17.356	1.916
1	0.460	0.212	44	3.166	10.024	1.456
0	-0.540	0.292	44	3.166	10.024	-1.710
1	0.460	0.212	49	8.166	66.684	3.756
0	-0.540	0.292	39	-1.834	3.364	0.991
1	0.460	0.212	49	8.166	66.684	3.756
0	-0.540	0.292	35	-5.834	34.036	3.151
0	-0.540	0.292	31	-9.834	96.708	5.311
0	-0.540	0.292	33	-7.834	61.372	4.231
1	0.460	0.212	48	7.166	51.352	3.296
0	-0.540	0.292	12	-28.834	831.400	15.573
1	0.460	0.212	35	-5.834	34.036	-2.683
0	-0.540	0.292	39	-1.834	3.364	0.991
1	0.460	0.212	53	12.166	148.012	5.595
1	0.460	0.212	48	7.166	51.352	3.296
1	0.460	0.212	48	7.166	51.352	3.296
0	-0.540	0.292	40	-0.834	0.696	0.450
0	-0.540	0.292	44	3.166	10.024	-1.710
1	0.460	0.212	46	5.166	26.688	2.376
0	-0.540	0.292	21	-19.834	393.388	10.712
1	0.460	0.212	45	4.166	17.356	1.916
0	-0.540	0.292	2	-38.834	1508.080	20.974
1	0.460	0.212	37	-3.834	14.700	-1.763
1	0.460	0.212	34	-6.834	46.704	-3.143

1	0.235	0.055	38	-2.834	8.032	-0.667
0	-0.765	0.585	36	-4.834	23.368	3.697
1	0.235	0.055	37	-3.834	14.700	-0.902
1	0.235	0.055	55	14.166	200.676	3.333
1	0.235	0.055	28	-12.834	164.712	-3.020
1	0.235	0.055	51	10.166	103.348	2.392
1	0.235	0.055	53	12.166	148.012	2.863
1	0.235	0.055	45	4.166	17.356	0.980
1	0.235	0.055	33	-7.834	61.372	-1.843
1	0.235	0.055	45	4.166	17.356	0.980
1	0.235	0.055	44	3.166	10.024	0.745
1	0.235	0.055	44	3.166	10.024	0.745
1	0.235	0.055	49	8.166	66.684	1.921
0	-0.765	0.585	39	-1.834	3.364	1.402
1	0.235	0.055	49	8.166	66.684	1.921
0	-0.765	0.585	35	-5.834	34.036	4.461
1	0.235	0.055	31	-9.834	96.708	-2.314
1	0.235	0.055	33	-7.834	61.372	-1.843
1	0.235	0.055	48	7.166	51.352	1.686
0	-0.765	0.585	12	-28.834	831.400	22.049
0	-0.765	0.585	35	-5.834	34.036	4.461
0	-0.765	0.585	39	-1.834	3.364	1.402
1	0.235	0.055	53	12.166	148.012	2.863
1	0.235	0.055	48	7.166	51.352	1.686
1	0.235	0.055	48	7.166	51.352	1.686
0	-0.765	0.585	40	-0.834	0.696	0.638
1	0.235	0.055	44	3.166	10.024	0.745
0	-0.765	0.585	46	5.166	26.688	-3.950
1	0.235	0.055	21	-19.834	393.388	-4.667
1	0.235	0.055	45	4.166	17.356	0.980
0	-0.765	0.585	2	-38.834	1508.080	29.696
0	-0.765	0.585	37	-3.834	14.700	2.932
0	-0.765	0.585	34	-6.834	46.704	5.226

0	-0.540	0.292	32	-8.834	78.040	4.771
0	-0.540	0.292	29	-11.834	140.044	6.392
1	0.460	0.212	48	7.166	51.352	3.296
1	0.460	0.212	48	7.166	51.352	3.296
0	-0.540	0.292	37	-3.834	14.700	2.071
1	0.460	0.212	53	12.166	148.012	5.595
0	-0.540	0.292	42	1.166	1.360	-0.630
1	0.460	0.212	48	7.166	51.352	3.296
1	0.460	0.212	45	4.166	17.356	1.916
1	0.460	0.212	52	11.166	124.680	5.135
0	-0.540	0.292	23	-17.834	318.052	9.632
0	-0.540	0.292	38	-2.834	8.032	1.531
1	0.460	0.212	51	10.166	103.348	4.675
0	-0.540	0.292	38	-2.834	8.032	1.531
0	-0.540	0.292	29	-11.834	140.044	6.392
1	0.460	0.212	28	-12.834	164.712	-5.902
1	0.460	0.212	39	-1.834	3.364	-0.843
0	-0.540	0.292	33	-7.834	61.372	4.231
1	0.460	0.212	44	3.166	10.024	1.456
1	0.460	0.212	33	-7.834	61.372	-3.603
0	-0.540	0.292	47	6.166	38.020	-3.330
1	0.460	0.212	31	-9.834	96.708	-4.523
1	0.460	0.212	47	6.166	38.020	2.836
1	0.460	0.212	41	0.166	0.028	0.076
1	0.460	0.212	54	13.166	173.344	6.055
1	0.460	0.212	48	7.166	51.352	3.296
1	0.460	0.212	53	12.166	148.012	5.595
0	-0.540	0.292	43	2.166	4.692	-1.170
1	0.460	0.212	50	9.166	84.016	4.215
0	-0.540	0.292	47	6.166	38.020	-3.330
0	-0.540	0.292	42	1.166	1.360	-0.630
0	-0.540	0.292	37	-3.834	14.700	2.071
1	0.460	0.212	41	0.166	0.028	0.076

1	0.235	0.055	32	-8.834	78.040	-2.079
1	0.235	0.055	29	-11.834	140.044	-2.785
1	0.235	0.055	48	7.166	51.352	1.686
1	0.235	0.055	48	7.166	51.352	1.686
1	0.235	0.055	37	-3.834	14.700	-0.902
1	0.235	0.055	53	12.166	148.012	2.863
1	0.235	0.055	42	1.166	1.360	0.274
1	0.235	0.055	48	7.166	51.352	1.686
1	0.235	0.055	45	4.166	17.356	0.980
1	0.235	0.055	52	11.166	124.680	2.627
1	0.235	0.055	23	-17.834	318.052	-4.196
1	0.235	0.055	38	-2.834	8.032	-0.667
1	0.235	0.055	51	10.166	103.348	2.392
1	0.235	0.055	38	-2.834	8.032	-0.667
1	0.235	0.055	29	-11.834	140.044	-2.785
0	-0.765	0.585	28	-12.834	164.712	9.814
1	0.235	0.055	39	-1.834	3.364	-0.432
1	0.235	0.055	33	-7.834	61.372	-1.843
1	0.235	0.055	44	3.166	10.024	0.745
1	0.235	0.055	33	-7.834	61.372	-1.843
1	0.235	0.055	47	6.166	38.020	1.451
1	0.235	0.055	31	-9.834	96.708	-2.314
1	0.235	0.055	47	6.166	38.020	1.451
1	0.235	0.055	41	0.166	0.028	0.039
1	0.235	0.055	54	13.166	173.344	3.098
1	0.235	0.055	48	7.166	51.352	1.686
1	0.235	0.055	53	12.166	148.012	2.863
1	0.235	0.055	43	2.166	4.692	0.510
1	0.235	0.055	50	9.166	84.016	2.157
1	0.235	0.055	47	6.166	38.020	1.451
1	0.235	0.055	42	1.166	1.360	0.274
1	0.235	0.055	37	-3.834	14.700	-0.902
0	-0.765	0.585	41	0.166	0.028	-0.127

0	-0.540	0.292	18	-22.834	521.392	12.333
0	-0.540	0.292	26	-14.834	220.048	8.012
1	0.460	0.212	52	11.166	124.680	5.135
1	0.460	0.212	44	3.166	10.024	1.456
1	0.460	0.212	51	10.166	103.348	4.675
0	-0.540	0.292	35	-5.834	34.036	3.151
1	0.460	0.212	40	-0.834	0.696	-0.384
1	0.460	0.212	47	6.166	38.020	2.836
1	0.460	0.212	49	8.166	66.684	3.756
0	-0.540	0.292	36	-4.834	23.368	2.611
0	-0.540	0.292	6	-34.834	1213.408	18.814
1	0.460	0.212	55	14.166	200.676	6.515
1	0.460	0.212	50	9.166	84.016	4.215
1	0.460	0.212	48	7.166	51.352	3.296
1	0.460	0.212	44	3.166	10.024	1.456
1	0.460	0.212	52	11.166	124.680	5.135
1	0.460	0.212	46	5.166	26.688	2.376
1	0.460	0.212	49	8.166	66.684	3.756
1	0.460	0.212	47	6.166	38.020	2.836
1	0.460	0.212	54	13.166	173.344	6.055
0	-0.540	0.292	25	-15.834	250.716	8.552
1	0.460	0.212	55	14.166	200.676	6.515
1	0.460	0.212	55	14.166	200.676	6.515
0	-0.540	0.292	41	0.166	0.028	-0.090
1	0.460	0.212	31	-9.834	96.708	-4.523
0	-0.540	0.292	13	-27.834	774.732	15.033
1	0.460	0.212	55	14.166	200.676	6.515
0	-0.540	0.292	45	4.166	17.356	-2.250
1	0.460	0.212	55	14.166	200.676	6.515
1	0.460	0.212	52	11.166	124.680	5.135
1	0.460	0.212	49	8.166	66.684	3.756
0	-0.540	0.292	42	1.166	1.360	-0.630
0	-0.540	0.292	37	-3.834	14.700	2.071

0	-0.765	0.585	18	-22.834	521.392	17.461
1	0.235	0.055	26	-14.834	220.048	-3.490
1	0.235	0.055	52	11.166	124.680	2.627
1	0.235	0.055	44	3.166	10.024	0.745
1	0.235	0.055	51	10.166	103.348	2.392
0	-0.765	0.585	35	-5.834	34.036	4.461
1	0.235	0.055	40	-0.834	0.696	-0.196
1	0.235	0.055	47	6.166	38.020	1.451
1	0.235	0.055	49	8.166	66.684	1.921
1	0.235	0.055	36	-4.834	23.368	-1.137
0	-0.765	0.585	6	-34.834	1213.408	26.638
1	0.235	0.055	55	14.166	200.676	3.333
1	0.235	0.055	50	9.166	84.016	2.157
1	0.235	0.055	48	7.166	51.352	1.686
1	0.235	0.055	44	3.166	10.024	0.745
1	0.235	0.055	52	11.166	124.680	2.627
1	0.235	0.055	46	5.166	26.688	1.216
0	-0.765	0.585	49	8.166	66.684	-6.245
1	0.235	0.055	47	6.166	38.020	1.451
1	0.235	0.055	54	13.166	173.344	3.098
0	-0.765	0.585	25	-15.834	250.716	12.108
1	0.235	0.055	55	14.166	200.676	3.333
1	0.235	0.055	55	14.166	200.676	3.333
1	0.235	0.055	41	0.166	0.028	0.039
1	0.235	0.055	31	-9.834	96.708	-2.314
0	-0.765	0.585	13	-27.834	774.732	21.285
1	0.235	0.055	55	14.166	200.676	3.333
1	0.235	0.055	45	4.166	17.356	0.980
1	0.235	0.055	55	14.166	200.676	3.333
1	0.235	0.055	52	11.166	124.680	2.627
1	0.235	0.055	49	8.166	66.684	1.921
1	0.235	0.055	42	1.166	1.360	0.274
1	0.235	0.055	37	-3.834	14.700	-0.902

0	-0.540	0.292	24	-16.834	283.384	9.092
0	-0.540	0.292	21	-19.834	393.388	10.712
0	-0.540	0.292	38	-2.834	8.032	1.531
1	0.460	0.212	46	5.166	26.688	2.376
0	-0.540	0.292	29	-11.834	140.044	6.392
1	0.460	0.212	48	7.166	51.352	3.296
0	-0.540	0.292	42	1.166	1.360	-0.630
0	-0.540	0.292	38	-2.834	8.032	1.531
0	-0.540	0.292	18	-22.834	521.392	12.333
0	-0.540	0.292	49	8.166	66.684	-4.410
0	-0.540	0.292	30	-10.834	117.376	5.851
0	-0.540	0.292	43	2.166	4.692	-1.170
0	-0.540	0.292	39	-1.834	3.364	0.991
1	0.460	0.212	31	-9.834	96.708	-4.523
0	-0.540	0.292	28	-12.834	164.712	6.932
1	0.460	0.212	48	7.166	51.352	3.296
0	-0.540	0.292	47	6.166	38.020	-3.330
1	0.460	0.212	37	-3.834	14.700	-1.763
0	-0.540	0.292	40	-0.834	0.696	0.450
1	0.460	0.212	49	8.166	66.684	3.756
0	-0.540	0.292	32	-8.834	78.040	4.771
0	-0.540	0.292	47	6.166	38.020	-3.330
0	-0.540	0.292	32	-8.834	78.040	4.771
0	-0.540	0.292	29	-11.834	140.044	6.392
0	-0.540	0.292	23	-17.834	318.052	9.632
0	-0.540	0.292	41	0.166	0.028	-0.090
0	-0.540	0.292	41	0.166	0.028	-0.090
1	0.460	0.212	51	10.166	103.348	4.675
0	-0.540	0.292	29	-11.834	140.044	6.392
0	-0.540	0.292	37	-3.834	14.700	2.071
1	0.460	0.212	37	-3.834	14.700	-1.763
0	-0.540	0.292	36	-4.834	23.368	2.611
0	-0.540	0.292	40	-0.834	0.696	0.450

0	-0.765	0.585	24	-16.834	283.384	12.873
0	-0.765	0.585	21	-19.834	393.388	15.167
1	0.235	0.055	38	-2.834	8.032	-0.667
1	0.235	0.055	46	5.166	26.688	1.216
0	-0.765	0.585	29	-11.834	140.044	9.049
1	0.235	0.055	48	7.166	51.352	1.686
1	0.235	0.055	42	1.166	1.360	0.274
0	-0.765	0.585	38	-2.834	8.032	2.167
1	0.235	0.055	18	-22.834	521.392	-5.373
1	0.235	0.055	49	8.166	66.684	1.921
0	-0.765	0.585	30	-10.834	117.376	8.285
1	0.235	0.055	43	2.166	4.692	0.510
1	0.235	0.055	39	-1.834	3.364	-0.432
1	0.235	0.055	31	-9.834	96.708	-2.314
0	-0.765	0.585	28	-12.834	164.712	9.814
0	-0.765	0.585	48	7.166	51.352	-5.480
1	0.235	0.055	47	6.166	38.020	1.451
0	-0.765	0.585	37	-3.834	14.700	2.932
0	-0.765	0.585	40	-0.834	0.696	0.638
1	0.235	0.055	49	8.166	66.684	1.921
1	0.235	0.055	32	-8.834	78.040	-2.079
1	0.235	0.055	47	6.166	38.020	1.451
0	-0.765	0.585	32	-8.834	78.040	6.755
0	-0.765	0.585	29	-11.834	140.044	9.049
0	-0.765	0.585	23	-17.834	318.052	13.638
1	0.235	0.055	41	0.166	0.028	0.039
0	-0.765	0.585	41	0.166	0.028	-0.127
1	0.235	0.055	51	10.166	103.348	2.392
1	0.235	0.055	29	-11.834	140.044	-2.785
1	0.235	0.055	37	-3.834	14.700	-0.902
1	0.235	0.055	37	-3.834	14.700	-0.902
1	0.235	0.055	36	-4.834	23.368	-1.137
1	0.235	0.055	40	-0.834	0.696	-0.196

0	-0.540	0.292	50	9.166	84.016	-4.951
0	-0.540	0.292	38	-2.834	8.032	1.531
1	0.460	0.212	40	-0.834	0.696	-0.384
0	-0.540	0.292	36	-4.834	23.368	2.611
1	0.460	0.212	20	-20.834	434.056	-9.582
1	0.460	0.212	47	6.166	38.020	2.836
1	0.460	0.212	54	13.166	173.344	6.055
1	0.460	0.212	50	9.166	84.016	4.215
1	0.460	0.212	25	-15.834	250.716	-7.282
1	0.460	0.212	53	12.166	148.012	5.595
1	0.460	0.212	44	3.166	10.024	1.456
0	-0.540	0.292	26	-14.834	220.048	8.012
0	-0.540	0.292	33	-7.834	61.372	4.231
1	0.460	0.212	36	-4.834	23.368	-2.223
0	-0.540	0.292	39	-1.834	3.364	0.991
0	-0.540	0.292	46	5.166	26.688	-2.790
1	0.460	0.212	36	-4.834	23.368	-2.223
1	0.460	0.212	54	13.166	173.344	6.055
0	-0.540	0.292	36	-4.834	23.368	2.611
1	0.460	0.212	44	3.166	10.024	1.456
0	-0.540	0.292	40	-0.834	0.696	0.450
0	-0.540	0.292	38	-2.834	8.032	1.531
1	0.460	0.212	35	-5.834	34.036	-2.683
0	-0.540	0.292	46	5.166	26.688	-2.790
0	-0.540	0.292	49	8.166	66.684	-4.410
1	0.460	0.212	48	7.166	51.352	3.296
0	-0.540	0.292	41	0.166	0.028	-0.090
1	0.460	0.212	53	12.166	148.012	5.595
1	0.460	0.212	53	12.166	148.012	5.595
1	0.460	0.212	51	10.166	103.348	4.675
101	0.001	46.449	7636	0.042	19431.861	483.743

1	0.235	0.055	50	9.166	84.016	2.157
1	0.235	0.055	38	-2.834	8.032	-0.667
0	-0.765	0.585	40	-0.834	0.696	0.638
0	-0.765	0.585	36	-4.834	23.368	3.697
0	-0.765	0.585	20	-20.834	434.056	15.932
1	0.235	0.055	47	6.166	38.020	1.451
1	0.235	0.055	54	13.166	173.344	3.098
1	0.235	0.055	50	9.166	84.016	2.157
1	0.235	0.055	25	-15.834	250.716	-3.726
1	0.235	0.055	53	12.166	148.012	2.863
0	-0.765	0.585	44	3.166	10.024	-2.421
0	-0.765	0.585	26	-14.834	220.048	11.344
0	-0.765	0.585	33	-7.834	61.372	5.991
0	-0.765	0.585	36	-4.834	23.368	3.697
1	0.235	0.055	39	-1.834	3.364	-0.432
0	-0.765	0.585	46	5.166	26.688	-3.950
1	0.235	0.055	36	-4.834	23.368	-1.137
1	0.235	0.055	54	13.166	173.344	3.098
1	0.235	0.055	36	-4.834	23.368	-1.137
1	0.235	0.055	44	3.166	10.024	0.745
1	0.235	0.055	40	-0.834	0.696	-0.196
1	0.235	0.055	38	-2.834	8.032	-0.667
1	0.235	0.055	35	-5.834	34.036	-1.373
1	0.235	0.055	46	5.166	26.688	1.216
1	0.235	0.055	49	8.166	66.684	1.921
1	0.235	0.055	48	7.166	51.352	1.686
1	0.235	0.055	41	0.166	0.028	0.039
1	0.235	0.055	53	12.166	148.012	2.863
1	0.235	0.055	53	12.166	148.012	2.863
1	0.235	0.055	51	10.166	103.348	2.392
143	0.001	33.647	7636	0.042	19431.861	393.706

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$
$$= \frac{483,743}{\sqrt{46,449 \times 19431,861}} = 0.5092$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$
$$= \frac{393,706}{\sqrt{33,647 \times 19431,861}} = 0.4869$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 39 dan No 40

Pertanyaan no 39

$$x = 139/187 = 0.7433$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.257	0.066	51	10.166	103.348	2.610
1	0.257	0.066	36	-4.834	23.368	-1.241
1	0.257	0.066	41	0.166	0.028	0.043
0	-0.743	0.552	52	11.166	124.680	-8.300
1	0.257	0.066	51	10.166	103.348	2.610
1	0.257	0.066	50	9.166	84.016	2.353
1	0.257	0.066	46	5.166	26.688	1.326
1	0.257	0.066	55	14.166	200.676	3.636
1	0.257	0.066	49	8.166	66.684	2.096
1	0.257	0.066	31	-9.834	96.708	-2.524
0	-0.743	0.552	46	5.166	26.688	-3.840
1	0.257	0.066	44	3.166	10.024	0.813
1	0.257	0.066	40	-0.834	0.696	-0.214
1	0.257	0.066	48	7.166	51.352	1.840
1	0.257	0.066	31	-9.834	96.708	-2.524
0	-0.743	0.552	27	-13.834	191.380	10.283
1	0.257	0.066	47	6.166	38.020	1.583
1	0.257	0.066	50	9.166	84.016	2.353
1	0.257	0.066	55	14.166	200.676	3.636
0	-0.743	0.552	47	6.166	38.020	-4.583
0	-0.743	0.552	16	-24.834	616.728	18.459
1	0.257	0.066	42	1.166	1.360	0.299
0	-0.743	0.552	42	1.166	1.360	-0.867
1	0.257	0.066	43	2.166	4.692	0.556
1	0.257	0.066	43	2.166	4.692	0.556

Pertanyaan no 40

$$x = 141/187 = 0.7540$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.246	0.061	51	10.166	103.348	2.501
1	0.246	0.061	36	-4.834	23.368	-1.189
1	0.246	0.061	41	0.166	0.028	0.041
0	-0.754	0.569	52	11.166	124.680	-8.419
1	0.246	0.061	51	10.166	103.348	2.501
1	0.246	0.061	50	9.166	84.016	2.255
1	0.246	0.061	46	5.166	26.688	1.271
1	0.246	0.061	55	14.166	200.676	3.485
1	0.246	0.061	49	8.166	66.684	2.009
1	0.246	0.061	31	-9.834	96.708	-2.419
1	0.246	0.061	46	5.166	26.688	1.271
1	0.246	0.061	44	3.166	10.024	0.779
1	0.246	0.061	40	-0.834	0.696	-0.205
1	0.246	0.061	48	7.166	51.352	1.763
1	0.246	0.061	31	-9.834	96.708	-2.419
0	-0.754	0.569	27	-13.834	191.380	10.431
1	0.246	0.061	47	6.166	38.020	1.517
1	0.246	0.061	50	9.166	84.016	2.255
1	0.246	0.061	55	14.166	200.676	3.485
0	-0.754	0.569	47	6.166	38.020	-4.649
0	-0.754	0.569	16	-24.834	616.728	18.725
1	0.246	0.061	42	1.166	1.360	0.287
0	-0.754	0.569	42	1.166	1.360	-0.879
1	0.246	0.061	43	2.166	4.692	0.533
1	0.246	0.061	43	2.166	4.692	0.533

0	-0.743	0.552	38	-2.834	8.032	2.107
0	-0.743	0.552	36	-4.834	23.368	3.593
1	0.257	0.066	37	-3.834	14.700	-0.984
1	0.257	0.066	55	14.166	200.676	3.636
1	0.257	0.066	28	-12.834	164.712	-3.294
1	0.257	0.066	51	10.166	103.348	2.610
1	0.257	0.066	53	12.166	148.012	3.123
1	0.257	0.066	45	4.166	17.356	1.069
1	0.257	0.066	33	-7.834	61.372	-2.011
1	0.257	0.066	45	4.166	17.356	1.069
1	0.257	0.066	44	3.166	10.024	0.813
1	0.257	0.066	44	3.166	10.024	0.813
1	0.257	0.066	49	8.166	66.684	2.096
1	0.257	0.066	39	-1.834	3.364	-0.471
1	0.257	0.066	49	8.166	66.684	2.096
0	-0.743	0.552	35	-5.834	34.036	4.336
1	0.257	0.066	31	-9.834	96.708	-2.524
1	0.257	0.066	33	-7.834	61.372	-2.011
1	0.257	0.066	48	7.166	51.352	1.840
0	-0.743	0.552	12	-28.834	831.400	21.432
0	-0.743	0.552	35	-5.834	34.036	4.336
1	0.257	0.066	39	-1.834	3.364	-0.471
1	0.257	0.066	53	12.166	148.012	3.123
1	0.257	0.066	48	7.166	51.352	1.840
0	-0.743	0.552	48	7.166	51.352	-5.326
0	-0.743	0.552	40	-0.834	0.696	0.620
1	0.257	0.066	44	3.166	10.024	0.813
0	-0.743	0.552	46	5.166	26.688	-3.840
0	-0.743	0.552	21	-19.834	393.388	14.743
1	0.257	0.066	45	4.166	17.356	1.069
0	-0.743	0.552	2	-38.834	1508.080	28.865
1	0.257	0.066	37	-3.834	14.700	-0.984
0	-0.743	0.552	34	-6.834	46.704	5.080

1	0.246	0.061	38	-2.834	8.032	-0.697
0	-0.754	0.569	36	-4.834	23.368	3.645
1	0.246	0.061	37	-3.834	14.700	-0.943
1	0.246	0.061	55	14.166	200.676	3.485
0	-0.754	0.569	28	-12.834	164.712	9.677
1	0.246	0.061	51	10.166	103.348	2.501
1	0.246	0.061	53	12.166	148.012	2.993
1	0.246	0.061	45	4.166	17.356	1.025
1	0.246	0.061	33	-7.834	61.372	-1.927
1	0.246	0.061	45	4.166	17.356	1.025
1	0.246	0.061	44	3.166	10.024	0.779
1	0.246	0.061	44	3.166	10.024	0.779
1	0.246	0.061	49	8.166	66.684	2.009
0	-0.754	0.569	39	-1.834	3.364	1.383
1	0.246	0.061	49	8.166	66.684	2.009
0	-0.754	0.569	35	-5.834	34.036	4.399
1	0.246	0.061	31	-9.834	96.708	-2.419
1	0.246	0.061	33	-7.834	61.372	-1.927
1	0.246	0.061	48	7.166	51.352	1.763
0	-0.754	0.569	12	-28.834	831.400	21.741
0	-0.754	0.569	35	-5.834	34.036	4.399
0	-0.754	0.569	39	-1.834	3.364	1.383
1	0.246	0.061	53	12.166	148.012	2.993
1	0.246	0.061	48	7.166	51.352	1.763
1	0.246	0.061	48	7.166	51.352	1.763
0	-0.754	0.569	40	-0.834	0.696	0.629
1	0.246	0.061	44	3.166	10.024	0.779
0	-0.754	0.569	46	5.166	26.688	-3.895
0	-0.754	0.569	21	-19.834	393.388	14.955
0	-0.754	0.569	45	4.166	17.356	-3.141
0	-0.754	0.569	2	-38.834	1508.080	29.281
1	0.246	0.061	37	-3.834	14.700	-0.943
0	-0.754	0.569	34	-6.834	46.704	5.153

1	0.257	0.066	32	-8.834	78.040	-2.268
1	0.257	0.066	29	-11.834	140.044	-3.038
1	0.257	0.066	48	7.166	51.352	1.840
1	0.257	0.066	48	7.166	51.352	1.840
1	0.257	0.066	37	-3.834	14.700	-0.984
1	0.257	0.066	53	12.166	148.012	3.123
1	0.257	0.066	42	1.166	1.360	0.299
0	-0.743	0.552	48	7.166	51.352	-5.326
1	0.257	0.066	45	4.166	17.356	1.069
1	0.257	0.066	52	11.166	124.680	2.866
1	0.257	0.066	23	-17.834	318.052	-4.578
1	0.257	0.066	38	-2.834	8.032	-0.727
1	0.257	0.066	51	10.166	103.348	2.610
1	0.257	0.066	38	-2.834	8.032	-0.727
1	0.257	0.066	29	-11.834	140.044	-3.038
0	-0.743	0.552	28	-12.834	164.712	9.540
1	0.257	0.066	39	-1.834	3.364	-0.471
1	0.257	0.066	33	-7.834	61.372	-2.011
1	0.257	0.066	44	3.166	10.024	0.813
1	0.257	0.066	33	-7.834	61.372	-2.011
1	0.257	0.066	47	6.166	38.020	1.583
0	-0.743	0.552	31	-9.834	96.708	7.310
1	0.257	0.066	47	6.166	38.020	1.583
1	0.257	0.066	41	0.166	0.028	0.043
1	0.257	0.066	54	13.166	173.344	3.380
1	0.257	0.066	48	7.166	51.352	1.840
1	0.257	0.066	53	12.166	148.012	3.123
1	0.257	0.066	43	2.166	4.692	0.556
1	0.257	0.066	50	9.166	84.016	2.353
1	0.257	0.066	47	6.166	38.020	1.583
1	0.257	0.066	42	1.166	1.360	0.299
1	0.257	0.066	37	-3.834	14.700	-0.984
0	-0.743	0.552	41	0.166	0.028	-0.123

1	0.246	0.061	32	-8.834	78.040	-2.173
1	0.246	0.061	29	-11.834	140.044	-2.911
1	0.246	0.061	48	7.166	51.352	1.763
1	0.246	0.061	48	7.166	51.352	1.763
1	0.246	0.061	37	-3.834	14.700	-0.943
1	0.246	0.061	53	12.166	148.012	2.993
0	-0.754	0.569	42	1.166	1.360	-0.879
1	0.246	0.061	48	7.166	51.352	1.763
1	0.246	0.061	45	4.166	17.356	1.025
1	0.246	0.061	52	11.166	124.680	2.747
1	0.246	0.061	23	-17.834	318.052	-4.387
1	0.246	0.061	38	-2.834	8.032	-0.697
1	0.246	0.061	51	10.166	103.348	2.501
1	0.246	0.061	38	-2.834	8.032	-0.697
1	0.246	0.061	29	-11.834	140.044	-2.911
1	0.246	0.061	28	-12.834	164.712	-3.157
1	0.246	0.061	39	-1.834	3.364	-0.451
1	0.246	0.061	33	-7.834	61.372	-1.927
1	0.246	0.061	44	3.166	10.024	0.779
1	0.246	0.061	33	-7.834	61.372	-1.927
1	0.246	0.061	47	6.166	38.020	1.517
1	0.246	0.061	31	-9.834	96.708	-2.419
1	0.246	0.061	47	6.166	38.020	1.517
1	0.246	0.061	41	0.166	0.028	0.041
1	0.246	0.061	54	13.166	173.344	3.239
1	0.246	0.061	48	7.166	51.352	1.763
1	0.246	0.061	53	12.166	148.012	2.993
1	0.246	0.061	43	2.166	4.692	0.533
1	0.246	0.061	50	9.166	84.016	2.255
1	0.246	0.061	47	6.166	38.020	1.517
1	0.246	0.061	42	1.166	1.360	0.287
0	-0.754	0.569	37	-3.834	14.700	2.891
0	-0.754	0.569	41	0.166	0.028	-0.125

0	-0.743	0.552	18	-22.834	521.392	16.973
1	0.257	0.066	26	-14.834	220.048	-3.808
1	0.257	0.066	52	11.166	124.680	2.866
1	0.257	0.066	44	3.166	10.024	0.813
1	0.257	0.066	51	10.166	103.348	2.610
0	-0.743	0.552	35	-5.834	34.036	4.336
1	0.257	0.066	40	-0.834	0.696	-0.214
1	0.257	0.066	47	6.166	38.020	1.583
1	0.257	0.066	49	8.166	66.684	2.096
1	0.257	0.066	36	-4.834	23.368	-1.241
0	-0.743	0.552	6	-34.834	1213.408	25.892
1	0.257	0.066	55	14.166	200.676	3.636
1	0.257	0.066	50	9.166	84.016	2.353
1	0.257	0.066	48	7.166	51.352	1.840
1	0.257	0.066	44	3.166	10.024	0.813
1	0.257	0.066	52	11.166	124.680	2.866
1	0.257	0.066	46	5.166	26.688	1.326
1	0.257	0.066	49	8.166	66.684	2.096
1	0.257	0.066	47	6.166	38.020	1.583
1	0.257	0.066	54	13.166	173.344	3.380
0	-0.743	0.552	25	-15.834	250.716	11.769
1	0.257	0.066	55	14.166	200.676	3.636
1	0.257	0.066	55	14.166	200.676	3.636
1	0.257	0.066	41	0.166	0.028	0.043
1	0.257	0.066	31	-9.834	96.708	-2.524
0	-0.743	0.552	13	-27.834	774.732	20.689
1	0.257	0.066	55	14.166	200.676	3.636
1	0.257	0.066	45	4.166	17.356	1.069
1	0.257	0.066	55	14.166	200.676	3.636
1	0.257	0.066	52	11.166	124.680	2.866
1	0.257	0.066	49	8.166	66.684	2.096
1	0.257	0.066	42	1.166	1.360	0.299
1	0.257	0.066	37	-3.834	14.700	-0.984

0	-0.754	0.569	18	-22.834	521.392	17.217
1	0.246	0.061	26	-14.834	220.048	-3.649
1	0.246	0.061	52	11.166	124.680	2.747
1	0.246	0.061	44	3.166	10.024	0.779
1	0.246	0.061	51	10.166	103.348	2.501
0	-0.754	0.569	35	-5.834	34.036	4.399
1	0.246	0.061	40	-0.834	0.696	-0.205
1	0.246	0.061	47	6.166	38.020	1.517
1	0.246	0.061	49	8.166	66.684	2.009
1	0.246	0.061	36	-4.834	23.368	-1.189
0	-0.754	0.569	6	-34.834	1213.408	26.265
1	0.246	0.061	55	14.166	200.676	3.485
1	0.246	0.061	50	9.166	84.016	2.255
1	0.246	0.061	48	7.166	51.352	1.763
1	0.246	0.061	44	3.166	10.024	0.779
1	0.246	0.061	52	11.166	124.680	2.747
1	0.246	0.061	46	5.166	26.688	1.271
1	0.246	0.061	49	8.166	66.684	2.009
1	0.246	0.061	47	6.166	38.020	1.517
1	0.246	0.061	54	13.166	173.344	3.239
0	-0.754	0.569	25	-15.834	250.716	11.939
1	0.246	0.061	55	14.166	200.676	3.485
1	0.246	0.061	55	14.166	200.676	3.485
1	0.246	0.061	41	0.166	0.028	0.041
1	0.246	0.061	31	-9.834	96.708	-2.419
0	-0.754	0.569	13	-27.834	774.732	20.987
1	0.246	0.061	55	14.166	200.676	3.485
1	0.246	0.061	45	4.166	17.356	1.025
1	0.246	0.061	55	14.166	200.676	3.485
1	0.246	0.061	52	11.166	124.680	2.747
1	0.246	0.061	49	8.166	66.684	2.009
1	0.246	0.061	42	1.166	1.360	0.287
1	0.246	0.061	37	-3.834	14.700	-0.943

0	-0.743	0.552	24	-16.834	283.384	12.513
0	-0.743	0.552	21	-19.834	393.388	14.743
1	0.257	0.066	38	-2.834	8.032	-0.727
1	0.257	0.066	46	5.166	26.688	1.326
1	0.257	0.066	29	-11.834	140.044	-3.038
1	0.257	0.066	48	7.166	51.352	1.840
1	0.257	0.066	42	1.166	1.360	0.299
0	-0.743	0.552	38	-2.834	8.032	2.107
1	0.257	0.066	18	-22.834	521.392	-5.861
1	0.257	0.066	49	8.166	66.684	2.096
0	-0.743	0.552	30	-10.834	117.376	8.053
1	0.257	0.066	43	2.166	4.692	0.556
1	0.257	0.066	39	-1.834	3.364	-0.471
1	0.257	0.066	31	-9.834	96.708	-2.524
0	-0.743	0.552	28	-12.834	164.712	9.540
0	-0.743	0.552	48	7.166	51.352	-5.326
1	0.257	0.066	47	6.166	38.020	1.583
0	-0.743	0.552	37	-3.834	14.700	2.850
0	-0.743	0.552	40	-0.834	0.696	0.620
1	0.257	0.066	49	8.166	66.684	2.096
1	0.257	0.066	32	-8.834	78.040	-2.268
1	0.257	0.066	47	6.166	38.020	1.583
0	-0.743	0.552	32	-8.834	78.040	6.566
0	-0.743	0.552	29	-11.834	140.044	8.796
0	-0.743	0.552	23	-17.834	318.052	13.256
1	0.257	0.066	41	0.166	0.028	0.043
0	-0.743	0.552	41	0.166	0.028	-0.123
1	0.257	0.066	51	10.166	103.348	2.610
1	0.257	0.066	29	-11.834	140.044	-3.038
1	0.257	0.066	37	-3.834	14.700	-0.984
1	0.257	0.066	37	-3.834	14.700	-0.984
1	0.257	0.066	36	-4.834	23.368	-1.241
0	-0.743	0.552	40	-0.834	0.696	0.620

0	-0.754	0.569	24	-16.834	283.384	12.693
0	-0.754	0.569	21	-19.834	393.388	14.955
1	0.246	0.061	38	-2.834	8.032	-0.697
1	0.246	0.061	46	5.166	26.688	1.271
0	-0.754	0.569	29	-11.834	140.044	8.923
1	0.246	0.061	48	7.166	51.352	1.763
1	0.246	0.061	42	1.166	1.360	0.287
0	-0.754	0.569	38	-2.834	8.032	2.137
1	0.246	0.061	18	-22.834	521.392	-5.617
1	0.246	0.061	49	8.166	66.684	2.009
0	-0.754	0.569	30	-10.834	117.376	8.169
1	0.246	0.061	43	2.166	4.692	0.533
1	0.246	0.061	39	-1.834	3.364	-0.451
1	0.246	0.061	31	-9.834	96.708	-2.419
0	-0.754	0.569	28	-12.834	164.712	9.677
1	0.246	0.061	48	7.166	51.352	1.763
1	0.246	0.061	47	6.166	38.020	1.517
0	-0.754	0.569	37	-3.834	14.700	2.891
1	0.246	0.061	40	-0.834	0.696	-0.205
1	0.246	0.061	49	8.166	66.684	2.009
1	0.246	0.061	32	-8.834	78.040	-2.173
1	0.246	0.061	47	6.166	38.020	1.517
1	0.246	0.061	32	-8.834	78.040	-2.173
0	-0.754	0.569	29	-11.834	140.044	8.923
1	0.246	0.061	23	-17.834	318.052	-4.387
1	0.246	0.061	41	0.166	0.028	0.041
0	-0.754	0.569	41	0.166	0.028	-0.125
1	0.246	0.061	51	10.166	103.348	2.501
1	0.246	0.061	29	-11.834	140.044	-2.911
1	0.246	0.061	37	-3.834	14.700	-0.943
1	0.246	0.061	37	-3.834	14.700	-0.943
1	0.246	0.061	36	-4.834	23.368	-1.189
0	-0.754	0.569	40	-0.834	0.696	0.629

1	0.257	0.066	50	9.166	84.016	2.353
1	0.257	0.066	38	-2.834	8.032	-0.727
0	-0.743	0.552	40	-0.834	0.696	0.620
0	-0.743	0.552	36	-4.834	23.368	3.593
0	-0.743	0.552	20	-20.834	434.056	15.486
1	0.257	0.066	47	6.166	38.020	1.583
1	0.257	0.066	54	13.166	173.344	3.380
0	-0.743	0.552	50	9.166	84.016	-6.813
1	0.257	0.066	25	-15.834	250.716	-4.065
1	0.257	0.066	53	12.166	148.012	3.123
1	0.257	0.066	44	3.166	10.024	0.813
0	-0.743	0.552	26	-14.834	220.048	11.026
0	-0.743	0.552	33	-7.834	61.372	5.823
1	0.257	0.066	36	-4.834	23.368	-1.241
1	0.257	0.066	39	-1.834	3.364	-0.471
0	-0.743	0.552	46	5.166	26.688	-3.840
1	0.257	0.066	36	-4.834	23.368	-1.241
1	0.257	0.066	54	13.166	173.344	3.380
1	0.257	0.066	36	-4.834	23.368	-1.241
0	-0.743	0.552	44	3.166	10.024	-2.353
1	0.257	0.066	40	-0.834	0.696	-0.214
1	0.257	0.066	38	-2.834	8.032	-0.727
0	-0.743	0.552	35	-5.834	34.036	4.336
1	0.257	0.066	46	5.166	26.688	1.326
1	0.257	0.066	49	8.166	66.684	2.096
1	0.257	0.066	48	7.166	51.352	1.840
1	0.257	0.066	41	0.166	0.028	0.043
1	0.257	0.066	53	12.166	148.012	3.123
1	0.257	0.066	53	12.166	148.012	3.123
1	0.257	0.066	51	10.166	103.348	2.610
139	0.003	35.679	7636	0.042	19431.861	377.043

1	0.246	0.061	50	9.166	84.016	2.255
1	0.246	0.061	38	-2.834	8.032	-0.697
0	-0.754	0.569	40	-0.834	0.696	0.629
0	-0.754	0.569	36	-4.834	23.368	3.645
0	-0.754	0.569	20	-20.834	434.056	15.709
1	0.246	0.061	47	6.166	38.020	1.517
1	0.246	0.061	54	13.166	173.344	3.239
1	0.246	0.061	50	9.166	84.016	2.255
1	0.246	0.061	25	-15.834	250.716	-3.895
1	0.246	0.061	53	12.166	148.012	2.993
1	0.246	0.061	44	3.166	10.024	0.779
0	-0.754	0.569	26	-14.834	220.048	11.185
0	-0.754	0.569	33	-7.834	61.372	5.907
1	0.246	0.061	36	-4.834	23.368	-1.189
0	-0.754	0.569	39	-1.834	3.364	1.383
0	-0.754	0.569	46	5.166	26.688	-3.895
0	-0.754	0.569	36	-4.834	23.368	3.645
1	0.246	0.061	54	13.166	173.344	3.239
0	-0.754	0.569	36	-4.834	23.368	3.645
1	0.246	0.061	44	3.166	10.024	0.779
1	0.246	0.061	40	-0.834	0.696	-0.205
1	0.246	0.061	38	-2.834	8.032	-0.697
0	-0.754	0.569	35	-5.834	34.036	4.399
1	0.246	0.061	46	5.166	26.688	1.271
1	0.246	0.061	49	8.166	66.684	2.009
1	0.246	0.061	48	7.166	51.352	1.763
1	0.246	0.061	41	0.166	0.028	0.041
1	0.246	0.061	53	12.166	148.012	2.993
1	0.246	0.061	53	12.166	148.012	2.993
1	0.246	0.061	51	10.166	103.348	2.501
141	0.002	34.684	7636	0.042	19431.861	401.374

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$
$$= \frac{377,043}{\sqrt{35,679 \times 19431,861}} = 0.4528$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$
$$= \frac{401,374}{\sqrt{34,684 \times 19431,861}} = 0.4890$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 41 dan No 42

Pertanyaan no 41

$$x = 144/187 = 0.7701$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.230	0.053	51	10.166	103.348	2.337
1	0.230	0.053	36	-4.834	23.368	-1.111
1	0.230	0.053	41	0.166	0.028	0.038
1	0.230	0.053	52	11.166	124.680	2.567
1	0.230	0.053	51	10.166	103.348	2.337
1	0.230	0.053	50	9.166	84.016	2.107
1	0.230	0.053	46	5.166	26.688	1.188
1	0.230	0.053	55	14.166	200.676	3.257
1	0.230	0.053	49	8.166	66.684	1.877
0	-0.770	0.593	31	-9.834	96.708	7.573
1	0.230	0.053	46	5.166	26.688	1.188
0	-0.770	0.593	44	3.166	10.024	-2.438
1	0.230	0.053	40	-0.834	0.696	-0.192
1	0.230	0.053	48	7.166	51.352	1.647
1	0.230	0.053	31	-9.834	96.708	-2.261
1	0.230	0.053	27	-13.834	191.380	-3.180
1	0.230	0.053	47	6.166	38.020	1.418
1	0.230	0.053	50	9.166	84.016	2.107
1	0.230	0.053	55	14.166	200.676	3.257
1	0.230	0.053	47	6.166	38.020	1.418
0	-0.770	0.593	16	-24.834	616.728	19.125
0	-0.770	0.593	42	1.166	1.360	-0.898
1	0.230	0.053	42	1.166	1.360	0.268
1	0.230	0.053	43	2.166	4.692	0.498
1	0.230	0.053	43	2.166	4.692	0.498

Pertanyaan no 42

$$x = 147/187 = 0.7861$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.214	0.046	51	10.166	103.348	2.175
1	0.214	0.046	36	-4.834	23.368	-1.034
1	0.214	0.046	41	0.166	0.028	0.036
1	0.214	0.046	52	11.166	124.680	2.388
1	0.214	0.046	51	10.166	103.348	2.175
1	0.214	0.046	50	9.166	84.016	1.961
1	0.214	0.046	46	5.166	26.688	1.105
1	0.214	0.046	55	14.166	200.676	3.030
1	0.214	0.046	49	8.166	66.684	1.747
0	-0.786	0.618	31	-9.834	96.708	7.731
1	0.214	0.046	46	5.166	26.688	1.105
0	-0.786	0.618	44	3.166	10.024	-2.489
1	0.214	0.046	40	-0.834	0.696	-0.178
1	0.214	0.046	48	7.166	51.352	1.533
1	0.214	0.046	31	-9.834	96.708	-2.103
1	0.214	0.046	27	-13.834	191.380	-2.959
1	0.214	0.046	47	6.166	38.020	1.319
1	0.214	0.046	50	9.166	84.016	1.961
1	0.214	0.046	55	14.166	200.676	3.030
1	0.214	0.046	47	6.166	38.020	1.319
0	-0.786	0.618	16	-24.834	616.728	19.522
1	0.214	0.046	42	1.166	1.360	0.249
1	0.214	0.046	42	1.166	1.360	0.249
1	0.214	0.046	43	2.166	4.692	0.463
1	0.214	0.046	43	2.166	4.692	0.463

1	0.230	0.053	38	-2.834	8.032	-0.652
0	-0.770	0.593	36	-4.834	23.368	3.723
1	0.230	0.053	37	-3.834	14.700	-0.881
1	0.230	0.053	55	14.166	200.676	3.257
1	0.230	0.053	28	-12.834	164.712	-2.951
1	0.230	0.053	51	10.166	103.348	2.337
1	0.230	0.053	53	12.166	148.012	2.797
1	0.230	0.053	45	4.166	17.356	0.958
1	0.230	0.053	33	-7.834	61.372	-1.801
1	0.230	0.053	45	4.166	17.356	0.958
0	-0.770	0.593	44	3.166	10.024	-2.438
1	0.230	0.053	44	3.166	10.024	0.728
1	0.230	0.053	49	8.166	66.684	1.877
0	-0.770	0.593	39	-1.834	3.364	1.412
1	0.230	0.053	49	8.166	66.684	1.877
1	0.230	0.053	35	-5.834	34.036	-1.341
0	-0.770	0.593	31	-9.834	96.708	7.573
1	0.230	0.053	33	-7.834	61.372	-1.801
1	0.230	0.053	48	7.166	51.352	1.647
0	-0.770	0.593	12	-28.834	831.400	22.205
1	0.230	0.053	35	-5.834	34.036	-1.341
0	-0.770	0.593	39	-1.834	3.364	1.412
1	0.230	0.053	53	12.166	148.012	2.797
1	0.230	0.053	48	7.166	51.352	1.647
1	0.230	0.053	48	7.166	51.352	1.647
1	0.230	0.053	40	-0.834	0.696	-0.192
1	0.230	0.053	44	3.166	10.024	0.728
1	0.230	0.053	46	5.166	26.688	1.188
0	-0.770	0.593	21	-19.834	393.388	15.274
1	0.230	0.053	45	4.166	17.356	0.958
0	-0.770	0.593	2	-38.834	1508.080	29.906
1	0.230	0.053	37	-3.834	14.700	-0.881
0	-0.770	0.593	34	-6.834	46.704	5.263

1	0.214	0.046	38	-2.834	8.032	-0.606
0	-0.786	0.618	36	-4.834	23.368	3.800
1	0.214	0.046	37	-3.834	14.700	-0.820
1	0.214	0.046	55	14.166	200.676	3.030
1	0.214	0.046	28	-12.834	164.712	-2.745
1	0.214	0.046	51	10.166	103.348	2.175
1	0.214	0.046	53	12.166	148.012	2.602
1	0.214	0.046	45	4.166	17.356	0.891
1	0.214	0.046	33	-7.834	61.372	-1.676
1	0.214	0.046	45	4.166	17.356	0.891
1	0.214	0.046	44	3.166	10.024	0.677
1	0.214	0.046	44	3.166	10.024	0.677
1	0.214	0.046	49	8.166	66.684	1.747
1	0.214	0.046	39	-1.834	3.364	-0.392
1	0.214	0.046	49	8.166	66.684	1.747
1	0.214	0.046	35	-5.834	34.036	-1.248
0	-0.786	0.618	31	-9.834	96.708	7.731
1	0.214	0.046	33	-7.834	61.372	-1.676
1	0.214	0.046	48	7.166	51.352	1.533
0	-0.786	0.618	12	-28.834	831.400	22.666
1	0.214	0.046	35	-5.834	34.036	-1.248
1	0.214	0.046	39	-1.834	3.364	-0.392
1	0.214	0.046	53	12.166	148.012	2.602
1	0.214	0.046	48	7.166	51.352	1.533
1	0.214	0.046	48	7.166	51.352	1.533
1	0.214	0.046	40	-0.834	0.696	-0.178
1	0.214	0.046	44	3.166	10.024	0.677
1	0.214	0.046	46	5.166	26.688	1.105
0	-0.786	0.618	21	-19.834	393.388	15.592
1	0.214	0.046	45	4.166	17.356	0.891
0	-0.786	0.618	2	-38.834	1508.080	30.527
0	-0.786	0.618	37	-3.834	14.700	3.014
0	-0.786	0.618	34	-6.834	46.704	5.372

0	-0.770	0.593	32	-8.834	78.040	6.803
1	0.230	0.053	29	-11.834	140.044	-2.721
1	0.230	0.053	48	7.166	51.352	1.647
1	0.230	0.053	48	7.166	51.352	1.647
1	0.230	0.053	37	-3.834	14.700	-0.881
1	0.230	0.053	53	12.166	148.012	2.797
1	0.230	0.053	42	1.166	1.360	0.268
1	0.230	0.053	48	7.166	51.352	1.647
1	0.230	0.053	45	4.166	17.356	0.958
1	0.230	0.053	52	11.166	124.680	2.567
0	-0.770	0.593	23	-17.834	318.052	13.734
0	-0.770	0.593	38	-2.834	8.032	2.182
1	0.230	0.053	51	10.166	103.348	2.337
1	0.230	0.053	38	-2.834	8.032	-0.652
1	0.230	0.053	29	-11.834	140.044	-2.721
1	0.230	0.053	28	-12.834	164.712	-2.951
1	0.230	0.053	39	-1.834	3.364	-0.422
1	0.230	0.053	33	-7.834	61.372	-1.801
1	0.230	0.053	44	3.166	10.024	0.728
0	-0.770	0.593	33	-7.834	61.372	6.033
1	0.230	0.053	47	6.166	38.020	1.418
1	0.230	0.053	31	-9.834	96.708	-2.261
1	0.230	0.053	47	6.166	38.020	1.418
1	0.230	0.053	41	0.166	0.028	0.038
1	0.230	0.053	54	13.166	173.344	3.027
1	0.230	0.053	48	7.166	51.352	1.647
1	0.230	0.053	53	12.166	148.012	2.797
1	0.230	0.053	43	2.166	4.692	0.498
1	0.230	0.053	50	9.166	84.016	2.107
1	0.230	0.053	47	6.166	38.020	1.418
1	0.230	0.053	42	1.166	1.360	0.268
1	0.230	0.053	37	-3.834	14.700	-0.881
1	0.230	0.053	41	0.166	0.028	0.038

0	-0.786	0.618	32	-8.834	78.040	6.944
1	0.214	0.046	29	-11.834	140.044	-2.531
1	0.214	0.046	48	7.166	51.352	1.533
1	0.214	0.046	48	7.166	51.352	1.533
1	0.214	0.046	37	-3.834	14.700	-0.820
1	0.214	0.046	53	12.166	148.012	2.602
1	0.214	0.046	42	1.166	1.360	0.249
1	0.214	0.046	48	7.166	51.352	1.533
1	0.214	0.046	45	4.166	17.356	0.891
1	0.214	0.046	52	11.166	124.680	2.388
0	-0.786	0.618	23	-17.834	318.052	14.019
0	-0.786	0.618	38	-2.834	8.032	2.228
1	0.214	0.046	51	10.166	103.348	2.175
1	0.214	0.046	38	-2.834	8.032	-0.606
1	0.214	0.046	29	-11.834	140.044	-2.531
1	0.214	0.046	28	-12.834	164.712	-2.745
1	0.214	0.046	39	-1.834	3.364	-0.392
1	0.214	0.046	33	-7.834	61.372	-1.676
1	0.214	0.046	44	3.166	10.024	0.677
0	-0.786	0.618	33	-7.834	61.372	6.158
1	0.214	0.046	47	6.166	38.020	1.319
1	0.214	0.046	31	-9.834	96.708	-2.103
1	0.214	0.046	47	6.166	38.020	1.319
1	0.214	0.046	41	0.166	0.028	0.036
1	0.214	0.046	54	13.166	173.344	2.816
1	0.214	0.046	48	7.166	51.352	1.533
1	0.214	0.046	53	12.166	148.012	2.602
1	0.214	0.046	43	2.166	4.692	0.463
1	0.214	0.046	50	9.166	84.016	1.961
1	0.214	0.046	47	6.166	38.020	1.319
1	0.214	0.046	42	1.166	1.360	0.249
1	0.214	0.046	37	-3.834	14.700	-0.820
1	0.214	0.046	41	0.166	0.028	0.036

1	0.230	0.053	18	-22.834	521.392	-5.250
0	-0.770	0.593	26	-14.834	220.048	11.424
1	0.230	0.053	52	11.166	124.680	2.567
0	-0.770	0.593	44	3.166	10.024	-2.438
1	0.230	0.053	51	10.166	103.348	2.337
1	0.230	0.053	35	-5.834	34.036	-1.341
1	0.230	0.053	40	-0.834	0.696	-0.192
1	0.230	0.053	47	6.166	38.020	1.418
0	-0.770	0.593	49	8.166	66.684	-6.289
1	0.230	0.053	36	-4.834	23.368	-1.111
0	-0.770	0.593	6	-34.834	1213.408	26.826
1	0.230	0.053	55	14.166	200.676	3.257
1	0.230	0.053	50	9.166	84.016	2.107
1	0.230	0.053	48	7.166	51.352	1.647
0	-0.770	0.593	44	3.166	10.024	-2.438
1	0.230	0.053	52	11.166	124.680	2.567
1	0.230	0.053	46	5.166	26.688	1.188
1	0.230	0.053	49	8.166	66.684	1.877
1	0.230	0.053	47	6.166	38.020	1.418
1	0.230	0.053	54	13.166	173.344	3.027
1	0.230	0.053	25	-15.834	250.716	-3.640
1	0.230	0.053	55	14.166	200.676	3.257
1	0.230	0.053	55	14.166	200.676	3.257
1	0.230	0.053	41	0.166	0.028	0.038
0	-0.770	0.593	31	-9.834	96.708	7.573
0	-0.770	0.593	13	-27.834	774.732	21.435
1	0.230	0.053	55	14.166	200.676	3.257
1	0.230	0.053	45	4.166	17.356	0.958
1	0.230	0.053	55	14.166	200.676	3.257
1	0.230	0.053	52	11.166	124.680	2.567
1	0.230	0.053	49	8.166	66.684	1.877
1	0.230	0.053	42	1.166	1.360	0.268
1	0.230	0.053	37	-3.834	14.700	-0.881

1	0.214	0.046	18	-22.834	521.392	-4.884
0	-0.786	0.618	26	-14.834	220.048	11.661
0	-0.786	0.618	52	11.166	124.680	-8.778
0	-0.786	0.618	44	3.166	10.024	-2.489
1	0.214	0.046	51	10.166	103.348	2.175
1	0.214	0.046	35	-5.834	34.036	-1.248
1	0.214	0.046	40	-0.834	0.696	-0.178
1	0.214	0.046	47	6.166	38.020	1.319
0	-0.786	0.618	49	8.166	66.684	-6.419
1	0.214	0.046	36	-4.834	23.368	-1.034
0	-0.786	0.618	6	-34.834	1213.408	27.383
1	0.214	0.046	55	14.166	200.676	3.030
1	0.214	0.046	50	9.166	84.016	1.961
1	0.214	0.046	48	7.166	51.352	1.533
0	-0.786	0.618	44	3.166	10.024	-2.489
1	0.214	0.046	52	11.166	124.680	2.388
0	-0.786	0.618	46	5.166	26.688	-4.061
1	0.214	0.046	49	8.166	66.684	1.747
1	0.214	0.046	47	6.166	38.020	1.319
1	0.214	0.046	54	13.166	173.344	2.816
1	0.214	0.046	25	-15.834	250.716	-3.387
1	0.214	0.046	55	14.166	200.676	3.030
1	0.214	0.046	55	14.166	200.676	3.030
1	0.214	0.046	41	0.166	0.028	0.036
0	-0.786	0.618	31	-9.834	96.708	7.731
0	-0.786	0.618	13	-27.834	774.732	21.880
1	0.214	0.046	55	14.166	200.676	3.030
0	-0.786	0.618	45	4.166	17.356	-3.275
1	0.214	0.046	55	14.166	200.676	3.030
1	0.214	0.046	52	11.166	124.680	2.388
1	0.214	0.046	49	8.166	66.684	1.747
1	0.214	0.046	42	1.166	1.360	0.249
1	0.214	0.046	37	-3.834	14.700	-0.820

0	-0.770	0.593	24	-16.834	283.384	12.964
0	-0.770	0.593	21	-19.834	393.388	15.274
1	0.230	0.053	38	-2.834	8.032	-0.652
1	0.230	0.053	46	5.166	26.688	1.188
1	0.230	0.053	29	-11.834	140.044	-2.721
1	0.230	0.053	48	7.166	51.352	1.647
1	0.230	0.053	42	1.166	1.360	0.268
0	-0.770	0.593	38	-2.834	8.032	2.182
0	-0.770	0.593	18	-22.834	521.392	17.584
1	0.230	0.053	49	8.166	66.684	1.877
0	-0.770	0.593	30	-10.834	117.376	8.343
1	0.230	0.053	43	2.166	4.692	0.498
1	0.230	0.053	39	-1.834	3.364	-0.422
1	0.230	0.053	31	-9.834	96.708	-2.261
1	0.230	0.053	28	-12.834	164.712	-2.951
1	0.230	0.053	48	7.166	51.352	1.647
1	0.230	0.053	47	6.166	38.020	1.418
0	-0.770	0.593	37	-3.834	14.700	2.953
1	0.230	0.053	40	-0.834	0.696	-0.192
0	-0.770	0.593	49	8.166	66.684	-6.289
0	-0.770	0.593	32	-8.834	78.040	6.803
0	-0.770	0.593	47	6.166	38.020	-4.748
0	-0.770	0.593	32	-8.834	78.040	6.803
1	0.230	0.053	29	-11.834	140.044	-2.721
0	-0.770	0.593	23	-17.834	318.052	13.734
1	0.230	0.053	41	0.166	0.028	0.038
1	0.230	0.053	41	0.166	0.028	0.038
1	0.230	0.053	51	10.166	103.348	2.337
0	-0.770	0.593	29	-11.834	140.044	9.113
1	0.230	0.053	37	-3.834	14.700	-0.881
0	-0.770	0.593	37	-3.834	14.700	2.953
1	0.230	0.053	36	-4.834	23.368	-1.111
1	0.230	0.053	40	-0.834	0.696	-0.192

0	-0.786	0.618	24	-16.834	283.384	13.233
0	-0.786	0.618	21	-19.834	393.388	15.592
1	0.214	0.046	38	-2.834	8.032	-0.606
1	0.214	0.046	46	5.166	26.688	1.105
1	0.214	0.046	29	-11.834	140.044	-2.531
1	0.214	0.046	48	7.166	51.352	1.533
1	0.214	0.046	42	1.166	1.360	0.249
0	-0.786	0.618	38	-2.834	8.032	2.228
0	-0.786	0.618	18	-22.834	521.392	17.950
1	0.214	0.046	49	8.166	66.684	1.747
0	-0.786	0.618	30	-10.834	117.376	8.517
1	0.214	0.046	43	2.166	4.692	0.463
1	0.214	0.046	39	-1.834	3.364	-0.392
1	0.214	0.046	31	-9.834	96.708	-2.103
1	0.214	0.046	28	-12.834	164.712	-2.745
1	0.214	0.046	48	7.166	51.352	1.533
1	0.214	0.046	47	6.166	38.020	1.319
0	-0.786	0.618	37	-3.834	14.700	3.014
1	0.214	0.046	40	-0.834	0.696	-0.178
0	-0.786	0.618	49	8.166	66.684	-6.419
0	-0.786	0.618	32	-8.834	78.040	6.944
1	0.214	0.046	47	6.166	38.020	1.319
0	-0.786	0.618	32	-8.834	78.040	6.944
1	0.214	0.046	29	-11.834	140.044	-2.531
0	-0.786	0.618	23	-17.834	318.052	14.019
1	0.214	0.046	41	0.166	0.028	0.036
1	0.214	0.046	41	0.166	0.028	0.036
1	0.214	0.046	51	10.166	103.348	2.175
1	0.214	0.046	29	-11.834	140.044	-2.531
1	0.214	0.046	37	-3.834	14.700	-0.820
1	0.214	0.046	37	-3.834	14.700	-0.820
1	0.214	0.046	36	-4.834	23.368	-1.034
1	0.214	0.046	40	-0.834	0.696	-0.178

1	0.230	0.053	50	9.166	84.016	2.107
1	0.230	0.053	38	-2.834	8.032	-0.652
1	0.230	0.053	40	-0.834	0.696	-0.192
1	0.230	0.053	36	-4.834	23.368	-1.111
0	-0.770	0.593	20	-20.834	434.056	16.044
1	0.230	0.053	47	6.166	38.020	1.418
1	0.230	0.053	54	13.166	173.344	3.027
1	0.230	0.053	50	9.166	84.016	2.107
1	0.230	0.053	25	-15.834	250.716	-3.640
1	0.230	0.053	53	12.166	148.012	2.797
0	-0.770	0.593	44	3.166	10.024	-2.438
0	-0.770	0.593	26	-14.834	220.048	11.424
1	0.230	0.053	33	-7.834	61.372	-1.801
1	0.230	0.053	36	-4.834	23.368	-1.111
1	0.230	0.053	39	-1.834	3.364	-0.422
1	0.230	0.053	46	5.166	26.688	1.188
0	-0.770	0.593	36	-4.834	23.368	3.723
1	0.230	0.053	54	13.166	173.344	3.027
1	0.230	0.053	36	-4.834	23.368	-1.111
1	0.230	0.053	44	3.166	10.024	0.728
1	0.230	0.053	40	-0.834	0.696	-0.192
0	-0.770	0.593	38	-2.834	8.032	2.182
0	-0.770	0.593	35	-5.834	34.036	4.493
1	0.230	0.053	46	5.166	26.688	1.188
1	0.230	0.053	49	8.166	66.684	1.877
1	0.230	0.053	48	7.166	51.352	1.647
1	0.230	0.053	41	0.166	0.028	0.038
1	0.230	0.053	53	12.166	148.012	2.797
1	0.230	0.053	53	12.166	148.012	2.797
1	0.230	0.053	51	10.166	103.348	2.337
144	-0.009	33.112	7636	0.042	19431.861	409.872

1	0.214	0.046	50	9.166	84.016	1.961
1	0.214	0.046	38	-2.834	8.032	-0.606
0	-0.786	0.618	40	-0.834	0.696	0.656
1	0.214	0.046	36	-4.834	23.368	-1.034
0	-0.786	0.618	20	-20.834	434.056	16.378
1	0.214	0.046	47	6.166	38.020	1.319
1	0.214	0.046	54	13.166	173.344	2.816
1	0.214	0.046	50	9.166	84.016	1.961
1	0.214	0.046	25	-15.834	250.716	-3.387
1	0.214	0.046	53	12.166	148.012	2.602
1	0.214	0.046	44	3.166	10.024	0.677
0	-0.786	0.618	26	-14.834	220.048	11.661
1	0.214	0.046	33	-7.834	61.372	-1.676
1	0.214	0.046	36	-4.834	23.368	-1.034
1	0.214	0.046	39	-1.834	3.364	-0.392
1	0.214	0.046	46	5.166	26.688	1.105
0	-0.786	0.618	36	-4.834	23.368	3.800
1	0.214	0.046	54	13.166	173.344	2.816
1	0.214	0.046	36	-4.834	23.368	-1.034
0	-0.786	0.618	44	3.166	10.024	-2.489
1	0.214	0.046	40	-0.834	0.696	-0.178
0	-0.786	0.618	38	-2.834	8.032	2.228
1	0.214	0.046	35	-5.834	34.036	-1.248
1	0.214	0.046	46	5.166	26.688	1.105
1	0.214	0.046	49	8.166	66.684	1.747
1	0.214	0.046	48	7.166	51.352	1.533
1	0.214	0.046	41	0.166	0.028	0.036
1	0.214	0.046	53	12.166	148.012	2.602
1	0.214	0.046	53	12.166	148.012	2.602
1	0.214	0.046	51	10.166	103.348	2.175
147	-0.001	31.444	7636	0.042	19431.861	379.369

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$
$$= \frac{409,872}{\sqrt{33,112 \times 19431,861}} = 0.5110$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$
$$= \frac{379,369}{\sqrt{31,444 \times 19431,861}} = 0.4853$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$
$$= \frac{37}{\sqrt{44,043}}$$

karena $r_{xy} >$

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 43 dan No 44

Pertanyaan no 44

$$x = 138/187 = 0.7380$$

$$y = 7636/187=40.834$$

x=xi-x	x2	yi	y	y2	xy
-0.620	0.385	51	10.166	103.348	-6.306
-0.620	0.385	36	-4.834	23.368	2.999
-0.620	0.385	41	0.166	0.028	-0.103
-0.620	0.385	52	11.166	124.680	-6.926
-0.620	0.385	51	10.166	103.348	-6.306
-0.620	0.385	50	9.166	84.016	-5.686
-0.620	0.385	46	5.166	26.688	-3.204
-0.620	0.385	55	14.166	200.676	-8.787
-0.620	0.385	49	8.166	66.684	-5.065
-0.620	0.385	31	-9.834	96.708	6.100
-0.620	0.385	46	5.166	26.688	-3.204
-0.620	0.385	44	3.166	10.024	-1.964
-0.620	0.385	40	-0.834	0.696	0.517
-0.620	0.385	48	7.166	51.352	-4.445
-0.620	0.385	31	-9.834	96.708	6.100
-0.620	0.385	27	-13.834	191.380	8.581
-0.620	0.385	47	6.166	38.020	-3.825
-0.620	0.385	50	9.166	84.016	-5.686
-0.620	0.385	55	14.166	200.676	-8.787
-0.620	0.385	47	6.166	38.020	-3.825
-0.620	0.385	16	-24.834	616.728	15.405
-0.620	0.385	42	1.166	1.360	-0.723
-0.620	0.385	42	1.166	1.360	-0.723
-0.620	0.385	43	2.166	4.692	-1.344
-0.620	0.385	43	2.166	4.692	-1.344

xi	x=xi-x	x2	yi	y	y2	xy
1	0.262	0.068644	51	10.166	103.348	2.663492
1	0.262	0.068644	36	-4.834	23.368	-1.266508
0	-0.738	0.544644	41	0.166	0.028	-0.122508
1	0.262	0.068644	52	11.166	124.680	2.925492
1	0.262	0.068644	51	10.166	103.348	2.663492
1	0.262	0.068644	50	9.166	84.016	2.401492
1	0.262	0.068644	46	5.166	26.688	1.353492
1	0.262	0.068644	55	14.166	200.676	3.711492
1	0.262	0.068644	49	8.166	66.684	2.139492
0	-0.738	0.544644	31	-9.834	96.708	7.257492
1	0.262	0.068644	46	5.166	26.688	1.353492
0	-0.738	0.544644	44	3.166	10.024	-2.336508
0	-0.738	0.544644	40	-0.834	0.696	0.615492
1	0.262	0.068644	48	7.166	51.352	1.877492
1	0.262	0.068644	31	-9.834	96.708	-2.576508
1	0.262	0.068644	27	-13.834	191.380	-3.624508
1	0.262	0.068644	47	6.166	38.020	1.615492
1	0.262	0.068644	50	9.166	84.016	2.401492
1	0.262	0.068644	55	14.166	200.676	3.711492
1	0.262	0.068644	47	6.166	38.020	1.615492
0	-0.738	0.544644	16	-24.834	616.728	18.327492
1	0.262	0.068644	42	1.166	1.360	0.305492
1	0.262	0.068644	42	1.166	1.360	0.305492
1	0.262	0.068644	43	2.166	4.692	0.567492
1	0.262	0.068644	43	2.166	4.692	0.567492

-0.620	0.385	38	-2.834	8.032	1.758
-0.620	0.385	36	-4.834	23.368	2.999
-0.620	0.385	37	-3.834	14.700	2.378
-0.620	0.385	55	14.166	200.676	-8.787
-0.620	0.385	28	-12.834	164.712	7.961
-0.620	0.385	51	10.166	103.348	-6.306
-0.620	0.385	53	12.166	148.012	-7.547
-0.620	0.385	45	4.166	17.356	-2.584
-0.620	0.385	33	-7.834	61.372	4.859
-0.620	0.385	45	4.166	17.356	-2.584
-0.620	0.385	44	3.166	10.024	-1.964
-0.620	0.385	44	3.166	10.024	-1.964
-0.620	0.385	49	8.166	66.684	-5.065
-0.620	0.385	39	-1.834	3.364	1.138
-0.620	0.385	49	8.166	66.684	-5.065
-0.620	0.385	35	-5.834	34.036	3.619
-0.620	0.385	31	-9.834	96.708	6.100
-0.620	0.385	33	-7.834	61.372	4.859
-0.620	0.385	48	7.166	51.352	-4.445
-0.620	0.385	12	-28.834	831.400	17.886
-0.620	0.385	35	-5.834	34.036	3.619
-0.620	0.385	39	-1.834	3.364	1.138
-0.620	0.385	53	12.166	148.012	-7.547
-0.620	0.385	48	7.166	51.352	-4.445
-0.620	0.385	48	7.166	51.352	-4.445
-0.620	0.385	40	-0.834	0.696	0.517
-0.620	0.385	44	3.166	10.024	-1.964
-0.620	0.385	46	5.166	26.688	-3.204
-0.620	0.385	21	-19.834	393.388	12.303
-0.620	0.385	45	4.166	17.356	-2.584
-0.620	0.385	2	-38.834	1508.080	24.089
-0.620	0.385	37	-3.834	14.700	2.378
-0.620	0.385	34	-6.834	46.704	4.239

0	-0.738	0.544644	38	-2.834	8.032	2.091492
0	-0.738	0.544644	36	-4.834	23.368	3.567492
0	-0.738	0.544644	37	-3.834	14.700	2.829492
1	0.262	0.068644	55	14.166	200.676	3.711492
1	0.262	0.068644	28	-12.834	164.712	-3.362508
1	0.262	0.068644	51	10.166	103.348	2.663492
1	0.262	0.068644	53	12.166	148.012	3.187492
1	0.262	0.068644	45	4.166	17.356	1.091492
1	0.262	0.068644	33	-7.834	61.372	-2.052508
1	0.262	0.068644	45	4.166	17.356	1.091492
1	0.262	0.068644	44	3.166	10.024	0.829492
0	-0.738	0.544644	44	3.166	10.024	-2.336508
1	0.262	0.068644	49	8.166	66.684	2.139492
0	-0.738	0.544644	39	-1.834	3.364	1.353492
1	0.262	0.068644	49	8.166	66.684	2.139492
1	0.262	0.068644	35	-5.834	34.036	-1.528508
0	-0.738	0.544644	31	-9.834	96.708	7.257492
1	0.262	0.068644	33	-7.834	61.372	-2.052508
1	0.262	0.068644	48	7.166	51.352	1.877492
0	-0.738	0.544644	12	-28.834	831.400	21.279492
1	0.262	0.068644	35	-5.834	34.036	-1.528508
1	0.262	0.068644	39	-1.834	3.364	-0.480508
1	0.262	0.068644	53	12.166	148.012	3.187492
1	0.262	0.068644	48	7.166	51.352	1.877492
1	0.262	0.068644	48	7.166	51.352	1.877492
1	0.262	0.068644	40	-0.834	0.696	-0.218508
0	-0.738	0.544644	44	3.166	10.024	-2.336508
1	0.262	0.068644	46	5.166	26.688	1.353492
0	-0.738	0.544644	21	-19.834	393.388	14.637492
1	0.262	0.068644	45	4.166	17.356	1.091492
0	-0.738	0.544644	2	-38.834	1508.080	28.659492
1	0.262	0.068644	37	-3.834	14.700	-1.004508
1	0.262	0.068644	34	-6.834	46.704	-1.790508

-0.620	0.385	32	-8.834	78.040	5.480
-0.620	0.385	29	-11.834	140.044	7.341
-0.620	0.385	48	7.166	51.352	-4.445
-0.620	0.385	48	7.166	51.352	-4.445
-0.620	0.385	37	-3.834	14.700	2.378
-0.620	0.385	53	12.166	148.012	-7.547
-0.620	0.385	42	1.166	1.360	-0.723
-0.620	0.385	48	7.166	51.352	-4.445
-0.620	0.385	45	4.166	17.356	-2.584
-0.620	0.385	52	11.166	124.680	-6.926
-0.620	0.385	23	-17.834	318.052	11.062
-0.620	0.385	38	-2.834	8.032	1.758
-0.620	0.385	51	10.166	103.348	-6.306
-0.620	0.385	38	-2.834	8.032	1.758
-0.620	0.385	29	-11.834	140.044	7.341
-0.620	0.385	28	-12.834	164.712	7.961
-0.620	0.385	39	-1.834	3.364	1.138
-0.620	0.385	33	-7.834	61.372	4.859
-0.620	0.385	44	3.166	10.024	-1.964
-0.620	0.385	33	-7.834	61.372	4.859
-0.620	0.385	47	6.166	38.020	-3.825
-0.620	0.385	31	-9.834	96.708	6.100
-0.620	0.385	47	6.166	38.020	-3.825
-0.620	0.385	41	0.166	0.028	-0.103
-0.620	0.385	54	13.166	173.344	-8.167
-0.620	0.385	48	7.166	51.352	-4.445
-0.620	0.385	53	12.166	148.012	-7.547
-0.620	0.385	43	2.166	4.692	-1.344
-0.620	0.385	50	9.166	84.016	-5.686
-0.620	0.385	47	6.166	38.020	-3.825
-0.620	0.385	42	1.166	1.360	-0.723
-0.620	0.385	37	-3.834	14.700	2.378
-0.620	0.385	41	0.166	0.028	-0.103

0	-0.738	0.544644	32	-8.834	78.040	6.519492
1	0.262	0.068644	29	-11.834	140.044	-3.100508
0	-0.738	0.544644	48	7.166	51.352	-5.288508
1	0.262	0.068644	48	7.166	51.352	1.877492
1	0.262	0.068644	37	-3.834	14.700	-1.004508
1	0.262	0.068644	53	12.166	148.012	3.187492
0	-0.738	0.544644	42	1.166	1.360	-0.860508
1	0.262	0.068644	48	7.166	51.352	1.877492
1	0.262	0.068644	45	4.166	17.356	1.091492
1	0.262	0.068644	52	11.166	124.680	2.925492
0	-0.738	0.544644	23	-17.834	318.052	13.161492
1	0.262	0.068644	38	-2.834	8.032	-0.742508
1	0.262	0.068644	51	10.166	103.348	2.663492
1	0.262	0.068644	38	-2.834	8.032	-0.742508
0	-0.738	0.544644	29	-11.834	140.044	8.733492
1	0.262	0.068644	28	-12.834	164.712	-3.362508
0	-0.738	0.544644	39	-1.834	3.364	1.353492
0	-0.738	0.544644	33	-7.834	61.372	5.781492
1	0.262	0.068644	44	3.166	10.024	0.829492
0	-0.738	0.544644	33	-7.834	61.372	5.781492
1	0.262	0.068644	47	6.166	38.020	1.615492
1	0.262	0.068644	31	-9.834	96.708	-2.576508
1	0.262	0.068644	47	6.166	38.020	1.615492
1	0.262	0.068644	41	0.166	0.028	0.043492
1	0.262	0.068644	54	13.166	173.344	3.449492
1	0.262	0.068644	48	7.166	51.352	1.877492
1	0.262	0.068644	53	12.166	148.012	3.187492
0	-0.738	0.544644	43	2.166	4.692	-1.598508
1	0.262	0.068644	50	9.166	84.016	2.401492
1	0.262	0.068644	47	6.166	38.020	1.615492
1	0.262	0.068644	42	1.166	1.360	0.305492
1	0.262	0.068644	37	-3.834	14.700	-1.004508
1	0.262	0.068644	41	0.166	0.028	0.043492

-0.620	0.385	18	-22.834	521.392	14.164
-0.620	0.385	26	-14.834	220.048	9.202
-0.620	0.385	52	11.166	124.680	-6.926
-0.620	0.385	44	3.166	10.024	-1.964
-0.620	0.385	51	10.166	103.348	-6.306
-0.620	0.385	35	-5.834	34.036	3.619
-0.620	0.385	40	-0.834	0.696	0.517
-0.620	0.385	47	6.166	38.020	-3.825
-0.620	0.385	49	8.166	66.684	-5.065
-0.620	0.385	36	-4.834	23.368	2.999
-0.620	0.385	6	-34.834	1213.408	21.608
-0.620	0.385	55	14.166	200.676	-8.787
-0.620	0.385	50	9.166	84.016	-5.686
-0.620	0.385	48	7.166	51.352	-4.445
-0.620	0.385	44	3.166	10.024	-1.964
-0.620	0.385	52	11.166	124.680	-6.926
-0.620	0.385	46	5.166	26.688	-3.204
-0.620	0.385	49	8.166	66.684	-5.065
-0.620	0.385	47	6.166	38.020	-3.825
-0.620	0.385	54	13.166	173.344	-8.167
-0.620	0.385	25	-15.834	250.716	9.822
-0.620	0.385	55	14.166	200.676	-8.787
-0.620	0.385	55	14.166	200.676	-8.787
-0.620	0.385	41	0.166	0.028	-0.103
-0.620	0.385	31	-9.834	96.708	6.100
-0.620	0.385	13	-27.834	774.732	17.265
-0.620	0.385	55	14.166	200.676	-8.787
-0.620	0.385	45	4.166	17.356	-2.584
-0.620	0.385	55	14.166	200.676	-8.787
-0.620	0.385	52	11.166	124.680	-6.926
-0.620	0.385	49	8.166	66.684	-5.065
-0.620	0.385	42	1.166	1.360	-0.723
-0.620	0.385	37	-3.834	14.700	2.378

1	0.262	0.068644	18	-22.834	521.392	-5.982508
0	-0.738	0.544644	26	-14.834	220.048	10.947492
1	0.262	0.068644	52	11.166	124.680	2.925492
1	0.262	0.068644	44	3.166	10.024	0.829492
1	0.262	0.068644	51	10.166	103.348	2.663492
0	-0.738	0.544644	35	-5.834	34.036	4.305492
1	0.262	0.068644	40	-0.834	0.696	-0.218508
1	0.262	0.068644	47	6.166	38.020	1.615492
1	0.262	0.068644	49	8.166	66.684	2.139492
0	-0.738	0.544644	36	-4.834	23.368	3.567492
0	-0.738	0.544644	6	-34.834	1213.408	25.707492
1	0.262	0.068644	55	14.166	200.676	3.711492
1	0.262	0.068644	50	9.166	84.016	2.401492
1	0.262	0.068644	48	7.166	51.352	1.877492
1	0.262	0.068644	44	3.166	10.024	0.829492
1	0.262	0.068644	52	11.166	124.680	2.925492
1	0.262	0.068644	46	5.166	26.688	1.353492
1	0.262	0.068644	49	8.166	66.684	2.139492
1	0.262	0.068644	47	6.166	38.020	1.615492
1	0.262	0.068644	54	13.166	173.344	3.449492
0	-0.738	0.544644	25	-15.834	250.716	11.685492
1	0.262	0.068644	55	14.166	200.676	3.711492
1	0.262	0.068644	55	14.166	200.676	3.711492
0	-0.738	0.544644	41	0.166	0.028	-0.122508
0	-0.738	0.544644	31	-9.834	96.708	7.257492
0	-0.738	0.544644	13	-27.834	774.732	20.541492
1	0.262	0.068644	55	14.166	200.676	3.711492
1	0.262	0.068644	45	4.166	17.356	1.091492
1	0.262	0.068644	55	14.166	200.676	3.711492
1	0.262	0.068644	52	11.166	124.680	2.925492
1	0.262	0.068644	49	8.166	66.684	2.139492
0	-0.738	0.544644	42	1.166	1.360	-0.860508
1	0.262	0.068644	37	-3.834	14.700	-1.004508

-0.620	0.385	24	-16.834	283.384	10.442
-0.620	0.385	21	-19.834	393.388	12.303
-0.620	0.385	38	-2.834	8.032	1.758
-0.620	0.385	46	5.166	26.688	-3.204
-0.620	0.385	29	-11.834	140.044	7.341
-0.620	0.385	48	7.166	51.352	-4.445
-0.620	0.385	42	1.166	1.360	-0.723
-0.620	0.385	38	-2.834	8.032	1.758
-0.620	0.385	18	-22.834	521.392	14.164
-0.620	0.385	49	8.166	66.684	-5.065
-0.620	0.385	30	-10.834	117.376	6.720
-0.620	0.385	43	2.166	4.692	-1.344
-0.620	0.385	39	-1.834	3.364	1.138
-0.620	0.385	31	-9.834	96.708	6.100
-0.620	0.385	28	-12.834	164.712	7.961
-0.620	0.385	48	7.166	51.352	-4.445
-0.620	0.385	47	6.166	38.020	-3.825
-0.620	0.385	37	-3.834	14.700	2.378
-0.620	0.385	40	-0.834	0.696	0.517
-0.620	0.385	49	8.166	66.684	-5.065
-0.620	0.385	32	-8.834	78.040	5.480
-0.620	0.385	47	6.166	38.020	-3.825
-0.620	0.385	32	-8.834	78.040	5.480
-0.620	0.385	29	-11.834	140.044	7.341
-0.620	0.385	23	-17.834	318.052	11.062
-0.620	0.385	41	0.166	0.028	-0.103
-0.620	0.385	41	0.166	0.028	-0.103
-0.620	0.385	51	10.166	103.348	-6.306
-0.620	0.385	29	-11.834	140.044	7.341
-0.620	0.385	37	-3.834	14.700	2.378
-0.620	0.385	37	-3.834	14.700	2.378
-0.620	0.385	36	-4.834	23.368	2.999
-0.620	0.385	40	-0.834	0.696	0.517

0	-0.738	0.544644	24	-16.834	283.384	12.423492
0	-0.738	0.544644	21	-19.834	393.388	14.637492
1	0.262	0.068644	38	-2.834	8.032	-0.742508
1	0.262	0.068644	46	5.166	26.688	1.353492
1	0.262	0.068644	29	-11.834	140.044	-3.100508
1	0.262	0.068644	48	7.166	51.352	1.877492
1	0.262	0.068644	42	1.166	1.360	0.305492
1	0.262	0.068644	38	-2.834	8.032	-0.742508
0	-0.738	0.544644	18	-22.834	521.392	16.851492
1	0.262	0.068644	49	8.166	66.684	2.139492
0	-0.738	0.544644	30	-10.834	117.376	7.995492
1	0.262	0.068644	43	2.166	4.692	0.567492
1	0.262	0.068644	39	-1.834	3.364	-0.480508
0	-0.738	0.544644	31	-9.834	96.708	7.257492
1	0.262	0.068644	28	-12.834	164.712	-3.362508
1	0.262	0.068644	48	7.166	51.352	1.877492
0	-0.738	0.544644	47	6.166	38.020	-4.550508
1	0.262	0.068644	37	-3.834	14.700	-1.004508
1	0.262	0.068644	40	-0.834	0.696	-0.218508
0	-0.738	0.544644	49	8.166	66.684	-6.026508
0	-0.738	0.544644	32	-8.834	78.040	6.519492
0	-0.738	0.544644	47	6.166	38.020	-4.550508
1	0.262	0.068644	32	-8.834	78.040	-2.314508
1	0.262	0.068644	29	-11.834	140.044	-3.100508
0	-0.738	0.544644	23	-17.834	318.052	13.161492
1	0.262	0.068644	41	0.166	0.028	0.043492
1	0.262	0.068644	41	0.166	0.028	0.043492
1	0.262	0.068644	51	10.166	103.348	2.663492
1	0.262	0.068644	29	-11.834	140.044	-3.100508
1	0.262	0.068644	37	-3.834	14.700	-1.004508
1	0.262	0.068644	37	-3.834	14.700	-1.004508
1	0.262	0.068644	36	-4.834	23.368	-1.266508
1	0.262	0.068644	40	-0.834	0.696	-0.218508

-0.620	0.385	50	9.166	84.016	-5.686
-0.620	0.385	38	-2.834	8.032	1.758
-0.620	0.385	40	-0.834	0.696	0.517
-0.620	0.385	36	-4.834	23.368	2.999
-0.620	0.385	20	-20.834	434.056	12.923
-0.620	0.385	47	6.166	38.020	-3.825
-0.620	0.385	54	13.166	173.344	-8.167
-0.620	0.385	50	9.166	84.016	-5.686
-0.620	0.385	25	-15.834	250.716	9.822
-0.620	0.385	53	12.166	148.012	-7.547
-0.620	0.385	44	3.166	10.024	-1.964
-0.620	0.385	26	-14.834	220.048	9.202
-0.620	0.385	33	-7.834	61.372	4.859
-0.620	0.385	36	-4.834	23.368	2.999
-0.620	0.385	39	-1.834	3.364	1.138
-0.620	0.385	46	5.166	26.688	-3.204
-0.620	0.385	36	-4.834	23.368	2.999
-0.620	0.385	54	13.166	173.344	-8.167
-0.620	0.385	36	-4.834	23.368	2.999
-0.620	0.385	44	3.166	10.024	-1.964
-0.620	0.385	40	-0.834	0.696	0.517
-0.620	0.385	38	-2.834	8.032	1.758
-0.620	0.385	35	-5.834	34.036	3.619
-0.620	0.385	46	5.166	26.688	-3.204
-0.620	0.385	49	8.166	66.684	-5.065
-0.620	0.385	48	7.166	51.352	-4.445
-0.620	0.385	41	0.166	0.028	-0.103
-0.620	0.385	53	12.166	148.012	-7.547
-0.620	0.385	53	12.166	148.012	-7.547
-0.620	0.385	51	10.166	103.348	-6.306
-115.996	71.952	7636	0.042	19431.861	-0.026

1	0.262	0.068644	50	9.166	84.016	2.401492
0	-0.738	0.544644	38	-2.834	8.032	2.091492
1	0.262	0.068644	40	-0.834	0.696	-0.218508
0	-0.738	0.544644	36	-4.834	23.368	3.567492
0	-0.738	0.544644	20	-20.834	434.056	15.375492
1	0.262	0.068644	47	6.166	38.020	1.615492
1	0.262	0.068644	54	13.166	173.344	3.449492
1	0.262	0.068644	50	9.166	84.016	2.401492
1	0.262	0.068644	25	-15.834	250.716	-4.148508
1	0.262	0.068644	53	12.166	148.012	3.187492
0	-0.738	0.544644	44	3.166	10.024	-2.336508
0	-0.738	0.544644	26	-14.834	220.048	10.947492
1	0.262	0.068644	33	-7.834	61.372	-2.052508
1	0.262	0.068644	36	-4.834	23.368	-1.266508
1	0.262	0.068644	39	-1.834	3.364	-0.480508
1	0.262	0.068644	46	5.166	26.688	1.353492
1	0.262	0.068644	36	-4.834	23.368	-1.266508
1	0.262	0.068644	54	13.166	173.344	3.449492
1	0.262	0.068644	36	-4.834	23.368	-1.266508
1	0.262	0.068644	44	3.166	10.024	0.829492
0	-0.738	0.544644	40	-0.834	0.696	0.615492
1	0.262	0.068644	38	-2.834	8.032	-0.742508
1	0.262	0.068644	35	-5.834	34.036	-1.528508
1	0.262	0.068644	46	5.166	26.688	1.353492
1	0.262	0.068644	49	8.166	66.684	2.139492
1	0.262	0.068644	48	7.166	51.352	1.877492
1	0.262	0.068644	41	0.166	0.028	0.043492
1	0.262	0.068644	53	12.166	148.012	3.187492
1	0.262	0.068644	53	12.166	148.012	3.187492
1	0.262	0.068644	51	10.166	103.348	2.663492
138	-0.006	36.160	7636	0.042	19431.861	421.877

$$= \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$

$$= \frac{373,230}{\sqrt{44,043 \times 19431,861}} = 0.4034$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$

$$= \frac{421,877}{\sqrt{36,160 \times 19431,861}} = 0.5033$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 45 dan No 46

Pertanyaan no 45

$$x = 143/187 = 0.7647$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.235	0.055	51	10.166	103.348	2.392
1	0.235	0.055	36	-4.834	23.368	-1.137
0	-0.765	0.585	41	0.166	0.028	-0.127
1	0.235	0.055	52	11.166	124.680	2.627
1	0.235	0.055	51	10.166	103.348	2.392
1	0.235	0.055	50	9.166	84.016	2.157
1	0.235	0.055	46	5.166	26.688	1.216
1	0.235	0.055	55	14.166	200.676	3.333
1	0.235	0.055	49	8.166	66.684	1.921
0	-0.765	0.585	31	-9.834	96.708	7.520
1	0.235	0.055	46	5.166	26.688	1.216
0	-0.765	0.585	44	3.166	10.024	-2.421
1	0.235	0.055	40	-0.834	0.696	-0.196
1	0.235	0.055	48	7.166	51.352	1.686
1	0.235	0.055	31	-9.834	96.708	-2.314
1	0.235	0.055	27	-13.834	191.380	-3.255
1	0.235	0.055	47	6.166	38.020	1.451
1	0.235	0.055	50	9.166	84.016	2.157
1	0.235	0.055	55	14.166	200.676	3.333
1	0.235	0.055	47	6.166	38.020	1.451
0	-0.765	0.585	16	-24.834	616.728	18.991
1	0.235	0.055	42	1.166	1.360	0.274
1	0.235	0.055	42	1.166	1.360	0.274
1	0.235	0.055	43	2.166	4.692	0.510
1	0.235	0.055	43	2.166	4.692	0.510

Pertanyaan no 46

$$x = 124/187 = 0.6631$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.337	0.114	51	10.166	103.348	3.425
1	0.337	0.114	36	-4.834	23.368	-1.629
0	-0.663	0.440	41	0.166	0.028	-0.110
1	0.337	0.114	52	11.166	124.680	3.762
1	0.337	0.114	51	10.166	103.348	3.425
1	0.337	0.114	50	9.166	84.016	3.088
1	0.337	0.114	46	5.166	26.688	1.740
1	0.337	0.114	55	14.166	200.676	4.773
1	0.337	0.114	49	8.166	66.684	2.751
0	-0.663	0.440	31	-9.834	96.708	6.521
1	0.337	0.114	46	5.166	26.688	1.740
0	-0.663	0.440	44	3.166	10.024	-2.099
0	-0.663	0.440	40	-0.834	0.696	0.553
0	-0.663	0.440	48	7.166	51.352	-4.752
0	-0.663	0.440	31	-9.834	96.708	6.521
0	-0.663	0.440	27	-13.834	191.380	9.173
1	0.337	0.114	47	6.166	38.020	2.077
1	0.337	0.114	50	9.166	84.016	3.088
1	0.337	0.114	55	14.166	200.676	4.773
1	0.337	0.114	47	6.166	38.020	2.077
0	-0.663	0.440	16	-24.834	616.728	16.467
1	0.337	0.114	42	1.166	1.360	0.393
0	-0.663	0.440	42	1.166	1.360	-0.773
1	0.337	0.114	43	2.166	4.692	0.730
1	0.337	0.114	43	2.166	4.692	0.730

1	0.235	0.055	38	-2.834	8.032	-0.667
0	-0.765	0.585	36	-4.834	23.368	3.697
0	-0.765	0.585	37	-3.834	14.700	2.932
1	0.235	0.055	55	14.166	200.676	3.333
1	0.235	0.055	28	-12.834	164.712	-3.020
1	0.235	0.055	51	10.166	103.348	2.392
1	0.235	0.055	53	12.166	148.012	2.863
1	0.235	0.055	45	4.166	17.356	0.980
0	-0.765	0.585	33	-7.834	61.372	5.991
1	0.235	0.055	45	4.166	17.356	0.980
1	0.235	0.055	44	3.166	10.024	0.745
0	-0.765	0.585	44	3.166	10.024	-2.421
1	0.235	0.055	49	8.166	66.684	1.921
1	0.235	0.055	39	-1.834	3.364	-0.432
1	0.235	0.055	49	8.166	66.684	1.921
1	0.235	0.055	35	-5.834	34.036	-1.373
0	-0.765	0.585	31	-9.834	96.708	7.520
1	0.235	0.055	33	-7.834	61.372	-1.843
1	0.235	0.055	48	7.166	51.352	1.686
0	-0.765	0.585	12	-28.834	831.400	22.049
1	0.235	0.055	35	-5.834	34.036	-1.373
1	0.235	0.055	39	-1.834	3.364	-0.432
1	0.235	0.055	53	12.166	148.012	2.863
1	0.235	0.055	48	7.166	51.352	1.686
1	0.235	0.055	48	7.166	51.352	1.686
1	0.235	0.055	40	-0.834	0.696	-0.196
0	-0.765	0.585	44	3.166	10.024	-2.421
1	0.235	0.055	46	5.166	26.688	1.216
1	0.235	0.055	21	-19.834	393.388	-4.667
0	-0.765	0.585	45	4.166	17.356	-3.186
0	-0.765	0.585	2	-38.834	1508.080	29.696
1	0.235	0.055	37	-3.834	14.700	-0.902
1	0.235	0.055	34	-6.834	46.704	-1.608

0	-0.663	0.440	38	-2.834	8.032	1.879
0	-0.663	0.440	36	-4.834	23.368	3.205
0	-0.663	0.440	37	-3.834	14.700	2.542
1	0.337	0.114	55	14.166	200.676	4.773
1	0.337	0.114	28	-12.834	164.712	-4.324
1	0.337	0.114	51	10.166	103.348	3.425
1	0.337	0.114	53	12.166	148.012	4.099
1	0.337	0.114	45	4.166	17.356	1.404
1	0.337	0.114	33	-7.834	61.372	-2.639
1	0.337	0.114	45	4.166	17.356	1.404
0	-0.663	0.440	44	3.166	10.024	-2.099
0	-0.663	0.440	44	3.166	10.024	-2.099
0	-0.663	0.440	49	8.166	66.684	-5.415
0	-0.663	0.440	39	-1.834	3.364	1.216
1	0.337	0.114	49	8.166	66.684	2.751
1	0.337	0.114	35	-5.834	34.036	-1.965
0	-0.663	0.440	31	-9.834	96.708	6.521
0	-0.663	0.440	33	-7.834	61.372	5.195
1	0.337	0.114	48	7.166	51.352	2.414
0	-0.663	0.440	12	-28.834	831.400	19.120
1	0.337	0.114	35	-5.834	34.036	-1.965
1	0.337	0.114	39	-1.834	3.364	-0.618
1	0.337	0.114	53	12.166	148.012	4.099
1	0.337	0.114	48	7.166	51.352	2.414
1	0.337	0.114	48	7.166	51.352	2.414
0	-0.663	0.440	40	-0.834	0.696	0.553
0	-0.663	0.440	44	3.166	10.024	-2.099
0	-0.663	0.440	46	5.166	26.688	-3.426
0	-0.663	0.440	21	-19.834	393.388	13.152
1	0.337	0.114	45	4.166	17.356	1.404
0	-0.663	0.440	2	-38.834	1508.080	25.751
1	0.337	0.114	37	-3.834	14.700	-1.292
1	0.337	0.114	34	-6.834	46.704	-2.302

0	-0.765	0.585	32	-8.834	78.040	6.755
1	0.235	0.055	29	-11.834	140.044	-2.785
0	-0.765	0.585	48	7.166	51.352	-5.480
1	0.235	0.055	48	7.166	51.352	1.686
1	0.235	0.055	37	-3.834	14.700	-0.902
1	0.235	0.055	53	12.166	148.012	2.863
0	-0.765	0.585	42	1.166	1.360	-0.892
1	0.235	0.055	48	7.166	51.352	1.686
1	0.235	0.055	45	4.166	17.356	0.980
1	0.235	0.055	52	11.166	124.680	2.627
0	-0.765	0.585	23	-17.834	318.052	13.638
1	0.235	0.055	38	-2.834	8.032	-0.667
1	0.235	0.055	51	10.166	103.348	2.392
1	0.235	0.055	38	-2.834	8.032	-0.667
1	0.235	0.055	29	-11.834	140.044	-2.785
1	0.235	0.055	28	-12.834	164.712	-3.020
0	-0.765	0.585	39	-1.834	3.364	1.402
0	-0.765	0.585	33	-7.834	61.372	5.991
1	0.235	0.055	44	3.166	10.024	0.745
0	-0.765	0.585	33	-7.834	61.372	5.991
1	0.235	0.055	47	6.166	38.020	1.451
0	-0.765	0.585	31	-9.834	96.708	7.520
1	0.235	0.055	47	6.166	38.020	1.451
1	0.235	0.055	41	0.166	0.028	0.039
1	0.235	0.055	54	13.166	173.344	3.098
1	0.235	0.055	48	7.166	51.352	1.686
1	0.235	0.055	53	12.166	148.012	2.863
1	0.235	0.055	43	2.166	4.692	0.510
1	0.235	0.055	50	9.166	84.016	2.157
1	0.235	0.055	47	6.166	38.020	1.451
1	0.235	0.055	42	1.166	1.360	0.274
1	0.235	0.055	37	-3.834	14.700	-0.902
1	0.235	0.055	41	0.166	0.028	0.039

0	-0.663	0.440	32	-8.834	78.040	5.858
1	0.337	0.114	29	-11.834	140.044	-3.987
0	-0.663	0.440	48	7.166	51.352	-4.752
1	0.337	0.114	48	7.166	51.352	2.414
1	0.337	0.114	37	-3.834	14.700	-1.292
1	0.337	0.114	53	12.166	148.012	4.099
0	-0.663	0.440	42	1.166	1.360	-0.773
1	0.337	0.114	48	7.166	51.352	2.414
0	-0.663	0.440	45	4.166	17.356	-2.762
1	0.337	0.114	52	11.166	124.680	3.762
0	-0.663	0.440	23	-17.834	318.052	11.826
1	0.337	0.114	38	-2.834	8.032	-0.955
1	0.337	0.114	51	10.166	103.348	3.425
1	0.337	0.114	38	-2.834	8.032	-0.955
0	-0.663	0.440	29	-11.834	140.044	7.847
1	0.337	0.114	28	-12.834	164.712	-4.324
0	-0.663	0.440	39	-1.834	3.364	1.216
0	-0.663	0.440	33	-7.834	61.372	5.195
1	0.337	0.114	44	3.166	10.024	1.067
0	-0.663	0.440	33	-7.834	61.372	5.195
1	0.337	0.114	47	6.166	38.020	2.077
1	0.337	0.114	31	-9.834	96.708	-3.313
1	0.337	0.114	47	6.166	38.020	2.077
1	0.337	0.114	41	0.166	0.028	0.056
1	0.337	0.114	54	13.166	173.344	4.436
1	0.337	0.114	48	7.166	51.352	2.414
1	0.337	0.114	53	12.166	148.012	4.099
1	0.337	0.114	43	2.166	4.692	0.730
0	-0.663	0.440	50	9.166	84.016	-6.078
1	0.337	0.114	47	6.166	38.020	2.077
1	0.337	0.114	42	1.166	1.360	0.393
0	-0.663	0.440	37	-3.834	14.700	2.542
1	0.337	0.114	41	0.166	0.028	0.056

1	0.235	0.055	18	-22.834	521.392	-5.373
0	-0.765	0.585	26	-14.834	220.048	11.344
1	0.235	0.055	52	11.166	124.680	2.627
1	0.235	0.055	44	3.166	10.024	0.745
1	0.235	0.055	51	10.166	103.348	2.392
1	0.235	0.055	35	-5.834	34.036	-1.373
1	0.235	0.055	40	-0.834	0.696	-0.196
1	0.235	0.055	47	6.166	38.020	1.451
1	0.235	0.055	49	8.166	66.684	1.921
1	0.235	0.055	36	-4.834	23.368	-1.137
0	-0.765	0.585	6	-34.834	1213.408	26.638
1	0.235	0.055	55	14.166	200.676	3.333
1	0.235	0.055	50	9.166	84.016	2.157
1	0.235	0.055	48	7.166	51.352	1.686
1	0.235	0.055	44	3.166	10.024	0.745
1	0.235	0.055	52	11.166	124.680	2.627
1	0.235	0.055	46	5.166	26.688	1.216
1	0.235	0.055	49	8.166	66.684	1.921
1	0.235	0.055	47	6.166	38.020	1.451
1	0.235	0.055	54	13.166	173.344	3.098
0	-0.765	0.585	25	-15.834	250.716	12.108
1	0.235	0.055	55	14.166	200.676	3.333
1	0.235	0.055	55	14.166	200.676	3.333
1	0.235	0.055	41	0.166	0.028	0.039
0	-0.765	0.585	31	-9.834	96.708	7.520
0	-0.765	0.585	13	-27.834	774.732	21.285
1	0.235	0.055	55	14.166	200.676	3.333
0	-0.765	0.585	45	4.166	17.356	-3.186
1	0.235	0.055	55	14.166	200.676	3.333
1	0.235	0.055	52	11.166	124.680	2.627
1	0.235	0.055	49	8.166	66.684	1.921
0	-0.765	0.585	42	1.166	1.360	-0.892
1	0.235	0.055	37	-3.834	14.700	-0.902

1	0.337	0.114	18	-22.834	521.392	-7.693
0	-0.663	0.440	26	-14.834	220.048	9.836
1	0.337	0.114	52	11.166	124.680	3.762
1	0.337	0.114	44	3.166	10.024	1.067
1	0.337	0.114	51	10.166	103.348	3.425
0	-0.663	0.440	35	-5.834	34.036	3.869
1	0.337	0.114	40	-0.834	0.696	-0.281
1	0.337	0.114	47	6.166	38.020	2.077
1	0.337	0.114	49	8.166	66.684	2.751
0	-0.663	0.440	36	-4.834	23.368	3.205
0	-0.663	0.440	6	-34.834	1213.408	23.098
1	0.337	0.114	55	14.166	200.676	4.773
1	0.337	0.114	50	9.166	84.016	3.088
1	0.337	0.114	48	7.166	51.352	2.414
1	0.337	0.114	44	3.166	10.024	1.067
1	0.337	0.114	52	11.166	124.680	3.762
0	-0.663	0.440	46	5.166	26.688	-3.426
1	0.337	0.114	49	8.166	66.684	2.751
1	0.337	0.114	47	6.166	38.020	2.077
1	0.337	0.114	54	13.166	173.344	4.436
1	0.337	0.114	25	-15.834	250.716	-5.334
1	0.337	0.114	55	14.166	200.676	4.773
1	0.337	0.114	55	14.166	200.676	4.773
1	0.337	0.114	41	0.166	0.028	0.056
0	-0.663	0.440	31	-9.834	96.708	6.521
0	-0.663	0.440	13	-27.834	774.732	18.457
1	0.337	0.114	55	14.166	200.676	4.773
1	0.337	0.114	45	4.166	17.356	1.404
1	0.337	0.114	55	14.166	200.676	4.773
1	0.337	0.114	52	11.166	124.680	3.762
1	0.337	0.114	49	8.166	66.684	2.751
0	-0.663	0.440	42	1.166	1.360	-0.773
1	0.337	0.114	37	-3.834	14.700	-1.292

0	-0.765	0.585	24	-16.834	283.384	12.873
0	-0.765	0.585	21	-19.834	393.388	15.167
1	0.235	0.055	38	-2.834	8.032	-0.667
1	0.235	0.055	46	5.166	26.688	1.216
1	0.235	0.055	29	-11.834	140.044	-2.785
1	0.235	0.055	48	7.166	51.352	1.686
1	0.235	0.055	42	1.166	1.360	0.274
1	0.235	0.055	38	-2.834	8.032	-0.667
0	-0.765	0.585	18	-22.834	521.392	17.461
1	0.235	0.055	49	8.166	66.684	1.921
0	-0.765	0.585	30	-10.834	117.376	8.285
1	0.235	0.055	43	2.166	4.692	0.510
1	0.235	0.055	39	-1.834	3.364	-0.432
0	-0.765	0.585	31	-9.834	96.708	7.520
1	0.235	0.055	28	-12.834	164.712	-3.020
1	0.235	0.055	48	7.166	51.352	1.686
0	-0.765	0.585	47	6.166	38.020	-4.715
1	0.235	0.055	37	-3.834	14.700	-0.902
1	0.235	0.055	40	-0.834	0.696	-0.196
0	-0.765	0.585	49	8.166	66.684	-6.245
0	-0.765	0.585	32	-8.834	78.040	6.755
0	-0.765	0.585	47	6.166	38.020	-4.715
1	0.235	0.055	32	-8.834	78.040	-2.079
1	0.235	0.055	29	-11.834	140.044	-2.785
0	-0.765	0.585	23	-17.834	318.052	13.638
1	0.235	0.055	41	0.166	0.028	0.039
1	0.235	0.055	41	0.166	0.028	0.039
1	0.235	0.055	51	10.166	103.348	2.392
1	0.235	0.055	29	-11.834	140.044	-2.785
0	-0.765	0.585	37	-3.834	14.700	2.932
1	0.235	0.055	37	-3.834	14.700	-0.902
1	0.235	0.055	36	-4.834	23.368	-1.137
0	-0.765	0.585	40	-0.834	0.696	0.638

1	0.337	0.114	24	-16.834	283.384	-5.671
0	-0.663	0.440	21	-19.834	393.388	13.152
0	-0.663	0.440	38	-2.834	8.032	1.879
1	0.337	0.114	46	5.166	26.688	1.740
0	-0.663	0.440	29	-11.834	140.044	7.847
1	0.337	0.114	48	7.166	51.352	2.414
0	-0.663	0.440	42	1.166	1.360	-0.773
1	0.337	0.114	38	-2.834	8.032	-0.955
0	-0.663	0.440	18	-22.834	521.392	15.141
1	0.337	0.114	49	8.166	66.684	2.751
0	-0.663	0.440	30	-10.834	117.376	7.184
1	0.337	0.114	43	2.166	4.692	0.730
1	0.337	0.114	39	-1.834	3.364	-0.618
0	-0.663	0.440	31	-9.834	96.708	6.521
0	-0.663	0.440	28	-12.834	164.712	8.510
1	0.337	0.114	48	7.166	51.352	2.414
0	-0.663	0.440	47	6.166	38.020	-4.089
1	0.337	0.114	37	-3.834	14.700	-1.292
1	0.337	0.114	40	-0.834	0.696	-0.281
1	0.337	0.114	49	8.166	66.684	2.751
0	-0.663	0.440	32	-8.834	78.040	5.858
1	0.337	0.114	47	6.166	38.020	2.077
1	0.337	0.114	32	-8.834	78.040	-2.976
0	-0.663	0.440	29	-11.834	140.044	7.847
0	-0.663	0.440	23	-17.834	318.052	11.826
1	0.337	0.114	41	0.166	0.028	0.056
1	0.337	0.114	41	0.166	0.028	0.056
0	-0.663	0.440	51	10.166	103.348	-6.741
1	0.337	0.114	29	-11.834	140.044	-3.987
1	0.337	0.114	37	-3.834	14.700	-1.292
1	0.337	0.114	37	-3.834	14.700	-1.292
1	0.337	0.114	36	-4.834	23.368	-1.629
0	-0.663	0.440	40	-0.834	0.696	0.553

1	0.235	0.055	50	9.166	84.016	2.157
1	0.235	0.055	38	-2.834	8.032	-0.667
1	0.235	0.055	40	-0.834	0.696	-0.196
0	-0.765	0.585	36	-4.834	23.368	3.697
0	-0.765	0.585	20	-20.834	434.056	15.932
1	0.235	0.055	47	6.166	38.020	1.451
1	0.235	0.055	54	13.166	173.344	3.098
1	0.235	0.055	50	9.166	84.016	2.157
1	0.235	0.055	25	-15.834	250.716	-3.726
1	0.235	0.055	53	12.166	148.012	2.863
1	0.235	0.055	44	3.166	10.024	0.745
0	-0.765	0.585	26	-14.834	220.048	11.344
1	0.235	0.055	33	-7.834	61.372	-1.843
1	0.235	0.055	36	-4.834	23.368	-1.137
1	0.235	0.055	39	-1.834	3.364	-0.432
1	0.235	0.055	46	5.166	26.688	1.216
1	0.235	0.055	36	-4.834	23.368	-1.137
1	0.235	0.055	54	13.166	173.344	3.098
1	0.235	0.055	36	-4.834	23.368	-1.137
1	0.235	0.055	44	3.166	10.024	0.745
0	-0.765	0.585	40	-0.834	0.696	0.638
1	0.235	0.055	38	-2.834	8.032	-0.667
1	0.235	0.055	35	-5.834	34.036	-1.373
1	0.235	0.055	46	5.166	26.688	1.216
1	0.235	0.055	49	8.166	66.684	1.921
1	0.235	0.055	48	7.166	51.352	1.686
1	0.235	0.055	41	0.166	0.028	0.039
1	0.235	0.055	53	12.166	148.012	2.863
1	0.235	0.055	53	12.166	148.012	2.863
1	0.235	0.055	51	10.166	103.348	2.392
143	0.001	33.647	7636	0.042	19431.861	390.706

1	0.337	0.114	50	9.166	84.016	3.088
1	0.337	0.114	38	-2.834	8.032	-0.955
1	0.337	0.114	40	-0.834	0.696	-0.281
0	-0.663	0.440	36	-4.834	23.368	3.205
0	-0.663	0.440	20	-20.834	434.056	13.815
1	0.337	0.114	47	6.166	38.020	2.077
1	0.337	0.114	54	13.166	173.344	4.436
1	0.337	0.114	50	9.166	84.016	3.088
1	0.337	0.114	25	-15.834	250.716	-5.334
1	0.337	0.114	53	12.166	148.012	4.099
1	0.337	0.114	44	3.166	10.024	1.067
0	-0.663	0.440	26	-14.834	220.048	9.836
1	0.337	0.114	33	-7.834	61.372	-2.639
1	0.337	0.114	36	-4.834	23.368	-1.629
1	0.337	0.114	39	-1.834	3.364	-0.618
1	0.337	0.114	46	5.166	26.688	1.740
0	-0.663	0.440	36	-4.834	23.368	3.205
1	0.337	0.114	54	13.166	173.344	4.436
0	-0.663	0.440	36	-4.834	23.368	3.205
1	0.337	0.114	44	3.166	10.024	1.067
0	-0.663	0.440	40	-0.834	0.696	0.553
1	0.337	0.114	38	-2.834	8.032	-0.955
1	0.337	0.114	35	-5.834	34.036	-1.965
1	0.337	0.114	46	5.166	26.688	1.740
1	0.337	0.114	49	8.166	66.684	2.751
1	0.337	0.114	48	7.166	51.352	2.414
1	0.337	0.114	41	0.166	0.028	0.056
1	0.337	0.114	53	12.166	148.012	4.099
1	0.337	0.114	53	12.166	148.012	4.099
1	0.337	0.114	51	10.166	103.348	3.425
124	0.000	41.775	7636	0.042	19431.861	437.556

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$
$$= \frac{216,519}{\sqrt{18,642 \times 19431,861}} = 0.3597$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$
$$= \frac{437,556}{\sqrt{41,775 \times 19431,861}} = 0.4856$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 47 dan No 48

Pertanyaan no 47

$$x = 167/187 = 0.8930$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.107	0.011	51	10.166	103.348	1.088
1	0.107	0.011	36	-4.834	23.368	-0.517
1	0.107	0.011	41	0.166	0.028	0.018
1	0.107	0.011	52	11.166	124.680	1.195
1	0.107	0.011	51	10.166	103.348	1.088
1	0.107	0.011	50	9.166	84.016	0.981
1	0.107	0.011	46	5.166	26.688	0.553
1	0.107	0.011	55	14.166	200.676	1.516
1	0.107	0.011	49	8.166	66.684	0.874
0	-0.893	0.797	31	-9.834	96.708	8.782
1	0.107	0.011	46	5.166	26.688	0.553
1	0.107	0.011	44	3.166	10.024	0.339
1	0.107	0.011	40	-0.834	0.696	-0.089
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	31	-9.834	96.708	-1.052
0	-0.893	0.797	27	-13.834	191.380	12.354
1	0.107	0.011	47	6.166	38.020	0.660
1	0.107	0.011	50	9.166	84.016	0.981
1	0.107	0.011	55	14.166	200.676	1.516
1	0.107	0.011	47	6.166	38.020	0.660
1	0.107	0.011	16	-24.834	616.728	-2.657
1	0.107	0.011	42	1.166	1.360	0.125
1	0.107	0.011	42	1.166	1.360	0.125
1	0.107	0.011	43	2.166	4.692	0.232
1	0.107	0.011	43	2.166	4.692	0.232

Pertanyaan no 48

$$x = 136/187 = 0.7273$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.273	0.074	51	10.166	103.348	2.772
1	0.273	0.074	36	-4.834	23.368	-1.318
0	-0.727	0.529	41	0.166	0.028	-0.121
1	0.273	0.074	52	11.166	124.680	3.045
1	0.273	0.074	51	10.166	103.348	2.772
1	0.273	0.074	50	9.166	84.016	2.500
1	0.273	0.074	46	5.166	26.688	1.409
1	0.273	0.074	55	14.166	200.676	3.863
0	-0.727	0.529	49	8.166	66.684	-5.939
0	-0.727	0.529	31	-9.834	96.708	7.152
1	0.273	0.074	46	5.166	26.688	1.409
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	40	-0.834	0.696	-0.227
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	31	-9.834	96.708	-2.682
0	-0.727	0.529	27	-13.834	191.380	10.061
1	0.273	0.074	47	6.166	38.020	1.681
1	0.273	0.074	50	9.166	84.016	2.500
1	0.273	0.074	55	14.166	200.676	3.863
1	0.273	0.074	47	6.166	38.020	1.681
1	0.273	0.074	16	-24.834	616.728	-6.772
1	0.273	0.074	42	1.166	1.360	0.318
1	0.273	0.074	42	1.166	1.360	0.318
1	0.273	0.074	43	2.166	4.692	0.591
1	0.273	0.074	43	2.166	4.692	0.591

1	0.107	0.011	38	-2.834	8.032	-0.303
1	0.107	0.011	36	-4.834	23.368	-0.517
1	0.107	0.011	37	-3.834	14.700	-0.410
1	0.107	0.011	55	14.166	200.676	1.516
1	0.107	0.011	28	-12.834	164.712	-1.373
1	0.107	0.011	51	10.166	103.348	1.088
1	0.107	0.011	53	12.166	148.012	1.302
1	0.107	0.011	45	4.166	17.356	0.446
1	0.107	0.011	33	-7.834	61.372	-0.838
1	0.107	0.011	45	4.166	17.356	0.446
1	0.107	0.011	44	3.166	10.024	0.339
1	0.107	0.011	44	3.166	10.024	0.339
1	0.107	0.011	49	8.166	66.684	0.874
1	0.107	0.011	39	-1.834	3.364	-0.196
1	0.107	0.011	49	8.166	66.684	0.874
1	0.107	0.011	35	-5.834	34.036	-0.624
0	-0.893	0.797	31	-9.834	96.708	8.782
1	0.107	0.011	33	-7.834	61.372	-0.838
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	12	-28.834	831.400	-3.085
1	0.107	0.011	35	-5.834	34.036	-0.624
1	0.107	0.011	39	-1.834	3.364	-0.196
1	0.107	0.011	53	12.166	148.012	1.302
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	40	-0.834	0.696	-0.089
1	0.107	0.011	44	3.166	10.024	0.339
1	0.107	0.011	46	5.166	26.688	0.553
0	-0.893	0.797	21	-19.834	393.388	17.712
1	0.107	0.011	45	4.166	17.356	0.446
0	-0.893	0.797	2	-38.834	1508.080	34.679
0	-0.893	0.797	37	-3.834	14.700	3.424
0	-0.893	0.797	34	-6.834	46.704	6.103

1	0.273	0.074	38	-2.834	8.032	-0.773
1	0.273	0.074	36	-4.834	23.368	-1.318
1	0.273	0.074	37	-3.834	14.700	-1.046
1	0.273	0.074	55	14.166	200.676	3.863
1	0.273	0.074	28	-12.834	164.712	-3.500
1	0.273	0.074	51	10.166	103.348	2.772
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	45	4.166	17.356	1.136
1	0.273	0.074	33	-7.834	61.372	-2.136
1	0.273	0.074	45	4.166	17.356	1.136
0	-0.727	0.529	44	3.166	10.024	-2.303
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	49	8.166	66.684	2.227
1	0.273	0.074	39	-1.834	3.364	-0.500
1	0.273	0.074	49	8.166	66.684	2.227
1	0.273	0.074	35	-5.834	34.036	-1.591
0	-0.727	0.529	31	-9.834	96.708	7.152
1	0.273	0.074	33	-7.834	61.372	-2.136
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	12	-28.834	831.400	-7.863
1	0.273	0.074	35	-5.834	34.036	-1.591
0	-0.727	0.529	39	-1.834	3.364	1.334
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	40	-0.834	0.696	-0.227
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	46	5.166	26.688	1.409
1	0.273	0.074	21	-19.834	393.388	-5.409
1	0.273	0.074	45	4.166	17.356	1.136
0	-0.727	0.529	2	-38.834	1508.080	28.244
0	-0.727	0.529	37	-3.834	14.700	2.788
1	0.273	0.074	34	-6.834	46.704	-1.864

1	0.107	0.011	32	-8.834	78.040	-0.945
1	0.107	0.011	29	-11.834	140.044	-1.266
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	37	-3.834	14.700	-0.410
1	0.107	0.011	53	12.166	148.012	1.302
1	0.107	0.011	42	1.166	1.360	0.125
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	45	4.166	17.356	0.446
1	0.107	0.011	52	11.166	124.680	1.195
1	0.107	0.011	23	-17.834	318.052	-1.908
1	0.107	0.011	38	-2.834	8.032	-0.303
1	0.107	0.011	51	10.166	103.348	1.088
1	0.107	0.011	38	-2.834	8.032	-0.303
1	0.107	0.011	29	-11.834	140.044	-1.266
0	-0.893	0.797	28	-12.834	164.712	11.461
1	0.107	0.011	39	-1.834	3.364	-0.196
1	0.107	0.011	33	-7.834	61.372	-0.838
1	0.107	0.011	44	3.166	10.024	0.339
1	0.107	0.011	33	-7.834	61.372	-0.838
1	0.107	0.011	47	6.166	38.020	0.660
1	0.107	0.011	31	-9.834	96.708	-1.052
1	0.107	0.011	47	6.166	38.020	0.660
1	0.107	0.011	41	0.166	0.028	0.018
1	0.107	0.011	54	13.166	173.344	1.409
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	53	12.166	148.012	1.302
1	0.107	0.011	43	2.166	4.692	0.232
1	0.107	0.011	50	9.166	84.016	0.981
1	0.107	0.011	47	6.166	38.020	0.660
1	0.107	0.011	42	1.166	1.360	0.125
1	0.107	0.011	37	-3.834	14.700	-0.410
1	0.107	0.011	41	0.166	0.028	0.018

0	-0.727	0.529	32	-8.834	78.040	6.425
1	0.273	0.074	29	-11.834	140.044	-3.227
0	-0.727	0.529	48	7.166	51.352	-5.212
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	37	-3.834	14.700	-1.046
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	42	1.166	1.360	0.318
0	-0.727	0.529	48	7.166	51.352	-5.212
1	0.273	0.074	45	4.166	17.356	1.136
1	0.273	0.074	52	11.166	124.680	3.045
1	0.273	0.074	23	-17.834	318.052	-4.863
1	0.273	0.074	38	-2.834	8.032	-0.773
0	-0.727	0.529	51	10.166	103.348	-7.394
1	0.273	0.074	38	-2.834	8.032	-0.773
1	0.273	0.074	29	-11.834	140.044	-3.227
0	-0.727	0.529	28	-12.834	164.712	9.334
1	0.273	0.074	39	-1.834	3.364	-0.500
0	-0.727	0.529	33	-7.834	61.372	5.698
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	33	-7.834	61.372	-2.136
1	0.273	0.074	47	6.166	38.020	1.681
0	-0.727	0.529	31	-9.834	96.708	7.152
1	0.273	0.074	47	6.166	38.020	1.681
1	0.273	0.074	41	0.166	0.028	0.045
1	0.273	0.074	54	13.166	173.344	3.590
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	43	2.166	4.692	0.591
1	0.273	0.074	50	9.166	84.016	2.500
1	0.273	0.074	47	6.166	38.020	1.681
1	0.273	0.074	42	1.166	1.360	0.318
1	0.273	0.074	37	-3.834	14.700	-1.046
1	0.273	0.074	41	0.166	0.028	0.045

0	-0.893	0.797	18	-22.834	521.392	20.391
1	0.107	0.011	26	-14.834	220.048	-1.587
1	0.107	0.011	52	11.166	124.680	1.195
1	0.107	0.011	44	3.166	10.024	0.339
1	0.107	0.011	51	10.166	103.348	1.088
0	-0.893	0.797	35	-5.834	34.036	5.210
1	0.107	0.011	40	-0.834	0.696	-0.089
1	0.107	0.011	47	6.166	38.020	0.660
1	0.107	0.011	49	8.166	66.684	0.874
1	0.107	0.011	36	-4.834	23.368	-0.517
0	-0.893	0.797	6	-34.834	1213.408	31.107
1	0.107	0.011	55	14.166	200.676	1.516
1	0.107	0.011	50	9.166	84.016	0.981
1	0.107	0.011	48	7.166	51.352	0.767
0	-0.893	0.797	44	3.166	10.024	-2.827
1	0.107	0.011	52	11.166	124.680	1.195
1	0.107	0.011	46	5.166	26.688	0.553
1	0.107	0.011	49	8.166	66.684	0.874
1	0.107	0.011	47	6.166	38.020	0.660
1	0.107	0.011	54	13.166	173.344	1.409
1	0.107	0.011	25	-15.834	250.716	-1.694
1	0.107	0.011	55	14.166	200.676	1.516
1	0.107	0.011	55	14.166	200.676	1.516
1	0.107	0.011	41	0.166	0.028	0.018
0	-0.893	0.797	31	-9.834	96.708	8.782
0	-0.893	0.797	13	-27.834	774.732	24.856
1	0.107	0.011	55	14.166	200.676	1.516
1	0.107	0.011	45	4.166	17.356	0.446
1	0.107	0.011	55	14.166	200.676	1.516
1	0.107	0.011	52	11.166	124.680	1.195
1	0.107	0.011	49	8.166	66.684	0.874
1	0.107	0.011	42	1.166	1.360	0.125
1	0.107	0.011	37	-3.834	14.700	-0.410

0	-0.727	0.529	18	-22.834	521.392	16.607
0	-0.727	0.529	26	-14.834	220.048	10.789
1	0.273	0.074	52	11.166	124.680	3.045
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	51	10.166	103.348	2.772
0	-0.727	0.529	35	-5.834	34.036	4.243
1	0.273	0.074	40	-0.834	0.696	-0.227
1	0.273	0.074	47	6.166	38.020	1.681
1	0.273	0.074	49	8.166	66.684	2.227
1	0.273	0.074	36	-4.834	23.368	-1.318
0	-0.727	0.529	6	-34.834	1213.408	25.335
1	0.273	0.074	55	14.166	200.676	3.863
1	0.273	0.074	50	9.166	84.016	2.500
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	52	11.166	124.680	3.045
1	0.273	0.074	46	5.166	26.688	1.409
1	0.273	0.074	49	8.166	66.684	2.227
1	0.273	0.074	47	6.166	38.020	1.681
1	0.273	0.074	54	13.166	173.344	3.590
1	0.273	0.074	25	-15.834	250.716	-4.318
1	0.273	0.074	55	14.166	200.676	3.863
1	0.273	0.074	55	14.166	200.676	3.863
1	0.273	0.074	41	0.166	0.028	0.045
0	-0.727	0.529	31	-9.834	96.708	7.152
0	-0.727	0.529	13	-27.834	774.732	20.244
1	0.273	0.074	55	14.166	200.676	3.863
0	-0.727	0.529	45	4.166	17.356	-3.030
1	0.273	0.074	55	14.166	200.676	3.863
1	0.273	0.074	52	11.166	124.680	3.045
0	-0.727	0.529	49	8.166	66.684	-5.939
1	0.273	0.074	42	1.166	1.360	0.318
1	0.273	0.074	37	-3.834	14.700	-1.046

0	-0.893	0.797	24	-16.834	283.384	15.033
0	-0.893	0.797	21	-19.834	393.388	17.712
1	0.107	0.011	38	-2.834	8.032	-0.303
1	0.107	0.011	46	5.166	26.688	0.553
1	0.107	0.011	29	-11.834	140.044	-1.266
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	42	1.166	1.360	0.125
1	0.107	0.011	38	-2.834	8.032	-0.303
0	-0.893	0.797	18	-22.834	521.392	20.391
1	0.107	0.011	49	8.166	66.684	0.874
1	0.107	0.011	30	-10.834	117.376	-1.159
1	0.107	0.011	43	2.166	4.692	0.232
1	0.107	0.011	39	-1.834	3.364	-0.196
1	0.107	0.011	31	-9.834	96.708	-1.052
0	-0.893	0.797	28	-12.834	164.712	11.461
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	47	6.166	38.020	0.660
1	0.107	0.011	37	-3.834	14.700	-0.410
0	-0.893	0.797	40	-0.834	0.696	0.745
1	0.107	0.011	49	8.166	66.684	0.874
1	0.107	0.011	32	-8.834	78.040	-0.945
1	0.107	0.011	47	6.166	38.020	0.660
1	0.107	0.011	32	-8.834	78.040	-0.945
1	0.107	0.011	29	-11.834	140.044	-1.266
1	0.107	0.011	23	-17.834	318.052	-1.908
1	0.107	0.011	41	0.166	0.028	0.018
1	0.107	0.011	41	0.166	0.028	0.018
1	0.107	0.011	51	10.166	103.348	1.088
1	0.107	0.011	29	-11.834	140.044	-1.266
1	0.107	0.011	37	-3.834	14.700	-0.410
1	0.107	0.011	37	-3.834	14.700	-0.410
1	0.107	0.011	36	-4.834	23.368	-0.517
1	0.107	0.011	40	-0.834	0.696	-0.089

1	0.273	0.074	24	-16.834	283.384	-4.591
0	-0.727	0.529	21	-19.834	393.388	14.425
1	0.273	0.074	38	-2.834	8.032	-0.773
0	-0.727	0.529	46	5.166	26.688	-3.757
0	-0.727	0.529	29	-11.834	140.044	8.607
0	-0.727	0.529	48	7.166	51.352	-5.212
0	-0.727	0.529	42	1.166	1.360	-0.848
1	0.273	0.074	38	-2.834	8.032	-0.773
0	-0.727	0.529	18	-22.834	521.392	16.607
1	0.273	0.074	49	8.166	66.684	2.227
0	-0.727	0.529	30	-10.834	117.376	7.880
1	0.273	0.074	43	2.166	4.692	0.591
1	0.273	0.074	39	-1.834	3.364	-0.500
0	-0.727	0.529	31	-9.834	96.708	7.152
0	-0.727	0.529	28	-12.834	164.712	9.334
1	0.273	0.074	48	7.166	51.352	1.954
0	-0.727	0.529	47	6.166	38.020	-4.485
1	0.273	0.074	37	-3.834	14.700	-1.046
0	-0.727	0.529	40	-0.834	0.696	0.607
1	0.273	0.074	49	8.166	66.684	2.227
1	0.273	0.074	32	-8.834	78.040	-2.409
1	0.273	0.074	47	6.166	38.020	1.681
0	-0.727	0.529	32	-8.834	78.040	6.425
1	0.273	0.074	29	-11.834	140.044	-3.227
0	-0.727	0.529	23	-17.834	318.052	12.971
1	0.273	0.074	41	0.166	0.028	0.045
1	0.273	0.074	41	0.166	0.028	0.045
1	0.273	0.074	51	10.166	103.348	2.772
1	0.273	0.074	29	-11.834	140.044	-3.227
1	0.273	0.074	37	-3.834	14.700	-1.046
1	0.273	0.074	37	-3.834	14.700	-1.046
0	-0.727	0.529	36	-4.834	23.368	3.516
0	-0.727	0.529	40	-0.834	0.696	0.607

1	0.107	0.011	50	9.166	84.016	0.981
1	0.107	0.011	38	-2.834	8.032	-0.303
1	0.107	0.011	40	-0.834	0.696	-0.089
1	0.107	0.011	36	-4.834	23.368	-0.517
0	-0.893	0.797	20	-20.834	434.056	18.605
1	0.107	0.011	47	6.166	38.020	0.660
1	0.107	0.011	54	13.166	173.344	1.409
1	0.107	0.011	50	9.166	84.016	0.981
1	0.107	0.011	25	-15.834	250.716	-1.694
1	0.107	0.011	53	12.166	148.012	1.302
1	0.107	0.011	44	3.166	10.024	0.339
1	0.107	0.011	26	-14.834	220.048	-1.587
1	0.107	0.011	33	-7.834	61.372	-0.838
1	0.107	0.011	36	-4.834	23.368	-0.517
1	0.107	0.011	39	-1.834	3.364	-0.196
1	0.107	0.011	46	5.166	26.688	0.553
1	0.107	0.011	36	-4.834	23.368	-0.517
1	0.107	0.011	54	13.166	173.344	1.409
1	0.107	0.011	36	-4.834	23.368	-0.517
1	0.107	0.011	44	3.166	10.024	0.339
1	0.107	0.011	40	-0.834	0.696	-0.089
1	0.107	0.011	38	-2.834	8.032	-0.303
1	0.107	0.011	35	-5.834	34.036	-0.624
1	0.107	0.011	46	5.166	26.688	0.553
1	0.107	0.011	49	8.166	66.684	0.874
1	0.107	0.011	48	7.166	51.352	0.767
1	0.107	0.011	41	0.166	0.028	0.018
1	0.107	0.011	53	12.166	148.012	1.302
1	0.107	0.011	53	12.166	148.012	1.302
1	0.107	0.011	51	10.166	103.348	1.088
167	0.009	17.861	7636	0.042	19431.861	307.684

1	0.273	0.074	50	9.166	84.016	2.500
0	-0.727	0.529	38	-2.834	8.032	2.061
0	-0.727	0.529	40	-0.834	0.696	0.607
1	0.273	0.074	36	-4.834	23.368	-1.318
0	-0.727	0.529	20	-20.834	434.056	15.153
1	0.273	0.074	47	6.166	38.020	1.681
1	0.273	0.074	54	13.166	173.344	3.590
1	0.273	0.074	50	9.166	84.016	2.500
0	-0.727	0.529	25	-15.834	250.716	11.516
0	-0.727	0.529	53	12.166	148.012	-8.848
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	26	-14.834	220.048	-4.045
0	-0.727	0.529	33	-7.834	61.372	5.698
1	0.273	0.074	36	-4.834	23.368	-1.318
0	-0.727	0.529	39	-1.834	3.364	1.334
0	-0.727	0.529	46	5.166	26.688	-3.757
1	0.273	0.074	36	-4.834	23.368	-1.318
1	0.273	0.074	54	13.166	173.344	3.590
0	-0.727	0.529	36	-4.834	23.368	3.516
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	40	-0.834	0.696	-0.227
0	-0.727	0.529	38	-2.834	8.032	2.061
0	-0.727	0.529	35	-5.834	34.036	4.243
1	0.273	0.074	46	5.166	26.688	1.409
1	0.273	0.074	49	8.166	66.684	2.227
1	0.273	0.074	48	7.166	51.352	1.954
0	-0.727	0.529	41	0.166	0.028	-0.121
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	51	10.166	103.348	2.772
136	-0.005	37.091	7636	0.042	19431.861	332.545

Hasil Uji Validitas Manual :

$$\begin{aligned} r_{xy} &= \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}} \\ &= \frac{307,684}{\sqrt{17,861 \times 19431,861}} = 0.5223 \end{aligned}$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Hasil Uji Validitas Manual :

$$\begin{aligned} r_{xy} &= \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}} \\ &= \frac{332,545}{\sqrt{37,091 \times 19431,861}} = 0.3917 \end{aligned}$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 49 dan No 50

Pertanyaan no 49

$$x = 159/187 = 0.8503$$

$$y = 7636/187 = 40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.150	0.022	51	10.166	103.348	1.522
1	0.150	0.022	36	-4.834	23.368	-0.724
0	-0.850	0.723	41	0.166	0.028	-0.141
1	0.150	0.022	52	11.166	124.680	1.672
1	0.150	0.022	51	10.166	103.348	1.522
1	0.150	0.022	50	9.166	84.016	1.372
1	0.150	0.022	46	5.166	26.688	0.773
1	0.150	0.022	55	14.166	200.676	2.121
1	0.150	0.022	49	8.166	66.684	1.222
0	-0.850	0.723	31	-9.834	96.708	8.362
1	0.150	0.022	46	5.166	26.688	0.773
1	0.150	0.022	44	3.166	10.024	0.474
0	-0.850	0.723	40	-0.834	0.696	0.709
1	0.150	0.022	48	7.166	51.352	1.073
1	0.150	0.022	31	-9.834	96.708	-1.472
0	-0.850	0.723	27	-13.834	191.380	11.763
1	0.150	0.022	47	6.166	38.020	0.923
1	0.150	0.022	50	9.166	84.016	1.372
1	0.150	0.022	55	14.166	200.676	2.121
1	0.150	0.022	47	6.166	38.020	0.923
0	-0.850	0.723	16	-24.834	616.728	21.116
1	0.150	0.022	42	1.166	1.360	0.175
1	0.150	0.022	42	1.166	1.360	0.175
1	0.150	0.022	43	2.166	4.692	0.324
0	-0.850	0.723	43	2.166	4.692	-1.842

Pertanyaan no 50

$$x = 135/187 = 0.7219$$

$$y = 7636/187 = 40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
0	-0.722	0.521	51	10.166	103.348	-7.339
0	-0.722	0.521	36	-4.834	23.368	3.490
1	0.278	0.077	41	0.166	0.028	0.046
1	0.278	0.077	52	11.166	124.680	3.105
1	0.278	0.077	51	10.166	103.348	2.827
1	0.278	0.077	50	9.166	84.016	2.549
1	0.278	0.077	46	5.166	26.688	1.437
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	49	8.166	66.684	2.271
1	0.278	0.077	31	-9.834	96.708	-2.735
0	-0.722	0.521	46	5.166	26.688	-3.729
1	0.278	0.077	44	3.166	10.024	0.880
1	0.278	0.077	40	-0.834	0.696	-0.232
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	31	-9.834	96.708	-2.735
0	-0.722	0.521	27	-13.834	191.380	9.987
1	0.278	0.077	47	6.166	38.020	1.715
1	0.278	0.077	50	9.166	84.016	2.549
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	47	6.166	38.020	1.715
0	-0.722	0.521	16	-24.834	616.728	17.928
1	0.278	0.077	42	1.166	1.360	0.324
1	0.278	0.077	42	1.166	1.360	0.324
0	-0.722	0.521	43	2.166	4.692	-1.564
1	0.278	0.077	43	2.166	4.692	0.602

0	-0.850	0.723	38	-2.834	8.032	2.410
1	0.150	0.022	36	-4.834	23.368	-0.724
1	0.150	0.022	37	-3.834	14.700	-0.574
1	0.150	0.022	55	14.166	200.676	2.121
1	0.150	0.022	28	-12.834	164.712	-1.921
1	0.150	0.022	51	10.166	103.348	1.522
1	0.150	0.022	53	12.166	148.012	1.821
1	0.150	0.022	45	4.166	17.356	0.624
1	0.150	0.022	33	-7.834	61.372	-1.173
1	0.150	0.022	45	4.166	17.356	0.624
1	0.150	0.022	44	3.166	10.024	0.474
1	0.150	0.022	44	3.166	10.024	0.474
1	0.150	0.022	49	8.166	66.684	1.222
1	0.150	0.022	39	-1.834	3.364	-0.275
1	0.150	0.022	49	8.166	66.684	1.222
1	0.150	0.022	35	-5.834	34.036	-0.873
0	-0.850	0.723	31	-9.834	96.708	8.362
0	-0.850	0.723	33	-7.834	61.372	6.661
1	0.150	0.022	48	7.166	51.352	1.073
1	0.150	0.022	12	-28.834	831.400	-4.316
1	0.150	0.022	35	-5.834	34.036	-0.873
1	0.150	0.022	39	-1.834	3.364	-0.275
1	0.150	0.022	53	12.166	148.012	1.821
1	0.150	0.022	48	7.166	51.352	1.073
1	0.150	0.022	48	7.166	51.352	1.073
1	0.150	0.022	40	-0.834	0.696	-0.125
1	0.150	0.022	44	3.166	10.024	0.474
1	0.150	0.022	46	5.166	26.688	0.773
0	-0.850	0.723	21	-19.834	393.388	16.865
1	0.150	0.022	45	4.166	17.356	0.624
0	-0.850	0.723	2	-38.834	1508.080	33.021
1	0.150	0.022	37	-3.834	14.700	-0.574
1	0.150	0.022	34	-6.834	46.704	-1.023

1	0.278	0.077	38	-2.834	8.032	-0.788
0	-0.722	0.521	36	-4.834	23.368	3.490
1	0.278	0.077	37	-3.834	14.700	-1.066
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	28	-12.834	164.712	-3.569
1	0.278	0.077	51	10.166	103.348	2.827
1	0.278	0.077	53	12.166	148.012	3.383
1	0.278	0.077	45	4.166	17.356	1.159
0	-0.722	0.521	33	-7.834	61.372	5.655
1	0.278	0.077	45	4.166	17.356	1.159
1	0.278	0.077	44	3.166	10.024	0.880
1	0.278	0.077	44	3.166	10.024	0.880
1	0.278	0.077	49	8.166	66.684	2.271
1	0.278	0.077	39	-1.834	3.364	-0.510
0	-0.722	0.521	49	8.166	66.684	-5.895
0	-0.722	0.521	35	-5.834	34.036	4.212
1	0.278	0.077	31	-9.834	96.708	-2.735
1	0.278	0.077	33	-7.834	61.372	-2.179
1	0.278	0.077	48	7.166	51.352	1.993
0	-0.722	0.521	12	-28.834	831.400	20.815
1	0.278	0.077	35	-5.834	34.036	-1.622
0	-0.722	0.521	39	-1.834	3.364	1.324
1	0.278	0.077	53	12.166	148.012	3.383
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	48	7.166	51.352	1.993
0	-0.722	0.521	40	-0.834	0.696	0.602
1	0.278	0.077	44	3.166	10.024	0.880
1	0.278	0.077	46	5.166	26.688	1.437
0	-0.722	0.521	21	-19.834	393.388	14.318
1	0.278	0.077	45	4.166	17.356	1.159
0	-0.722	0.521	2	-38.834	1508.080	28.034
1	0.278	0.077	37	-3.834	14.700	-1.066
1	0.278	0.077	34	-6.834	46.704	-1.901

1	0.150	0.022	32	-8.834	78.040	-1.322
1	0.150	0.022	29	-11.834	140.044	-1.772
1	0.150	0.022	48	7.166	51.352	1.073
1	0.150	0.022	48	7.166	51.352	1.073
1	0.150	0.022	37	-3.834	14.700	-0.574
1	0.150	0.022	53	12.166	148.012	1.821
1	0.150	0.022	42	1.166	1.360	0.175
1	0.150	0.022	48	7.166	51.352	1.073
1	0.150	0.022	45	4.166	17.356	0.624
1	0.150	0.022	52	11.166	124.680	1.672
1	0.150	0.022	23	-17.834	318.052	-2.670
1	0.150	0.022	38	-2.834	8.032	-0.424
1	0.150	0.022	51	10.166	103.348	1.522
1	0.150	0.022	38	-2.834	8.032	-0.424
0	-0.850	0.723	29	-11.834	140.044	10.062
1	0.150	0.022	28	-12.834	164.712	-1.921
1	0.150	0.022	39	-1.834	3.364	-0.275
1	0.150	0.022	33	-7.834	61.372	-1.173
1	0.150	0.022	44	3.166	10.024	0.474
1	0.150	0.022	33	-7.834	61.372	-1.173
1	0.150	0.022	47	6.166	38.020	0.923
1	0.150	0.022	31	-9.834	96.708	-1.472
1	0.150	0.022	47	6.166	38.020	0.923
0	-0.850	0.723	41	0.166	0.028	-0.141
1	0.150	0.022	54	13.166	173.344	1.971
1	0.150	0.022	48	7.166	51.352	1.073
1	0.150	0.022	53	12.166	148.012	1.821
1	0.150	0.022	43	2.166	4.692	0.324
1	0.150	0.022	50	9.166	84.016	1.372
1	0.150	0.022	47	6.166	38.020	0.923
1	0.150	0.022	42	1.166	1.360	0.175
0	-0.850	0.723	37	-3.834	14.700	3.260
1	0.150	0.022	41	0.166	0.028	0.025

1	0.278	0.077	32	-8.834	78.040	-2.457
1	0.278	0.077	29	-11.834	140.044	-3.291
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	37	-3.834	14.700	-1.066
1	0.278	0.077	53	12.166	148.012	3.383
1	0.278	0.077	42	1.166	1.360	0.324
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	45	4.166	17.356	1.159
1	0.278	0.077	52	11.166	124.680	3.105
0	-0.722	0.521	23	-17.834	318.052	12.874
1	0.278	0.077	38	-2.834	8.032	-0.788
1	0.278	0.077	51	10.166	103.348	2.827
1	0.278	0.077	38	-2.834	8.032	-0.788
0	-0.722	0.521	29	-11.834	140.044	8.543
0	-0.722	0.521	28	-12.834	164.712	9.265
1	0.278	0.077	39	-1.834	3.364	-0.510
0	-0.722	0.521	33	-7.834	61.372	5.655
1	0.278	0.077	44	3.166	10.024	0.880
0	-0.722	0.521	33	-7.834	61.372	5.655
1	0.278	0.077	47	6.166	38.020	1.715
1	0.278	0.077	31	-9.834	96.708	-2.735
1	0.278	0.077	47	6.166	38.020	1.715
0	-0.722	0.521	41	0.166	0.028	-0.120
1	0.278	0.077	54	13.166	173.344	3.661
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	53	12.166	148.012	3.383
1	0.278	0.077	43	2.166	4.692	0.602
1	0.278	0.077	50	9.166	84.016	2.549
1	0.278	0.077	47	6.166	38.020	1.715
1	0.278	0.077	42	1.166	1.360	0.324
1	0.278	0.077	37	-3.834	14.700	-1.066
0	-0.722	0.521	41	0.166	0.028	-0.120

0	-0.850	0.723	18	-22.834	521.392	19.416
0	-0.850	0.723	26	-14.834	220.048	12.613
1	0.150	0.022	52	11.166	124.680	1.672
1	0.150	0.022	44	3.166	10.024	0.474
1	0.150	0.022	51	10.166	103.348	1.522
0	-0.850	0.723	35	-5.834	34.036	4.961
1	0.150	0.022	40	-0.834	0.696	-0.125
1	0.150	0.022	47	6.166	38.020	0.923
1	0.150	0.022	49	8.166	66.684	1.222
1	0.150	0.022	36	-4.834	23.368	-0.724
0	-0.850	0.723	6	-34.834	1213.408	29.619
1	0.150	0.022	55	14.166	200.676	2.121
1	0.150	0.022	50	9.166	84.016	1.372
1	0.150	0.022	48	7.166	51.352	1.073
1	0.150	0.022	44	3.166	10.024	0.474
1	0.150	0.022	52	11.166	124.680	1.672
1	0.150	0.022	46	5.166	26.688	0.773
1	0.150	0.022	49	8.166	66.684	1.222
1	0.150	0.022	47	6.166	38.020	0.923
1	0.150	0.022	54	13.166	173.344	1.971
1	0.150	0.022	25	-15.834	250.716	-2.370
1	0.150	0.022	55	14.166	200.676	2.121
1	0.150	0.022	55	14.166	200.676	2.121
0	-0.850	0.723	41	0.166	0.028	-0.141
0	-0.850	0.723	31	-9.834	96.708	8.362
0	-0.850	0.723	13	-27.834	774.732	23.667
1	0.150	0.022	55	14.166	200.676	2.121
1	0.150	0.022	45	4.166	17.356	0.624
1	0.150	0.022	55	14.166	200.676	2.121
1	0.150	0.022	52	11.166	124.680	1.672
1	0.150	0.022	49	8.166	66.684	1.222
1	0.150	0.022	42	1.166	1.360	0.175
1	0.150	0.022	37	-3.834	14.700	-0.574

0	-0.722	0.521	18	-22.834	521.392	16.484
1	0.278	0.077	26	-14.834	220.048	-4.125
1	0.278	0.077	52	11.166	124.680	3.105
1	0.278	0.077	44	3.166	10.024	0.880
1	0.278	0.077	51	10.166	103.348	2.827
0	-0.722	0.521	35	-5.834	34.036	4.212
1	0.278	0.077	40	-0.834	0.696	-0.232
1	0.278	0.077	47	6.166	38.020	1.715
1	0.278	0.077	49	8.166	66.684	2.271
1	0.278	0.077	36	-4.834	23.368	-1.344
0	-0.722	0.521	6	-34.834	1213.408	25.147
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	50	9.166	84.016	2.549
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	44	3.166	10.024	0.880
1	0.278	0.077	52	11.166	124.680	3.105
1	0.278	0.077	46	5.166	26.688	1.437
1	0.278	0.077	49	8.166	66.684	2.271
1	0.278	0.077	47	6.166	38.020	1.715
1	0.278	0.077	54	13.166	173.344	3.661
1	0.278	0.077	25	-15.834	250.716	-4.403
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	41	0.166	0.028	0.046
1	0.278	0.077	31	-9.834	96.708	-2.735
0	-0.722	0.521	13	-27.834	774.732	20.093
1	0.278	0.077	55	14.166	200.676	3.940
0	-0.722	0.521	45	4.166	17.356	-3.007
1	0.278	0.077	55	14.166	200.676	3.940
1	0.278	0.077	52	11.166	124.680	3.105
0	-0.722	0.521	49	8.166	66.684	-5.895
1	0.278	0.077	42	1.166	1.360	0.324
1	0.278	0.077	37	-3.834	14.700	-1.066

0	-0.850	0.723	24	-16.834	283.384	14.314
0	-0.850	0.723	21	-19.834	393.388	16.865
1	0.150	0.022	38	-2.834	8.032	-0.424
1	0.150	0.022	46	5.166	26.688	0.773
1	0.150	0.022	29	-11.834	140.044	-1.772
1	0.150	0.022	48	7.166	51.352	1.073
1	0.150	0.022	42	1.166	1.360	0.175
1	0.150	0.022	38	-2.834	8.032	-0.424
0	-0.850	0.723	18	-22.834	521.392	19.416
1	0.150	0.022	49	8.166	66.684	1.222
1	0.150	0.022	30	-10.834	117.376	-1.622
1	0.150	0.022	43	2.166	4.692	0.324
1	0.150	0.022	39	-1.834	3.364	-0.275
1	0.150	0.022	31	-9.834	96.708	-1.472
0	-0.850	0.723	28	-12.834	164.712	10.913
1	0.150	0.022	48	7.166	51.352	1.073
1	0.150	0.022	47	6.166	38.020	0.923
1	0.150	0.022	37	-3.834	14.700	-0.574
1	0.150	0.022	40	-0.834	0.696	-0.125
1	0.150	0.022	49	8.166	66.684	1.222
1	0.150	0.022	32	-8.834	78.040	-1.322
1	0.150	0.022	47	6.166	38.020	0.923
1	0.150	0.022	32	-8.834	78.040	-1.322
1	0.150	0.022	29	-11.834	140.044	-1.772
1	0.150	0.022	23	-17.834	318.052	-2.670
1	0.150	0.022	41	0.166	0.028	0.025
1	0.150	0.022	41	0.166	0.028	0.025
1	0.150	0.022	51	10.166	103.348	1.522
1	0.150	0.022	29	-11.834	140.044	-1.772
1	0.150	0.022	37	-3.834	14.700	-0.574
1	0.150	0.022	37	-3.834	14.700	-0.574
1	0.150	0.022	36	-4.834	23.368	-0.724
0	-0.850	0.723	40	-0.834	0.696	0.709

0	-0.722	0.521	24	-16.834	283.384	12.152
1	0.278	0.077	21	-19.834	393.388	-5.516
0	-0.722	0.521	38	-2.834	8.032	2.046
1	0.278	0.077	46	5.166	26.688	1.437
0	-0.722	0.521	29	-11.834	140.044	8.543
0	-0.722	0.521	48	7.166	51.352	-5.173
1	0.278	0.077	42	1.166	1.360	0.324
1	0.278	0.077	38	-2.834	8.032	-0.788
1	0.278	0.077	18	-22.834	521.392	-6.350
1	0.278	0.077	49	8.166	66.684	2.271
1	0.278	0.077	30	-10.834	117.376	-3.013
0	-0.722	0.521	43	2.166	4.692	-1.564
0	-0.722	0.521	39	-1.834	3.364	1.324
0	-0.722	0.521	31	-9.834	96.708	7.099
0	-0.722	0.521	28	-12.834	164.712	9.265
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	47	6.166	38.020	1.715
0	-0.722	0.521	37	-3.834	14.700	2.768
0	-0.722	0.521	40	-0.834	0.696	0.602
1	0.278	0.077	49	8.166	66.684	2.271
1	0.278	0.077	32	-8.834	78.040	-2.457
1	0.278	0.077	47	6.166	38.020	1.715
1	0.278	0.077	32	-8.834	78.040	-2.457
1	0.278	0.077	29	-11.834	140.044	-3.291
0	-0.722	0.521	23	-17.834	318.052	12.874
1	0.278	0.077	41	0.166	0.028	0.046
1	0.278	0.077	41	0.166	0.028	0.046
1	0.278	0.077	51	10.166	103.348	2.827
0	-0.722	0.521	29	-11.834	140.044	8.543
0	-0.722	0.521	37	-3.834	14.700	2.768
1	0.278	0.077	37	-3.834	14.700	-1.066
0	-0.722	0.521	36	-4.834	23.368	3.490
1	0.278	0.077	40	-0.834	0.696	-0.232

1	0.150	0.022	50	9.166	84.016	1.372
1	0.150	0.022	38	-2.834	8.032	-0.424
1	0.150	0.022	40	-0.834	0.696	-0.125
1	0.150	0.022	36	-4.834	23.368	-0.724
0	-0.850	0.723	20	-20.834	434.056	17.715
1	0.150	0.022	47	6.166	38.020	0.923
1	0.150	0.022	54	13.166	173.344	1.971
1	0.150	0.022	50	9.166	84.016	1.372
1	0.150	0.022	25	-15.834	250.716	-2.370
1	0.150	0.022	53	12.166	148.012	1.821
1	0.150	0.022	44	3.166	10.024	0.474
1	0.150	0.022	26	-14.834	220.048	-2.221
1	0.150	0.022	33	-7.834	61.372	-1.173
1	0.150	0.022	36	-4.834	23.368	-0.724
1	0.150	0.022	39	-1.834	3.364	-0.275
1	0.150	0.022	46	5.166	26.688	0.773
0	-0.850	0.723	36	-4.834	23.368	4.110
1	0.150	0.022	54	13.166	173.344	1.971
1	0.150	0.022	36	-4.834	23.368	-0.724
1	0.150	0.022	44	3.166	10.024	0.474
1	0.150	0.022	40	-0.834	0.696	-0.125
1	0.150	0.022	38	-2.834	8.032	-0.424
1	0.150	0.022	35	-5.834	34.036	-0.873
1	0.150	0.022	46	5.166	26.688	0.773
1	0.150	0.022	49	8.166	66.684	1.222
1	0.150	0.022	48	7.166	51.352	1.073
1	0.150	0.022	41	0.166	0.028	0.025
1	0.150	0.022	53	12.166	148.012	1.821
1	0.150	0.022	53	12.166	148.012	1.821
1	0.150	0.022	51	10.166	103.348	1.522
159	-0.006	23.807	7636	0.042	19431.861	356.358

1	0.278	0.077	50	9.166	84.016	2.549
1	0.278	0.077	38	-2.834	8.032	-0.788
1	0.278	0.077	40	-0.834	0.696	-0.232
0	-0.722	0.521	36	-4.834	23.368	3.490
0	-0.722	0.521	20	-20.834	434.056	15.040
1	0.278	0.077	47	6.166	38.020	1.715
0	-0.722	0.521	54	13.166	173.344	-9.505
0	-0.722	0.521	50	9.166	84.016	-6.617
0	-0.722	0.521	25	-15.834	250.716	11.431
1	0.278	0.077	53	12.166	148.012	3.383
1	0.278	0.077	44	3.166	10.024	0.880
0	-0.722	0.521	26	-14.834	220.048	10.709
0	-0.722	0.521	33	-7.834	61.372	5.655
1	0.278	0.077	36	-4.834	23.368	-1.344
0	-0.722	0.521	39	-1.834	3.364	1.324
1	0.278	0.077	46	5.166	26.688	1.437
1	0.278	0.077	36	-4.834	23.368	-1.344
1	0.278	0.077	54	13.166	173.344	3.661
0	-0.722	0.521	36	-4.834	23.368	3.490
1	0.278	0.077	44	3.166	10.024	0.880
1	0.278	0.077	40	-0.834	0.696	-0.232
1	0.278	0.077	38	-2.834	8.032	-0.788
1	0.278	0.077	35	-5.834	34.036	-1.622
1	0.278	0.077	46	5.166	26.688	1.437
1	0.278	0.077	49	8.166	66.684	2.271
1	0.278	0.077	48	7.166	51.352	1.993
1	0.278	0.077	41	0.166	0.028	0.046
1	0.278	0.077	53	12.166	148.012	3.383
1	0.278	0.077	53	12.166	148.012	3.383
0	-0.722	0.521	51	10.166	103.348	-7.339
135	0.005	37.540	7636	0.042	19431.861	391.380

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$
$$= \frac{356,358}{\sqrt{23,807 \times 19431,861}} = 0.5239$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$
$$= \frac{391,380}{\sqrt{37,540 \times 19431,861}} = 0.4582$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 51 dan No 52

Pertanyaan no 51

$$x = 121/187 = 0.6471$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
0	-0.647	0.419	51	10.166	103.348	-6.578
0	-0.647	0.419	36	-4.834	23.368	3.128
1	0.353	0.125	41	0.166	0.028	0.059
1	0.353	0.125	52	11.166	124.680	3.940
0	-0.647	0.419	51	10.166	103.348	-6.578
1	0.353	0.125	50	9.166	84.016	3.235
1	0.353	0.125	46	5.166	26.688	1.823
1	0.353	0.125	55	14.166	200.676	4.999
0	-0.647	0.419	49	8.166	66.684	-5.284
1	0.353	0.125	31	-9.834	96.708	-3.470
0	-0.647	0.419	46	5.166	26.688	-3.343
1	0.353	0.125	44	3.166	10.024	1.117
0	-0.647	0.419	40	-0.834	0.696	0.540
1	0.353	0.125	48	7.166	51.352	2.529
0	-0.647	0.419	31	-9.834	96.708	6.364
0	-0.647	0.419	27	-13.834	191.380	8.952
1	0.353	0.125	47	6.166	38.020	2.176
1	0.353	0.125	50	9.166	84.016	3.235
1	0.353	0.125	55	14.166	200.676	4.999
1	0.353	0.125	47	6.166	38.020	2.176
0	-0.647	0.419	16	-24.834	616.728	16.070
1	0.353	0.125	42	1.166	1.360	0.411
1	0.353	0.125	42	1.166	1.360	0.411
0	-0.647	0.419	43	2.166	4.692	-1.402
0	-0.647	0.419	43	2.166	4.692	-1.402

Pertanyaan no 52

$$x = 146/187 = 0.8202$$

$$y = 7636/187=40.834$$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.180	0.032	51	10.166	103.348	1.828
0	-0.820	0.673	36	-4.834	23.368	3.965
1	0.180	0.032	41	0.166	0.028	0.030
1	0.180	0.032	52	11.166	124.680	2.008
1	0.180	0.032	51	10.166	103.348	1.828
1	0.180	0.032	50	9.166	84.016	1.648
1	0.180	0.032	46	5.166	26.688	0.929
1	0.180	0.032	55	14.166	200.676	2.547
1	0.180	0.032	49	8.166	66.684	1.468
1	0.180	0.032	31	-9.834	96.708	-1.768
1	0.180	0.032	46	5.166	26.688	0.929
1	0.180	0.032	44	3.166	10.024	0.569
1	0.180	0.032	40	-0.834	0.696	-0.150
1	0.180	0.032	48	7.166	51.352	1.288
1	0.180	0.032	31	-9.834	96.708	-1.768
0	-0.820	0.673	27	-13.834	191.380	11.347
1	0.180	0.032	47	6.166	38.020	1.109
1	0.180	0.032	50	9.166	84.016	1.648
1	0.180	0.032	55	14.166	200.676	2.547
1	0.180	0.032	47	6.166	38.020	1.109
0	-0.820	0.673	16	-24.834	616.728	20.369
1	0.180	0.032	42	1.166	1.360	0.210
1	0.180	0.032	42	1.166	1.360	0.210
0	-0.820	0.673	43	2.166	4.692	-1.777
1	0.180	0.032	43	2.166	4.692	0.389

1	0.353	0.125	38	-2.834	8.032	-1.000
1	0.353	0.125	36	-4.834	23.368	-1.706
1	0.353	0.125	37	-3.834	14.700	-1.353
1	0.353	0.125	55	14.166	200.676	4.999
0	-0.647	0.419	28	-12.834	164.712	8.305
1	0.353	0.125	51	10.166	103.348	3.588
1	0.353	0.125	53	12.166	148.012	4.293
1	0.353	0.125	45	4.166	17.356	1.470
1	0.353	0.125	33	-7.834	61.372	-2.765
0	-0.647	0.419	45	4.166	17.356	-2.696
0	-0.647	0.419	44	3.166	10.024	-2.049
1	0.353	0.125	44	3.166	10.024	1.117
0	-0.647	0.419	49	8.166	66.684	-5.284
1	0.353	0.125	39	-1.834	3.364	-0.647
1	0.353	0.125	49	8.166	66.684	2.882
1	0.353	0.125	35	-5.834	34.036	-2.059
1	0.353	0.125	31	-9.834	96.708	-3.470
1	0.353	0.125	33	-7.834	61.372	-2.765
1	0.353	0.125	48	7.166	51.352	2.529
0	-0.647	0.419	12	-28.834	831.400	18.658
1	0.353	0.125	35	-5.834	34.036	-2.059
1	0.353	0.125	39	-1.834	3.364	-0.647
1	0.353	0.125	53	12.166	148.012	4.293
1	0.353	0.125	48	7.166	51.352	2.529
0	-0.647	0.419	48	7.166	51.352	-4.637
0	-0.647	0.419	40	-0.834	0.696	0.540
1	0.353	0.125	44	3.166	10.024	1.117
1	0.353	0.125	46	5.166	26.688	1.823
0	-0.647	0.419	21	-19.834	393.388	12.835
1	0.353	0.125	45	4.166	17.356	1.470
0	-0.647	0.419	2	-38.834	1508.080	25.129
1	0.353	0.125	37	-3.834	14.700	-1.353
1	0.353	0.125	34	-6.834	46.704	-2.412

0	-0.820	0.673	38	-2.834	8.032	2.324
1	0.180	0.032	36	-4.834	23.368	-0.869
1	0.180	0.032	37	-3.834	14.700	-0.689
1	0.180	0.032	55	14.166	200.676	2.547
0	-0.820	0.673	28	-12.834	164.712	10.526
1	0.180	0.032	51	10.166	103.348	1.828
1	0.180	0.032	53	12.166	148.012	2.187
1	0.180	0.032	45	4.166	17.356	0.749
0	-0.820	0.673	33	-7.834	61.372	6.425
1	0.180	0.032	45	4.166	17.356	0.749
1	0.180	0.032	44	3.166	10.024	0.569
1	0.180	0.032	44	3.166	10.024	0.569
1	0.180	0.032	49	8.166	66.684	1.468
1	0.180	0.032	39	-1.834	3.364	-0.330
1	0.180	0.032	49	8.166	66.684	1.468
1	0.180	0.032	35	-5.834	34.036	-1.049
1	0.180	0.032	31	-9.834	96.708	-1.768
0	-0.820	0.673	33	-7.834	61.372	6.425
1	0.180	0.032	48	7.166	51.352	1.288
0	-0.820	0.673	12	-28.834	831.400	23.650
1	0.180	0.032	35	-5.834	34.036	-1.049
1	0.180	0.032	39	-1.834	3.364	-0.330
1	0.180	0.032	53	12.166	148.012	2.187
1	0.180	0.032	48	7.166	51.352	1.288
1	0.180	0.032	48	7.166	51.352	1.288
0	-0.820	0.673	40	-0.834	0.696	0.684
1	0.180	0.032	44	3.166	10.024	0.569
1	0.180	0.032	46	5.166	26.688	0.929
0	-0.820	0.673	21	-19.834	393.388	16.268
1	0.180	0.032	45	4.166	17.356	0.749
0	-0.820	0.673	2	-38.834	1508.080	31.852
1	0.180	0.032	37	-3.834	14.700	-0.689
1	0.180	0.032	34	-6.834	46.704	-1.229

1	0.353	0.125	32	-8.834	78.040	-3.118
1	0.353	0.125	29	-11.834	140.044	-4.176
0	-0.647	0.419	48	7.166	51.352	-4.637
0	-0.647	0.419	48	7.166	51.352	-4.637
0	-0.647	0.419	37	-3.834	14.700	2.481
1	0.353	0.125	53	12.166	148.012	4.293
1	0.353	0.125	42	1.166	1.360	0.411
1	0.353	0.125	48	7.166	51.352	2.529
1	0.353	0.125	45	4.166	17.356	1.470
1	0.353	0.125	52	11.166	124.680	3.940
0	-0.647	0.419	23	-17.834	318.052	11.540
1	0.353	0.125	38	-2.834	8.032	-1.000
1	0.353	0.125	51	10.166	103.348	3.588
1	0.353	0.125	38	-2.834	8.032	-1.000
0	-0.647	0.419	29	-11.834	140.044	7.658
0	-0.647	0.419	28	-12.834	164.712	8.305
1	0.353	0.125	39	-1.834	3.364	-0.647
0	-0.647	0.419	33	-7.834	61.372	5.069
1	0.353	0.125	44	3.166	10.024	1.117
0	-0.647	0.419	33	-7.834	61.372	5.069
1	0.353	0.125	47	6.166	38.020	2.176
1	0.353	0.125	31	-9.834	96.708	-3.470
1	0.353	0.125	47	6.166	38.020	2.176
1	0.353	0.125	41	0.166	0.028	0.059
1	0.353	0.125	54	13.166	173.344	4.646
1	0.353	0.125	48	7.166	51.352	2.529
1	0.353	0.125	53	12.166	148.012	4.293
1	0.353	0.125	43	2.166	4.692	0.764
1	0.353	0.125	50	9.166	84.016	3.235
1	0.353	0.125	47	6.166	38.020	2.176
1	0.353	0.125	42	1.166	1.360	0.411
1	0.353	0.125	37	-3.834	14.700	-1.353
0	-0.647	0.419	41	0.166	0.028	-0.107

1	0.180	0.032	32	-8.834	78.040	-1.588
1	0.180	0.032	29	-11.834	140.044	-2.128
0	-0.820	0.673	48	7.166	51.352	-5.878
1	0.180	0.032	48	7.166	51.352	1.288
0	-0.820	0.673	37	-3.834	14.700	3.145
1	0.180	0.032	53	12.166	148.012	2.187
1	0.180	0.032	42	1.166	1.360	0.210
1	0.180	0.032	48	7.166	51.352	1.288
1	0.180	0.032	45	4.166	17.356	0.749
1	0.180	0.032	52	11.166	124.680	2.008
0	-0.820	0.673	23	-17.834	318.052	14.627
1	0.180	0.032	38	-2.834	8.032	-0.510
1	0.180	0.032	51	10.166	103.348	1.828
1	0.180	0.032	38	-2.834	8.032	-0.510
0	-0.820	0.673	29	-11.834	140.044	9.706
1	0.180	0.032	28	-12.834	164.712	-2.308
1	0.180	0.032	39	-1.834	3.364	-0.330
0	-0.820	0.673	33	-7.834	61.372	6.425
1	0.180	0.032	44	3.166	10.024	0.569
1	0.180	0.032	33	-7.834	61.372	-1.409
1	0.180	0.032	47	6.166	38.020	1.109
1	0.180	0.032	31	-9.834	96.708	-1.768
1	0.180	0.032	47	6.166	38.020	1.109
1	0.180	0.032	41	0.166	0.028	0.030
1	0.180	0.032	54	13.166	173.344	2.367
1	0.180	0.032	48	7.166	51.352	1.288
1	0.180	0.032	53	12.166	148.012	2.187
1	0.180	0.032	43	2.166	4.692	0.389
1	0.180	0.032	50	9.166	84.016	1.648
1	0.180	0.032	47	6.166	38.020	1.109
1	0.180	0.032	42	1.166	1.360	0.210
0	-0.820	0.673	37	-3.834	14.700	3.145
0	-0.820	0.673	41	0.166	0.028	-0.136

1	0.353	0.125	18	-22.834	521.392	-8.058
1	0.353	0.125	26	-14.834	220.048	-5.235
1	0.353	0.125	52	11.166	124.680	3.940
1	0.353	0.125	44	3.166	10.024	1.117
1	0.353	0.125	51	10.166	103.348	3.588
0	-0.647	0.419	35	-5.834	34.036	3.775
1	0.353	0.125	40	-0.834	0.696	-0.294
1	0.353	0.125	47	6.166	38.020	2.176
1	0.353	0.125	49	8.166	66.684	2.882
1	0.353	0.125	36	-4.834	23.368	-1.706
0	-0.647	0.419	6	-34.834	1213.408	22.541
1	0.353	0.125	55	14.166	200.676	4.999
1	0.353	0.125	50	9.166	84.016	3.235
1	0.353	0.125	48	7.166	51.352	2.529
1	0.353	0.125	44	3.166	10.024	1.117
1	0.353	0.125	52	11.166	124.680	3.940
0	-0.647	0.419	46	5.166	26.688	-3.343
1	0.353	0.125	49	8.166	66.684	2.882
1	0.353	0.125	47	6.166	38.020	2.176
1	0.353	0.125	54	13.166	173.344	4.646
1	0.353	0.125	25	-15.834	250.716	-5.588
1	0.353	0.125	55	14.166	200.676	4.999
1	0.353	0.125	55	14.166	200.676	4.999
1	0.353	0.125	41	0.166	0.028	0.059
1	0.353	0.125	31	-9.834	96.708	-3.470
0	-0.647	0.419	13	-27.834	774.732	18.011
1	0.353	0.125	55	14.166	200.676	4.999
1	0.353	0.125	45	4.166	17.356	1.470
1	0.353	0.125	55	14.166	200.676	4.999
1	0.353	0.125	52	11.166	124.680	3.940
0	-0.647	0.419	49	8.166	66.684	-5.284
0	-0.647	0.419	42	1.166	1.360	-0.755
1	0.353	0.125	37	-3.834	14.700	-1.353

1	0.180	0.032	18	-22.834	521.392	-4.106
1	0.180	0.032	26	-14.834	220.048	-2.667
1	0.180	0.032	52	11.166	124.680	2.008
1	0.180	0.032	44	3.166	10.024	0.569
1	0.180	0.032	51	10.166	103.348	1.828
0	-0.820	0.673	35	-5.834	34.036	4.785
1	0.180	0.032	40	-0.834	0.696	-0.150
0	-0.820	0.673	47	6.166	38.020	-5.057
1	0.180	0.032	49	8.166	66.684	1.468
1	0.180	0.032	36	-4.834	23.368	-0.869
0	-0.820	0.673	6	-34.834	1213.408	28.571
1	0.180	0.032	55	14.166	200.676	2.547
1	0.180	0.032	50	9.166	84.016	1.648
1	0.180	0.032	48	7.166	51.352	1.288
1	0.180	0.032	44	3.166	10.024	0.569
1	0.180	0.032	52	11.166	124.680	2.008
1	0.180	0.032	46	5.166	26.688	0.929
1	0.180	0.032	49	8.166	66.684	1.468
1	0.180	0.032	47	6.166	38.020	1.109
1	0.180	0.032	54	13.166	173.344	2.367
1	0.180	0.032	25	-15.834	250.716	-2.847
1	0.180	0.032	55	14.166	200.676	2.547
1	0.180	0.032	55	14.166	200.676	2.547
1	0.180	0.032	41	0.166	0.028	0.030
1	0.180	0.032	31	-9.834	96.708	-1.768
0	-0.820	0.673	13	-27.834	774.732	22.829
1	0.180	0.032	55	14.166	200.676	2.547
0	-0.820	0.673	45	4.166	17.356	-3.417
1	0.180	0.032	55	14.166	200.676	2.547
1	0.180	0.032	52	11.166	124.680	2.008
1	0.180	0.032	49	8.166	66.684	1.468
1	0.180	0.032	42	1.166	1.360	0.210
0	-0.820	0.673	37	-3.834	14.700	3.145

1	0.353	0.125	24	-16.834	283.384	-5.941
1	0.353	0.125	21	-19.834	393.388	-6.999
1	0.353	0.125	38	-2.834	8.032	-1.000
1	0.353	0.125	46	5.166	26.688	1.823
0	-0.647	0.419	29	-11.834	140.044	7.658
0	-0.647	0.419	48	7.166	51.352	-4.637
0	-0.647	0.419	42	1.166	1.360	-0.755
0	-0.647	0.419	38	-2.834	8.032	1.834
0	-0.647	0.419	18	-22.834	521.392	14.776
0	-0.647	0.419	49	8.166	66.684	-5.284
1	0.353	0.125	30	-10.834	117.376	-3.823
0	-0.647	0.419	43	2.166	4.692	-1.402
0	-0.647	0.419	39	-1.834	3.364	1.187
0	-0.647	0.419	31	-9.834	96.708	6.364
0	-0.647	0.419	28	-12.834	164.712	8.305
0	-0.647	0.419	48	7.166	51.352	-4.637
1	0.353	0.125	47	6.166	38.020	2.176
1	0.353	0.125	37	-3.834	14.700	-1.353
0	-0.647	0.419	40	-0.834	0.696	0.540
1	0.353	0.125	49	8.166	66.684	2.882
0	-0.647	0.419	32	-8.834	78.040	5.716
1	0.353	0.125	47	6.166	38.020	2.176
0	-0.647	0.419	32	-8.834	78.040	5.716
0	-0.647	0.419	29	-11.834	140.044	7.658
0	-0.647	0.419	23	-17.834	318.052	11.540
1	0.353	0.125	41	0.166	0.028	0.059
1	0.353	0.125	41	0.166	0.028	0.059
1	0.353	0.125	51	10.166	103.348	3.588
1	0.353	0.125	29	-11.834	140.044	-4.176
0	-0.647	0.419	37	-3.834	14.700	2.481
0	-0.647	0.419	37	-3.834	14.700	2.481
0	-0.647	0.419	36	-4.834	23.368	3.128
0	-0.647	0.419	40	-0.834	0.696	0.540

1	0.180	0.032	24	-16.834	283.384	-3.027
1	0.180	0.032	21	-19.834	393.388	-3.566
0	-0.820	0.673	38	-2.834	8.032	2.324
1	0.180	0.032	46	5.166	26.688	0.929
1	0.180	0.032	29	-11.834	140.044	-2.128
1	0.180	0.032	48	7.166	51.352	1.288
1	0.180	0.032	42	1.166	1.360	0.210
1	0.180	0.032	38	-2.834	8.032	-0.510
0	-0.820	0.673	18	-22.834	521.392	18.728
1	0.180	0.032	49	8.166	66.684	1.468
1	0.180	0.032	30	-10.834	117.376	-1.948
1	0.180	0.032	43	2.166	4.692	0.389
1	0.180	0.032	39	-1.834	3.364	-0.330
0	-0.820	0.673	31	-9.834	96.708	8.066
0	-0.820	0.673	28	-12.834	164.712	10.526
1	0.180	0.032	48	7.166	51.352	1.288
0	-0.820	0.673	47	6.166	38.020	-5.057
0	-0.820	0.673	37	-3.834	14.700	3.145
1	0.180	0.032	40	-0.834	0.696	-0.150
1	0.180	0.032	49	8.166	66.684	1.468
1	0.180	0.032	32	-8.834	78.040	-1.588
1	0.180	0.032	47	6.166	38.020	1.109
1	0.180	0.032	32	-8.834	78.040	-1.588
0	-0.820	0.673	29	-11.834	140.044	9.706
1	0.180	0.032	23	-17.834	318.052	-3.207
1	0.180	0.032	41	0.166	0.028	0.030
1	0.180	0.032	41	0.166	0.028	0.030
1	0.180	0.032	51	10.166	103.348	1.828
0	-0.820	0.673	29	-11.834	140.044	9.706
0	-0.820	0.673	37	-3.834	14.700	3.145
1	0.180	0.032	37	-3.834	14.700	-0.689
0	-0.820	0.673	36	-4.834	23.368	3.965
1	0.180	0.032	40	-0.834	0.696	-0.150

1	0.353	0.125	50	9.166	84.016	3.235
1	0.353	0.125	38	-2.834	8.032	-1.000
0	-0.647	0.419	40	-0.834	0.696	0.540
0	-0.647	0.419	36	-4.834	23.368	3.128
0	-0.647	0.419	20	-20.834	434.056	13.482
1	0.353	0.125	47	6.166	38.020	2.176
1	0.353	0.125	54	13.166	173.344	4.646
1	0.353	0.125	50	9.166	84.016	3.235
0	-0.647	0.419	25	-15.834	250.716	10.246
1	0.353	0.125	53	12.166	148.012	4.293
1	0.353	0.125	44	3.166	10.024	1.117
0	-0.647	0.419	26	-14.834	220.048	9.599
0	-0.647	0.419	33	-7.834	61.372	5.069
1	0.353	0.125	36	-4.834	23.368	-1.706
0	-0.647	0.419	39	-1.834	3.364	1.187
1	0.353	0.125	46	5.166	26.688	1.823
1	0.353	0.125	36	-4.834	23.368	-1.706
1	0.353	0.125	54	13.166	173.344	4.646
0	-0.647	0.419	36	-4.834	23.368	3.128
1	0.353	0.125	44	3.166	10.024	1.117
1	0.353	0.125	40	-0.834	0.696	-0.294
0	-0.647	0.419	38	-2.834	8.032	1.834
0	-0.647	0.419	35	-5.834	34.036	3.775
1	0.353	0.125	46	5.166	26.688	1.823
1	0.353	0.125	49	8.166	66.684	2.882
1	0.353	0.125	48	7.166	51.352	2.529
1	0.353	0.125	41	0.166	0.028	0.059
0	-0.647	0.419	53	12.166	148.012	-7.873
1	0.353	0.125	53	12.166	148.012	4.293
1	0.353	0.125	51	10.166	103.348	3.588
121	-0.008	42.706	7636	0.042	19431.861	362.059

1	0.180	0.032	50	9.166	84.016	1.648
1	0.180	0.032	38	-2.834	8.032	-0.510
1	0.180	0.032	40	-0.834	0.696	-0.150
0	-0.820	0.673	36	-4.834	23.368	3.965
0	-0.820	0.673	20	-20.834	434.056	17.088
1	0.180	0.032	47	6.166	38.020	1.109
1	0.180	0.032	54	13.166	173.344	2.367
1	0.180	0.032	50	9.166	84.016	1.648
0	-0.820	0.673	25	-15.834	250.716	12.987
1	0.180	0.032	53	12.166	148.012	2.187
1	0.180	0.032	44	3.166	10.024	0.569
0	-0.820	0.673	26	-14.834	220.048	12.167
1	0.180	0.032	33	-7.834	61.372	-1.409
1	0.180	0.032	36	-4.834	23.368	-0.869
1	0.180	0.032	39	-1.834	3.364	-0.330
1	0.180	0.032	46	5.166	26.688	0.929
1	0.180	0.032	36	-4.834	23.368	-0.869
1	0.180	0.032	54	13.166	173.344	2.367
0	-0.820	0.673	36	-4.834	23.368	3.965
1	0.180	0.032	44	3.166	10.024	0.569
1	0.180	0.032	40	-0.834	0.696	-0.150
1	0.180	0.032	38	-2.834	8.032	-0.510
1	0.180	0.032	35	-5.834	34.036	-1.049
1	0.180	0.032	46	5.166	26.688	0.929
1	0.180	0.032	49	8.166	66.684	1.468
1	0.180	0.032	48	7.166	51.352	1.288
0	-0.820	0.673	41	0.166	0.028	-0.136
1	0.180	0.032	53	12.166	148.012	2.187
1	0.180	0.032	53	12.166	148.012	2.187
1	0.180	0.032	51	10.166	103.348	1.828
146	-7.377	32.302	7636	0.042	19431.861	400.202

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$
$$= \frac{362,059}{\sqrt{42,706 \times 19431,861}} = 0.3974$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$
$$= \frac{400,202}{\sqrt{32,302 \times 19431,861}} = 0.5051$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 53 dan No 54

Pertanyaan no 54
 $x = 134/187 = 0.7166$
 $y = 7636/187 = 40.834$

$x = x_i - x$	x^2	y_i	y	y^2	xy
-0.832	0.691	51	10.166	103.348	-8.453
-0.832	0.691	36	-4.834	23.368	4.019
-0.832	0.691	41	0.166	0.028	-0.138
-0.832	0.691	52	11.166	124.680	-9.285
-0.832	0.691	51	10.166	103.348	-8.453
-0.832	0.691	50	9.166	84.016	-7.622
-0.832	0.691	46	5.166	26.688	-4.296
-0.832	0.691	55	14.166	200.676	-11.779
-0.832	0.691	49	8.166	66.684	-6.790
-0.832	0.691	31	-9.834	96.708	8.177
-0.832	0.691	46	5.166	26.688	-4.296
-0.832	0.691	44	3.166	10.024	-2.633
-0.832	0.691	40	-0.834	0.696	0.693
-0.832	0.691	48	7.166	51.352	-5.959
-0.832	0.691	31	-9.834	96.708	8.177
-0.832	0.691	27	-13.834	191.380	11.503
-0.832	0.691	47	6.166	38.020	-5.127
-0.832	0.691	50	9.166	84.016	-7.622
-0.832	0.691	55	14.166	200.676	-11.779
-0.832	0.691	47	6.166	38.020	-5.127
-0.832	0.691	16	-24.834	616.728	20.649
-0.832	0.691	42	1.166	1.360	-0.970
-0.832	0.691	42	1.166	1.360	-0.970
-0.832	0.691	43	2.166	4.692	-1.801
-0.832	0.691	43	2.166	4.692	-1.801

x_i	$x = x_i - x$	x^2	y_i	y	y^2	xy
1	0.283	0.080	51	10.166	103.348	2.881
1	0.283	0.080	36	-4.834	23.368	-1.370
1	0.283	0.080	41	0.166	0.028	0.047
1	0.283	0.080	52	11.166	124.680	3.164
1	0.283	0.080	51	10.166	103.348	2.881
1	0.283	0.080	50	9.166	84.016	2.598
1	0.283	0.080	46	5.166	26.688	1.464
1	0.283	0.080	55	14.166	200.676	4.015
0	-0.717	0.514	49	8.166	66.684	-5.852
1	0.283	0.080	31	-9.834	96.708	-2.787
1	0.283	0.080	46	5.166	26.688	1.464
1	0.283	0.080	44	3.166	10.024	0.897
1	0.283	0.080	40	-0.834	0.696	-0.236
1	0.283	0.080	48	7.166	51.352	2.031
0	-0.717	0.514	31	-9.834	96.708	7.047
0	-0.717	0.514	27	-13.834	191.380	9.913
1	0.283	0.080	47	6.166	38.020	1.747
1	0.283	0.080	50	9.166	84.016	2.598
1	0.283	0.080	55	14.166	200.676	4.015
1	0.283	0.080	47	6.166	38.020	1.747
0	-0.717	0.514	16	-24.834	616.728	17.796
1	0.283	0.080	42	1.166	1.360	0.330
1	0.283	0.080	42	1.166	1.360	0.330
1	0.283	0.080	43	2.166	4.692	0.614
1	0.283	0.080	43	2.166	4.692	0.614

-0.832	0.691	38	-2.834	8.032	2.356
-0.832	0.691	36	-4.834	23.368	4.019
-0.832	0.691	37	-3.834	14.700	3.188
-0.832	0.691	55	14.166	200.676	-11.779
-0.832	0.691	28	-12.834	164.712	10.671
-0.832	0.691	51	10.166	103.348	-8.453
-0.832	0.691	53	12.166	148.012	-10.116
-0.832	0.691	45	4.166	17.356	-3.464
-0.832	0.691	33	-7.834	61.372	6.514
-0.832	0.691	45	4.166	17.356	-3.464
-0.832	0.691	44	3.166	10.024	-2.633
-0.832	0.691	44	3.166	10.024	-2.633
-0.832	0.691	49	8.166	66.684	-6.790
-0.832	0.691	39	-1.834	3.364	1.525
-0.832	0.691	49	8.166	66.684	-6.790
-0.832	0.691	35	-5.834	34.036	4.851
-0.832	0.691	31	-9.834	96.708	8.177
-0.832	0.691	33	-7.834	61.372	6.514
-0.832	0.691	48	7.166	51.352	-5.959
-0.832	0.691	12	-28.834	831.400	23.975
-0.832	0.691	35	-5.834	34.036	4.851
-0.832	0.691	39	-1.834	3.364	1.525
-0.832	0.691	53	12.166	148.012	-10.116
-0.832	0.691	48	7.166	51.352	-5.959
-0.832	0.691	48	7.166	51.352	-5.959
-0.832	0.691	40	-0.834	0.696	0.693
-0.832	0.691	44	3.166	10.024	-2.633
-0.832	0.691	46	5.166	26.688	-4.296
-0.832	0.691	21	-19.834	393.388	16.492
-0.832	0.691	45	4.166	17.356	-3.464
-0.832	0.691	2	-38.834	1508.080	32.290
-0.832	0.691	37	-3.834	14.700	3.188
-0.832	0.691	34	-6.834	46.704	5.682

0	-0.717	0.514	38	-2.834	8.032	2.031
0	-0.717	0.514	36	-4.834	23.368	3.464
1	0.283	0.080	37	-3.834	14.700	-1.087
1	0.283	0.080	55	14.166	200.676	4.015
0	-0.717	0.514	28	-12.834	164.712	9.197
1	0.283	0.080	51	10.166	103.348	2.881
1	0.283	0.080	53	12.166	148.012	3.448
1	0.283	0.080	45	4.166	17.356	1.181
0	-0.717	0.514	33	-7.834	61.372	5.614
0	-0.717	0.514	45	4.166	17.356	-2.985
1	0.283	0.080	44	3.166	10.024	0.897
1	0.283	0.080	44	3.166	10.024	0.897
0	-0.717	0.514	49	8.166	66.684	-5.852
1	0.283	0.080	39	-1.834	3.364	-0.520
1	0.283	0.080	49	8.166	66.684	2.314
1	0.283	0.080	35	-5.834	34.036	-1.653
1	0.283	0.080	31	-9.834	96.708	-2.787
0	-0.717	0.514	33	-7.834	61.372	5.614
1	0.283	0.080	48	7.166	51.352	2.031
0	-0.717	0.514	12	-28.834	831.400	20.662
1	0.283	0.080	35	-5.834	34.036	-1.653
1	0.283	0.080	39	-1.834	3.364	-0.520
1	0.283	0.080	53	12.166	148.012	3.448
1	0.283	0.080	48	7.166	51.352	2.031
0	-0.717	0.514	48	7.166	51.352	-5.135
1	0.283	0.080	40	-0.834	0.696	-0.236
1	0.283	0.080	44	3.166	10.024	0.897
1	0.283	0.080	46	5.166	26.688	1.464
1	0.283	0.080	21	-19.834	393.388	-5.621
1	0.283	0.080	45	4.166	17.356	1.181
0	-0.717	0.514	2	-38.834	1508.080	27.828
1	0.283	0.080	37	-3.834	14.700	-1.087
1	0.283	0.080	34	-6.834	46.704	-1.937

-0.832	0.691	32	-8.834	78.040	7.345
-0.832	0.691	29	-11.834	140.044	9.840
-0.832	0.691	48	7.166	51.352	-5.959
-0.832	0.691	48	7.166	51.352	-5.959
-0.832	0.691	37	-3.834	14.700	3.188
-0.832	0.691	53	12.166	148.012	-10.116
-0.832	0.691	42	1.166	1.360	-0.970
-0.832	0.691	48	7.166	51.352	-5.959
-0.832	0.691	45	4.166	17.356	-3.464
-0.832	0.691	52	11.166	124.680	-9.285
-0.832	0.691	23	-17.834	318.052	14.829
-0.832	0.691	38	-2.834	8.032	2.356
-0.832	0.691	51	10.166	103.348	-8.453
-0.832	0.691	38	-2.834	8.032	2.356
-0.832	0.691	29	-11.834	140.044	9.840
-0.832	0.691	28	-12.834	164.712	10.671
-0.832	0.691	39	-1.834	3.364	1.525
-0.832	0.691	33	-7.834	61.372	6.514
-0.832	0.691	44	3.166	10.024	-2.633
-0.832	0.691	33	-7.834	61.372	6.514
-0.832	0.691	47	6.166	38.020	-5.127
-0.832	0.691	31	-9.834	96.708	8.177
-0.832	0.691	47	6.166	38.020	-5.127
-0.832	0.691	41	0.166	0.028	-0.138
-0.832	0.691	54	13.166	173.344	-10.948
-0.832	0.691	48	7.166	51.352	-5.959
-0.832	0.691	53	12.166	148.012	-10.116
-0.832	0.691	43	2.166	4.692	-1.801
-0.832	0.691	50	9.166	84.016	-7.622
-0.832	0.691	47	6.166	38.020	-5.127
-0.832	0.691	42	1.166	1.360	-0.970
-0.832	0.691	37	-3.834	14.700	3.188
-0.832	0.691	41	0.166	0.028	-0.138

0	-0.717	0.514	32	-8.834	78.040	6.330
1	0.283	0.080	29	-11.834	140.044	-3.354
1	0.283	0.080	48	7.166	51.352	2.031
1	0.283	0.080	48	7.166	51.352	2.031
1	0.283	0.080	37	-3.834	14.700	-1.087
1	0.283	0.080	53	12.166	148.012	3.448
1	0.283	0.080	42	1.166	1.360	0.330
1	0.283	0.080	48	7.166	51.352	2.031
1	0.283	0.080	45	4.166	17.356	1.181
1	0.283	0.080	52	11.166	124.680	3.164
0	-0.717	0.514	23	-17.834	318.052	12.780
1	0.283	0.080	38	-2.834	8.032	-0.803
1	0.283	0.080	51	10.166	103.348	2.881
1	0.283	0.080	38	-2.834	8.032	-0.803
0	-0.717	0.514	29	-11.834	140.044	8.480
0	-0.717	0.514	28	-12.834	164.712	9.197
1	0.283	0.080	39	-1.834	3.364	-0.520
1	0.283	0.080	33	-7.834	61.372	-2.220
1	0.283	0.080	44	3.166	10.024	0.897
1	0.283	0.080	33	-7.834	61.372	-2.220
1	0.283	0.080	47	6.166	38.020	1.747
0	-0.717	0.514	31	-9.834	96.708	7.047
1	0.283	0.080	47	6.166	38.020	1.747
1	0.283	0.080	41	0.166	0.028	0.047
1	0.283	0.080	54	13.166	173.344	3.731
1	0.283	0.080	48	7.166	51.352	2.031
1	0.283	0.080	53	12.166	148.012	3.448
1	0.283	0.080	43	2.166	4.692	0.614
1	0.283	0.080	50	9.166	84.016	2.598
1	0.283	0.080	47	6.166	38.020	1.747
1	0.283	0.080	42	1.166	1.360	0.330
0	-0.717	0.514	37	-3.834	14.700	2.747
0	-0.717	0.514	41	0.166	0.028	-0.119

-0.832	0.691	18	-22.834	521.392	18.986
-0.832	0.691	26	-14.834	220.048	12.334
-0.832	0.691	52	11.166	124.680	-9.285
-0.832	0.691	44	3.166	10.024	-2.633
-0.832	0.691	51	10.166	103.348	-8.453
-0.832	0.691	35	-5.834	34.036	4.851
-0.832	0.691	40	-0.834	0.696	0.693
-0.832	0.691	47	6.166	38.020	-5.127
-0.832	0.691	49	8.166	66.684	-6.790
-0.832	0.691	36	-4.834	23.368	4.019
-0.832	0.691	6	-34.834	1213.408	28.964
-0.832	0.691	55	14.166	200.676	-11.779
-0.832	0.691	50	9.166	84.016	-7.622
-0.832	0.691	48	7.166	51.352	-5.959
-0.832	0.691	44	3.166	10.024	-2.633
-0.832	0.691	52	11.166	124.680	-9.285
-0.832	0.691	46	5.166	26.688	-4.296
-0.832	0.691	49	8.166	66.684	-6.790
-0.832	0.691	47	6.166	38.020	-5.127
-0.832	0.691	54	13.166	173.344	-10.948
-0.832	0.691	25	-15.834	250.716	13.166
-0.832	0.691	55	14.166	200.676	-11.779
-0.832	0.691	55	14.166	200.676	-11.779
-0.832	0.691	41	0.166	0.028	-0.138
-0.832	0.691	31	-9.834	96.708	8.177
-0.832	0.691	13	-27.834	774.732	23.144
-0.832	0.691	55	14.166	200.676	-11.779
-0.832	0.691	45	4.166	17.356	-3.464
-0.832	0.691	55	14.166	200.676	-11.779
-0.832	0.691	52	11.166	124.680	-9.285
-0.832	0.691	49	8.166	66.684	-6.790
-0.832	0.691	42	1.166	1.360	-0.970
-0.832	0.691	37	-3.834	14.700	3.188

1	0.283	0.080	18	-22.834	521.392	-6.471
0	-0.717	0.514	26	-14.834	220.048	10.630
1	0.283	0.080	52	11.166	124.680	3.164
1	0.283	0.080	44	3.166	10.024	0.897
1	0.283	0.080	51	10.166	103.348	2.881
0	-0.717	0.514	35	-5.834	34.036	4.181
1	0.283	0.080	40	-0.834	0.696	-0.236
1	0.283	0.080	47	6.166	38.020	1.747
1	0.283	0.080	49	8.166	66.684	2.314
1	0.283	0.080	36	-4.834	23.368	-1.370
0	-0.717	0.514	6	-34.834	1213.408	24.962
1	0.283	0.080	55	14.166	200.676	4.015
1	0.283	0.080	50	9.166	84.016	2.598
1	0.283	0.080	48	7.166	51.352	2.031
1	0.283	0.080	44	3.166	10.024	0.897
1	0.283	0.080	52	11.166	124.680	3.164
1	0.283	0.080	46	5.166	26.688	1.464
1	0.283	0.080	49	8.166	66.684	2.314
1	0.283	0.080	47	6.166	38.020	1.747
1	0.283	0.080	54	13.166	173.344	3.731
0	-0.717	0.514	25	-15.834	250.716	11.347
1	0.283	0.080	55	14.166	200.676	4.015
1	0.283	0.080	55	14.166	200.676	4.015
1	0.283	0.080	41	0.166	0.028	0.047
1	0.283	0.080	31	-9.834	96.708	-2.787
0	-0.717	0.514	13	-27.834	774.732	19.946
1	0.283	0.080	55	14.166	200.676	4.015
1	0.283	0.080	45	4.166	17.356	1.181
1	0.283	0.080	55	14.166	200.676	4.015
1	0.283	0.080	52	11.166	124.680	3.164
1	0.283	0.080	49	8.166	66.684	2.314
1	0.283	0.080	42	1.166	1.360	0.330
0	-0.717	0.514	37	-3.834	14.700	2.747

-0.832	0.691	24	-16.834	283.384	13.997
-0.832	0.691	21	-19.834	393.388	16.492
-0.832	0.691	38	-2.834	8.032	2.356
-0.832	0.691	46	5.166	26.688	-4.296
-0.832	0.691	29	-11.834	140.044	9.840
-0.832	0.691	48	7.166	51.352	-5.959
-0.832	0.691	42	1.166	1.360	-0.970
-0.832	0.691	38	-2.834	8.032	2.356
-0.832	0.691	18	-22.834	521.392	18.986
-0.832	0.691	49	8.166	66.684	-6.790
-0.832	0.691	30	-10.834	117.376	9.008
-0.832	0.691	43	2.166	4.692	-1.801
-0.832	0.691	39	-1.834	3.364	1.525
-0.832	0.691	31	-9.834	96.708	8.177
-0.832	0.691	28	-12.834	164.712	10.671
-0.832	0.691	48	7.166	51.352	-5.959
-0.832	0.691	47	6.166	38.020	-5.127
-0.832	0.691	37	-3.834	14.700	3.188
-0.832	0.691	40	-0.834	0.696	0.693
-0.832	0.691	49	8.166	66.684	-6.790
-0.832	0.691	32	-8.834	78.040	7.345
-0.832	0.691	47	6.166	38.020	-5.127
-0.832	0.691	32	-8.834	78.040	7.345
-0.832	0.691	29	-11.834	140.044	9.840
-0.832	0.691	23	-17.834	318.052	14.829
-0.832	0.691	41	0.166	0.028	-0.138
-0.832	0.691	41	0.166	0.028	-0.138
-0.832	0.691	51	10.166	103.348	-8.453
-0.832	0.691	29	-11.834	140.044	9.840
-0.832	0.691	37	-3.834	14.700	3.188
-0.832	0.691	37	-3.834	14.700	3.188
-0.832	0.691	36	-4.834	23.368	4.019
-0.832	0.691	40	-0.834	0.696	0.693

1	0.283	0.080	24	-16.834	283.384	-4.771
1	0.283	0.080	21	-19.834	393.388	-5.621
1	0.283	0.080	38	-2.834	8.032	-0.803
1	0.283	0.080	46	5.166	26.688	1.464
0	-0.717	0.514	29	-11.834	140.044	8.480
0	-0.717	0.514	48	7.166	51.352	-5.135
1	0.283	0.080	42	1.166	1.360	0.330
1	0.283	0.080	38	-2.834	8.032	-0.803
0	-0.717	0.514	18	-22.834	521.392	16.363
0	-0.717	0.514	49	8.166	66.684	-5.852
1	0.283	0.080	30	-10.834	117.376	-3.070
1	0.283	0.080	43	2.166	4.692	0.614
0	-0.717	0.514	39	-1.834	3.364	1.314
0	-0.717	0.514	31	-9.834	96.708	7.047
0	-0.717	0.514	28	-12.834	164.712	9.197
1	0.283	0.080	48	7.166	51.352	2.031
1	0.283	0.080	47	6.166	38.020	1.747
1	0.283	0.080	37	-3.834	14.700	-1.087
0	-0.717	0.514	40	-0.834	0.696	0.598
1	0.283	0.080	49	8.166	66.684	2.314
0	-0.717	0.514	32	-8.834	78.040	6.330
1	0.283	0.080	47	6.166	38.020	1.747
0	-0.717	0.514	32	-8.834	78.040	6.330
0	-0.717	0.514	29	-11.834	140.044	8.480
0	-0.717	0.514	23	-17.834	318.052	12.780
0	-0.717	0.514	41	0.166	0.028	-0.119
1	0.283	0.080	41	0.166	0.028	0.047
1	0.283	0.080	51	10.166	103.348	2.881
0	-0.717	0.514	29	-11.834	140.044	8.480
1	0.283	0.080	37	-3.834	14.700	-1.087
0	-0.717	0.514	37	-3.834	14.700	2.747
0	-0.717	0.514	36	-4.834	23.368	3.464
0	-0.717	0.514	40	-0.834	0.696	0.598

-0.832	0.691	50	9.166	84.016	-7.622
-0.832	0.691	38	-2.834	8.032	2.356
-0.832	0.691	40	-0.834	0.696	0.693
-0.832	0.691	36	-4.834	23.368	4.019
-0.832	0.691	20	-20.834	434.056	17.323
-0.832	0.691	47	6.166	38.020	-5.127
-0.832	0.691	54	13.166	173.344	-10.948
-0.832	0.691	50	9.166	84.016	-7.622
-0.832	0.691	25	-15.834	250.716	13.166
-0.832	0.691	53	12.166	148.012	-10.116
-0.832	0.691	44	3.166	10.024	-2.633
-0.832	0.691	26	-14.834	220.048	12.334
-0.832	0.691	33	-7.834	61.372	6.514
-0.832	0.691	36	-4.834	23.368	4.019
-0.832	0.691	39	-1.834	3.364	1.525
-0.832	0.691	46	5.166	26.688	-4.296
-0.832	0.691	36	-4.834	23.368	4.019
-0.832	0.691	54	13.166	173.344	-10.948
-0.832	0.691	36	-4.834	23.368	4.019
-0.832	0.691	44	3.166	10.024	-2.633
-0.832	0.691	40	-0.834	0.696	0.693
-0.832	0.691	38	-2.834	8.032	2.356
-0.832	0.691	35	-5.834	34.036	4.851
-0.832	0.691	46	5.166	26.688	-4.296
-0.832	0.691	49	8.166	66.684	-6.790
-0.832	0.691	48	7.166	51.352	-5.959
-0.832	0.691	41	0.166	0.028	-0.138
-0.832	0.691	53	12.166	148.012	-10.116
-0.832	0.691	53	12.166	148.012	-10.116
-0.832	0.691	51	10.166	103.348	-8.453
-155.491	129.290	7636	0.042	19431.861	-0.035

1	0.283	0.080	50	9.166	84.016	2.598
0	-0.717	0.514	38	-2.834	8.032	2.031
0	-0.717	0.514	40	-0.834	0.696	0.598
1	0.283	0.080	36	-4.834	23.368	-1.370
0	-0.717	0.514	20	-20.834	434.056	14.930
1	0.283	0.080	47	6.166	38.020	1.747
1	0.283	0.080	54	13.166	173.344	3.731
1	0.283	0.080	50	9.166	84.016	2.598
0	-0.717	0.514	25	-15.834	250.716	11.347
1	0.283	0.080	53	12.166	148.012	3.448
1	0.283	0.080	44	3.166	10.024	0.897
1	0.283	0.080	26	-14.834	220.048	-4.204
0	-0.717	0.514	33	-7.834	61.372	5.614
1	0.283	0.080	36	-4.834	23.368	-1.370
0	-0.717	0.514	39	-1.834	3.364	1.314
1	0.283	0.080	46	5.166	26.688	1.464
1	0.283	0.080	36	-4.834	23.368	-1.370
1	0.283	0.080	54	13.166	173.344	3.731
0	-0.717	0.514	36	-4.834	23.368	3.464
1	0.283	0.080	44	3.166	10.024	0.897
1	0.283	0.080	40	-0.834	0.696	-0.236
0	-0.717	0.514	38	-2.834	8.032	2.031
0	-0.717	0.514	35	-5.834	34.036	4.181
1	0.283	0.080	46	5.166	26.688	1.464
1	0.283	0.080	49	8.166	66.684	2.314
1	0.283	0.080	48	7.166	51.352	2.031
1	0.283	0.080	41	0.166	0.028	0.047
1	0.283	0.080	53	12.166	148.012	3.448
1	0.283	0.080	53	12.166	148.012	3.448
1	0.283	0.080	51	10.166	103.348	2.881
134	-0.004	37.979	7636	0.042	19431.861	469.214

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$

$$= \frac{412,633}{\sqrt{31,166 \times 19431,861}} = 0.5301$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Hasil Uji Validitas Manual :

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$

$$= \frac{469,214}{\sqrt{37,979 \times 19431,861}} = 0.5462$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Uji Validitas Manual Kuesioner Siswa untuk Pertanyaan No 55

Pertanyaan no 55

$x = 136/187 = 0.7273$

$y = 7636/187 = 40.834$

xi	x=xi-x	x2	yi	y	y2	xy
1	0.273	0.074	51	10.166	103.348	2.772
0	-0.727	0.529	36	-4.834	23.368	3.516
0	-0.727	0.529	41	0.166	0.028	-0.121
1	0.273	0.074	52	11.166	124.680	3.045
1	0.273	0.074	51	10.166	103.348	2.772
1	0.273	0.074	50	9.166	84.016	2.500
1	0.273	0.074	46	5.166	26.688	1.409
1	0.273	0.074	55	14.166	200.676	3.863
1	0.273	0.074	49	8.166	66.684	2.227
0	-0.727	0.529	31	-9.834	96.708	7.152
1	0.273	0.074	46	5.166	26.688	1.409
1	0.273	0.074	44	3.166	10.024	0.863
0	-0.727	0.529	40	-0.834	0.696	0.607
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	31	-9.834	96.708	-2.682
0	-0.727	0.529	27	-13.834	191.380	10.061
1	0.273	0.074	47	6.166	38.020	1.681
1	0.273	0.074	50	9.166	84.016	2.500
1	0.273	0.074	55	14.166	200.676	3.863
1	0.273	0.074	47	6.166	38.020	1.681
0	-0.727	0.529	16	-24.834	616.728	18.062
1	0.273	0.074	42	1.166	1.360	0.318
1	0.273	0.074	42	1.166	1.360	0.318
0	-0.727	0.529	43	2.166	4.692	-1.575
0	-0.727	0.529	43	2.166	4.692	-1.575

1	0.273	0.074	38	-2.834	8.032	-0.773
0	-0.727	0.529	36	-4.834	23.368	3.516
1	0.273	0.074	37	-3.834	14.700	-1.046
1	0.273	0.074	55	14.166	200.676	3.863
0	-0.727	0.529	28	-12.834	164.712	9.334
1	0.273	0.074	51	10.166	103.348	2.772
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	45	4.166	17.356	1.136
0	-0.727	0.529	33	-7.834	61.372	5.698
1	0.273	0.074	45	4.166	17.356	1.136
0	-0.727	0.529	44	3.166	10.024	-2.303
1	0.273	0.074	44	3.166	10.024	0.863
0	-0.727	0.529	49	8.166	66.684	-5.939
1	0.273	0.074	39	-1.834	3.364	-0.500
1	0.273	0.074	49	8.166	66.684	2.227
1	0.273	0.074	35	-5.834	34.036	-1.591
1	0.273	0.074	31	-9.834	96.708	-2.682
0	-0.727	0.529	33	-7.834	61.372	5.698
1	0.273	0.074	48	7.166	51.352	1.954
0	-0.727	0.529	12	-28.834	831.400	20.971
1	0.273	0.074	35	-5.834	34.036	-1.591
1	0.273	0.074	39	-1.834	3.364	-0.500
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	40	-0.834	0.696	-0.227
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	46	5.166	26.688	1.409
0	-0.727	0.529	21	-19.834	393.388	14.425
1	0.273	0.074	45	4.166	17.356	1.136
0	-0.727	0.529	2	-38.834	1508.080	28.244
1	0.273	0.074	37	-3.834	14.700	-1.046
1	0.273	0.074	34	-6.834	46.704	-1.864

1	0.273	0.074	32	-8.834	78.040	-2.409
1	0.273	0.074	29	-11.834	140.044	-3.227
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	48	7.166	51.352	1.954
0	-0.727	0.529	37	-3.834	14.700	2.788
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	42	1.166	1.360	0.318
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	45	4.166	17.356	1.136
1	0.273	0.074	52	11.166	124.680	3.045
0	-0.727	0.529	23	-17.834	318.052	12.971
1	0.273	0.074	38	-2.834	8.032	-0.773
1	0.273	0.074	51	10.166	103.348	2.772
1	0.273	0.074	38	-2.834	8.032	-0.773
0	-0.727	0.529	29	-11.834	140.044	8.607
1	0.273	0.074	28	-12.834	164.712	-3.500
1	0.273	0.074	39	-1.834	3.364	-0.500
1	0.273	0.074	33	-7.834	61.372	-2.136
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	33	-7.834	61.372	-2.136
1	0.273	0.074	47	6.166	38.020	1.681
0	-0.727	0.529	31	-9.834	96.708	7.152
1	0.273	0.074	47	6.166	38.020	1.681
1	0.273	0.074	41	0.166	0.028	0.045
1	0.273	0.074	54	13.166	173.344	3.590
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	43	2.166	4.692	0.591
1	0.273	0.074	50	9.166	84.016	2.500
1	0.273	0.074	47	6.166	38.020	1.681
1	0.273	0.074	42	1.166	1.360	0.318
0	-0.727	0.529	37	-3.834	14.700	2.788
0	-0.727	0.529	41	0.166	0.028	-0.121

1	0.273	0.074	18	-22.834	521.392	-6.227
0	-0.727	0.529	26	-14.834	220.048	10.789
1	0.273	0.074	52	11.166	124.680	3.045
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	51	10.166	103.348	2.772
0	-0.727	0.529	35	-5.834	34.036	4.243
1	0.273	0.074	40	-0.834	0.696	-0.227
0	-0.727	0.529	47	6.166	38.020	-4.485
1	0.273	0.074	49	8.166	66.684	2.227
1	0.273	0.074	36	-4.834	23.368	-1.318
0	-0.727	0.529	6	-34.834	1213.408	25.335
1	0.273	0.074	55	14.166	200.676	3.863
1	0.273	0.074	50	9.166	84.016	2.500
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	52	11.166	124.680	3.045
0	-0.727	0.529	46	5.166	26.688	-3.757
1	0.273	0.074	49	8.166	66.684	2.227
1	0.273	0.074	47	6.166	38.020	1.681
1	0.273	0.074	54	13.166	173.344	3.590
0	-0.727	0.529	25	-15.834	250.716	11.516
1	0.273	0.074	55	14.166	200.676	3.863
1	0.273	0.074	55	14.166	200.676	3.863
1	0.273	0.074	41	0.166	0.028	0.045
1	0.273	0.074	31	-9.834	96.708	-2.682
0	-0.727	0.529	13	-27.834	774.732	20.244
1	0.273	0.074	55	14.166	200.676	3.863
0	-0.727	0.529	45	4.166	17.356	-3.030
1	0.273	0.074	55	14.166	200.676	3.863
1	0.273	0.074	52	11.166	124.680	3.045
1	0.273	0.074	49	8.166	66.684	2.227
1	0.273	0.074	42	1.166	1.360	0.318
0	-0.727	0.529	37	-3.834	14.700	2.788

1	0.273	0.074	24	-16.834	283.384	-4.591
1	0.273	0.074	21	-19.834	393.388	-5.409
0	-0.727	0.529	38	-2.834	8.032	2.061
1	0.273	0.074	46	5.166	26.688	1.409
0	-0.727	0.529	29	-11.834	140.044	8.607
1	0.273	0.074	48	7.166	51.352	1.954
1	0.273	0.074	42	1.166	1.360	0.318
1	0.273	0.074	38	-2.834	8.032	-0.773
0	-0.727	0.529	18	-22.834	521.392	16.607
1	0.273	0.074	49	8.166	66.684	2.227
1	0.273	0.074	30	-10.834	117.376	-2.954
1	0.273	0.074	43	2.166	4.692	0.591
0	-0.727	0.529	39	-1.834	3.364	1.334
0	-0.727	0.529	31	-9.834	96.708	7.152
0	-0.727	0.529	28	-12.834	164.712	9.334
1	0.273	0.074	48	7.166	51.352	1.954
0	-0.727	0.529	47	6.166	38.020	-4.485
0	-0.727	0.529	37	-3.834	14.700	2.788
1	0.273	0.074	40	-0.834	0.696	-0.227
1	0.273	0.074	49	8.166	66.684	2.227
1	0.273	0.074	32	-8.834	78.040	-2.409
1	0.273	0.074	47	6.166	38.020	1.681
0	-0.727	0.529	32	-8.834	78.040	6.425
0	-0.727	0.529	29	-11.834	140.044	8.607
1	0.273	0.074	23	-17.834	318.052	-4.863
0	-0.727	0.529	41	0.166	0.028	-0.121
1	0.273	0.074	41	0.166	0.028	0.045
1	0.273	0.074	51	10.166	103.348	2.772
0	-0.727	0.529	29	-11.834	140.044	8.607
0	-0.727	0.529	37	-3.834	14.700	2.788
1	0.273	0.074	37	-3.834	14.700	-1.046
0	-0.727	0.529	36	-4.834	23.368	3.516
1	0.273	0.074	40	-0.834	0.696	-0.227

1	0.273	0.074	50	9.166	84.016	2.500
0	-0.727	0.529	38	-2.834	8.032	2.061
1	0.273	0.074	40	-0.834	0.696	-0.227
1	0.273	0.074	36	-4.834	23.368	-1.318
0	-0.727	0.529	20	-20.834	434.056	15.153
1	0.273	0.074	47	6.166	38.020	1.681
1	0.273	0.074	54	13.166	173.344	3.590
1	0.273	0.074	50	9.166	84.016	2.500
0	-0.727	0.529	25	-15.834	250.716	11.516
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	26	-14.834	220.048	-4.045
1	0.273	0.074	33	-7.834	61.372	-2.136
1	0.273	0.074	36	-4.834	23.368	-1.318
1	0.273	0.074	39	-1.834	3.364	-0.500
1	0.273	0.074	46	5.166	26.688	1.409
1	0.273	0.074	36	-4.834	23.368	-1.318
1	0.273	0.074	54	13.166	173.344	3.590
0	-0.727	0.529	36	-4.834	23.368	3.516
1	0.273	0.074	44	3.166	10.024	0.863
1	0.273	0.074	40	-0.834	0.696	-0.227
1	0.273	0.074	38	-2.834	8.032	-0.773
1	0.273	0.074	35	-5.834	34.036	-1.591
1	0.273	0.074	46	5.166	26.688	1.409
1	0.273	0.074	49	8.166	66.684	2.227
1	0.273	0.074	48	7.166	51.352	1.954
0	-0.727	0.529	41	0.166	0.028	-0.121
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	53	12.166	148.012	3.318
1	0.273	0.074	51	10.166	103.348	2.772
136	-0.005	37.091	7636	0.042	19431.861	438.545

Hasil Uji Validitas Manual :

$$\begin{aligned} r_{xy} &= \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}} \\ &= \frac{438,545}{\sqrt{37,091 \times 19431,861}} = 0.5166 \end{aligned}$$

karena $r_{xy} > 0.1432 \Rightarrow$ data valid

Data Anthropometri Statis Tinggi Siku Duduk (TSD)

No	TSD
1	17.6
2	27.5
3	26.4
4	30.1
5	25.0
6	23.0
7	22.3
8	26.0
9	28.0
10	20.5
11	18.9
12	21.5
13	22.7
14	19.6
15	26.0
16	22.5
17	22.0
18	19.0
19	23.0
20	24.5
21	19.3
22	24.0
23	23.5
24	21.4
25	22.5
26	21.0
27	20.0
28	25.3
29	17.5
30	20.6
31	23.1
32	23.0
33	24.0
34	18.7
35	18.0
36	20.4
37	24.0
38	18.0
39	16.2
40	23.5
41	26.3
42	26.0
43	24.2
44	21.6
45	18.3
46	23.0
47	21.0
48	22.0
49	19.6
50	18.5

No.	TSD
51	20.1
52	20.8
53	24.4
54	25.9
55	16.4
56	21.4
57	22.0
58	23.0
59	21.4
60	20.4
61	20.5
62	24.4
63	24.0
64	19.8
65	20.0
66	25.0
67	17.0
68	16.4
69	20.5
70	25.6
71	22.3
72	22.4
73	23.5
74	24.0
75	22.0
76	20.0
77	14.0
78	19.5
79	18.5
80	25.6
81	25.7
82	22.1
83	22.2
84	23.0
85	20.4
86	18.5
87	23.0
88	22.0
89	12.7
90	20.8
91	18.9
92	28.3
93	22.0
94	26.0
95	22.0
96	18.0
97	20.0
98	18.0
99	25.0
100	31.3

No	TSD
101	20.4
102	22.3
103	23.5
104	24.2
105	18.5
106	22.8
107	21.0
108	16.0
109	21.0
110	16.5
111	24.4
112	22.8
113	23.0
114	27.2
115	16.0
116	23.2
117	29.5
118	20.0
119	24.5
120	22.5
121	19.6
122	26.8
123	18.6
124	25.2
125	21.0
126	21.9
127	26.0
128	14.4
129	18.0
130	22.5
131	20.8
132	28.4
133	26.7
134	25.0
135	26.0
136	23.6
137	30.0
138	17.4
139	22.5
140	26.6
141	22.7
142	25.6
143	24.5
144	18.3
145	21.0
146	19.2
147	29.6
148	19.0
149	19.5
150	27.4

No.	TSD
151	22.5
152	20.8
153	19.5
154	17.5
155	25.0
156	22.5
157	24.6
158	27.7
159	29.5
160	25.0
161	19.5
162	21.7
163	19.7
164	18.0
165	19.5
166	19.4
167	22.7
168	17.6
169	25.5
170	21.9
171	21.6
172	18.2
173	20.2
174	19.8
175	26.0
176	20.7
177	16.5
178	27.5
179	23.0
180	23.5
181	26.8
182	19.0
183	19.1
184	21.4
185	23.4
186	23.6
187	24.5
188	26.0
189	16.0
190	26.1
191	22.0
192	20.3
193	24.0
194	20.2
195	23.0
196	18.4
197	21.5
198	15.0
199	19.0
200	24.2

Uji Kenormalan Data Tinggi Siku Duduk (TSD)

- ❖ Menentukan Jumlah Kelas :

$$k = 3.3 \log n + 1$$

$$= 3.3 \log 200 + 1$$

$$= 8,59 \sim 9 \text{ kelas}$$

- ❖ Nilai Max = 31.3
Nilai Min = 12.7

- ❖ Mencari rentangan kelas atau panjang kelas :

$$c = (\text{data terbesar} - \text{data terkecil}) / k$$

$$= (31.3 - 12.7) / 8,59$$

$$= 2.2$$

- ❖ Rata -rata = 22.05
Standar Deviasi = 3.392

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²	
	BKB	BKA											
< 12.7	~	12.65	0	~	-2.770	0.00000	0.00280	0.00280	0.560	14.081	13	0.083	
12.7 - 14.8	12.65	14.85	3	-2.770	-2.121	0.00280	0.01694	0.01414	2.828				
14.9 - 17	14.85	17.05	10	-2.121	-1.473	0.01694	0.07040	0.05346	10.692				
17.1 - 19.2	17.05	19.25	29	-1.473	-0.824	0.07040	0.20494	0.13453	26.907	26.907	29	0.163	
19.3 - 21.4	19.25	21.45	45	-0.824	-0.175	0.20494	0.43037	0.22543	45.086	45.086	45	0.000	
21.5 - 23.6	21.45	23.65	53	-0.175	0.473	0.43037	0.68198	0.25161	50.322	50.322	53	0.142	
23.7 - 25.8	23.65	25.85	30	0.473	1.122	0.68198	0.86905	0.18707	37.415	37.415	30	1.469	
25.9 - 28	25.85	28.05	22	1.122	1.771	0.86905	0.96169	0.09263	18.527	18.527	22	0.651	
28.1 - 30.2	28.05	30.25	7	1.771	2.419	0.96169	0.99222	0.03054	6.108	7.663	8	0.015	
30.3 - 32.4	30.25	32.45	1	2.419	3.068	0.99222	0.99892	0.00670	1.340				
> 32.4	32.45	~	0	3.068	~	0.99892	1.00000	0.00108	0.216				
			200						200				2.524

- ❖ $V = k - r - 1 = 7 - 2 - 1 = 4$
 $\alpha = 0.05$
 $\chi^2(v, \alpha) = 9.488$

- ❖ $\chi^2 \leq \chi^2_{(v, \alpha)}$ Data mengikuti distribusi normal
 $2.524 \leq 9.488$ Data mengikuti distribusi normal

Kesimpulan : Data mengikuti distribusi normal (data NORMAL)

Uji Keseragaman Data Tinggi Siku Duduk (TSD)

Subgrup ke-	TSD										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	17.6	27.5	26.4	30.1	25.0	23.0	22.3	26.0	28.0	20.5	24.64
2	18.9	21.5	22.7	19.6	26.0	22.5	22.0	19.0	23.0	24.5	21.97
3	19.3	24.0	23.5	21.4	22.5	21.0	20.0	25.3	17.5	20.6	21.51
4	23.1	23.0	24.0	18.7	18.0	20.4	24.0	18.0	16.2	23.5	20.89
5	26.3	26.0	24.2	21.6	18.3	23.0	21.0	22.0	19.6	18.5	22.05
6	20.1	20.8	24.4	25.9	16.4	21.4	22.0	23.0	21.4	20.4	21.58
7	20.5	24.4	24.0	19.8	20.0	25.0	17.0	16.4	20.5	25.6	21.32
8	22.3	22.4	23.5	24.0	22.0	20.0	14.0	19.5	18.5	25.6	21.18
9	25.7	22.1	22.2	23.0	20.4	18.5	23.0	22.0	12.7	20.8	21.04
10	18.9	28.3	22.0	26.0	22.0	18.0	20.0	18.0	25.0	31.3	22.95
11	20.4	22.3	23.5	24.2	18.5	22.8	21.0	16.0	21.0	16.5	20.62
12	24.4	22.8	23.0	27.2	16.0	23.2	29.5	20.0	24.5	22.5	23.31
13	19.6	26.8	18.6	25.2	21.0	21.9	26.0	14.4	18.0	22.5	21.40
14	20.8	28.4	26.7	25.0	26.0	23.6	30.0	17.4	22.5	26.6	24.70
15	22.7	25.6	24.5	18.3	21.0	19.2	29.6	19.0	19.5	27.4	22.68
16	22.5	20.8	19.5	17.5	25.0	22.5	24.6	27.7	29.5	25.0	23.46
17	19.5	21.7	19.7	18.0	19.5	19.4	22.7	17.6	25.5	21.9	20.55
18	21.6	18.2	20.2	19.8	26.0	20.7	16.5	27.5	23.0	23.5	21.70
19	26.8	19.0	19.1	21.4	23.4	23.6	24.5	26.0	16.0	26.1	22.59
20	22.0	20.3	24.0	20.2	23.0	18.4	21.5	15.0	19.0	24.2	20.76
	Σ										440.90

Perhitungan :

$$1. \quad \bar{\bar{X}} = \frac{\sum \bar{X}}{k} = \frac{440.9}{20} = 22.05$$

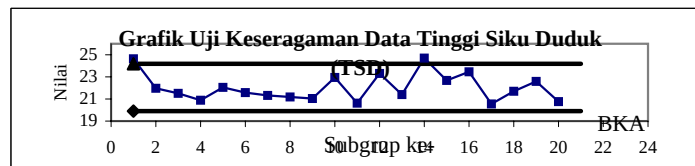
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(17.6 - 22.05)^2 + (18.9 - 22.05)^2 + \dots + (24.2 - 22.05)^2}{200 - 1}} = 3.392$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{3.392}{\sqrt{10}} = 1.07$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{\bar{X}} + (c * \sigma_{\bar{X}}) = 22.05 + (2 * 1.07) = 24.19$$

$$BKB = \bar{\bar{X}} - (c * \sigma_{\bar{X}}) = 22.05 - (2 * 1.07) = 19.91$$



Kesimpulan :	Data pada subgrup 1	————>	TIDAK SERAGAM
	Data pada subgrup 2	————>	SERAGAM
	Data pada subgrup 3	————>	SERAGAM
	Data pada subgrup 4	————>	SERAGAM
	Data pada subgrup 5	————>	SERAGAM
	Data pada subgrup 6	————>	SERAGAM
	Data pada subgrup 7	————>	SERAGAM
	Data pada subgrup 8	————>	SERAGAM
	Data pada subgrup 9	————>	SERAGAM
	Data pada subgrup 10	————>	SERAGAM
	Data pada subgrup 11	————>	SERAGAM
	Data pada subgrup 12	————>	SERAGAM
	Data pada subgrup 13	————>	SERAGAM
	Data pada subgrup 14	————>	TIDAK SERAGAM
	Data pada subgrup 15	————>	SERAGAM
	Data pada subgrup 16	————>	SERAGAM
	Data pada subgrup 17	————>	SERAGAM
	Data pada subgrup 18	————>	SERAGAM
	Data pada subgrup 19	————>	SERAGAM
	Data pada subgrup 20	————>	SERAGAM

REVISI :Uji Kenormalan Data Tinggi Siku Duduk (TSD)

- ❖ Menentukan Jumlah Kelas :

$$k = 3.3 \log n + 1$$

$$= 3.3 \log 180 + 1$$

$$= 8,44 \sim 9 \text{ kelas}$$

- ❖ Nilai Max = 31.3
Nilai Min = 12.7

- ❖ Mencari rentangan kelas atau panjang kelas :

$$c = (\text{data terbesar} - \text{data terkecil}) / k$$

$$= (31.3 - 12.7) / 8,44$$

$$= 2.2$$

- ❖ Rata -rata = 21.75
Standar Deviasi = 3.242

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²
	BKB	BKA										
< 12.7	~	12.65	0	~	-2.808	0.00000	0.00249	0.00249	0.448	13.211	13	0.003
12.7 - 14.8	12.65	14.85	3	-2.808	-2.130	0.00249	0.01660	0.01411	2.540			
14.9 - 17	14.85	17.05	10	-2.130	-1.451	0.01660	0.07340	0.05680	10.223			
17.1 - 19.2	17.05	19.25	27	-1.451	-0.772	0.07340	0.21998	0.14658	26.385	26.385	27	0.014
19.3 - 21.4	19.25	21.45	43	-0.772	-0.094	0.21998	0.46272	0.24274	43.694	43.694	43	0.011
21.5 - 23.6	21.45	23.65	49	-0.094	0.585	0.46272	0.72076	0.25804	46.447	46.447	49	0.140
23.7 - 25.8	23.65	25.85	28	0.585	1.264	0.72076	0.89685	0.17609	31.695	31.695	28	0.431
25.9 - 28	25.85	28.05	15	1.264	1.942	0.89685	0.97396	0.07711	13.880	18.567	20	0.111
28.1 - 30.2	28.05	30.25	4	1.942	2.621	0.97396	0.99562	0.02166	3.898			
30.3 - 32.4	30.25	32.45	1	2.621	3.300	0.99562	0.99952	0.00390	0.702			
> 32.4	32.45	~	0	3.300	~	0.99952	1.00000	0.00048	0.087			
			180						180			0.710

REVISI :Uji Keseragaman Data Tinggi Siku Duduk (TSD)

Subgrup ke-	TSD										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	18.9	21.5	22.7	19.6	26.0	22.5	22.0	19.0	23.0	24.5	21.97
2	19.3	24.0	23.5	21.4	22.5	21.0	20.0	25.3	17.5	20.6	21.51
3	23.1	23.0	24.0	18.7	18.0	20.4	24.0	18.0	16.2	23.5	20.89
4	26.3	26.0	24.2	21.6	18.3	23.0	21.0	22.0	19.6	18.5	22.05
5	20.1	20.8	24.4	25.9	16.4	21.4	22.0	23.0	21.4	20.4	21.58
6	20.5	24.4	24.0	19.8	20.0	25.0	17.0	16.4	20.5	25.6	21.32
7	22.3	22.4	23.5	24.0	22.0	20.0	14.0	19.5	18.5	25.6	21.18
8	25.7	22.1	22.2	23.0	20.4	18.5	23.0	22.0	12.7	20.8	21.04
9	18.9	28.3	22.0	26.0	22.0	18.0	20.0	18.0	25.0	31.3	22.95
10	20.4	22.3	23.5	24.2	18.5	22.8	21.0	16.0	21.0	16.5	20.62
11	24.4	22.8	23.0	27.2	16.0	23.2	29.5	20.0	24.5	22.5	23.31
12	19.6	26.8	18.6	25.2	21.0	21.9	26.0	14.4	18.0	22.5	21.40
13	22.7	25.6	24.5	18.3	21.0	19.2	29.6	19.0	19.5	27.4	22.68
14	22.5	20.8	19.5	17.5	25.0	22.5	24.6	27.7	29.5	25.0	23.46
15	19.5	21.7	19.7	18.0	19.5	19.4	22.7	17.6	25.5	21.9	20.55
16	21.6	18.2	20.2	19.8	26.0	20.7	16.5	27.5	23.0	23.5	21.70
17	26.8	19.0	19.1	21.4	23.4	23.6	24.5	26.0	16.0	26.1	22.59
18	22.0	20.3	24.0	20.2	23.0	18.4	21.5	15.0	19.0	24.2	20.76
	Σ										391.56

Perhitungan :

$$1. \quad \bar{\bar{X}} = \frac{\sum \bar{X}}{k} = \frac{391.56}{18} = 21.75$$

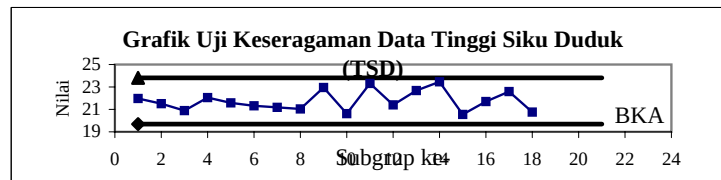
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N-1}} = \sqrt{\frac{(18.9-21.75)^2 + (19.3-21.75)^2 + \dots + (24.2-21.75)^2}{180-1}} = 3.242$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{3.242}{\sqrt{10}} = 1.03$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{\bar{X}} + (c * \sigma_{\bar{X}}) = 21.75 + (2 * 1.03) = 23.81$$

$$BKB = \bar{\bar{X}} - (c * \sigma_{\bar{X}}) = 21.75 - (2 * 1.03) = 19.69$$



Kesimpulan :	Data pada subgroup 1	→	SERAGAM
	Data pada subgroup 2	→	SERAGAM
	Data pada subgroup 3	→	SERAGAM
	Data pada subgroup 4	→	SERAGAM
	Data pada subgroup 5	→	SERAGAM
	Data pada subgroup 6	→	SERAGAM
	Data pada subgroup 7	→	SERAGAM
	Data pada subgroup 8	→	SERAGAM
	Data pada subgroup 9	→	SERAGAM
	Data pada subgroup 10	→	SERAGAM
	Data pada subgroup 11	→	SERAGAM
	Data pada subgroup 12	→	SERAGAM
	Data pada subgroup 13	→	SERAGAM
	Data pada subgroup 14	→	SERAGAM
	Data pada subgroup 15	→	SERAGAM
	Data pada subgroup 16	→	SERAGAM
	Data pada subgroup 17	→	SERAGAM
	Data pada subgroup 18	→	SERAGAM

Uji Kecukupan Data Tinggi Siku Duduk (TSD)

$$N' = \left[\frac{c/\alpha \sqrt{n \sum x^2 - (\sum x)^2}}{\sum x} \right]^2$$

$$N' = \left[\frac{(2 / 0.05) \times \sqrt{180 \times (87058.22) - (15331923.36)}}{3915.6} \right]^2 = 35.331$$

Kesimpulan : karena $N' \leq N$, maka jumlah data yang diambil sudah **CUKUP**

Perhitungan Persentil Tinggi Siku Duduk (TSD)

Cara Lengkap :

1. $\mu = \bar{X} = 21.75$
2. $\sigma = 3.242$
3. Untuk 5 % $\Rightarrow Z1 = -1.645$
Untuk 95 % $\Rightarrow Z2 = 1.645$
4. $P_5 = \mu + \sigma (Z1)$ $P_5 = 21.75 + 3.242 (-1.645) = 16.42$
 $P_{50} = \mu$ $P_{50} = 21.75$
 $P_{95} = \mu + \sigma (Z2)$ $P_{95} = 21.75 + 3.242(1.645) = 27.08$

Data Anthropometri Statis Tinggi Popliteal (TPO)

No	TPO
1	41.5
2	51.0
3	38.9
4	40.0
5	45.0
6	37.0
7	41.3
8	42.3
9	39.5
10	43.0
11	37.5
12	36.7
13	41.1
14	42.4
15	39.5
16	39.8
17	37.7
18	38.0
19	40.5
20	43.5
21	37.6
22	34.5
23	38.4
24	42.1
25	39.5
26	43.5
27	37.2
28	43.2
29	38.5
30	43.0
31	38.7
32	43.5
33	40.0
34	42.1
35	37.0
36	36.3
37	39.7
38	44.0
39	38.5
40	43.0
41	38.4
42	43.6
43	42.0
44	40.3
45	36.9
46	42.5
47	41.0
48	39.0
49	37.1
50	42.5

No.	TPO
51	37.0
52	44.0
53	37.2
54	37.3
55	42.7
56	42.0
57	43.0
58	39.3
59	40.0
60	41.5
61	39.7
62	44.2
63	35.3
64	36.8
65	40.4
66	43.0
67	42.0
68	36.5
69	37.3
70	41.2
71	38.8
72	42.4
73	40.8
74	44.0
75	43.8
76	40.0
77	42.5
78	36.5
79	37.2
80	41.5
81	38.5
82	42.5
83	40.3
84	42.0
85	40.3
86	41.6
87	43.5
88	42.0
89	44.0
90	41.5
91	38.1
92	39.0
93	41.2
94	44.0
95	39.0
96	40.0
97	44.0
98	41.0
99	43.0
100	43.9

No	TPO
101	38.0
102	43.5
103	41.0
104	42.2
105	42.7
106	43.1
107	44.0
108	40.0
109	39.0
110	38.0
111	42.3
112	39.4
113	43.3
114	42.2
115	35.8
116	41.0
117	37.5
118	41.5
119	39.0
120	39.0
121	38.9
122	44.0
123	39.1
124	42.2
125	39.0
126	43.0
127	37.2
128	41.5
129	42.5
130	37.5
131	37.6
132	44.2
133	42.0
134	38.0
135	44.0
136	37.1
137	38.0
138	41.5
139	43.0
140	38.5
141	37.6
142	40.5
143	39.0
144	42.0
145	40.0
146	42.2
147	41.8
148	36.3
149	42.5
150	42.1

No.	TPO
151	39.0
152	43.5
153	30.8
154	42.0
155	42.0
156	44.1
157	42.4
158	42.6
159	44.1
160	41.8
161	41.3
162	38.0
163	40.0
164	42.0
165	38.0
166	42.5
167	45.5
168	33.5
169	44.0
170	37.1
171	40.0
172	40.2
173	42.1
174	44.3
175	40.2
176	41.5
177	40.2
178	39.5
179	43.5
180	36.7
181	39.8
182	43.1
183	42.3
184	39.9
185	40.2
186	40.8
187	42.5
188	43.0
189	43.0
190	37.5
191	38.6
192	37.2
193	40.3
194	42.0
195	47.6
196	45.5
197	40.2
198	39.5
199	43.0
200	35.3

Uji Kenormalan Data Tinggi Popliteal (TPO)

- ❖ Menentukan Jumlah Kelas :

$$k = 3.3 \log n + 1$$

$$= 3.3 \log 200 + 1$$

$$= 8,59 \sim 9 \text{ kelas}$$

- ❖ Nilai Max = 51
Nilai Min = 30.8

- ❖ Mencari rentangan kelas atau panjang kelas :

$$c = (\text{data terbesar} - \text{data terkecil}) / k$$

$$= (51 - 30.8) / 8,59$$

$$= 2.4$$

- ❖ Rata -rata = 40.63
Standar Deviasi = 2.707

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²
	BKB	BKA										
< 30.8	~	30.75	0	~	-3.651	0.00000	0.00013	0.00013	0.026	6.051	5	0.183
30.8 - 33.1	30.75	33.15	1	-3.651	-2.764	0.00013	0.00286	0.00273	0.545			
33.2 - 35.5	33.15	35.55	4	-2.764	-1.877	0.00286	0.03025	0.02740	5.480			
35.6 - 37.9	35.55	37.95	30	-1.877	-0.990	0.03025	0.16100	0.13075	26.149	26.149	30	0.567
38 - 40.3	37.95	40.35	59	-0.990	-0.104	0.16100	0.45873	0.29773	59.546	59.546	59	0.005
40.4 - 42.7	40.35	42.75	61	-0.104	0.783	0.45873	0.78321	0.32448	64.896	64.896	61	0.234
42.8 - 45.1	42.75	45.15	41	0.783	1.670	0.78321	0.95252	0.16931	33.862	33.862	41	1.505
45.2 - 47.5	45.15	47.55	2	1.670	2.557	0.95252	0.99471	0.04219	8.439	9.496	4	3.181
47.6 - 49.9	47.55	49.95	1	2.557	3.443	0.99471	0.99971	0.00500	1.000			
50 - 52.3	49.95	52.35	1	3.443	4.330	0.99971	0.99999	0.00028	0.056			
> 52.3	52.35	~	0	4.330	~	0.99999	1.00000	0.00001	0.001			
			200						200			

Uji Keseragaman Data Tinggi Popliteal (TPO)

Subgrup ke-	TPO										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	41.5	51.0	38.9	40.0	45.0	37.0	41.3	42.3	39.5	43.0	41.95
2	37.5	36.7	41.1	42.4	39.5	39.8	37.7	38.0	40.5	43.5	39.67
3	37.6	34.5	38.4	42.1	39.5	43.5	37.2	43.2	38.5	43.0	39.75
4	38.7	43.5	40.0	42.1	37.0	36.3	39.7	44.0	38.5	43.0	40.28
5	38.4	43.6	42.0	40.3	36.9	42.5	41.0	39.0	37.1	42.5	40.33
6	37.0	44.0	37.2	37.3	42.7	42.0	43.0	39.3	40.0	41.5	40.40
7	39.7	44.2	35.3	36.8	40.4	43.0	42.0	36.5	37.3	41.2	39.64
8	38.8	42.4	40.8	44.0	43.8	40.0	42.5	36.5	37.2	41.5	40.75
9	38.5	42.5	40.3	42.0	40.3	41.6	43.5	42.0	44.0	41.5	41.62
10	38.1	39.0	41.2	44.0	39.0	40.0	44.0	41.0	43.0	43.9	41.32
11	38.0	43.5	41.0	42.2	42.7	43.1	44.0	40.0	39.0	38.0	41.15
12	42.3	39.4	43.3	42.2	35.8	41.0	37.5	41.5	39.0	39.0	40.10
13	38.9	44.0	39.1	42.2	39.0	43.0	37.2	41.5	42.5	37.5	40.49
14	37.6	44.2	42.0	38.0	44.0	37.1	38.0	41.5	43.0	38.5	40.39
15	37.6	40.5	39.0	42.0	40.0	42.2	41.8	36.3	42.5	42.1	40.40
16	39.0	43.5	30.8	42.0	42.0	44.1	42.4	42.6	44.1	41.8	41.23
17	41.3	38.0	40.0	42.0	38.0	42.5	45.5	33.5	44.0	37.1	40.19
18	40.0	40.2	42.1	44.3	40.2	41.5	40.2	39.5	43.5	36.7	40.82
19	39.8	43.1	42.3	39.9	40.2	40.8	42.5	43.0	43.0	37.5	41.21
20	38.6	37.2	40.3	42.0	47.6	45.5	40.2	39.5	43.0	35.3	40.92
Σ											812.61

Perhitungan :

$$1. \quad \bar{X} = \frac{\sum \bar{X}}{k} = \frac{812.61}{20} = 40.63$$

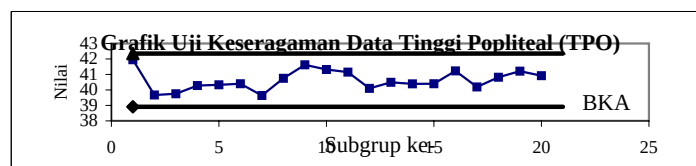
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(41.5 - 40.63)^2 + (37.5 - 40.63)^2 + \dots + (35.3 - 40.63)^2}{200 - 1}} = 2.707$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{2.707}{\sqrt{10}} = 0.86$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{X} + (c * \sigma_{\bar{X}}) = 40.63 + (2 * 0.86) = 42.35$$

$$BKB = \bar{X} - (c * \sigma_{\bar{X}}) = 40.63 - (2 * 0.86) = 38.91$$



Kesimpulan :	Data pada subgrup 1	→	SERAGAM
	Data pada subgrup 2	→	SERAGAM
	Data pada subgrup 3	→	SERAGAM
	Data pada subgrup 4	→	SERAGAM
	Data pada subgrup 5	→	SERAGAM
	Data pada subgrup 6	→	SERAGAM
	Data pada subgrup 7	→	SERAGAM
	Data pada subgrup 8	→	SERAGAM
	Data pada subgrup 9	→	SERAGAM
	Data pada subgrup 10	→	SERAGAM
	Data pada subgrup 11	→	SERAGAM
	Data pada subgrup 12	→	SERAGAM
	Data pada subgrup 13	→	SERAGAM
	Data pada subgrup 14	→	SERAGAM
	Data pada subgrup 15	→	SERAGAM
	Data pada subgrup 16	→	SERAGAM
	Data pada subgrup 17	→	SERAGAM
	Data pada subgrup 18	→	SERAGAM
	Data pada subgrup 19	→	SERAGAM
	Data pada subgrup 20	→	SERAGAM

Uji Kecukupan Data Tinggi Popliteal (TPO)

$$N' = \left[\frac{c/\alpha \sqrt{n \sum x^2 - (\sum x)^2}}{\sum x} \right]^2$$

$$N' = \left[\frac{(2/0.05) \times \sqrt{200 \times (331625.33) - (66033501.21)}}{8126.10} \right]^2 = 7.065$$

Kesimpulan : karena $N' \leq N$, maka jumlah data yang diambil sudah **CUKUP**

Perhitungan Persentil Tinggi Popliteal (TPO)

Cara Lengkap :

$$1. \mu = \bar{X} = 40.63$$

$$2. \sigma = 2.707$$

$$3. \text{Untuk } 5\% \implies Z1 = -1.645$$

$$\text{Untuk } 95\% \implies Z2 = 1.645$$

$$4. P_5 = \mu + \sigma (Z1) \quad P_5 = 40.63 + 2.707 (-1.645) = 36.18$$

$$P_{50} = \mu \quad P_{50} = 40.63$$

$$P_{95} = \mu + \sigma (Z2) \quad P_{95} = 40.63 + 2.707 (1.645) = 45.08$$

Data Anthropometri Statis Jangkauan Tangan (JT)

No	JT
1	83.5
2	77.0
3	70.0
4	86.0
5	81.0
6	79.5
7	82.0
8	86.0
9	75.0
10	87.0
11	79.5
12	76.0
13	68.5
14	76.7
15	76.0
16	79.0
17	69.0
18	81.0
19	73.0
20	77.0
21	81.5
22	91.0
23	68.5
24	78.0
25	72.0
26	88.5
27	89.0
28	88.0
29	70.0
30	76.0
31	75.4
32	89.0
33	80.0
34	78.0
35	63.5
36	71.5
37	81.0
38	75.7
39	83.0
40	78.5
41	78.6
42	83.0
43	82.0
44	74.0
45	69.5
46	67.0
47	72.0
48	78.7
49	78.5
50	79.0

No.	JT
51	71.1
52	80.0
53	74.5
54	72.6
55	70.0
56	67.5
57	83.0
58	81.5
59	76.0
60	71.0
61	77.0
62	76.0
63	70.9
64	72.1
65	74.0
66	83.0
67	82.0
68	74.0
69	74.0
70	74.0
71	81.0
72	78.0
73	75.5
74	76.0
75	82.0
76	71.0
77	83.0
78	71.5
79	74.2
80	67.0
81	82.0
82	78.0
83	82.8
84	82.0
85	75.0
86	80.0
87	87.0
88	79.0
89	78.0
90	62.0
91	75.0
92	70.5
93	76.0
94	87.0
95	96.5
96	72.0
97	83.6
98	77.0
99	83.0
100	76.0

No	JT
101	77.0
102	68.0
103	76.5
104	80.0
105	79.0
106	78.0
107	83.5
108	81.0
109	67.5
110	72.0
111	91.0
112	66.0
113	78.5
114	82.0
115	72.3
116	67.0
117	73.6
118	76.5
119	67.5
120	74.0
121	77.0
122	84.5
123	72.9
124	89.0
125	66.0
126	81.0
127	74.5
128	79.6
129	86.0
130	81.0
131	75.0
132	81.0
133	72.2
134	79.0
135	69.0
136	74.0
137	76.0
138	83.0
139	83.0
140	82.0
141	79.0
142	84.0
143	74.5
144	78.0
145	64.0
146	65.0
147	80.2
148	77.0
149	78.0
150	80.6

No.	JT
151	82.5
152	91.0
153	65.0
154	85.0
155	67.0
156	81.0
157	71.3
158	75.0
159	71.5
160	81.4
161	80.5
162	78.4
163	71.0
164	82.0
165	65.0
166	78.6
167	86.7
168	82.0
169	77.5
170	72.3
171	80.5
172	89.0
173	71.0
174	78.0
175	72.0
176	75.5
177	84.0
178	74.0
179	69.0
180	75.0
181	76.5
182	82.0
183	81.0
184	75.0
185	75.0
186	84.9
187	76.5
188	78.0
189	79.0
190	70.4
191	77.0
192	73.3
193	75.0
194	73.0
195	79.0
196	70.0
197	73.5
198	77.0
199	73.0
200	70.3

Uji Kenormalan Data Jangkauan Tangan (JT)

v Menentukan Jumlah Kelas :

$$k = 3.3 \log n + 1$$

$$= 3.3 \log 200 + 1$$

$$= 8,59 \sim 9 \text{ kelas}$$

v Mencari rentangan kelas atau panjang kelas :

$$c = (\text{data terbesar} - \text{data terkecil}) / k$$

$$= (96.5 - 62) / 8,59$$

$$= 4$$

v Nilai Max = 96.5

Nilai Min = 62

v Rata -rata = 77.09

Standar Deviasi = 6.099

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²
	BKB	BKA										
< 62.0	~	61.95	0	~	-2.482	0.00000	0.00653	0.00653	1.305	6.778	6	0.089
62 - 65.9	61.95	65.95	6	-2.482	-1.826	0.00653	0.03389	0.02736	5.473			
66 - 69.9	65.95	69.95	16	-1.826	-1.171	0.03389	0.12088	0.08699	17.398	17.398	16	0.112
70 - 73.9	69.95	73.95	34	-1.171	-0.515	0.12088	0.30336	0.18248	36.496	36.496	34	0.171
74 - 77.9	73.95	77.95	49	-0.515	0.141	0.30336	0.55610	0.25274	50.547	50.547	49	0.047
78 - 81.9	77.95	81.95	49	0.141	0.797	0.55610	0.78725	0.23115	46.231	46.231	49	0.166
82 - 85.9	81.95	85.95	29	0.797	1.453	0.78725	0.92686	0.13960	27.920	27.920	29	0.042
86 - 89.9	85.95	89.95	13	1.453	2.109	0.92686	0.98251	0.05565	11.131	14.629	17	0.384
90 - 93.9	89.95	93.95	3	2.109	2.764	0.98251	0.99715	0.01464	2.928			
94 - 97.9	93.95	97.95	1	2.764	3.420	0.99715	0.99969	0.00254	0.508			
> 97.9	97.95	~	0	3.420	~	0.99969	1.00000	0.00031	0.063			
			200							200		1.012

v $V = k - r - 1 = 7 - 2 - 1 = 4$

$\alpha = 0.05$

$\chi^2(v, \alpha) = 9.488$

v $\chi^2 \leq \chi^2_{(v, \alpha)}$ Data mengikuti distribusi normal

$1.012 \leq 9.488$ Data mengikuti distribusi normal

Kesimpulan : Data mengikuti distribusi normal (data NORMAL)

Uji Keseragaman Data Jangkauan Tangan (JT)

Subgrup ke-	JT										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	83.5	77.0	70.0	86.0	81.0	79.5	82.0	86.0	75.0	87.0	80.70
2	79.5	76.0	68.5	76.7	76.0	79.0	69.0	81.0	73.0	77.0	75.57
3	81.5	91.0	68.5	78.0	72.0	88.5	89.0	88.0	70.0	76.0	80.25
4	75.4	89.0	80.0	78.0	63.5	71.5	81.0	75.7	83.0	78.5	77.56
5	78.6	83.0	82.0	74.0	69.5	67.0	72.0	78.7	78.5	79.0	76.23
6	71.1	80.0	74.5	72.6	70.0	67.5	83.0	81.5	76.0	71.0	74.72
7	77.0	76.0	70.9	72.1	74.0	83.0	82.0	74.0	74.0	74.0	75.70
8	81.0	78.0	75.5	76.0	82.0	71.0	83.0	71.5	74.2	67.0	75.92
9	82.0	78.0	82.8	82.0	75.0	80.0	87.0	79.0	78.0	62.0	78.58
10	75.0	70.5	76.0	87.0	96.5	72.0	83.6	77.0	83.0	76.0	79.66
11	77.0	68.0	76.5	80.0	79.0	78.0	83.5	81.0	67.5	72.0	76.25
12	91.0	66.0	78.5	82.0	72.3	67.0	73.6	76.5	67.5	74.0	74.84
13	77.0	84.5	72.9	89.0	66.0	81.0	74.5	79.6	86.0	81.0	79.15
14	75.0	81.0	72.2	79.0	69.0	74.0	76.0	83.0	83.0	82.0	77.42
15	79.0	84.0	74.5	78.0	64.0	65.0	80.2	77.0	78.0	80.6	76.03
16	82.5	91.0	65.0	85.0	67.0	81.0	71.3	75.0	71.5	81.4	77.07
17	80.5	78.4	71.0	82.0	65.0	78.6	86.7	82.0	77.5	72.3	77.40
18	80.5	89.0	71.0	78.0	72.0	75.5	84.0	74.0	69.0	75.0	76.80
19	76.5	82.0	81.0	75.0	75.0	84.9	76.5	78.0	79.0	70.4	77.83
20	77.0	73.3	75.0	73.0	79.0	70.0	73.5	77.0	73.0	70.3	74.11
Σ											1541.79

Perhitungan :

$$1. \quad \bar{X} = \frac{\sum \bar{X}}{k} = \frac{1541.79}{20} = 77.09$$

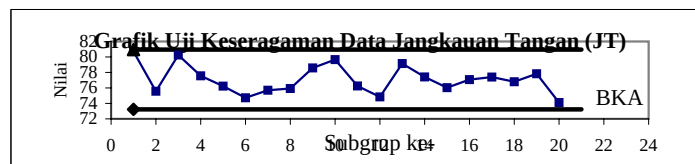
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(83.5 - 77.09)^2 + (79.5 - 77.09)^2 + \dots + (70.3 - 77.09)^2}{200 - 1}} = 6.099$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{6.099}{\sqrt{10}} = 1.93$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{X} + (c * \sigma_{\bar{X}}) = 77.09 + (2 * 1.93) = 80.95$$

$$BKB = \bar{X} - (c * \sigma_{\bar{X}}) = 77.09 - (2 * 1.93) = 73.23$$



Kesimpulan :	Data pada subgrup 1	→	SERAGAM
	Data pada subgrup 2	→	SERAGAM
	Data pada subgrup 3	→	SERAGAM
	Data pada subgrup 4	→	SERAGAM
	Data pada subgrup 5	→	SERAGAM
	Data pada subgrup 6	→	SERAGAM
	Data pada subgrup 7	→	SERAGAM
	Data pada subgrup 8	→	SERAGAM
	Data pada subgrup 9	→	SERAGAM
	Data pada subgrup 10	→	SERAGAM
	Data pada subgrup 11	→	SERAGAM
	Data pada subgrup 12	→	SERAGAM
	Data pada subgrup 13	→	SERAGAM
	Data pada subgrup 14	→	SERAGAM
	Data pada subgrup 15	→	SERAGAM
	Data pada subgrup 16	→	SERAGAM
	Data pada subgrup 17	→	SERAGAM
	Data pada subgrup 18	→	SERAGAM
	Data pada subgrup 19	→	SERAGAM
	Data pada subgrup 20	→	SERAGAM

Uji Kecukupan Data Jangkauan Tangan (JT)

$$N' = \left[\frac{c/\alpha \sqrt{n \sum x^2 - (\sum x)^2}}{\sum x} \right]^2$$

$$N' = \left[\frac{(2 / 0.05) \times \sqrt{200 \times (1195960.63) - (237711640.41)}}{15417.90} \right]^2 = 9.965$$

Kesimpulan : karena $N' \leq N$, maka jumlah data yang diambil sudah **CUKUP**

Perhitungan Persentil Jangkauan Tangan (JT)

Cara Lengkap :

1. $\mu = \bar{X} = 77.09$
2. $\sigma = 6.099$
3. Untuk 5 % $\Rightarrow Z1 = -1.645$
Untuk 95 % $\Rightarrow Z2 = 1.645$
4. $P_5 = \mu + \sigma (Z1)$ $P_5 = 77.09 + 6.099 (-1.645) = 67.06$
 $P_{50} = \mu$ $P_{50} = 77.09$
 $P_{95} = \mu + \sigma (Z2)$ $P_{95} = 77.09 + 6.099(1.645) = 87.12$

Data Anthropometri Statis Rentangan Tangan (RT)

No	RT
1	167.0
2	181.0
3	150.0
4	173.3
5	168.0
6	177.3
7	186.0
8	143.0
9	182.0
10	173.0
11	160.0
12	166.0
13	150.0
14	153.6
15	147.0
16	159.2
17	154.0
18	171.0
19	171.0
20	178.5
21	154.0
22	185.0
23	150.0
24	158.0
25	141.0
26	178.5
27	185.0
28	190.0
29	146.0
30	172.0
31	161.0
32	168.0
33	165.5
34	155.0
35	146.5
36	157.5
37	175.0
38	157.0
39	158.0
40	155.7
41	154.0
42	174.0
43	176.0
44	160.0
45	160.0
46	158.0
47	151.0
48	157.0
49	153.2
50	167.0

No.	RT
51	189.0
52	160.5
53	150.0
54	148.3
55	160.5
56	156.7
57	167.0
58	170.0
59	152.3
60	158.5
61	162.0
62	171.0
63	143.8
64	145.2
65	155.0
66	180.0
67	171.0
68	145.5
69	161.0
70	165.0
71	168.0
72	178.0
73	160.6
74	173.0
75	170.0
76	153.0
77	173.0
78	144.5
79	161.1
80	149.5
81	177.0
82	185.0
83	175.0
84	162.0
85	158.0
86	165.5
87	171.5
88	163.0
89	170.2
90	141.2
91	160.0
92	161.0
93	148.0
94	176.0
95	178.0
96	146.8
97	170.6
98	158.0
99	181.0
100	176.0

No	RT
101	154.0
102	157.5
103	155.0
104	161.0
105	161.0
106	152.5
107	173.0
108	168.0
109	148.0
110	155.0
111	182.0
112	156.0
113	170.0
114	169.0
115	146.5
116	150.3
117	150.0
118	165.0
119	147.0
120	162.0
121	161.0
122	174.5
123	154.8
124	169.0
125	148.0
126	166.5
127	150.5
128	163.0
129	167.0
130	174.0
131	157.0
132	181.2
133	161.5
134	165.0
135	164.0
136	147.5
137	158.8
138	172.0
139	163.0
140	175.0
141	165.0
142	183.0
143	169.6
144	171.0
145	151.0
146	143.5
147	180.0
148	174.0
149	158.0
150	162.2

No.	RT
151	172.0
152	181.0
153	154.0
154	180.0
155	155.0
156	182.7
157	166.8
158	173.0
159	168.5
160	164.3
161	166.5
162	156.4
163	158.0
164	176.0
165	159.0
166	168.2
167	183.7
168	172.0
169	178.5
170	150.0
171	171.5
172	182.5
173	163.0
174	162.0
175	165.0
176	164.0
177	170.8
178	154.0
179	161.0
180	155.0
181	179.0
182	174.5
183	169.0
184	156.0
185	163.0
186	176.3
187	164.5
188	165.0
189	159.0
190	155.4
191	170.0
192	150.8
193	149.0
194	155.0
195	168.0
196	173.0
197	157.5
198	159.0
199	147.0
200	146.5

Uji Kenormalan Data Rentangan Tangan (RT)

v Menentukan Jumlah Kelas :

$$k = 3.3 \log n + 1$$

$$= 3.3 \log 200 + 1$$

$$= 8,59 \sim 9 \text{ kelas}$$

v Nilai Max = 190

Nilai Min = 141

v Mencari rentangan kelas atau panjang kelas :

$$c = (\text{data terbesar} - \text{data terkecil}) / k$$

$$= (190 - 141) / 8,59$$

$$= 5.7$$

v Rata -rata = 163.56

Standar Deviasi = 11.154

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²
	BKB	BKA										
< 141.0	~	140.95	0	~	-2.027	0.00000	0.02133	0.02133	4.266	12.952	12	0.070
141 - 146.6	140.95	146.65	12	-2.027	-1.516	0.02133	0.06476	0.04343	8.686			
146.7 - 152.3	146.65	152.35	23	-1.516	-1.005	0.06476	0.15746	0.09270	18.539	18.539	23	1.073
152.4 - 158	152.35	158.05	37	-1.005	-0.494	0.15746	0.31067	0.15322	30.643	30.643	37	1.319
158.1 - 163.7	158.05	163.75	32	-0.494	0.017	0.31067	0.50681	0.19614	39.228	39.228	32	1.332
163.8 - 169.4	163.75	169.45	30	0.017	0.528	0.50681	0.70129	0.19447	38.894	38.894	30	2.034
169.5 - 175.1	169.45	175.15	34	0.528	1.039	0.70129	0.85063	0.14934	29.868	29.868	34	0.572
175.2 - 180.8	175.15	180.85	16	1.039	1.550	0.85063	0.93945	0.08882	17.764	17.764	16	0.175
180.9 - 186.5	180.85	186.55	14	1.550	2.061	0.93945	0.98036	0.04091	8.182	12.111	16	1.249
186.6 - 192.2	186.55	192.25	2	2.061	2.572	0.98036	0.99495	0.01459	2.918			
> 192.2	192.25	~	0	2.572	~	0.99495	1.00000	0.00505	1.011			
			200							200		7.824

v $V = k - r - 1 = 8 - 2 - 1 = 5$

$\alpha = 0.05$

$$x^2(v, \alpha) = 11.070$$

v $X^2 \leq X^2_{(v, \alpha)}$ Data mengikuti distribusi normal

$7.824 \leq 11.070$ Data mengikuti distribusi normal

Kesimpulan : Data mengikuti distribusi normal (data NORMAL)

Uji Keseragaman Data Rentangan Tangan (RT)

Subgrup ke-	RT										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	167.0	181.0	150.0	173.3	168.0	177.3	186.0	143.0	182.0	173.0	170.06
2	160.0	166.0	150.0	153.6	147.0	159.2	154.0	171.0	171.0	178.5	161.03
3	154.0	185.0	150.0	158.0	141.0	178.5	185.0	190.0	146.0	172.0	165.95
4	161.0	168.0	165.5	155.0	146.5	157.5	175.0	157.0	158.0	155.7	159.92
5	154.0	174.0	176.0	160.0	160.0	158.0	151.0	157.0	153.2	167.0	161.02
6	189.0	160.5	150.0	148.3	160.5	156.7	167.0	170.0	152.3	158.5	161.28
7	162.0	171.0	143.8	145.2	155.0	180.0	171.0	145.5	161.0	165.0	159.95
8	168.0	178.0	160.6	173.0	170.0	153.0	173.0	144.5	161.1	149.5	163.07
9	177.0	185.0	175.0	162.0	158.0	165.5	171.5	163.0	170.2	141.2	166.84
10	160.0	161.0	148.0	176.0	178.0	146.8	170.6	158.0	181.0	176.0	165.54
11	154.0	157.5	155.0	161.0	161.0	152.5	173.0	168.0	148.0	155.0	158.50
12	182.0	156.0	170.0	169.0	146.5	150.3	150.0	165.0	147.0	162.0	159.78
13	161.0	174.5	154.8	169.0	148.0	166.5	150.5	163.0	167.0	174.0	162.83
14	157.0	181.2	161.5	165.0	164.0	147.5	158.8	172.0	163.0	175.0	164.50
15	165.0	183.0	169.6	171.0	151.0	143.5	180.0	174.0	158.0	162.2	165.73
16	172.0	181.0	154.0	180.0	155.0	182.7	166.8	173.0	168.5	164.3	169.73
17	166.5	156.4	158.0	176.0	159.0	168.2	183.7	172.0	178.5	150.0	166.83
18	171.5	182.5	163.0	162.0	165.0	164.0	170.8	154.0	161.0	155.0	164.88
19	179.0	174.5	169.0	156.0	163.0	176.3	164.5	165.0	159.0	155.4	166.17
20	170.0	150.8	149.0	155.0	168.0	173.0	157.5	159.0	147.0	146.5	157.58
Σ											3271.19

Perhitungan :

$$1. \quad \bar{\bar{X}} = \frac{\sum \bar{X}}{k} = \frac{3271.19}{20} = 163.56$$

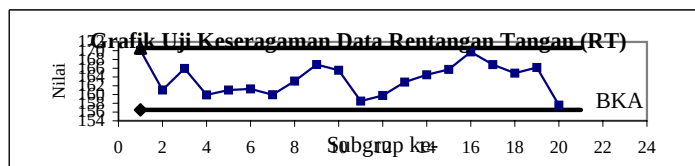
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N-1}} = \sqrt{\frac{(167-163.56)^2 + (160-163.56)^2 + \dots + (146.5-163.56)^2}{200-1}} = 11.154$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{11.154}{\sqrt{10}} = 3.53$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{\bar{X}} + (c * \sigma_{\bar{X}}) = 163.56 + (2 * 3.53) = 170.62$$

$$BKB = \bar{\bar{X}} - (c * \sigma_{\bar{X}}) = 163.56 - (2 * 3.53) = 156.50$$



Kesimpulan :	Data pada subgrup 1	→	SERAGAM
	Data pada subgrup 2	→	SERAGAM
	Data pada subgrup 3	→	SERAGAM
	Data pada subgrup 4	→	SERAGAM
	Data pada subgrup 5	→	SERAGAM
	Data pada subgrup 6	→	SERAGAM
	Data pada subgrup 7	→	SERAGAM
	Data pada subgrup 8	→	SERAGAM
	Data pada subgrup 9	→	SERAGAM
	Data pada subgrup 10	→	SERAGAM
	Data pada subgrup 11	→	SERAGAM
	Data pada subgrup 12	→	SERAGAM
	Data pada subgrup 13	→	SERAGAM
	Data pada subgrup 14	→	SERAGAM
	Data pada subgrup 15	→	SERAGAM
	Data pada subgrup 16	→	SERAGAM
	Data pada subgrup 17	→	SERAGAM
	Data pada subgrup 18	→	SERAGAM
	Data pada subgrup 19	→	SERAGAM
	Data pada subgrup 20	→	SERAGAM

Uji Kecukupan Data Rentangan Tangan (RT)

$$N' = \left[\frac{c/\alpha \sqrt{n \sum x^2 - (\sum x)^2}}{\sum x} \right]^2$$

$$N' = \left[\frac{(2/0.05) \times \sqrt{200 \times (5375100.51) - (1070068401.61)}}{32711.9} \right]^2 = 7.404$$

Kesimpulan : karena $N' \leq N$, maka jumlah data yang diambil sudah **CUKUP**

Perhitungan Persentil Rentangan Tangan (RT)

Cara Lengkap :

1. $\mu = \bar{\bar{X}} = 163.56$
2. $\sigma = 11.154$
3. Untuk 5 % → $Z1 = -1.645$
Untuk 95 % → $Z2 = 1.645$
4. $P_5 = \mu + \sigma (Z1)$ $P_5 = 163.56 + 11.154 (-1.645) = 145.21$
 $P_{50} = \mu$ $P_{50} = 163.56$
 $P_{95} = \mu + \sigma (Z2)$ $P_{95} = 163.56 + 11.154(1.645) = 181.91$

Data Anthropometri Statis Tebal Paha (TP)

No	TP
1	8.8
2	10.5
3	16.4
4	11.8
5	10.0
6	11.0
7	12.5
8	15.0
9	22.5
10	13.0
11	11.2
12	18.0
13	18.5
14	8.6
15	9.5
16	11.0
17	13.0
18	9.0
19	12.0
20	14.5
21	15.7
22	15.0
23	16.0
24	8.8
25	7.5
26	16.5
27	13.5
28	11.2
29	14.0
30	12.7
31	13.2
32	13.0
33	15.0
34	7.6
35	13.0
36	12.2
37	14.0
38	10.1
39	10.6
40	14.5
41	13.7
42	10.0
43	18.8
44	8.7
45	13.0
46	14.5
47	10.0
48	11.0
49	11.6
50	12.0

No.	TP
51	12.2
52	15.0
53	14.0
54	15.3
55	13.0
56	10.0
57	12.0
58	16.0
59	12.0
60	11.0
61	12.4
62	12.2
63	9.5
64	12.4
65	8.3
66	16.1
67	15.0
68	13.8
69	19.8
70	16.2
71	14.5
72	15.9
73	10.5
74	9.5
75	15.6
76	13.4
77	10.5
78	15.0
79	21.5
80	12.4
81	10.7
82	17.5
83	12.1
84	14.0
85	8.1
86	13.0
87	15.5
88	16.0
89	17.8
90	13.4
91	8.5
92	14.0
93	18.0
94	15.8
95	23.0
96	14.5
97	12.0
98	15.5
99	15.8
100	13.5

No	TP
101	12.2
102	10.3
103	18.5
104	19.4
105	11.1
106	14.2
107	13.0
108	14.0
109	11.5
110	11.5
111	12.5
112	12.9
113	15.0
114	12.4
115	10.8
116	13.5
117	12.0
118	14.8
119	11.0
120	11.0
121	10.9
122	16.3
123	13.6
124	17.7
125	12.0
126	14.5
127	10.8
128	11.9
129	13.0
130	16.5
131	11.5
132	16.1
133	9.5
134	17.5
135	12.0
136	15.8
137	20.0
138	16.9
139	17.0
140	14.5
141	14.8
142	16.4
143	16.4
144	14.5
145	14.0
146	15.6
147	14.3
148	16.1
149	13.5
150	11.0

No.	TP
151	18.0
152	14.2
153	11.4
154	14.0
155	16.0
156	19.6
157	13.1
158	13.3
159	14.5
160	11.8
161	11.3
162	11.2
163	17.3
164	12.6
165	14.0
166	15.3
167	16.9
168	21.8
169	14.5
170	12.4
171	11.0
172	14.4
173	15.2
174	18.5
175	14.5
176	17.6
177	9.0
178	12.5
179	14.5
180	14.1
181	14.5
182	15.1
183	11.0
184	16.5
185	15.3
186	18.5
187	15.2
188	14.0
189	11.0
190	13.0
191	14.2
192	10.6
193	12.5
194	13.0
195	14.0
196	12.2
197	10.3
198	12.0
199	11.0
200	16.4

Uji Kenormalan Data Tebal Paha (TP)

- ❖ Menentukan Jumlah Kelas :

$$k = 3.3 \log n + 1$$

$$= 3.3 \log 200 + 1$$

$$= 8,59 \sim 9 \text{ kelas}$$

- ❖ Nilai Max = 23

$$\text{Nilai Min} = 7.5$$

- ❖ Mencari rentangan kelas atau panjang kelas :

$$c = (\text{data terbesar} - \text{data terkecil}) / k$$

$$= (23 - 7.5) / 8,59$$

$$= 1.8$$

- ❖ Rata -rata = 13.64

$$\text{Standar Deviasi} = 2.896$$

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²
	BKB	BKA										
< 7.5	~	7.45	0	~	-2.139	0.00000	0.01622	0.01622	3.245	12.918	11	0.285
7.5 - 9.2	7.45	9.25	11	-2.139	-1.517	0.01622	0.06459	0.04837	9.673			
9.3 - 11	9.25	11.05	31	-1.517	-0.896	0.06459	0.18517	0.12058	24.116	24.116	31	1.965
11.1 - 12.8	11.05	12.85	39	-0.896	-0.274	0.18517	0.39192	0.20675	41.350	41.350	39	0.134
12.9 - 14.6	12.85	14.65	54	-0.274	0.347	0.39192	0.63577	0.24386	48.772	48.772	54	0.560
14.7 - 16.4	14.65	16.45	37	0.347	0.969	0.63577	0.83365	0.19788	39.576	39.576	37	0.168
16.5 - 18.2	16.45	18.25	15	0.969	1.590	0.83365	0.94411	0.11045	22.091	22.091	15	2.276
18.3 - 20	18.25	20.05	9	1.590	2.212	0.94411	0.98651	0.04240	8.480	11.179	13	0.297
20.1 - 21.8	20.05	21.85	2	2.212	2.833	0.98651	0.99770	0.01119	2.238			
21.9 - 23.6	21.85	23.65	2	2.833	3.455	0.99770	0.99972	0.00203	0.406			
> 23.6	23.65	~	0	3.455	~	0.99972	1.00000	0.00028	0.055			
									200			5.684

- ❖ $V = k - r - 1 = 7 - 2 - 1 = 4$

$$\alpha = 0.05$$

$$\chi^2(v, \alpha) = 9.488$$

- ❖ $\chi^2 \leq \chi^2_{(v, \alpha)}$ Data mengikuti distribusi normal

$$5.684 \leq 9.488 \quad \text{Data mengikuti distribusi normal}$$

Kesimpulan : Data mengikuti distribusi normal (data NORMAL)

Uji Keseragaman Data Tebal Paha (TP)

Subgrup ke-	TP										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	8.8	10.5	16.4	11.8	10.0	11.0	12.5	15.0	22.5	13.0	13.15
2	11.2	18.0	18.5	8.6	9.5	11.0	13.0	9.0	12.0	14.5	12.53
3	15.7	15.0	16.0	8.8	7.5	16.5	13.5	11.2	14.0	12.7	13.09
4	13.2	13.0	15.0	7.6	13.0	12.2	14.0	10.1	10.6	14.5	12.32
5	13.7	10.0	18.8	8.7	13.0	14.5	10.0	11.0	11.6	12.0	12.33
6	12.2	15.0	14.0	15.3	13.0	10.0	12.0	16.0	12.0	11.0	13.05
7	12.4	12.2	9.5	12.4	8.3	16.1	15.0	13.8	19.8	16.2	13.57
8	14.5	15.9	10.5	9.5	15.6	13.4	10.5	15.0	21.5	12.4	13.88
9	10.7	17.5	12.1	14.0	8.1	13.0	15.5	16.0	17.8	13.4	13.81
10	8.5	14.0	18.0	15.8	23.0	14.5	12.0	15.5	15.8	13.5	15.06
11	12.2	10.3	18.5	19.4	11.1	14.2	13.0	14.0	11.5	11.5	13.57
12	12.5	12.9	15.0	12.4	10.8	13.5	12.0	14.8	11.0	11.0	12.59
13	10.9	16.3	13.6	17.7	12.0	14.5	10.8	11.9	13.0	16.5	13.72
14	11.5	16.1	9.5	17.5	12.0	15.8	20.0	16.9	17.0	14.5	15.08
15	14.8	16.4	16.4	14.5	14.0	15.6	14.3	16.1	13.5	11.0	14.66
16	18.0	14.2	11.4	14.0	16.0	19.6	13.1	13.3	14.5	11.8	14.59
17	11.3	11.2	17.3	12.6	14.0	15.3	16.9	21.8	14.5	12.4	14.73
18	11.0	14.4	15.2	18.5	14.5	17.6	9.0	12.5	14.5	14.1	14.13
19	14.5	15.1	11.0	16.5	15.3	18.5	15.2	14.0	11.0	13.0	14.41
20	14.2	10.6	12.5	13.0	14.0	12.2	10.3	12.0	11.0	16.4	12.62
Σ											272.89

Perhitungan :

$$1. \quad \bar{\bar{X}} = \frac{\sum \bar{X}}{k} = \frac{272.89}{20} = 13.64$$

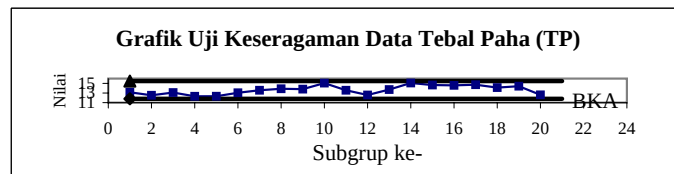
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(8.8 - 13.64)^2 + (11.2 - 13.64)^2 + \dots + (16.4 - 13.64)^2}{200 - 1}} = 2.896$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{2.896}{\sqrt{10}} = 0.92$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{\bar{X}} + (c * \sigma_{\bar{X}}) = 13.64 + (2 * 0.92) = 15.48$$

$$BKB = \bar{\bar{X}} - (c * \sigma_{\bar{X}}) = 13.64 - (2 * 0.92) = 11.80$$



Kesimpulan :	Data pada subgrup 1	→	SERAGAM
	Data pada subgrup 2	→	SERAGAM
	Data pada subgrup 3	→	SERAGAM
	Data pada subgrup 4	→	SERAGAM
	Data pada subgrup 5	→	SERAGAM
	Data pada subgrup 6	→	SERAGAM
	Data pada subgrup 7	→	SERAGAM
	Data pada subgrup 8	→	SERAGAM
	Data pada subgrup 9	→	SERAGAM
	Data pada subgrup 10	→	SERAGAM
	Data pada subgrup 11	→	SERAGAM
	Data pada subgrup 12	→	SERAGAM
	Data pada subgrup 13	→	SERAGAM
	Data pada subgrup 14	→	SERAGAM
	Data pada subgrup 15	→	SERAGAM
	Data pada subgrup 16	→	SERAGAM
	Data pada subgrup 17	→	SERAGAM
	Data pada subgrup 18	→	SERAGAM
	Data pada subgrup 19	→	SERAGAM
	Data pada subgrup 20	→	SERAGAM

Uji Kecukupan Data Tebal Paha (TP)

$$N' = \left[\frac{c/\alpha \sqrt{n \sum x^2 - (\sum x)^2}}{\sum x} \right]^2$$

$$N' = \left[\frac{(2 / 0.05) \times \sqrt{200 \times (38903.63) - (7446895.21)}}{2728.9} \right]^2 = 71.725$$

Kesimpulan : karena $N' \leq N$, maka jumlah data yang diambil sudah **CUKUP**

Perhitungan Persentil Tebal Paha (TP)

Cara Lengkap :

$$1. \mu = \bar{X} = 13.64$$

$$2. \sigma = 2.896$$

$$3. \text{Untuk } 5\% \implies Z1 = -1.645$$

$$\text{Untuk } 95\% \implies Z2 = 1.645$$

$$4. P_5 = \mu + \sigma (Z1) \quad P_5 = 13.64 + 2.896 (-1.645) = 8.88$$

$$P_{50} = \mu \quad P_{50} = 13.64$$

$$P_{95} = \mu + \sigma (Z2) \quad P_{95} = 13.64 + 2.896(1.645) = 18.4$$

Data Anthropometri Statis Pantat Popliteal (PPO)

No	PPO
1	43.0
2	47.2
3	43.3
4	50.1
5	48.8
6	49.5
7	52.7
8	51.0
9	46.6
10	49.3
11	51.0
12	56.0
13	46.9
14	47.5
15	37.0
16	48.5
17	45.5
18	47.0
19	49.5
20	52.0
21	50.0
22	58.0
23	48.0
24	49.6
25	37.0
26	50.2
27	54.0
28	57.2
29	42.0
30	52.0
31	50.0
32	52.0
33	47.0
34	45.2
35	44.4
36	49.5
37	54.2
38	44.9
39	40.3
40	47.1
41	41.0
42	48.3
43	47.6
44	46.7
45	47.1
46	42.4
47	50.1
48	50.0
49	40.3
50	50.6

No.	PPO
51	60.0
52	52.5
53	47.5
54	41.0
55	43.7
56	42.6
57	56.0
58	45.8
59	46.8
60	48.8
61	50.5
62	48.5
63	46.6
64	43.3
65	41.2
66	51.2
67	51.0
68	42.0
69	45.0
70	47.8
71	41.8
72	51.1
73	49.4
74	49.5
75	42.5
76	50.0
77	52.5
78	42.4
79	43.6
80	46.4
81	54.4
82	51.0
83	51.2
84	47.6
85	41.7
86	57.3
87	45.5
88	45.0
89	47.8
90	44.4
91	53.5
92	47.1
93	45.8
94	52.9
95	47.8
96	42.3
97	50.0
98	47.0
99	47.2
100	48.2

No	PPO
101	51.5
102	44.0
103	47.0
104	44.4
105	49.4
106	48.5
107	46.5
108	49.0
109	43.0
110	42.7
111	48.4
112	45.5
113	44.3
114	47.5
115	47.0
116	41.0
117	56.1
118	43.5
119	43.8
120	47.0
121	43.7
122	47.2
123	49.9
124	49.7
125	46.0
126	53.7
127	47.0
128	47.5
129	53.0
130	48.0
131	46.2
132	52.0
133	45.5
134	45.0
135	48.0
136	50.1
137	59.2
138	52.3
139	47.0
140	49.0
141	46.0
142	49.0
143	46.4
144	51.0
145	47.0
146	53.6
147	49.0
148	48.5
149	47.0
150	45.1

No.	PPO
151	50.5
152	47.3
153	45.9
154	51.5
155	43.7
156	51.8
157	47.8
158	48.8
159	47.8
160	45.6
161	46.6
162	48.4
163	50.3
164	52.0
165	46.0
166	54.2
167	49.4
168	54.0
169	52.5
170	49.4
171	44.3
172	52.3
173	46.1
174	46.2
175	44.6
176	52.2
177	62.5
178	43.5
179	44.0
180	46.8
181	49.6
182	50.0
183	45.2
184	46.3
185	49.5
186	51.5
187	52.0
188	47.1
189	42.0
190	62.0
191	43.9
192	45.2
193	42.4
194	47.3
195	47.3
196	50.5
197	45.0
198	43.8
199	46.0
200	44.2

Uji Kenormalan Data Pantat Popliteal (PPO)

- ❖ Menentukan Jumlah Kelas :

$$k = 3.3 \log n + 1$$

$$= 3.3 \log 200 + 1$$

$$= 8,59 \sim 9 \text{ kelas}$$

- ❖ Nilai Max = 62.5

$$\text{Nilai Min} = 37$$

- ❖ Mencari rentangan kelas atau panjang kelas :

$$c = (\text{data terbesar} - \text{data terkecil}) / k$$

$$= (62.5 - 37) / 8,59$$

$$= 3$$

- ❖ Rata -rata = 47.99

$$\text{Standar Deviasi} = 4.178$$

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²
	BKB	BKA										
< 37.0	~	36.95	0	~	-2.641	0.00000	0.00413	0.00413	0.826	5.443	2	2.178
37 - 39.9	36.95	39.95	2	-2.641	-1.923	0.00413	0.02722	0.02309	4.617			
40.0 - 42.9	39.95	42.95	18	-1.923	-1.205	0.02722	0.11402	0.08681	17.362	17.362	18	0.023
43.0 - 45.9	42.95	45.95	39	-1.205	-0.487	0.11402	0.31299	0.19896	39.792	39.792	39	0.016
46.0 - 48.9	45.95	48.95	63	-0.487	0.231	0.31299	0.59119	0.27820	55.640	55.640	63	0.974
49.0 - 51.9	48.95	51.95	45	0.231	0.949	0.59119	0.82859	0.23740	47.480	47.480	45	0.130
52.0 - 54.9	51.95	54.95	23	0.949	1.667	0.82859	0.95220	0.12362	24.723	24.723	23	0.120
55.0 - 57.9	54.95	57.95	5	1.667	2.385	0.95220	0.99145	0.03925	7.850	9.560	10	0.020
58.0 - 60.9	57.95	60.95	3	2.385	3.103	0.99145	0.99904	0.00759	1.518			
61.0 - 63.9	60.95	63.95	2	3.103	3.821	0.99904	0.99993	0.00089	0.179			
> 63.9	63.95	~	0	3.821	~	0.99993	1.00000	0.00007	0.013			
			200							200		3.461

- ❖ $V = k - r - 1 = 7 - 2 - 1 = 4$

$$\alpha = 0.05$$

$$x^2(v, \alpha) = 9.488$$

- ❖ $X^2 \leq X^2_{(v, \alpha)}$ Data mengikuti distribusi normal

$$3.461 \leq 9.488 \quad \text{Data mengikuti distribusi normal}$$

Kesimpulan : Data mengikuti distribusi normal (data NORMAL)

Uji Keseragaman Data Pantat Popliteal (PPO)

Subgrup ke-	PPO										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	43.0	47.2	43.3	50.1	48.8	49.5	52.7	51.0	46.6	49.3	48.15
2	51.0	56.0	46.9	47.5	37.0	48.5	45.5	47.0	49.5	52.0	48.09
3	50.0	58.0	48.0	49.6	37.0	50.2	54.0	57.2	42.0	52.0	49.80
4	50.0	52.0	47.0	45.2	44.4	49.5	54.2	44.9	40.3	47.1	47.46
5	41.0	48.3	47.6	46.7	47.1	42.4	50.1	50.0	40.3	50.6	46.41
6	60.0	52.5	47.5	41.0	43.7	42.6	56.0	45.8	46.8	48.8	48.47
7	50.5	48.5	46.6	43.3	41.2	51.2	51.0	42.0	45.0	47.8	46.71
8	41.8	51.1	49.4	49.5	42.5	50.0	52.5	42.4	43.6	46.4	46.92
9	54.4	51.0	51.2	47.6	41.7	57.3	45.5	45.0	47.8	44.4	48.59
10	53.5	47.1	45.8	52.9	47.8	42.3	50.0	47.0	47.2	48.2	48.18
11	51.5	44.0	47.0	44.4	49.4	48.5	46.5	49.0	43.0	42.7	46.60
12	48.4	45.5	44.3	47.5	47.0	41.0	56.1	43.5	43.8	47.0	46.41
13	43.7	47.2	49.9	49.7	46.0	53.7	47.0	47.5	53.0	48.0	48.57
14	46.2	52.0	45.5	45.0	48.0	50.1	59.2	52.3	47.0	49.0	49.43
15	46.0	49.0	46.4	51.0	47.0	53.6	49.0	48.5	47.0	45.1	48.26
16	50.5	47.3	45.9	51.5	43.7	51.8	47.8	48.8	47.8	45.6	48.07
17	46.6	48.4	50.3	52.0	46.0	54.2	49.4	54.0	52.5	49.4	50.28
18	44.3	52.3	46.1	46.2	44.6	52.2	62.5	43.5	44.0	46.8	48.25
19	49.6	50.0	45.2	46.3	49.5	51.5	52.0	47.1	42.0	62.0	49.52
20	43.9	45.2	42.4	47.3	47.3	50.5	45.0	43.8	46.0	44.2	45.56
	Σ										959.73

Perhitungan :

$$1. \quad \bar{\bar{X}} = \frac{\sum \bar{X}}{k} = \frac{959.73}{20} = 47.99$$

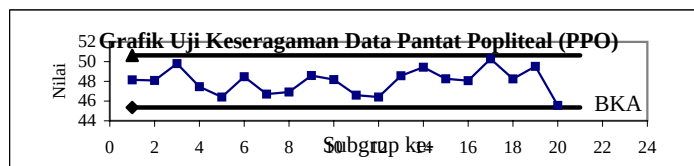
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(43 - 47.99)^2 + (51 - 47.99)^2 + \dots + (44.2 - 47.99)^2}{200 - 1}} = 4.178$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{4.178}{\sqrt{10}} = 1.32$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{\bar{X}} + (c * \sigma_{\bar{X}}) = 47.99 + (2 * 1.32) = 50.63$$

$$BKB = \bar{\bar{X}} - (c * \sigma_{\bar{X}}) = 47.99 - (2 * 1.32) = 45.35$$



Kesimpulan :	Data pada subgrup 1	→	SERAGAM
	Data pada subgrup 2	→	SERAGAM
	Data pada subgrup 3	→	SERAGAM
	Data pada subgrup 4	→	SERAGAM
	Data pada subgrup 5	→	SERAGAM
	Data pada subgrup 6	→	SERAGAM
	Data pada subgrup 7	→	SERAGAM
	Data pada subgrup 8	→	SERAGAM
	Data pada subgrup 9	→	SERAGAM
	Data pada subgrup 10	→	SERAGAM
	Data pada subgrup 11	→	SERAGAM
	Data pada subgrup 12	→	SERAGAM
	Data pada subgrup 13	→	SERAGAM
	Data pada subgrup 14	→	SERAGAM
	Data pada subgrup 15	→	SERAGAM
	Data pada subgrup 16	→	SERAGAM
	Data pada subgrup 17	→	SERAGAM
	Data pada subgrup 18	→	SERAGAM
	Data pada subgrup 19	→	SERAGAM
	Data pada subgrup 20	→	SERAGAM

Uji Kecukupan Data Pantat Popliteal (PPO)

$$N' = \left[\frac{c/\alpha \sqrt{n \sum x^2 - (\sum x)^2}}{\sum x} \right]^2$$

$$N' = \left[\frac{(2/0.05) \times \sqrt{200 \times (464014.99) - (92108167.29)}}{9597.30} \right]^2 = 12.070$$

Kesimpulan : karena $N' \leq N$, maka jumlah data yang diambil sudah **CUKUP**

Perhitungan Persentil Pantat Popliteal (PPO)

Cara Sederhana :

1. X = data minimum = 37
2. Y = data maksimum = 62.5
3. R = Y - X = 62.5 - 37 = 25.5
4. $P_n = (R \times n \%) + X$
 - $P_5 = (Range \times 5 \%) + data\ minimum = 38.28$
 - $P_{50} = (Range \times 50 \%) + data\ minimum = 49.75$
 - $P_{95} = (Range \times 95 \%) + data\ minimum = 61.23$

Cara Lengkap :

1. $\mu = \bar{X} = 47.99$
2. $\sigma = 4.178$ → →
3. Untuk 5 % $Z1 = -1.645$
Untuk 95 % $Z2 = 1.645$
4. $P_5 = \mu + \sigma (Z1)$ $P_5 = 47.99 + 4.178 (-1.645) = 41.12$
 $P_{50} = \mu$ $P_{50} = 47.99$
 $P_{95} = \mu + \sigma (Z2)$ $P_{95} = 47.99 + 4.178 (1.645) = 54.86$

Data Anthropometri Statis Pantat Ke Lutut (PKL)

No	PKL
1	56.0
2	60.0
3	61.4
4	58.0
5	56.0
6	63.0
7	63.5
8	62.0
9	64.0
10	59.0
11	56.1
12	60.0
13	60.3
14	58.5
15	51.0
16	61.5
17	56.0
18	70.2
19	59.0
20	63.0
21	61.5
22	67.5
23	56.0
24	58.1
25	54.5
26	49.0
27	67.0
28	68.0
29	43.5
30	62.0
31	56.0
32	60.0
33	58.2
34	53.5
35	55.1
36	57.0
37	58.0
38	55.5
39	55.1
40	55.0
41	54.6
42	59.5
43	56.5
44	57.0
45	58.3
46	53.4
47	53.0
48	61.0
49	54.2
50	56.2

No.	PKL
51	54.9
52	63.5
53	53.0
54	52.3
55	55.1
56	52.1
57	63.5
58	55.0
59	56.0
60	56.2
61	57.5
62	62.4
63	53.2
64	54.1
65	53.5
66	63.0
67	59.5
68	52.0
69	54.8
70	63.0
71	61.3
72	62.7
73	55.0
74	59.0
75	55.7
76	53.0
77	63.0
78	55.0
79	56.7
80	53.8
81	48.3
82	65.1
83	62.0
84	58.0
85	52.0
86	59.5
87	56.5
88	60.0
89	58.4
90	54.6
91	53.3
92	56.0
93	56.3
94	61.5
95	60.5
96	51.5
97	65.0
98	55.0
99	61.0
100	55.5

No	PKL
101	53.9
102	52.0
103	56.2
104	53.5
105	60.6
106	54.5
107	62.0
108	60.0
109	54.5
110	51.5
111	65.1
112	55.1
113	55.0
114	53.0
115	52.0
116	51.0
117	69.0
118	52.7
119	53.5
120	54.2
121	55.7
122	58.4
123	63.3
124	66.0
125	58.0
126	63.0
127	57.8
128	58.5
129	60.0
130	60.0
131	56.8
132	62.0
133	56.2
134	57.5
135	56.0
136	55.0
137	62.0
138	65.0
139	55.5
140	62.2
141	60.1
142	66.0
143	57.5
144	64.5
145	57.0
146	60.4
147	66.3
148	57.0
149	57.0
150	57.0

No.	PKL
151	63.9
152	58.3
153	54.5
154	62.5
155	56.5
156	63.4
157	58.5
158	56.4
159	57.0
160	56.5
161	61.6
162	60.4
163	58.2
164	63.0
165	57.6
166	61.8
167	59.8
168	58.2
169	60.0
170	57.8
171	56.6
172	63.5
173	54.5
174	55.2
175	55.7
176	60.7
177	56.0
178	50.5
179	51.0
180	56.1
181	61.3
182	65.0
183	55.7
184	55.3
185	56.0
186	63.4
187	63.0
188	56.5
189	61.0
190	55.0
191	58.0
192	56.3
193	52.1
194	53.1
195	57.3
196	64.0
197	53.0
198	58.5
199	55.0
200	55.3

Uji Kenormalan Data Pantat Ke Lutut (PKL)

- ❖ Menentukan Jumlah Kelas :

$$k = 3.3 \log n + 1$$

$$= 3.3 \log 200 + 1$$

$$= 8,59 \sim 9 \text{ kelas}$$

- ❖ Nilai Max = 70.2
Nilai Min = 43.5

- ❖ Mencari rentangan kelas atau panjang kelas :

$$c = (\text{data terbesar} - \text{data terkecil}) / k$$

$$= (70.2 - 43.5) / 8,59$$

$$= 3.1$$

- ❖ Rata -rata = 57.92
Standar Deviasi = 4.268

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²	
	BKB	BKA											
< 43.5	~	43.45	0	~	-3.390	0.00000	0.00035	0.00035	0.070	5.268	3	0.977	
43.5 - 46.5	43.45	46.55	1	-3.390	-2.664	0.00035	0.00386	0.00351	0.703				
46.6 - 49.6	46.55	49.65	2	-2.664	-1.937	0.00386	0.02634	0.02248	4.496				
49.7 - 52.7	49.65	52.75	14	-1.937	-1.211	0.02634	0.11290	0.08656	17.312	17.31	14	0.634	
52.8 - 55.8	52.75	55.85	50	-1.211	-0.485	0.11290	0.31385	0.20095	40.190	40.19	50	2.395	
55.9 - 58.9	55.85	58.95	58	-0.485	0.241	0.31385	0.59534	0.28149	56.298	56.298	58	0.051	
59.0 - 62	58.95	62.05	39	0.241	0.968	0.59534	0.83337	0.23803	47.606	47.606	39	1.556	
62.1 - 65.1	62.05	65.15	28	0.968	1.694	0.83337	0.95485	0.12148	24.296	24.296	28	0.565	
65.2 - 68.2	65.15	68.25	6	1.694	2.420	0.95485	0.99224	0.03739	7.478	9.029	8	0.117	
68.3 - 71.3	68.25	71.35	2	2.420	3.146	0.99224	0.99917	0.00693	1.386				
> 71.3	71.35	~	0	3.146	~	0.99917	1.00000	0.00083	0.165				
			200							200			6.294

- ❖ $V = k - r - 1 = 7 - 2 - 1 = 4$
 $\alpha = 0.05$
 $\chi^2(v, \alpha) = 9.488$

- ❖ $\chi^2 \leq \chi^2_{(v, \alpha)}$ Data mengikuti distribusi normal
 $6.294 \leq 9.488$ Data mengikuti distribusi normal

Kesimpulan : Data mengikuti distribusi normal (data NORMAL)

Uji Keseragaman Data Pantat Ke Lutut (PKL)

Subgrup ke-	PKL										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	56.0	60.0	61.4	58.0	56.0	63.0	63.5	62.0	64.0	59.0	60.29
2	56.1	60.0	60.3	58.5	51.0	61.5	56.0	70.2	59.0	63.0	59.56
3	61.5	67.5	56.0	58.1	54.5	49.0	67.0	68.0	43.5	62.0	58.71
4	56.0	60.0	58.2	53.5	55.1	57.0	58.0	55.5	55.1	55.0	56.34
5	54.6	59.5	56.5	57.0	58.3	53.4	53.0	61.0	54.2	56.2	56.37
6	54.9	63.5	53.0	52.3	55.1	52.1	63.5	55.0	56.0	56.2	56.16
7	57.5	62.4	53.2	54.1	53.5	63.0	59.5	52.0	54.8	63.0	57.3
8	61.3	62.7	55.0	59.0	55.7	53.0	63.0	55.0	56.7	53.8	57.52
9	48.3	65.1	62.0	58.0	52.0	59.5	56.5	60.0	58.4	54.6	57.44
10	53.3	56.0	56.3	61.5	60.5	51.5	65.0	55.0	61.0	55.5	57.56
11	53.9	52.0	56.2	53.5	60.6	54.5	62.0	60.0	54.5	51.5	55.87
12	65.1	55.1	55.0	53.0	52.0	51.0	69.0	52.7	53.5	54.2	56.06
13	55.7	58.4	63.3	66.0	58.0	63.0	57.8	58.5	60.0	60.0	60.07
14	56.8	62.0	56.2	57.5	56.0	55.0	62.0	65.0	55.5	62.2	58.82
15	60.1	66.0	57.5	64.5	57.0	60.4	66.3	57.0	57.0	57.0	60.28
16	63.9	58.3	54.5	62.5	56.5	63.4	58.5	56.4	57.0	56.5	58.75
17	61.6	60.4	58.2	63.0	57.6	61.8	59.8	58.2	60.0	57.8	59.84
18	56.6	63.5	54.5	55.2	55.7	60.7	56.0	50.5	51.0	56.1	55.98
19	61.3	65.0	55.7	55.3	56.0	63.4	63.0	56.5	61.0	55.0	59.22
20	58.0	56.3	52.1	53.1	57.3	64.0	53.0	58.5	55.0	55.3	56.26
Σ											1158.40

Perhitungan :

$$1. \quad \bar{\bar{X}} = \frac{\sum \bar{X}}{k} = \frac{1158.4}{20} = 57.92$$

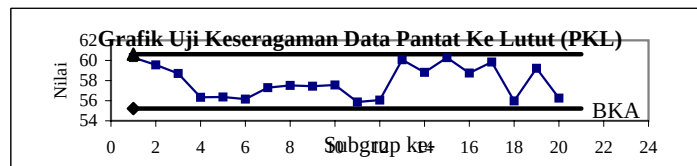
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(56 - 57.92)^2 + (56.1 - 57.92)^2 + \dots + (55.3 - 57.92)^2}{200 - 1}} = 4.268$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{4.268}{\sqrt{10}} = 1.35$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{\bar{X}} + (c * \sigma_{\bar{X}}) = 57.92 + (2 * 1.35) = 60.62$$

$$BKB = \bar{\bar{X}} - (c * \sigma_{\bar{X}}) = 57.92 - (2 * 1.35) = 55.22$$



Uji Keseragaman Data Panjang Sandaran (PS)

Subgrup ke-	PS										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	57.0	47.0	50.0	54.0	58.0	60.0	45.0	47.0	52.0	42.0	51.20
2	56.0	60.0	57.3	42.0	45.0	56.5	36.0	45.0	48.0	45.0	49.08
3	55.0	62.0	53.0	60.0	45.0	44.0	50.0	46.0	49.0	45.0	50.90
4	50.1	57.0	56.0	57.0	41.0	30.0	52.0	43.2	51.0	38.0	47.53
5	58.4	57.0	47.7	58.5	40.5	46.0	37.0	53.4	41.0	46.0	48.55
6	48.6	52.0	42.0	44.1	40.0	38.0	49.5	54.0	45.0	44.0	45.72
7	37.0	58.0	47.2	47.1	41.0	46.0	49.0	44.0	45.0	46.0	46.03
8	49.0	63.0	45.8	45.5	42.7	39.0	51.0	44.2	54.0	35.0	46.92
9	49.0	56.0	45.0	41.0	37.5	40.0	43.5	44.0	47.1	31.5	43.46
10	33.0	64.0	48.7	48.0	53.0	36.0	46.0	46.0	49.0	40.0	46.37
11	32.5	53.0	51.0	42.0	47.0	46.0	43.0	45.0	44.0	37.0	44.05
12	48.0	57.0	47.5	43.0	50.5	46.0	44.0	51.0	42.0	38.0	46.70
13	46.0	54.5	49.7	42.0	48.5	44.0	42.0	39.0	44.0	50.0	45.97
14	48.0	54.0	44.0	46.0	50.0	63.8	45.0	38.5	52.5	53.0	49.48
15	48.2	49.0	47.0	48.0	50.0	59.8	56.4	49.0	38.0	36.8	48.22
16	51.5	54.0	38.0	49.0	52.0	68.2	50.4	47.5	45.0	39.4	49.50
17	51.0	48.1	42.0	49.0	49.0	48.5	47.8	48.0	41.0	41.5	46.59
18	50.0	54.0	50.0	41.6	51.0	41.5	43.4	48.0	39.0	40.0	45.85
19	32.0	55.0	41.5	42.0	48.9	46.5	53.6	50.0	44.0	34.4	44.79
20	46.0	44.8	42.0	42.0	53.0	44.0	50.5	45.0	46.0	35.5	44.88
	Σ										941.79

Perhitungan :

$$1. \quad \bar{\bar{X}} = \frac{\sum \bar{X}}{k} = \frac{941.79}{20} = 47.09$$

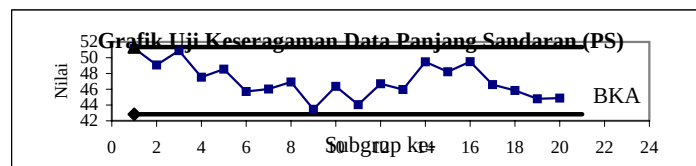
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(57 - 47.09)^2 + (56 - 47.09)^2 + \dots + (35.5 - 47.09)^2}{200 - 1}} = 6.740$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{6.740}{\sqrt{10}} = 2.13$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{\bar{X}} + (c * \sigma_{\bar{X}}) = 47.09 + (2 * 2.13) = 51.35$$

$$BKB = \bar{\bar{X}} - (c * \sigma_{\bar{X}}) = 47.09 - (2 * 2.13) = 42.83$$



Data Anthropometri Statis Lebar Sandaran (LS)

No	LS
1	11.0
2	23.5
3	23.0
4	23.0
5	19.5
6	23.0
7	19.0
8	16.0
9	23.0
10	17.0
11	9.0
12	20.5
13	21.0
14	19.0
15	18.0
16	20.5
17	18.0
18	16.0
19	18.0
20	19.0
21	9.0
22	21.0
23	17.0
24	14.0
25	18.0
26	31.5
27	16.0
28	17.0
29	16.0
30	18.0
31	20.0
32	18.0
33	13.0
34	16.0
35	19.5
36	21.5
37	19.0
38	21.6
39	17.5
40	18.0
41	28.5
42	20.0
43	22.0
44	15.5
45	17.0
46	24.0
47	14.0
48	22.6
49	17.0
50	18.0

No.	LS
51	27.0
52	20.0
53	13.0
54	17.7
55	21.0
56	23.4
57	17.5
58	16.5
59	17.5
60	14.0
61	25.0
62	12.0
63	19.5
64	17.8
65	14.5
66	21.5
67	18.5
68	16.0
69	16.3
70	20.0
71	21.0
72	17.0
73	18.2
74	17.0
75	18.0
76	22.0
77	17.5
78	19.0
79	18.7
80	14.0
81	22.0
82	18.0
83	24.0
84	16.5
85	12.0
86	27.0
87	17.5
88	14.0
89	20.0
90	15.5
91	11.0
92	34.0
93	18.5
94	17.5
95	17.0
96	24.0
97	11.5
98	14.0
99	24.0
100	20.0

No	LS
101	12.0
102	21.0
103	17.5
104	19.0
105	19.0
106	23.1
107	15.5
108	21.5
109	14.0
110	16.5
111	17.0
112	35.5
113	17.5
114	15.0
115	19.0
116	25.2
117	20.0
118	14.0
119	15.0
120	18.0
121	20.0
122	18.0
123	17.5
124	17.0
125	18.0
126	11.0
127	19.0
128	12.5
129	17.0
130	13.5
131	14.0
132	14.0
133	16.5
134	17.0
135	20.0
136	24.5
137	21.0
138	16.0
139	14.0
140	16.0
141	23.0
142	15.0
143	20.5
144	16.0
145	19.0
146	23.0
147	16.1
148	26.0
149	18.0
150	13.5

No.	LS
151	21.0
152	17.0
153	18.0
154	15.0
155	20.0
156	23.0
157	16.5
158	11.0
159	15.0
160	18.4
161	21.0
162	29.7
163	18.0
164	16.0
165	22.0
166	22.0
167	17.0
168	14.0
169	20.0
170	13.0
171	20.5
172	17.5
173	19.0
174	15.5
175	21.0
176	21.2
177	15.0
178	15.0
179	20.0
180	15.0
181	21.0
182	14.5
183	19.0
184	14.0
185	15.0
186	18.2
187	16.0
188	15.0
189	17.0
190	17.4
191	22.0
192	19.0
193	18.0
194	14.5
195	22.0
196	18.0
197	14.0
198	19.0
199	14.0
200	15.5

Uji Kenormalan Data Lebar Sandaran (LS)

- ❖ Menentukan Jumlah Kelas :

$$k = 3.3 \log n + 1$$

$$= 3.3 \log 200 + 1$$

$$= 8,59 \sim 9 \text{ kelas}$$

- ❖ Nilai Max = 35.5

$$\text{Nilai Min} = 9$$

- ❖ Mencari rentangan kelas atau panjang kelas :

$$c = (\text{data terbesar} - \text{data terkecil}) / k$$

$$= (35.5 - 9) / 8,59$$

$$= 3.1$$

- ❖ Rata -rata = 18.29

$$\text{Standar Deviasi} = 4.046$$

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²
	BKB	BKA										
< 9.0	~	8.95	0	~	-2.309	0.00000	0.01047	0.01047	2.094	12.284	10	0.425
9 - 12	8.95	12.05	10	-2.309	-1.543	0.01047	0.06142	0.05095	10.190			
12.1 - 15.1	12.05	15.15	34	-1.543	-0.777	0.06142	0.21864	0.15722	31.444	31.444	34	0.208
15.2 - 18.2	15.15	18.25	71	-0.777	-0.011	0.21864	0.49576	0.27712	55.424	55.42	71	4.377
18.3 - 21.3	18.25	21.35	48	-0.011	0.756	0.49576	0.77504	0.27928	55.856	55.86	48	1.105
21.4 - 24.4	21.35	24.45	26	0.756	1.522	0.77504	0.93596	0.16092	32.184	32.184	26	1.188
24.5 - 27.5	24.45	27.55	6	1.522	2.288	0.93596	0.98893	0.05297	10.594	12.808	11	0.255
27.6 - 30.6	27.55	30.65	2	2.288	3.054	0.98893	0.99887	0.00994	1.989			
30.7 - 33.7	30.65	33.75	1	3.054	3.820	0.99887	0.99993	0.00106	0.212			
33.8 - 36.8	33.75	36.85	2	3.820	4.586	0.99993	1.00000	0.00006	0.013			
> 36.8	36.85	~	0	4.586	~	1.00000	1.00000	0.00000	0.000			
			200							200		7.558

- ❖ $V = k - r - 1 = 6 - 2 - 1 = 3$

$$\alpha = 0.05$$

$$x^2(v, \alpha) = 7.815$$

- ❖ $X^2 \leq X^2_{(v, \alpha)}$ Data mengikuti distribusi normal

$$7.558 \leq 7.815 \quad \text{Data mengikuti distribusi normal}$$

Kesimpulan : Data mengikuti distribusi normal (data NORMAL)

Uji Keseragaman Data Lebar Sandaran (LS)

Subgrup ke-	LS										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	11.0	23.5	23.0	23.0	19.5	23.0	19.0	16.0	23.0	17.0	19.80
2	9.0	20.5	21.0	19.0	18.0	20.5	18.0	16.0	18.0	19.0	17.90
3	9.0	21.0	17.0	14.0	18.0	31.5	16.0	17.0	16.0	18.0	17.75
4	20.0	18.0	13.0	16.0	19.5	21.5	19.0	21.6	17.5	18.0	18.41
5	28.5	20.0	22.0	15.5	17.0	24.0	14.0	22.6	17.0	18.0	19.86
6	27.0	20.0	13.0	17.7	21.0	23.4	17.5	16.5	17.5	14.0	18.76
7	25.0	12.0	19.5	17.8	14.5	21.5	18.5	16.0	16.3	20.0	18.11
8	21.0	17.0	18.2	17.0	18.0	22.0	17.5	19.0	18.7	14.0	18.24
9	22.0	18.0	24.0	16.5	12.0	27.0	17.5	14.0	20.0	15.5	18.65
10	11.0	34.0	18.5	17.5	17.0	24.0	11.5	14.0	24.0	20.0	19.15
11	12.0	21.0	17.5	19.0	19.0	23.1	15.5	21.5	14.0	16.5	17.91
12	17.0	35.5	17.5	15.0	19.0	25.2	20.0	14.0	15.0	18.0	19.62
13	20.0	18.0	17.5	17.0	18.0	11.0	19.0	12.5	17.0	13.5	16.35
14	14.0	14.0	16.5	17.0	20.0	24.5	21.0	16.0	14.0	16.0	17.30
15	23.0	15.0	20.5	16.0	19.0	23.0	16.1	26.0	18.0	13.5	19.01
16	21.0	17.0	18.0	15.0	20.0	23.0	16.5	11.0	15.0	18.4	17.49
17	21.0	29.7	18.0	16.0	22.0	22.0	17.0	14.0	20.0	13.0	19.27
18	20.5	17.5	19.0	15.5	21.0	21.2	15.0	15.0	20.0	15.0	17.97
19	21.0	14.5	19.0	14.0	15.0	18.2	16.0	15.0	17.0	17.4	16.71
20	22.0	19.0	18.0	14.5	22.0	18.0	14.0	19.0	14.0	15.5	17.60
Σ											365.86

Perhitungan :

$$1. \quad \bar{\bar{X}} = \frac{\sum \bar{X}}{k} = \frac{365.86}{20} = 18.29$$

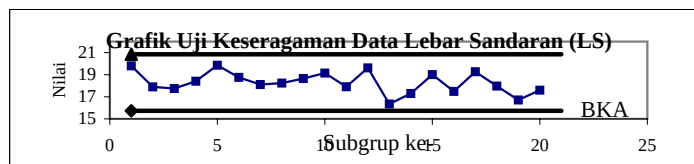
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(11 - 18.29)^2 + (9 - 18.29)^2 + \dots + (15.5 - 18.29)^2}{200 - 1}} = 4.046$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{4.046}{\sqrt{10}} = 1.28$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{\bar{X}} + (c * \sigma_{\bar{X}}) = 18.29 + (2 * 1.28) = 20.85$$

$$BKB = \bar{\bar{X}} - (c * \sigma_{\bar{X}}) = 18.29 - (2 * 1.28) = 15.73$$



Kesimpulan :	Data pada subgrup 1	→	SERAGAM
	Data pada subgrup 2	→	SERAGAM
	Data pada subgrup 3	→	SERAGAM
	Data pada subgrup 4	→	SERAGAM
	Data pada subgrup 5	→	SERAGAM
	Data pada subgrup 6	→	SERAGAM
	Data pada subgrup 7	→	SERAGAM
	Data pada subgrup 8	→	SERAGAM
	Data pada subgrup 9	→	SERAGAM
	Data pada subgrup 10	→	SERAGAM
	Data pada subgrup 11	→	SERAGAM
	Data pada subgrup 12	→	SERAGAM
	Data pada subgrup 13	→	SERAGAM
	Data pada subgrup 14	→	SERAGAM
	Data pada subgrup 15	→	SERAGAM
	Data pada subgrup 16	→	SERAGAM
	Data pada subgrup 17	→	SERAGAM
	Data pada subgrup 18	→	SERAGAM
	Data pada subgrup 19	→	SERAGAM
	Data pada subgrup 20	→	SERAGAM

Uji Kecukupan Data Lebar Sandaran (LS)

$$N' = \left[\frac{c/\alpha \sqrt{n \sum x^2 - (\sum x)^2}}{\sum x} \right]^2$$

$$N' = \left[\frac{(2 / 0.05) \times \sqrt{200 \times (70184 .58) - (13385353 .96)}}{3658 .6} \right]^2 = 77.884$$

Kesimpulan : karena $N' \leq N$, maka jumlah data yang diambil sudah **CUKUP**

Perhitungan Persentil Lebar Sandaran (LS)

Cara Lengkap :

$$1. \mu = \bar{X} = 18.29$$

$$2. \sigma = 4.046$$

$$3. \text{Untuk } 5 \% \longrightarrow Z1 = -1.645$$

$$\text{Untuk } 95 \% \quad Z2 = 1.645$$

$$4. P_5 = \mu + \sigma (Z1) \quad P_5 = 18.29 + 4.046 (-1.645) = 11.63$$

$$P_{50} = \mu \quad P_{50} = 18.29$$

$$P_{95} = \mu + \sigma (Z2) \quad P_{95} = 18.29 + 4.046(1.645) = 24.95$$

Data Anthropometri Statis Lebar Pinggul (LP)

No	LP
1	35.2
2	34.2
3	33.3
4	38.0
5	40.5
6	41.0
7	36.2
8	38.3
9	49.0
10	36.0
11	38.0
12	38.0
13	34.3
14	32.6
15	37.0
16	37.0
17	36.2
18	35.0
19	36.0
20	41.0
21	40.5
22	40.0
23	33.5
24	35.4
25	36.0
26	40.8
27	36.0
28	37.3
29	36.0
30	40.5
31	39.0
32	39.0
33	34.7
34	36.4
35	36.5
36	34.2
37	34.0
38	37.0
39	35.5
40	36.0
41	36.0
42	36.2
43	37.8
44	33.4
45	38.0
46	39.0
47	32.0
48	37.0
49	39.1
50	39.1

No.	LP
51	33.5
52	35.8
53	34.5
54	34.2
55	38.0
56	32.1
57	36.0
58	33.0
59	37.2
60	35.8
61	37.2
62	35.0
63	35.2
64	34.7
65	35.0
66	39.0
67	37.0
68	32.5
69	34.3
70	39.5
71	39.0
72	38.0
73	34.7
74	31.0
75	40.0
76	34.0
77	32.0
78	34.3
79	37.0
80	36.2
81	39.2
82	37.0
83	36.0
84	30.5
85	34.5
86	35.5
87	40.9
88	36.0
89	38.2
90	32.3
91	33.3
92	32.0
93	36.0
94	33.0
95	44.0
96	33.6
97	40.6
98	35.5
99	46.0
100	34.2

No	LP
101	37.5
102	34.5
103	38.0
104	37.0
105	38.5
106	33.5
107	38.8
108	37.3
109	34.5
110	30.0
111	37.0
112	36.0
113	33.0
114	34.1
115	36.5
116	35.0
117	37.8
118	33.1
119	34.0
120	33.0
121	35.0
122	37.8
123	36.4
124	41.3
125	33.0
126	34.6
127	34.7
128	35.7
129	37.0
130	37.0
131	38.0
132	35.7
133	34.0
134	41.0
135	37.0
136	35.7
137	37.7
138	44.5
139	33.0
140	35.5
141	38.0
142	39.5
143	41.0
144	42.5
145	34.0
146	35.0
147	37.9
148	40.3
149	36.0
150	34.1

No.	LP
151	39.0
152	37.2
153	32.0
154	41.0
155	35.0
156	38.8
157	37.6
158	38.4
159	35.0
160	36.1
161	44.0
162	36.5
163	35.2
164	42.0
165	34.5
166	38.1
167	33.8
168	43.5
169	34.0
170	35.8
171	37.0
172	36.5
173	28.3
174	38.5
175	37.5
176	35.8
177	33.0
178	34.0
179	35.0
180	34.6
181	36.0
182	36.5
183	37.5
184	37.5
185	36.5
186	35.6
187	36.7
188	36.5
189	36.2
190	39.8
191	35.9
192	35.6
193	34.5
194	35.0
195	38.0
196	34.0
197	37.5
198	35.7
199	33.0
200	34.7

Uji Kenormalan Data Lebar Pinggul (LP)

- ❖ Menentukan Jumlah Kelas :

$$k = 3.3 \log n + 1$$

$$= 3.3 \log 200 + 1$$

$$= 8,59 \sim 9 \text{ kelas}$$

- ❖ Nilai Max = 49
Nilai Min = 28.3

- ❖ Mencari rentangan kelas atau panjang kelas :

$$c = (\text{data terbesar} - \text{data terkecil}) / k$$

$$= (49 - 28.3) / 8,59$$

$$= 2.4$$

- ❖ Rata -rata = 36.45
Standar Deviasi = 2.888

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²
	BKB	BKA										
< 28.3	~	28.25	0	~	-2.837	0.00000	0.00227	0.00227	0.455	23.976	20	0.659
28.3 - 30.6	28.25	30.65	3	-2.837	-2.007	0.00227	0.02240	0.02013	4.025			
30.7 - 33	30.65	33.05	17	-2.007	-1.176	0.02240	0.11988	0.09748	19.496			
33.1 - 35.4	33.05	35.45	53	-1.176	-0.345	0.11988	0.36518	0.24529	49.059	49.06	53	0.317
35.5 - 37.8	35.45	37.85	73	-0.345	0.486	0.36518	0.68661	0.32143	64.287	64.29	73	1.181
37.9 - 40.2	37.85	40.25	33	0.486	1.317	0.68661	0.90611	0.21950	43.900	43.900	33	2.707
40.3 - 42.6	40.25	42.65	15	1.317	2.148	0.90611	0.98415	0.07804	15.607	18.778	21	0.263
42.7 - 45	42.65	45.05	4	2.148	2.979	0.98415	0.99855	0.01441	2.881			
45.1 - 47.4	45.05	47.45	1	2.979	3.810	0.99855	0.99993	0.00138	0.275			
47.5 - 49.8	47.45	49.85	1	3.810	4.641	0.99993	1.00000	0.00007	0.014			
> 49.8	49.85	~	0	4.641	~	1.00000	1.00000	0.00000	0.000			
			200							200		5.127

- ❖ $V = k - r - 1 = 5 - 2 - 1 = 2$
 $\alpha = 0.05$
 $\chi^2(v, \alpha) = 5.991$

- ❖ $\chi^2 \leq \chi^2_{(v, \alpha)}$ Data mengikuti distribusi normal
 $5.127 \leq 5.991$ Data mengikuti distribusi normal

Kesimpulan : Data mengikuti distribusi normal (data NORMAL)

Uji Keseragaman Data Lebar Pinggul (LP)

Subgrup ke-	LP										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	35.2	34.2	33.3	38.0	40.5	41.0	36.2	38.3	49.0	36.0	38.17
2	38.0	38.0	34.3	32.6	37.0	37.0	36.2	35.0	36.0	41.0	36.51
3	40.5	40.0	33.5	35.4	36.0	40.8	36.0	37.3	36.0	40.5	37.60
4	39.0	39.0	34.7	36.4	36.5	34.2	34.0	37.0	35.5	36.0	36.23
5	36.0	36.2	37.8	33.4	38.0	39.0	32.0	37.0	39.1	39.1	36.76
6	33.5	35.8	34.5	34.2	38.0	32.1	36.0	33.0	37.2	35.8	35.01
7	37.2	35.0	35.2	34.7	35.0	39.0	37.0	32.5	34.3	39.5	35.94
8	39.0	38.0	34.7	31.0	40.0	34.0	32.0	34.3	37.0	36.2	35.62
9	39.2	37.0	36.0	30.5	34.5	35.5	40.9	36.0	38.2	32.3	36.01
10	33.3	32.0	36.0	33.0	44.0	33.6	40.6	35.5	46.0	34.2	36.82
11	37.5	34.5	38.0	37.0	38.5	33.5	38.8	37.3	34.5	30.0	35.96
12	37.0	36.0	33.0	34.1	36.5	35.0	37.8	33.1	34.0	33.0	34.95
13	35.0	37.8	36.4	41.3	33.0	34.6	34.7	35.7	37.0	37.0	36.25
14	38.0	35.7	34.0	41.0	37.0	35.7	37.7	44.5	33.0	35.5	37.21
15	38.0	39.5	41.0	42.5	34.0	35.0	37.9	40.3	36.0	34.1	37.83
16	39.0	37.2	32.0	41.0	35.0	38.8	37.6	38.4	35.0	36.1	37.01
17	44.0	36.5	35.2	42.0	34.5	38.1	33.8	43.5	34.0	35.8	37.74
18	37.0	36.5	28.3	38.5	37.5	35.8	33.0	34.0	35.0	34.6	35.02
19	36.0	36.5	37.5	37.5	36.5	35.6	36.7	36.5	36.2	39.8	36.88
20	35.9	35.6	34.5	35.0	38.0	34.0	37.5	35.7	33.0	34.7	35.39
	Σ										728.91

Perhitungan :

$$1. \quad \bar{\bar{X}} = \frac{\sum \bar{X}}{k} = \frac{728.91}{20} = 36.45$$

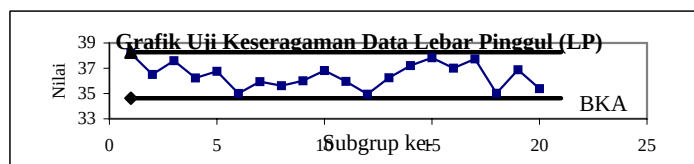
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(35.2 - 36.45)^2 + (38 - 36.45)^2 + \dots + (34.7 - 36.45)^2}{200 - 1}} = 2.888$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{2.888}{\sqrt{10}} = 0.91$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{\bar{X}} + (c * \sigma_{\bar{X}}) = 36.45 + (2 * 0.91) = 38.27$$

$$BKB = \bar{\bar{X}} - (c * \sigma_{\bar{X}}) = 36.45 - (2 * 0.91) = 34.63$$



Kesimpulan :	Data pada subgrup 1	→	SERAGAM
	Data pada subgrup 2	→	SERAGAM
	Data pada subgrup 3	→	SERAGAM
	Data pada subgrup 4	→	SERAGAM
	Data pada subgrup 5	→	SERAGAM
	Data pada subgrup 6	→	SERAGAM
	Data pada subgrup 7	→	SERAGAM
	Data pada subgrup 8	→	SERAGAM
	Data pada subgrup 9	→	SERAGAM
	Data pada subgrup 10	→	SERAGAM
	Data pada subgrup 11	→	SERAGAM
	Data pada subgrup 12	→	SERAGAM
	Data pada subgrup 13	→	SERAGAM
	Data pada subgrup 14	→	SERAGAM
	Data pada subgrup 15	→	SERAGAM
	Data pada subgrup 16	→	SERAGAM
	Data pada subgrup 17	→	SERAGAM
	Data pada subgrup 18	→	SERAGAM
	Data pada subgrup 19	→	SERAGAM
	Data pada subgrup 20	→	SERAGAM

Uji Kecukupan Data Lebar Pinggul (LP)

$$N' = \left[\frac{c/\alpha \sqrt{n \sum x^2 - (\sum x)^2}}{\sum x} \right]^2$$

$$N' = \left[\frac{(2/0.05) \times \sqrt{200 \times (267315.07) - (53130978.81)}}{7289.10} \right]^2 = 9.999$$

Kesimpulan : karena $N' \leq N$, maka jumlah data yang diambil sudah **CUKUP**

Perhitungan Persentil Lebar Pinggul (LP)

Cara Lengkap :

1. $\mu = \bar{X} = 36.45$
2. $\sigma = 2.888$
3. Untuk 5 % $\Rightarrow Z1 = -1.645$
Untuk 95 % $\Rightarrow Z2 = 1.645$
4. $P_5 = \mu + \sigma (Z1)$ $P_5 = 36.45 + 2.888 (-1.645) = 31.70$
 $P_{50} = \mu$ $P_{50} = 36.45$
 $P_{95} = \mu + \sigma (Z2)$ $P_{95} = 36.45 + 2.888 (1.645) = 41.20$

Data Anthropometri Statis Lebar Bahu (LB)

No	LB
1	43.0
2	42.0
3	38.6
4	42.7
5	45.0
6	53.0
7	43.0
8	47.5
9	40.0
10	42.5
11	42.6
12	42.0
13	42.9
14	41.3
15	37.0
16	46.0
17	36.0
18	42.0
19	30.0
20	46.2
21	39.9
22	45.0
23	36.7
24	35.4
25	37.0
26	46.2
27	43.0
28	44.5
29	39.0
30	42.0
31	40.8
32	41.0
33	39.9
34	32.1
35	38.1
36	36.5
37	43.0
38	39.0
39	40.6
40	38.0
41	43.3
42	46.4
43	43.1
44	36.7
45	40.0
46	40.5
47	35.0
48	42.0
49	44.0
50	40.0

No.	LB
51	39.7
52	39.4
53	31.0
54	38.9
55	36.7
56	37.0
57	46.0
58	51.0
59	39.0
60	37.0
61	40.9
62	40.5
63	32.3
64	39.5
65	36.9
66	46.0
67	46.7
68	35.0
69	36.3
70	43.0
71	45.5
72	43.0
73	48.8
74	42.5
75	38.2
76	37.0
77	39.6
78	35.5
79	41.4
80	38.5
81	44.4
82	47.0
83	43.2
84	39.0
85	36.0
86	39.5
87	43.5
88	39.0
89	44.2
90	35.5
91	38.0
92	36.5
93	47.5
94	45.0
95	45.5
96	45.0
97	41.0
98	36.0
99	50.4
100	44.6

No	LB
101	49.0
102	37.3
103	38.4
104	44.0
105	40.5
106	44.1
107	42.0
108	43.0
109	38.0
110	34.0
111	42.3
112	38.7
113	39.0
114	41.3
115	37.0
116	38.3
117	38.5
118	41.0
119	34.5
120	37.5
121	39.5
122	43.0
123	38.8
124	43.4
125	36.0
126	39.0
127	35.0
128	38.0
129	41.0
130	45.5
131	41.4
132	42.5
133	36.7
134	43.6
135	40.0
136	49.0
137	39.1
138	40.5
139	39.0
140	42.0
141	43.3
142	55.0
143	41.6
144	48.0
145	36.0
146	44.8
147	46.1
148	42.0
149	42.0
150	40.3

No.	LB
151	49.5
152	43.3
153	32.0
154	39.5
155	33.3
156	41.8
157	38.7
158	42.5
159	41.0
160	41.5
161	53.0
162	38.0
163	35.2
164	39.6
165	44.5
166	48.4
167	41.7
168	44.5
169	43.0
170	36.8
171	45.1
172	38.7
173	28.3
174	38.5
175	39.4
176	46.5
177	40.0
178	36.0
179	42.5
180	49.4
181	43.2
182	35.6
183	38.3
184	40.4
185	39.2
186	52.6
187	42.0
188	38.0
189	39.0
190	36.7
191	42.3
192	39.0
193	37.5
194	35.7
195	47.0
196	42.5
197	40.5
198	40.0
199	36.0
200	39.1

Uji Kenormalan Data Lebar Bahu (LB)

- ❖ Menentukan Jumlah Kelas :

$$k = 3.3 \log n + 1$$

$$= 3.3 \log 200 + 1$$

$$= 8,59 \sim 9 \text{ kelas}$$

- ❖ Nilai Max = 55
Nilai Min = 28.3

- ❖ Mencari rentangan kelas atau panjang kelas :

$$c = (\text{data terbesar} - \text{data terkecil}) / k$$

$$= (55 - 28.3) / 8,59$$

$$= 3.1$$

- ❖ Rata -rata = 40.91
Standar Deviasi = 4.371

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²
	BKB	BKA										
< 28.3	~	28.25	0	~	-2.897	0.00000	0.00188	0.00188	0.377	13.919	8	2.517
28.3 - 31.3	28.25	31.35	3	-2.897	-2.188	0.00188	0.01434	0.01245	2.491			
31.4 - 34.4	31.35	34.45	5	-2.188	-1.479	0.01434	0.06959	0.05526	11.052			
34.5 - 37.5	34.45	37.55	36	-1.479	-0.770	0.06959	0.22075	0.15116	30.231	30.23	36	1.101
37.6 - 40.6	37.55	40.65	58	-0.770	-0.061	0.22075	0.47588	0.25513	51.025	51.03	58	0.953
40.7 - 43.7	40.65	43.75	54	-0.061	0.649	0.47588	0.74172	0.26584	53.168	53.168	54	0.013
43.8 - 46.8	43.75	46.85	27	0.649	1.358	0.74172	0.91274	0.17102	34.204	34.204	27	1.517
46.9 - 49.9	46.85	49.95	11	1.358	2.067	0.91274	0.98063	0.06789	13.579	17.452	17	0.012
50.0 - 53	49.95	53.05	5	2.067	2.776	0.98063	0.99725	0.01662	3.324			
53.1 - 56.1	53.05	56.15	1	2.776	3.485	0.99725	0.99975	0.00250	0.501			
> 56.1	56.15	~	0	3.485	~	0.99975	1.00000	0.00025	0.049			
			200							200		6.113

- ❖ $V = k - r - 1 = 6 - 2 - 1 = 3$
 $\alpha = 0.05$
 $\chi^2(v, \alpha) = 7.815$

- ❖ $\chi^2 \leq \chi^2_{(v, \alpha)}$ Data mengikuti distribusi normal
 $6.113 \leq 7.815$ Data mengikuti distribusi normal

Kesimpulan : Data mengikuti distribusi normal (data NORMAL)

Uji Keseragaman Data Lebar Bahu (LB)

Subgrup ke-	LB										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	43.0	42.0	38.6	42.7	45.0	53.0	43.0	47.5	40.0	42.5	43.73
2	42.6	42.0	42.9	41.3	37.0	46.0	36.0	42.0	30.0	46.2	40.60
3	39.9	45.0	36.7	35.4	37.0	46.2	43.0	44.5	39.0	42.0	40.87
4	40.8	41.0	39.9	32.1	38.1	36.5	43.0	39.0	40.6	38.0	38.90
5	43.3	46.4	43.1	36.7	40.0	40.5	35.0	42.0	44.0	40.0	41.10
6	39.7	39.4	31.0	38.9	36.7	37.0	46.0	51.0	39.0	37.0	39.57
7	40.9	40.5	32.3	39.5	36.9	46.0	46.7	35.0	36.3	43.0	39.71
8	45.5	43.0	48.8	42.5	38.2	37.0	39.6	35.5	41.4	38.5	41.00
9	44.4	47.0	43.2	39.0	36.0	39.5	43.5	39.0	44.2	35.5	41.13
10	38.0	36.5	47.5	45.0	45.5	45.0	41.0	36.0	50.4	44.6	42.95
11	49.0	37.3	38.4	44.0	40.5	44.1	42.0	43.0	38.0	34.0	41.03
12	42.3	38.7	39.0	41.3	37.0	38.3	38.5	41.0	34.5	37.5	38.81
13	39.5	43.0	38.8	43.4	36.0	39.0	35.0	38.0	41.0	45.5	39.92
14	41.4	42.5	36.7	43.6	40.0	49.0	39.1	40.5	39.0	42.0	41.38
15	43.3	55.0	41.6	48.0	36.0	44.8	46.1	42.0	42.0	40.3	43.91
16	49.5	43.3	32.0	39.5	33.3	41.8	38.7	42.5	41.0	41.5	40.31
17	53.0	38.0	35.2	39.6	44.5	48.4	41.7	44.5	43.0	36.8	42.47
18	45.1	38.7	28.3	38.5	39.4	46.5	40.0	36.0	42.5	49.4	40.44
19	43.2	35.6	38.3	40.4	39.2	52.6	42.0	38.0	39.0	36.7	40.50
20	42.3	39.0	37.5	35.7	47.0	42.5	40.5	40.0	36.0	39.1	39.96
Σ											818.29

Perhitungan :

$$1. \quad \bar{\bar{X}} = \frac{\sum \bar{X}}{k} = \frac{818.29}{20} = 40.91$$

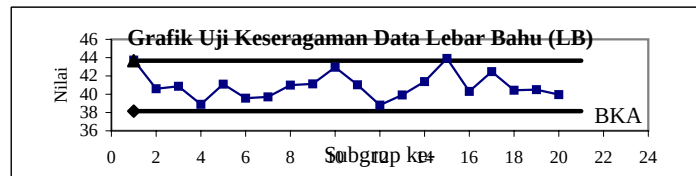
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(43 - 40.91)^2 + (42.6 - 40.91)^2 + \dots + (39.1 - 40.91)^2}{200 - 1}} = 4.371$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{4.371}{\sqrt{10}} = 1.38$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{\bar{X}} + (c * \sigma_{\bar{X}}) = 40.91 + (2 * 1.38) = 43.67$$

$$BKB = \bar{\bar{X}} - (c * \sigma_{\bar{X}}) = 40.91 - (2 * 1.38) = 38.15$$



Kesimpulan :	Data pada subgrup 1	————>	TIDAK SERAGAM
	Data pada subgrup 2	————>	SERAGAM
	Data pada subgrup 3	————>	SERAGAM
	Data pada subgrup 4	————>	SERAGAM
	Data pada subgrup 5	————>	SERAGAM
	Data pada subgrup 6	————>	SERAGAM
	Data pada subgrup 7	————>	SERAGAM
	Data pada subgrup 8	————>	SERAGAM
	Data pada subgrup 9	————>	SERAGAM
	Data pada subgrup 10	————>	SERAGAM
	Data pada subgrup 11	————>	SERAGAM
	Data pada subgrup 12	————>	SERAGAM
	Data pada subgrup 13	————>	SERAGAM
	Data pada subgrup 14	————>	SERAGAM
	Data pada subgrup 15	————>	TIDAK SERAGAM
	Data pada subgrup 16	————>	SERAGAM
	Data pada subgrup 17	————>	SERAGAM
	Data pada subgrup 18	————>	SERAGAM
	Data pada subgrup 19	————>	SERAGAM
	Data pada subgrup 20	————>	SERAGAM

REVISI :Uji Kenormalan Data Lebar Bahu (LB)

- ❖ Menentukan Jumlah Kelas :

$$k = 3.3 \log n + 1$$

$$= 3.3 \log 180 + 1$$

$$= 8,44 \sim 9 \text{ kelas}$$

- ❖ Nilai Max = 53
- Nilai Min = 28.3

- ❖ Mencari rentangan kelas atau panjang kelas :

$$c = (\text{data terbesar} - \text{data terkecil}) / k$$

$$= (53 - 28.3) / 8,44$$

$$= 2.9$$

- ❖ Rata -rata = 40.59
- Standar Deviasi = 4.249

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²
	BKB	BKA										
< 28.3	~	28.25	0	~	-2.904	0.00000	0.00184	0.00184	0.331	11.134	8	0.882
28.3 - 31.1	28.25	31.15	3	-2.904	-2.222	0.00184	0.01315	0.01131	2.035			
31.2 - 34	31.15	34.05	5	-2.222	-1.539	0.01315	0.06185	0.04871	8.767			
34.1 - 36.9	34.05	36.95	26	-1.539	-0.857	0.06185	0.19573	0.13388	24.098	24.10	26	0.150
37.0 - 39.8	36.95	39.85	50	-0.857	-0.175	0.19573	0.43072	0.23499	42.299	42.30	50	1.402
39.9 - 42.7	39.85	42.75	43	-0.175	0.508	0.43072	0.69424	0.26352	47.433	47.433	43	0.414
42.8 - 45.6	42.75	45.65	32	0.508	1.190	0.69424	0.88304	0.18880	33.985	33.985	32	0.116
45.7 - 48.5	45.65	48.55	12	1.190	1.873	0.88304	0.96945	0.08641	15.553	15.553	12	0.812
48.6 - 51.4	48.55	51.45	7	1.873	2.555	0.96945	0.99469	0.02524	4.544	5.499	9	2.229
51.5 - 54.3	51.45	54.35	2	2.555	3.238	0.99469	0.99940	0.00470	0.847			
> 54.3	54.35	~	0	3.238	~	0.99940	1.00000	0.00060	0.108			
			180							180		6.005

- ❖ $V = k - r - 1 = 7 - 2 - 1 = 4$
- $\alpha = 0.05$
- $\chi^2(v, \alpha) = 9.488$

- ❖ $\chi^2 \leq \chi^2_{(v, \alpha)}$ Data mengikuti distribusi normal
- $6.005 \leq 9.488$ Data mengikuti distribusi normal

Kesimpulan : Data mengikuti distribusi normal (data NORMAL)

REVISI : Uji Keseragaman Data Lebar Bahu (LB)

Subgrup ke-	LB										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	42.6	42.0	42.9	41.3	37.0	46.0	36.0	42.0	30.0	46.2	40.60
2	39.9	45.0	36.7	35.4	37.0	46.2	43.0	44.5	39.0	42.0	40.87
3	40.8	41.0	39.9	32.1	38.1	36.5	43.0	39.0	40.6	38.0	38.90
4	43.3	46.4	43.1	36.7	40.0	40.5	35.0	42.0	44.0	40.0	41.10
5	39.7	39.4	31.0	38.9	36.7	37.0	46.0	51.0	39.0	37.0	39.57
6	40.9	40.5	32.3	39.5	36.9	46.0	46.7	35.0	36.3	43.0	39.71
7	45.5	43.0	48.8	42.5	38.2	37.0	39.6	35.5	41.4	38.5	41.00
8	44.4	47.0	43.2	39.0	36.0	39.5	43.5	39.0	44.2	35.5	41.13
9	38.0	36.5	47.5	45.0	45.5	45.0	41.0	36.0	50.4	44.6	42.95
10	49.0	37.3	38.4	44.0	40.5	44.1	42.0	43.0	38.0	34.0	41.03
11	42.3	38.7	39.0	41.3	37.0	38.3	38.5	41.0	34.5	37.5	38.81
12	39.5	43.0	38.8	43.4	36.0	39.0	35.0	38.0	41.0	45.5	39.92
13	41.4	42.5	36.7	43.6	40.0	49.0	39.1	40.5	39.0	42.0	41.38
14	49.5	43.3	32.0	39.5	33.3	41.8	38.7	42.5	41.0	41.5	40.31
15	53.0	38.0	35.2	39.6	44.5	48.4	41.7	44.5	43.0	36.8	42.47
16	45.1	38.7	28.3	38.5	39.4	46.5	40.0	36.0	42.5	49.4	40.44
17	43.2	35.6	38.3	40.4	39.2	52.6	42.0	38.0	39.0	36.7	40.50
18	42.3	39.0	37.5	35.7	47.0	42.5	40.5	40.0	36.0	39.1	39.96
Σ											730.65

Perhitungan :

$$1. \quad \bar{\bar{X}} = \frac{\sum \bar{X}}{k} = \frac{730.65}{18} = 40.59$$

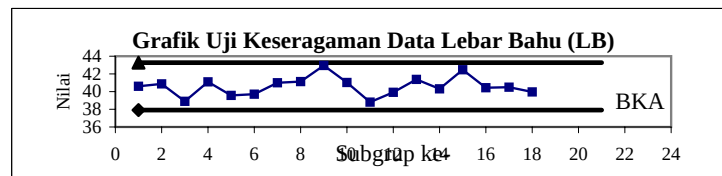
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(42.6 - 40.59)^2 + (39.9 - 40.59)^2 + \dots + (39.1 - 40.59)^2}{180 - 1}} = 4.249$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{4.249}{\sqrt{10}} = 1.34$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{\bar{X}} + (c * \sigma_{\bar{X}}) = 40.59 + (2 * 1.34) = 43.27$$

$$BKB = \bar{\bar{X}} - (c * \sigma_{\bar{X}}) = 40.59 - (2 * 1.34) = 37.91$$



Kesimpulan :

Data pada subgrup 1	→	SERAGAM
Data pada subgrup 2	→	SERAGAM
Data pada subgrup 3	→	SERAGAM
Data pada subgrup 4	→	SERAGAM
Data pada subgrup 5	→	SERAGAM
Data pada subgrup 6	→	SERAGAM
Data pada subgrup 7	→	SERAGAM
Data pada subgrup 8	→	SERAGAM
Data pada subgrup 9	→	SERAGAM
Data pada subgrup 10	→	SERAGAM
Data pada subgrup 11	→	SERAGAM
Data pada subgrup 12	→	SERAGAM
Data pada subgrup 13	→	SERAGAM
Data pada subgrup 14	→	SERAGAM
Data pada subgrup 15	→	SERAGAM
Data pada subgrup 16	→	SERAGAM
Data pada subgrup 17	→	SERAGAM
Data pada subgrup 18	→	SERAGAM

Uji Kecukupan Data Lebar Bahu (LB)

$$N' = \left[\frac{c/\alpha \sqrt{n \sum x^2 - (\sum x)^2}}{\sum x} \right]^2$$

$$N' = \left[\frac{(2 / 0.05) \times \sqrt{180 \times (299815.41) - (53384942.25)}}{7306.50} \right]^2 = 17.438$$

Kesimpulan : karena $N' \leq N$, maka jumlah data yang diambil sudah **CUKUP**

Perhitungan Persentil Lebar Bahu (LB)

Cara Lengkap :

- $\mu = \bar{X} = 40.59$
- $\sigma = 4.249$
- Untuk 5 % $\Rightarrow Z1 = -1.645$
Untuk 95 % $\Rightarrow Z2 = 1.645$
- | | |
|------------------------------|--|
| $P_5 = \mu + \sigma (Z1)$ | $P_5 = 40.59 + 4.249 (-1.645) = 33.6$ |
| $P_{50} = \mu$ | $P_{50} = 40.59$ |
| $P_{95} = \mu + \sigma (Z2)$ | $P_{95} = 40.59 + 4.249 (1.645) = 47.58$ |

Data Anthropometri Statis Tinggi Siku Berdiri (TSB)

No	TSB
1	91.0
2	109.0
3	91.0
4	103.0
5	100.0
6	110.0
7	104.0
8	102.0
9	104.0
10	110.0
11	111.5
12	106.0
13	97.0
14	94.7
15	98.0
16	107.5
17	98.5
18	97.0
19	101.0
20	102.0
21	108.0
22	114.0
23	88.0
24	97.5
25	89.8
26	110.5
27	106.0
28	108.0
29	90.0
30	101.0
31	105.0
32	103.0
33	100.8
34	92.5
35	92.0
36	104.0
37	106.0
38	96.0
39	101.0
40	92.0
41	110.0
42	104.5
43	95.2
44	93.5
45	98.5
46	105.5
47	106.0
48	101.5
49	93.2
50	98.4

No.	TSB
51	86.3
52	97.5
53	99.2
54	87.6
55	96.5
56	108.3
57	100.0
58	97.0
59	95.5
60	99.7
61	106.0
62	105.0
63	93.2
64	90.2
65	96.5
66	99.4
67	98.0
68	95.3
69	95.5
70	104.0
71	101.0
72	108.2
73	94.8
74	101.5
75	98.0
76	107.0
77	98.0
78	90.0
79	94.0
80	98.7
81	101.0
82	111.0
83	115.2
84	94.0
85	92.0
86	106.0
87	100.5
88	103.0
89	97.0
90	93.7
91	108.0
92	97.5
93	93.0
94	102.0
95	103.0
96	109.5
97	100.5
98	99.0
99	113.0
100	104.0

No	TSB
101	90.0
102	95.6
103	91.0
104	101.0
105	106.0
106	103.0
107	104.0
108	100.0
109	92.0
110	94.0
111	105.5
112	95.5
113	102.2
114	97.5
115	99.0
116	95.0
117	95.5
118	103.0
119	92.0
120	101.0
121	94.5
122	112.0
123	97.4
124	102.5
125	93.0
126	103.5
127	104.5
128	97.5
129	105.0
130	105.0
131	96.0
132	109.0
133	100.9
134	100.0
135	98.0
136	92.6
137	106.0
138	99.0
139	106.0
140	110.0
141	102.0
142	110.0
143	103.5
144	106.0
145	93.0
146	107.6
147	108.1
148	128.2
149	95.5
150	98.8

No.	TSB
151	103.5
152	99.5
153	99.0
154	106.0
155	93.0
156	108.2
157	92.0
158	129.0
159	109.0
160	103.0
161	95.5
162	98.0
163	98.0
164	105.0
165	94.0
166	105.6
167	102.3
168	126.5
169	111.0
170	95.2
171	101.0
172	103.0
173	91.1
174	96.1
175	101.0
176	108.9
177	99.8
178	98.0
179	100.0
180	96.5
181	109.0
182	101.5
183	97.1
184	96.0
185	97.0
186	109.8
187	101.2
188	104.0
189	97.0
190	103.0
191	103.0
192	91.5
193	92.2
194	95.1
195	96.0
196	101.0
197	97.0
198	96.5
199	96.0
200	99.4

Uji Kenormalan Data Tinggi Siku Berdiri (TSB)

- ❖ Menentukan Jumlah Kelas :

$$k = 3.3 \log n + 1$$

$$= 3.3 \log 200 + 1$$

$$= 8,59 \sim 9 \text{ kelas}$$

- ❖ Nilai Max = 129
- Nilai Min = 86.3

- ❖ Mencari rentangan kelas atau panjang kelas :

$$c = (\text{data terbesar} - \text{data terkecil}) / k$$

$$= (129 - 86.3) / 8,59$$

$$= 5$$

- ❖ Rata -rata = 100.67
- Standar Deviasi = 6.810

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²
	BKB	BKA										
< 86.3	~	86.25	0	~	-2.117	0.00000	0.01713	0.01713	3.425	16.671	12	1.309
86.3 - 91.2	86.25	91.25	12	-2.117	-1.383	0.01713	0.08336	0.06623	13.246			
91.3 - 96.2	91.25	96.25	43	-1.383	-0.649	0.08336	0.25831	0.17495	34.990	34.990	43	1.834
96.3 - 101.2	96.25	101.25	61	-0.649	0.086	0.25831	0.53414	0.27584	55.167	55.17	61	0.617
101.3 - 106.2	101.25	106.25	51	0.086	0.820	0.53414	0.79388	0.25974	51.947	51.95	51	0.017
106.3 - 111.2	106.25	111.25	25	0.820	1.554	0.79388	0.93993	0.14606	29.211	29.211	25	0.607
111.3 - 116.2	111.25	116.25	5	1.554	2.288	0.93993	0.98895	0.04901	9.802	12.013	8	1.341
116.3 - 121.2	116.25	121.25	0	2.288	3.023	0.98895	0.99875	0.00980	1.960			
121.3 - 126.2	121.25	126.25	0	3.023	3.757	0.99875	0.99991	0.00117	0.233			
126.3 - 131.2	126.25	131.25	3	3.757	4.491	0.99991	1.00000	0.00008	0.016			
> 131.2	131.25	~	0	4.491	~	1.00000	1.00000	0.00000	0.001			
			200							200		5.724

- ❖ $V = k - r - 1 = 6 - 2 - 1 = 3$
- $\alpha = 0.05$
- $\chi^2(v, \alpha) = 7.815$

- ❖ $\chi^2 \leq \chi^2_{(v, \alpha)}$ Data mengikuti distribusi normal
- $5.724 \leq 7.815$ Data mengikuti distribusi normal

Kesimpulan : Data mengikuti distribusi normal (data NORMAL)

Uji Keseragaman Data Tinggi Siku Berdiri (TSB)

Subgrup ke-	TSB										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	91.0	109.0	91.0	103.0	100.0	110.0	104.0	102.0	104.0	110.0	102.40
2	111.5	106.0	97.0	94.7	98.0	107.5	98.5	97.0	101.0	102.0	101.32
3	108.0	114.0	88.0	97.5	89.8	110.5	106.0	108.0	90.0	101.0	101.28
4	105.0	103.0	100.8	92.5	92.0	104.0	106.0	96.0	101.0	92.0	99.23
5	110.0	104.5	95.2	93.5	98.5	105.5	106.0	101.5	93.2	98.4	100.63
6	86.3	97.5	99.2	87.6	96.5	108.3	100.0	97.0	95.5	99.7	96.76
7	106.0	105.0	93.2	90.2	96.5	99.4	98.0	95.3	95.5	104.0	98.31
8	101.0	108.2	94.8	101.5	98.0	107.0	98.0	90.0	94.0	98.7	99.12
9	101.0	111.0	115.2	94.0	92.0	106.0	100.5	103.0	97.0	93.7	101.34
10	108.0	97.5	93.0	102.0	103.0	109.5	100.5	99.0	113.0	104.0	102.95
11	90.0	95.6	91.0	101.0	106.0	103.0	104.0	100.0	92.0	94.0	97.66
12	105.5	95.5	102.2	97.5	99.0	95.0	95.5	103.0	92.0	101.0	98.62
13	94.5	112.0	97.4	102.5	93.0	103.5	104.5	97.5	105.0	105.0	101.49
14	96.0	109.0	100.9	100.0	98.0	92.6	106.0	99.0	106.0	110.0	101.75
15	102.0	110.0	103.5	106.0	93.0	107.6	108.1	128.2	95.5	98.8	105.27
16	103.5	99.5	99.0	106.0	93.0	108.2	92.0	129.0	109.0	103.0	104.22
17	95.5	98.0	98.0	105.0	94.0	105.6	102.3	126.5	111.0	95.2	103.11
18	101.0	103.0	91.1	96.1	101.0	108.9	99.8	98.0	100.0	96.5	99.54
19	109.0	101.5	97.1	96.0	97.0	109.8	101.2	104.0	97.0	103.0	101.56
20	103.0	91.5	92.2	95.1	96.0	101.0	97.0	96.5	96.0	99.4	96.77
Σ											2013.33

Perhitungan :

$$1. \quad \bar{\bar{X}} = \frac{\sum \bar{X}}{k} = \frac{2013.33}{20} = 100.67$$

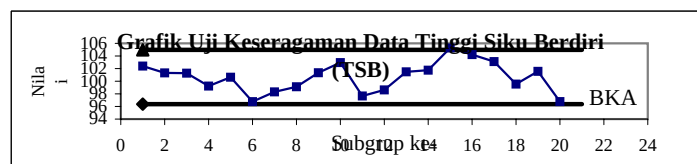
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(91 - 100.67)^2 + (111.5 - 100.67)^2 + \dots + (99.4 - 100.67)^2}{200 - 1}} = 6.810$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{6.810}{\sqrt{10}} = 2.15$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{\bar{X}} + (c * \sigma_{\bar{X}}) = 100.67 + (2 * 2.15) = 104.97$$

$$BKB = \bar{\bar{X}} - (c * \sigma_{\bar{X}}) = 100.67 - (2 * 2.15) = 96.37$$



Kesimpulan :	Data pada subgrup 1	————→	SERAGAM
	Data pada subgrup 2	————→	SERAGAM
	Data pada subgrup 3	————→	SERAGAM
	Data pada subgrup 4	————→	SERAGAM
	Data pada subgrup 5	————→	SERAGAM
	Data pada subgrup 6	————→	SERAGAM
	Data pada subgrup 7	————→	SERAGAM
	Data pada subgrup 8	————→	SERAGAM
	Data pada subgrup 9	————→	SERAGAM
	Data pada subgrup 10	————→	SERAGAM
	Data pada subgrup 11	————→	SERAGAM
	Data pada subgrup 12	————→	SERAGAM
	Data pada subgrup 13	————→	SERAGAM
	Data pada subgrup 14	————→	SERAGAM
	Data pada subgrup 15	————→	TIDAK SERAGAM
	Data pada subgrup 16	————→	SERAGAM
	Data pada subgrup 17	————→	SERAGAM
	Data pada subgrup 18	————→	SERAGAM
	Data pada subgrup 19	————→	SERAGAM
	Data pada subgrup 20	————→	SERAGAM

REVISI :Uji Kenormalan Data Tinggi Siku Berdiri (TSB)

- ❖ Menentukan Jumlah Kelas :

$$k = 3.3 \log n + 1$$

$$= 3.3 \log 180 + 1$$

$$= 8,44 \sim 9 \text{ kelas}$$

- ❖ Nilai Max = 129
- Nilai Min = 86.3

- ❖ Mencari rentangan kelas atau panjang kelas :

$$c = (\text{data terbesar} - \text{data terkecil}) / k$$

$$= (129 - 86.3) / 8,44$$

$$= 5.1$$

- ❖ Rata -rata = 100.42
- Standar Deviasi = 6.563

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²	
	BKB	BKA											
< 86.3	~	86.25	0	~	-2.160	0.00000	0.01540	0.01540	2.925	15.844	12	0.932	
86.3 - 91.3	86.25	91.35	12	-2.160	-1.383	0.01540	0.08339	0.06799	12.918				
91.4 - 96.4	91.35	96.45	41	-1.383	-0.606	0.08339	0.27241	0.18902	35.914	35.914	41	0.720	
96.5 - 101.5	96.45	101.55	63	-0.606	0.172	0.27241	0.56810	0.29569	56.182	56.18	63	0.827	
101.6 - 106.6	101.55	106.65	45	0.172	0.949	0.56810	0.82860	0.26050	49.494	49.49	45	0.408	
106.7 - 111.7	106.65	111.75	23	0.949	1.726	0.82860	0.95780	0.12921	24.549	24.549	23	0.098	
111.8 - 116.8	111.75	116.85	4	1.726	2.503	0.95780	0.99384	0.03604	6.847	8.018	6	0.508	
116.9 - 121.9	116.85	121.95	0	2.503	3.280	0.99384	0.99948	0.00564	1.072				
122.0 - 127	121.95	127.05	1	3.280	4.057	0.99948	0.99998	0.00049	0.094				
127.1 - 132.1	127.05	132.15	1	4.057	4.834	0.99998	1.00000	0.00002	0.005				
> 132.1	132.15	~	0	4.834	~	1.00000	1.00000	0.00000	0.000				
			190							190			3.494

- ❖ $V = k - r - 1 = 6 - 2 - 1 = 3$
- $\alpha = 0.05$
- $\chi^2(v, \alpha) = 7.815$

- ❖ $\chi^2 \leq \chi^2_{(v, \alpha)}$ Data mengikuti distribusi normal
- $3.494 \leq 7.815$ Data mengikuti distribusi normal

Kesimpulan : Data mengikuti distribusi normal (data NORMAL)

REVISI : Uji Keseragaman Data Tinggi Siku Berdiri (TSB)

Subgrup ke-	TSB										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	91.0	109.0	91.0	103.0	100.0	110.0	104.0	102.0	104.0	110.0	102.40
2	111.5	106.0	97.0	94.7	98.0	107.5	98.5	97.0	101.0	102.0	101.32
3	108.0	114.0	88.0	97.5	89.8	110.5	106.0	108.0	90.0	101.0	101.28
4	105.0	103.0	100.8	92.5	92.0	104.0	106.0	96.0	101.0	92.0	99.23
5	110.0	104.5	95.2	93.5	98.5	105.5	106.0	101.5	93.2	98.4	100.63
6	86.3	97.5	99.2	87.6	96.5	108.3	100.0	97.0	95.5	99.7	96.76
7	106.0	105.0	93.2	90.2	96.5	99.4	98.0	95.3	95.5	104.0	98.31
8	101.0	108.2	94.8	101.5	98.0	107.0	98.0	90.0	94.0	98.7	99.12
9	101.0	111.0	115.2	94.0	92.0	106.0	100.5	103.0	97.0	93.7	101.34
10	108.0	97.5	93.0	102.0	103.0	109.5	100.5	99.0	113.0	104.0	102.95
11	90.0	95.6	91.0	101.0	106.0	103.0	104.0	100.0	92.0	94.0	97.66
12	105.5	95.5	102.2	97.5	99.0	95.0	95.5	103.0	92.0	101.0	98.62
13	94.5	112.0	97.4	102.5	93.0	103.5	104.5	97.5	105.0	105.0	101.49
14	96.0	109.0	100.9	100.0	98.0	92.6	106.0	99.0	106.0	110.0	101.75
15	103.5	99.5	99.0	106.0	93.0	108.2	92.0	129.0	109.0	103.0	104.22
16	95.5	98.0	98.0	105.0	94.0	105.6	102.3	126.5	111.0	95.2	103.11
17	101.0	103.0	91.1	96.1	101.0	108.9	99.8	98.0	100.0	96.5	99.54
18	109.0	101.5	97.1	96.0	97.0	109.8	101.2	104.0	97.0	103.0	101.56
19	103.0	91.5	92.2	95.1	96.0	101.0	97.0	96.5	96.0	99.4	96.77
	Σ										1908.06

Perhitungan :

$$1. \quad \bar{\bar{X}} = \frac{\sum \bar{X}}{k} = \frac{1908.06}{19} = 100.42$$

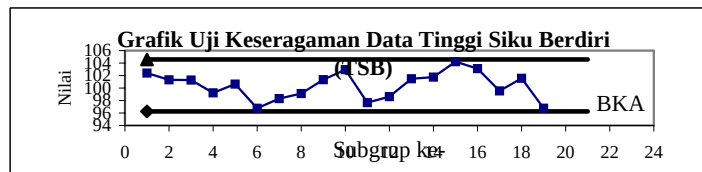
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(91 - 100.42)^2 + (111.5 - 100.42)^2 + \dots + (99.4 - 100.42)^2}{190 - 1}} = 6.563$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{6.563}{\sqrt{10}} = 2.08$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{\bar{X}} + (c * \sigma_{\bar{X}}) = 100.42 + (2 * 2.08) = 104.58$$

$$BKB = \bar{\bar{X}} - (c * \sigma_{\bar{X}}) = 100.42 - (2 * 2.08) = 96.26$$



Kesimpulan :	Data pada subgrup 1	→	SERAGAM
	Data pada subgrup 2	→	SERAGAM
	Data pada subgrup 3	→	SERAGAM
	Data pada subgrup 4	→	SERAGAM
	Data pada subgrup 5	→	SERAGAM
	Data pada subgrup 6	→	SERAGAM
	Data pada subgrup 7	→	SERAGAM
	Data pada subgrup 8	→	SERAGAM
	Data pada subgrup 9	→	SERAGAM
	Data pada subgrup 10	→	SERAGAM
	Data pada subgrup 11	→	SERAGAM
	Data pada subgrup 12	→	SERAGAM
	Data pada subgrup 13	→	SERAGAM
	Data pada subgrup 14	→	SERAGAM
	Data pada subgrup 15	→	SERAGAM
	Data pada subgrup 16	→	SERAGAM
	Data pada subgrup 17	→	SERAGAM
	Data pada subgrup 18	→	SERAGAM
	Data pada subgrup 19	→	SERAGAM

Uji Kecukupan Data Tinggi Siku Berdiri (TSB)

$$N' = \left[\frac{c/\alpha \sqrt{n \sum x^2 - (\sum x)^2}}{\sum x} \right]^2$$

$$N' = \left[\frac{(2 / 0.05) \times \sqrt{190 \times (1924294.84) - (36069296.36)}}{19080.60} \right]^2 = 6.797$$

Kesimpulan : karena $N' \leq N$, maka jumlah data yang diambil sudah **CUKUP**

Perhitungan Persentil Tinggi Siku Berdiri (TSB)

Cara Lengkap :

$$1. \mu = \bar{X} = 100.42$$

$$2. \sigma = 6.563$$

$$3. \text{Untuk } 5\% \implies Z1 = -1.645$$

$$\text{Untuk } 95\% \implies Z2 = 1.645$$

$$4. P_5 = \mu + \sigma (Z1) \quad P_5 = 100.42 + 6.563 (-1.645) = 89.62$$

$$P_{50} = \mu \quad P_{50} = 100.42$$

$$P_{95} = \mu + \sigma (Z2) \quad P_{95} = 100.42 + 6.563 (1.645) = 111.22$$

Data Anthropometri Statis Panjang Lengan Bawah (PLB)

No	PLB
1	27.0
2	27.0
3	24.0
4	25.5
5	29.0
6	26.5
7	32.0
8	18.8
9	27.0
10	28.0
11	28.0
12	37.0
13	24.0
14	23.2
15	24.0
16	26.5
17	29.5
18	28.5
19	27.0
20	27.0
21	28.0
22	26.0
23	24.0
24	26.5
25	23.0
26	29.5
27	29.0
28	17.0
29	22.0
30	30.0
31	28.0
32	36.0
33	25.0
34	24.0
35	25.0
36	27.5
37	27.0
38	26.0
39	25.0
40	26.0
41	28.0
42	26.0
43	26.0
44	24.0
45	26.0
46	26.5
47	29.2
48	27.6
49	24.0
50	26.0

No.	PLB
51	22.6
52	23.0
53	25.5
54	20.5
55	26.0
56	29.0
57	28.0
58	28.0
59	22.5
60	24.0
61	25.0
62	26.0
63	22.0
64	21.0
65	24.0
66	28.5
67	27.0
68	22.0
69	26.9
70	20.0
71	29.0
72	28.0
73	25.3
74	27.5
75	24.5
76	29.5
77	28.0
78	23.0
79	24.0
80	22.0
81	31.0
82	28.0
83	27.3
84	25.5
85	23.5
86	31.4
87	26.0
88	25.0
89	30.0
90	22.4
91	22.0
92	26.0
93	23.8
94	28.0
95	27.0
96	29.0
97	25.5
98	22.0
99	28.0
100	28.5

No	PLB
101	22.5
102	22.0
103	23.0
104	24.0
105	24.0
106	31.8
107	25.0
108	24.0
109	25.0
110	23.0
111	28.0
112	25.0
113	32.2
114	25.0
115	24.0
116	23.5
117	27.0
118	24.5
119	23.0
120	26.0
121	25.0
122	28.0
123	27.0
124	25.0
125	24.0
126	31.5
127	23.0
128	26.5
129	28.0
130	29.0
131	21.0
132	26.0
133	24.5
134	29.0
135	26.0
136	23.2
137	27.0
138	27.0
139	27.0
140	29.0
141	26.0
142	26.0
143	25.2
144	29.0
145	24.0
146	22.5
147	28.2
148	29.5
149	27.5
150	25.4

No.	PLB
151	31.0
152	25.0
153	25.0
154	30.0
155	23.0
156	28.6
157	25.4
158	28.5
159	28.0
160	28.0
161	29.5
162	25.4
163	25.0
164	31.0
165	23.0
166	26.5
167	27.5
168	26.5
169	22.0
170	23.0
171	27.0
172	25.0
173	28.0
174	28.0
175	25.0
176	30.0
177	24.5
178	23.0
179	19.0
180	24.2
181	23.0
182	24.0
183	26.0
184	39.7
185	24.0
186	27.8
187	25.0
188	25.0
189	24.0
190	24.6
191	28.0
192	23.7
193	23.5
194	34.5
195	26.0
196	26.0
197	24.0
198	22.0
199	24.0
200	21.5

Uji Kenormalan Data Panjang Lengan Bawah (PLB)

- ❖ Menentukan Jumlah Kelas :
 $k = 3.3 \log n + 1$
 $= 3.3 \log 200 + 1$
 $= 8,59 \sim 9 \text{ kelas}$
- ❖ Mencari rentangan kelas atau panjang kelas :
 $c = (\text{data terbesar} - \text{data terkecil}) / k$
 $= (39.7 - 17) / 8,59$
 $= 2.6$
- ❖ Nilai Max = 39.7
 Nilai Min = 17
- ❖ Rata -rata = 26.02
 Standar Deviasi = 3.078

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²	
	BKB	BKA											
< 17.0	~	16.95	0	~	-2.947	0.00000	0.00161	0.00161	0.321	20.867	17	0.717	
17 - 19.5	16.95	19.55	3	-2.947	-2.102	0.00161	0.01778	0.01617	3.234				
19.6 - 22.1	19.55	22.15	14	-2.102	-1.257	0.01778	0.10433	0.08656	17.311				
22.2 - 24.7	22.15	24.75	51	-1.257	-0.412	0.10433	0.34000	0.23566	47.133	47.13	51	0.317	
24.8 - 27.3	24.75	27.35	69	-0.412	0.432	0.34000	0.66724	0.32724	65.448	65.45	69	0.193	
27.4 - 29.9	27.35	29.95	47	0.432	1.277	0.66724	0.89921	0.23197	46.395	46.395	47	0.008	
30.0 - 32.5	29.95	32.55	12	1.277	2.122	0.89921	0.98307	0.08386	16.773	20.158	16	0.858	
32.6 - 35.1	32.55	35.15	1	2.122	2.967	0.98307	0.99849	0.01542	3.084				
35.2 - 37.7	35.15	37.75	2	2.967	3.811	0.99849	0.99993	0.00144	0.287				
37.8 - 40.3	37.75	40.35	1	3.811	4.656	0.99993	1.00000	0.00007	0.013				
> 40.3	40.35	~	0	4.656	~	1.00000	1.00000	0.00000	0.000				
			200							200			2.092

- ❖ $V = k - r - 1 = 5 - 2 - 1 = 2$
 $\alpha = 0.05$
 $\chi^2_{(v,\alpha)} = 5.991$

- ❖ $\chi^2 \leq \chi^2_{(v,\alpha)}$ Data mengikuti distribusi normal
 $2.092 \leq 5.991$ Data mengikuti distribusi normal

Kesimpulan : Data mengikuti distribusi normal (data NORMAL)

Uji Keseragaman Data Panjang Lengan Bawah (PLB)

Subgrup ke-	PLB										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	27.0	27.0	24.0	25.5	29.0	26.5	32.0	18.8	27.0	28.0	26.48
2	28.0	37.0	24.0	23.2	24.0	26.5	29.5	28.5	27.0	27.0	27.47
3	28.0	26.0	24.0	26.5	23.0	29.5	29.0	17.0	22.0	30.0	25.50
4	28.0	36.0	25.0	24.0	25.0	27.5	27.0	26.0	25.0	26.0	26.95
5	28.0	26.0	26.0	24.0	26.0	26.5	29.2	27.6	24.0	26.0	26.33
6	22.6	23.0	25.5	20.5	26.0	29.0	28.0	28.0	22.5	24.0	24.91
7	25.0	26.0	22.0	21.0	24.0	28.5	27.0	22.0	26.9	20.0	24.24
8	29.0	28.0	25.3	27.5	24.5	29.5	28.0	23.0	24.0	22.0	26.08
9	31.0	28.0	27.3	25.5	23.5	31.4	26.0	25.0	30.0	22.4	27.01
10	22.0	26.0	23.8	28.0	27.0	29.0	25.5	22.0	28.0	28.5	25.98
11	22.5	22.0	23.0	24.0	24.0	31.8	25.0	24.0	25.0	23.0	24.43
12	28.0	25.0	32.2	25.0	24.0	23.5	27.0	24.5	23.0	26.0	25.82
13	25.0	28.0	27.0	25.0	24.0	31.5	23.0	26.5	28.0	29.0	26.70
14	21.0	26.0	24.5	29.0	26.0	23.2	27.0	27.0	27.0	29.0	25.97
15	26.0	26.0	25.2	29.0	24.0	22.5	28.2	29.5	27.5	25.4	26.33
16	31.0	25.0	25.0	30.0	23.0	28.6	25.4	28.5	28.0	28.0	27.25
17	29.5	25.4	25.0	31.0	23.0	26.5	27.5	26.5	22.0	23.0	25.94
18	27.0	25.0	28.0	28.0	25.0	30.0	24.5	23.0	19.0	24.2	25.37
19	23.0	24.0	26.0	39.7	24.0	27.8	25.0	25.0	24.0	24.6	26.31
20	28.0	23.7	23.5	34.5	26.0	26.0	24.0	22.0	24.0	21.5	25.32
Σ											520.39

Perhitungan :

$$1. \quad \bar{\bar{X}} = \frac{\sum \bar{X}}{k} = \frac{520.39}{20} = 26.02$$

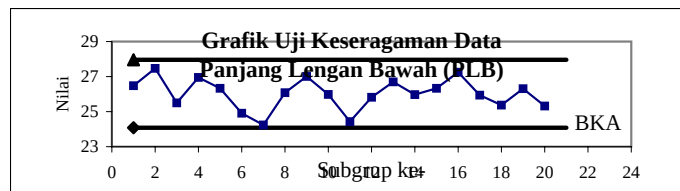
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(27 - 26.02)^2 + (28 - 26.02)^2 + \dots + (21.5 - 26.02)^2}{200 - 1}} = 3.078$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{3.078}{\sqrt{10}} = 0.97$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{\bar{X}} + (c * \sigma_{\bar{X}}) = 26.02 + (2 * 0.97) = 27.96$$

$$BKB = \bar{\bar{X}} - (c * \sigma_{\bar{X}}) = 26.02 - (2 * 0.97) = 24.08$$



Kesimpulan :	Data pada subgrup 1	→	SERAGAM
	Data pada subgrup 2	→	SERAGAM
	Data pada subgrup 3	→	SERAGAM
	Data pada subgrup 4	→	SERAGAM
	Data pada subgrup 5	→	SERAGAM
	Data pada subgrup 6	→	SERAGAM
	Data pada subgrup 7	→	SERAGAM
	Data pada subgrup 8	→	SERAGAM
	Data pada subgrup 9	→	SERAGAM
	Data pada subgrup 10	→	SERAGAM
	Data pada subgrup 11	→	SERAGAM
	Data pada subgrup 12	→	SERAGAM
	Data pada subgrup 13	→	SERAGAM
	Data pada subgrup 14	→	SERAGAM
	Data pada subgrup 15	→	SERAGAM
	Data pada subgrup 16	→	SERAGAM
	Data pada subgrup 17	→	SERAGAM
	Data pada subgrup 18	→	SERAGAM
	Data pada subgrup 19	→	SERAGAM
	Data pada subgrup 20	→	SERAGAM

Uji Kecukupan Data Panjang Lengan Bawah (PLB)

$$N' = \left[\frac{c/\alpha \sqrt{n \sum x^2 - (\sum x)^2}}{\sum x} \right]^2$$

$$N' = \left[\frac{(2/0.05) \times \sqrt{200 \times (137287.95) - (27080575.21)}}{5203.90} \right]^2 = 22.275$$

Kesimpulan : karena $N' \leq N$, maka jumlah data yang diambil sudah **CUKUP**

Perhitungan Persentil Panjang Lengan Bawah (PLB)

Cara Lengkap :

1. $\mu = \bar{X} = 26.02$

2. $\sigma = 3.078$

3. Untuk 5 % → $Z_1 = -1.645$

Untuk 95 % $Z_2 = 1.645$

4. $P_5 = \mu + \sigma (Z_1)$ $P_5 = 26.02 + 3.078 (-1.645) = 20.96$

$P_{50} = \mu$ $P_{50} = 26.02$

$P_{95} = \mu + \sigma (Z_2)$ $P_{95} = 26.02 + 3.078 (1.645) = 31.08$

Data Anthropometri Statis Tinggi Mata Berdiri (TMB)

No	TMB
1	148.5
2	165.0
3	149.0
4	160.6
5	151.0
6	160.0
7	166.0
8	160.0
9	159.0
10	155.0
11	149.0
12	167.5
13	151.0
14	151.3
15	140.5
16	157.0
17	149.5
18	152.0
19	155.0
20	158.0
21	147.0
22	166.0
23	145.0
24	149.2
25	155.0
26	157.5
27	149.0
28	165.0
29	154.2
30	158.0
31	148.4
32	153.0
33	149.0
34	144.7
35	140.0
36	147.0
37	167.0
38	171.0
39	145.7
40	146.0
41	149.2
42	157.5
43	154.1
44	153.0
45	147.0
46	144.0
47	146.0
48	152.0
49	152.1
50	150.0

No.	TMB
51	150.0
52	146.0
53	151.0
54	152.6
55	144.0
56	144.5
57	158.0
58	152.0
59	144.0
60	149.7
61	147.0
62	156.0
63	148.5
64	155.0
65	146.5
66	163.0
67	154.0
68	151.0
69	146.6
70	155.0
71	155.2
72	167.2
73	143.0
74	158.5
75	155.0
76	145.0
77	152.0
78	148.0
79	144.4
80	141.3
81	157.0
82	161.0
83	165.2
84	147.0
85	152.0
86	156.0
87	153.0
88	149.0
89	158.0
90	153.5
91	144.0
92	153.3
93	152.4
94	163.5
95	159.0
96	146.0
97	155.4
98	148.0
99	163.0
100	154.3

No	TMB
101	149.5
102	146.0
103	153.1
104	148.1
105	153.0
106	146.0
107	155.5
108	151.0
109	153.0
110	140.0
111	161.0
112	145.8
113	153.8
114	156.3
115	152.0
116	147.9
117	151.0
118	158.2
119	154.0
120	150.0
121	150.0
122	160.0
123	147.4
124	158.5
125	137.0
126	151.5
127	151.0
128	150.0
129	155.7
130	160.0
131	144.0
132	161.0
133	154.3
134	155.5
135	153.0
136	151.1
137	154.0
138	154.1
139	158.0
140	163.0
141	153.0
142	164.0
143	155.3
144	156.0
145	143.0
146	150.5
147	170.0
148	157.0
149	150.0
150	152.0

No.	TMB
151	162.5
152	159.0
153	148.5
154	163.0
155	143.0
156	149.0
157	150.1
158	158.5
159	157.0
160	159.0
161	158.0
162	146.5
163	147.0
164	165.0
165	141.0
166	157.0
167	168.5
168	156.3
169	163.0
170	142.0
171	156.0
172	164.0
173	141.6
174	145.5
175	148.5
176	150.0
177	152.8
178	143.0
179	148.0
180	145.5
181	159.0
182	158.0
183	151.4
184	141.5
185	149.0
186	157.0
187	154.6
188	154.0
189	154.2
190	145.0
191	166.5
192	150.6
193	145.2
194	142.1
195	151.5
196	156.0
197	145.3
198	144.3
199	153.6
200	149.5

Uji Kenormalan Data Tinggi Mata Berdiri (TMB)

- ❖ Menentukan Jumlah Kelas :

$$k = 3.3 \log n + 1$$

$$= 3.3 \log 200 + 1$$

$$= 8,59 \sim 9 \text{ kelas}$$

- ❖ Nilai Max = 171
Nilai Min = 137

- ❖ Mencari rentangan kelas atau panjang kelas :

$$c = (\text{data terbesar} - \text{data terkecil}) / k$$

$$= (171 - 137) / 8,59$$

$$= 4$$

- ❖ Rata -rata = 152.72
Standar Deviasi = 6.748

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²
	BKB	BKA										
< 137.0	~	136.95	0	~	-2.337	0.00000	0.00972	0.00972	1.943	8.109	4	2.082
137 - 140.9	136.95	140.95	4	-2.337	-1.744	0.00972	0.04054	0.03083	6.166			
141.0 - 144.9	140.95	144.95	19	-1.744	-1.152	0.04054	0.12473	0.08419	16.838	16.838	19	0.278
145.0 - 148.9	144.95	148.95	35	-1.152	-0.559	0.12473	0.28812	0.16338	32.677	32.68	35	0.165
149.0 - 152.9	148.95	152.95	46	-0.559	0.034	0.28812	0.51351	0.22539	45.078	45.08	46	0.019
153.0 - 156.9	152.95	156.95	42	0.034	0.627	0.51351	0.73455	0.22104	44.208	44.208	42	0.110
157.0 - 160.9	156.95	160.95	29	0.627	1.219	0.73455	0.88865	0.15410	30.821	30.821	29	0.108
161.0 - 164.9	160.95	164.95	12	1.219	1.812	0.88865	0.96502	0.07637	15.274	15.274	12	0.702
165.0 - 168.9	164.95	168.95	11	1.812	2.405	0.96502	0.99191	0.02689	5.379	6.997	13	5.151
169.0 - 172.9	168.95	172.95	2	2.405	2.998	0.99191	0.99864	0.00673	1.346			
> 172.9	172.95	~	0	2.998	~	0.99864	1.00000	0.00136	0.272			
			200						200			

Uji Keseragaman Data Tinggi Mata Berdiri (TMB)

Subgrup ke-	TMB										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	148.5	165.0	149.0	160.6	151.0	160.0	166.0	160.0	159.0	155.0	157.41
2	149.0	167.5	151.0	151.3	140.5	157.0	149.5	152.0	155.0	158.0	153.08
3	147.0	166.0	145.0	149.2	155.0	157.5	149.0	165.0	154.2	158.0	154.59
4	148.4	153.0	149.0	144.7	140.0	147.0	167.0	171.0	145.7	146.0	151.18
5	149.2	157.5	154.1	153.0	147.0	144.0	146.0	152.0	152.1	150.0	150.49
6	150.0	146.0	151.0	152.6	144.0	144.5	158.0	152.0	144.0	149.7	149.18
7	147.0	156.0	148.5	155.0	146.5	163.0	154.0	151.0	146.6	155.0	152.26
8	155.2	167.2	143.0	158.5	155.0	145.0	152.0	148.0	144.4	141.3	150.96
9	157.0	161.0	165.2	147.0	152.0	156.0	153.0	149.0	158.0	153.5	155.17
10	144.0	153.3	152.4	163.5	159.0	146.0	155.4	148.0	163.0	154.3	153.89
11	149.5	146.0	153.1	148.1	153.0	146.0	155.5	151.0	153.0	140.0	149.52
12	161.0	145.8	153.8	156.3	152.0	147.9	151.0	158.2	154.0	150.0	153.00
13	150.0	160.0	147.4	158.5	137.0	151.5	151.0	150.0	155.7	160.0	152.11
14	144.0	161.0	154.3	155.5	153.0	151.1	154.0	154.1	158.0	163.0	154.80
15	153.0	164.0	155.3	156.0	143.0	150.5	170.0	157.0	150.0	152.0	155.08
16	162.5	159.0	148.5	163.0	143.0	149.0	150.1	158.5	157.0	159.0	154.96
17	158.0	146.5	147.0	165.0	141.0	157.0	168.5	156.3	163.0	142.0	154.43
18	156.0	164.0	141.6	145.5	148.5	150.0	152.8	143.0	148.0	145.5	149.49
19	159.0	158.0	151.4	141.5	149.0	157.0	154.6	154.0	154.2	145.0	152.37
20	166.5	150.6	145.2	142.1	151.5	156.0	145.3	144.3	153.6	149.5	150.46
Σ											3054.43

Perhitungan :

$$1. \quad \bar{\bar{X}} = \frac{\sum \bar{X}}{k} = \frac{3054.43}{20} = 152.72$$

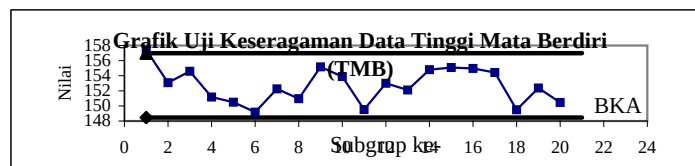
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(148.5 - 152.72)^2 + (149 - 152.72)^2 + \dots + (149.5 - 152.72)^2}{200 - 1}} = 6.748$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{6.748}{\sqrt{10}} = 2.13$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{\bar{X}} + (c * \sigma_{\bar{X}}) = 152.72 + (2 * 2.13) = 156.98$$

$$BKB = \bar{\bar{X}} - (c * \sigma_{\bar{X}}) = 152.72 - (2 * 2.13) = 148.46$$



Kesimpulan :	Data pada subgrup 1	————>	TIDAK SERAGAM
	Data pada subgrup 2	————>	SERAGAM
	Data pada subgrup 3	————>	SERAGAM
	Data pada subgrup 4	————>	SERAGAM
	Data pada subgrup 5	————>	SERAGAM
	Data pada subgrup 6	————>	SERAGAM
	Data pada subgrup 7	————>	SERAGAM
	Data pada subgrup 8	————>	SERAGAM
	Data pada subgrup 9	————>	SERAGAM
	Data pada subgrup 10	————>	SERAGAM
	Data pada subgrup 11	————>	SERAGAM
	Data pada subgrup 12	————>	SERAGAM
	Data pada subgrup 13	————>	SERAGAM
	Data pada subgrup 14	————>	SERAGAM
	Data pada subgrup 15	————>	SERAGAM
	Data pada subgrup 16	————>	SERAGAM
	Data pada subgrup 17	————>	SERAGAM
	Data pada subgrup 18	————>	SERAGAM
	Data pada subgrup 19	————>	SERAGAM
	Data pada subgrup 20	————>	SERAGAM

REVISI : Uji Kenormalan Data Tinggi Mata Berdiri (TMB)

- ❖ Menentukan Jumlah Kelas :

$$k = 3.3 \log n + 1$$

$$= 3.3 \log 190 + 1$$

$$= 8,5 \sim 9 \text{ kelas}$$

- ❖ Nilai Max = 171
Nilai Min = 137

- ❖ Mencari rentangan kelas atau panjang kelas :

$$c = (\text{data terbesar} - \text{data terkecil}) / k$$

$$= (171 - 137) / 8,5$$

$$= 4$$

- ❖ Rata -rata = 152.47
Standar Deviasi = 6.697

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²
	BKB	BKA										
< 137.0	~	136.95	0	~	-2.318	0.00000	0.01022	0.01022	1.941	8.100	4	2.075
137 - 140.9	136.95	140.95	4	-2.318	-1.721	0.01022	0.04263	0.03241	6.158			
141.0 - 144.9	140.95	144.95	19	-1.721	-1.124	0.04263	0.13058	0.08795	16.711	16.711	19	0.314
145.0 - 148.9	144.95	148.95	34	-1.124	-0.526	0.13058	0.29933	0.16874	32.061	32.06	34	0.117
149.0 - 152.9	148.95	152.95	44	-0.526	0.071	0.29933	0.52829	0.22896	43.503	43.50	44	0.006
153.0 - 156.9	152.95	156.95	41	0.071	0.668	0.52829	0.74802	0.21973	41.749	41.749	41	0.013
157.0 - 160.9	156.95	160.95	25	0.668	1.266	0.74802	0.89717	0.14915	28.338	28.338	25	0.393
161.0 - 164.9	160.95	164.95	12	1.266	1.863	0.89717	0.96876	0.07159	13.603	13.603	12	0.189
165.0 - 168.9	164.95	168.95	9	1.863	2.460	0.96876	0.99306	0.02430	4.616	5.935	11	4.321
169.0 - 172.9	168.95	172.95	2	2.460	3.057	0.99306	0.99888	0.00583	1.107			
> 172.9	172.95	~	0	3.057	~	0.99888	1.00000	0.00112	0.212			
			190						190			

REVISI : Uji Keseragaman Data Tinggi Mata Berdiri (TMB)

Subgrup ke-	TMB										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	149.0	167.5	151.0	151.3	140.5	157.0	149.5	152.0	155.0	158.0	153.08
2	147.0	166.0	145.0	149.2	155.0	157.5	149.0	165.0	154.2	158.0	154.59
3	148.4	153.0	149.0	144.7	140.0	147.0	167.0	171.0	145.7	146.0	151.18
4	149.2	157.5	154.1	153.0	147.0	144.0	146.0	152.0	152.1	150.0	150.49
5	150.0	146.0	151.0	152.6	144.0	144.5	158.0	152.0	144.0	149.7	149.18
6	147.0	156.0	148.5	155.0	146.5	163.0	154.0	151.0	146.6	155.0	152.26
7	155.2	167.2	143.0	158.5	155.0	145.0	152.0	148.0	144.4	141.3	150.96
8	157.0	161.0	165.2	147.0	152.0	156.0	153.0	149.0	158.0	153.5	155.17
9	144.0	153.3	152.4	163.5	159.0	146.0	155.4	148.0	163.0	154.3	153.89
10	149.5	146.0	153.1	148.1	153.0	146.0	155.5	151.0	153.0	140.0	149.52
11	161.0	145.8	153.8	156.3	152.0	147.9	151.0	158.2	154.0	150.0	153.00
12	150.0	160.0	147.4	158.5	137.0	151.5	151.0	150.0	155.7	160.0	152.11
13	144.0	161.0	154.3	155.5	153.0	151.1	154.0	154.1	158.0	163.0	154.80
14	153.0	164.0	155.3	156.0	143.0	150.5	170.0	157.0	150.0	152.0	155.08
15	162.5	159.0	148.5	163.0	143.0	149.0	150.1	158.5	157.0	159.0	154.96
16	158.0	146.5	147.0	165.0	141.0	157.0	168.5	156.3	163.0	142.0	154.43
17	156.0	164.0	141.6	145.5	148.5	150.0	152.8	143.0	148.0	145.5	149.49
18	159.0	158.0	151.4	141.5	149.0	157.0	154.6	154.0	154.2	145.0	152.37
19	166.5	150.6	145.2	142.1	151.5	156.0	145.3	144.3	153.6	149.5	150.46
Σ											2897.02

Perhitungan :

$$1. \quad \bar{\bar{X}} = \frac{\sum \bar{X}}{k} = \frac{2897.02}{19} = 152.47$$

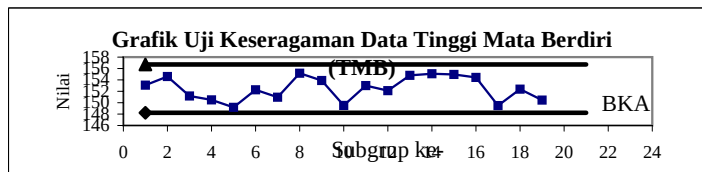
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(149 - 152.47)^2 + (147 - 152.47)^2 + \dots + (149.5 - 152.47)^2}{190 - 1}} = 6.697$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{6.697}{\sqrt{10}} = 2.12$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{\bar{X}} + (c * \sigma_{\bar{X}}) = 152.47 + (2 * 2.12) = 156.71$$

$$BKB = \bar{\bar{X}} - (c * \sigma_{\bar{X}}) = 152.47 - (2 * 2.12) = 148.23$$



Kesimpulan :	Data pada subgrup 1	→	SERAGAM
	Data pada subgrup 2	→	SERAGAM
	Data pada subgrup 3	→	SERAGAM
	Data pada subgrup 4	→	SERAGAM
	Data pada subgrup 5	→	SERAGAM
	Data pada subgrup 6	→	SERAGAM
	Data pada subgrup 7	→	SERAGAM
	Data pada subgrup 8	→	SERAGAM
	Data pada subgrup 9	→	SERAGAM
	Data pada subgrup 10	→	SERAGAM
	Data pada subgrup 11	→	SERAGAM
	Data pada subgrup 12	→	SERAGAM
	Data pada subgrup 13	→	SERAGAM
	Data pada subgrup 14	→	SERAGAM
	Data pada subgrup 15	→	SERAGAM
	Data pada subgrup 16	→	SERAGAM
	Data pada subgrup 17	→	SERAGAM
	Data pada subgrup 18	→	SERAGAM
	Data pada subgrup 19	→	SERAGAM

Uji Kecukupan Data Tinggi Mata Berdiri (TMB)

$$N' = \left[\frac{c/\alpha \sqrt{n \sum x^2 - (\sum x)^2}}{\sum x} \right]^2$$

$$N' = \left[\frac{(2/0.05) \times \sqrt{190 \times (4425699.60) - (839272488.04)}}{28970.20} \right]^2 = 3.070$$

Kesimpulan : karena $N' \leq N$, maka jumlah data yang diambil sudah **CUKUP**

Perhitungan Persentil Tinggi Mata Berdiri (TMB)

Cara Lengkap :

1. $\mu = \bar{X} = 152.47$
2. $\sigma = 6.697$
3. Untuk 5 % → $Z_1 = -1.645$
Untuk 95 % → $Z_2 = 1.645$
4. $P_5 = \mu + \sigma (Z_1)$ $P_5 = 152.47 + 6.697 (-1.645) = 141.45$
 $P_{50} = \mu$ $P_{50} = 152.47$
 $P_{95} = \mu + \sigma (Z_2)$ $P_{95} = 152.47 + 6.697 (1.645) = 163.49$

Data Anthropometri Statis Tinggi Badan Tegak (TBT)

No	TBT
1	161.0
2	178.0
3	153.0
4	173.2
5	167.0
6	159.5
7	177.0
8	173.0
9	172.0
10	170.0
11	161.0
12	163.0
13	161.0
14	163.1
15	150.4
16	163.0
17	160.0
18	161.0
19	168.0
20	170.5
21	164.0
22	179.0
23	154.0
24	161.0
25	148.0
26	169.5
27	181.0
28	175.0
29	146.0
30	171.0
31	159.4
32	175.0
33	162.0
34	156.8
35	151.0
36	159.0
37	177.0
38	157.0
39	158.0
40	151.0
41	162.3
42	165.0
43	165.4
44	164.5
45	156.0
46	165.0
47	155.0
48	165.0
49	150.5
50	161.0

No.	TBT
51	145.7
52	158.5
53	154.0
54	149.0
55	160.0
56	161.0
57	165.0
58	165.0
59	155.5
60	161.5
61	157.5
62	165.0
63	148.3
64	149.6
65	155.5
66	177.0
67	167.0
68	151.0
69	157.7
70	168.0
71	163.0
72	163.8
73	154.0
74	169.5
75	167.2
76	154.0
77	167.0
78	159.6
79	156.9
80	152.6
81	161.0
82	173.0
83	173.3
84	159.0
85	153.0
86	166.0
87	163.0
88	136.0
89	168.3
90	146.9
91	155.0
92	164.5
93	150.0
94	175.0
95	174.0
96	156.0
97	163.0
98	125.0
99	176.0
100	168.0

No	TBT
101	154.5
102	162.0
103	169.4
104	162.5
105	165.0
106	161.5
107	164.0
108	136.0
109	150.0
110	156.0
111	175.0
112	157.0
113	159.0
114	167.4
115	148.2
116	152.0
117	149.0
118	176.0
119	150.0
120	165.0
121	153.0
122	159.2
123	158.0
124	171.0
125	150.0
126	164.0
127	160.5
128	160.0
129	165.0
130	171.0
131	153.5
132	170.0
133	176.2
134	166.0
135	167.0
136	159.4
137	163.0
138	166.0
139	170.0
140	172.0
141	159.0
142	174.0
143	169.1
144	168.0
145	157.0
146	146.1
147	180.0
148	170.5
149	158.0
150	163.6

No.	TBT
151	175.0
152	159.0
153	146.5
154	174.0
155	156.0
156	183.0
157	162.5
158	171.5
159	168.0
160	167.2
161	163.0
162	159.3
163	148.0
164	174.5
165	157.0
166	168.0
167	179.5
168	170.0
169	176.0
170	153.0
171	165.4
172	177.0
173	153.2
174	157.0
175	161.0
176	165.0
177	162.5
178	154.5
179	159.0
180	155.5
181	163.0
182	173.0
183	162.0
184	154.5
185	166.0
186	165.0
187	159.1
188	166.0
189	151.0
190	157.2
191	160.0
192	153.0
193	157.0
194	153.0
195	163.5
196	168.0
197	157.1
198	156.5
199	151.0
200	152.6

Uji Kenormalan Data Tinggi Badan Tegak (TBT)

❖ Menentukan Jumlah Kelas :

$$k = 3.3 \log n + 1$$

$$= 3.3 \log 200 + 1$$

$$= 8,59 \sim 9 \text{ kelas}$$

❖ Nilai Max = 183

Nilai Min = 125

❖ Mencari rentangan kelas atau panjang kelas :

$$c = (\text{data terbesar} - \text{data terkecil}) / k$$

$$= (183 - 125) / 8,59$$

$$= 6.8$$

❖ Rata -rata = 161.82

Standar Deviasi = 9.098

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²
	BKB	BKA										
< 125.0	~	124.95	0	~	-4.053	0.00000	0.00003	0.00003	0.005	7.026	3	2.307
125 - 131.7	124.95	131.75	1	-4.053	-3.305	0.00003	0.00047	0.00045	0.090			
131.8 - 138.5	131.75	138.55	2	-3.305	-2.558	0.00047	0.00527	0.00479	0.959			
138.6 - 145.3	138.55	145.35	0	-2.558	-1.810	0.00527	0.03513	0.02986	5.972			
145.4 - 152.1	145.35	152.15	24	-1.810	-1.063	0.03513	0.14395	0.10881	21.763	21.763	24	0.230
152.2 - 158.9	152.15	158.95	43	-1.063	-0.315	0.14395	0.37627	0.23232	46.464	46.464	43	0.258
159.0 - 165.7	158.95	165.75	66	-0.315	0.432	0.37627	0.66718	0.29092	58.184	58.184	66	1.050
165.8 - 172.5	165.75	172.55	36	0.432	1.180	0.66718	0.88092	0.21374	42.748	42.748	36	1.065
172.6 - 179.3	172.55	179.35	24	1.180	1.927	0.88092	0.97301	0.09209	18.419	18.419	24	1.691
179.4 - 186.1	179.35	186.15	4	1.927	2.675	0.97301	0.99626	0.02324	4.649	5.397	4	0.362
> 186.1	186.15	~	0	2.675	~	0.99626	1.00000	0.00374	0.748			
			200						200			6.964

❖ $V = k - r - 1 = 7 - 2 - 1 = 4$

$\alpha = 0.05$

$$x^2_{(v,\alpha)} = 9.488$$

❖ $X^2 \leq X^2_{(v,\alpha)}$ Data mengikuti distribusi normal

$6.964 \leq 9.488$ Data mengikuti distribusi normal

Kesimpulan : Data mengikuti distribusi normal (data NORMAL)

Uji Keseragaman Data Tinggi Badan Tegak (TBT)

Subgrup ke-	TBT										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	161.0	178.0	153.0	173.2	167.0	159.5	177.0	173.0	172.0	170.0	168.37
2	161.0	163.0	161.0	163.1	150.4	163.0	160.0	161.0	168.0	170.5	162.10
3	164.0	179.0	154.0	161.0	148.0	169.5	181.0	175.0	146.0	171.0	164.85
4	159.4	175.0	162.0	156.8	151.0	159.0	177.0	157.0	158.0	151.0	160.62
5	162.3	165.0	165.4	164.5	156.0	165.0	155.0	165.0	150.5	161.0	160.97
6	145.7	158.5	154.0	149.0	160.0	161.0	165.0	165.0	155.5	161.5	157.52
7	157.5	165.0	148.3	149.6	155.5	177.0	167.0	151.0	157.7	168.0	159.66
8	163.0	163.8	154.0	169.5	167.2	154.0	167.0	159.6	156.9	152.6	160.76
9	161.0	173.0	173.3	159.0	153.0	166.0	163.0	136.0	168.3	146.9	159.95
10	155.0	164.5	150.0	175.0	174.0	156.0	163.0	125.0	176.0	168.0	160.65
11	154.5	162.0	169.4	162.5	165.0	161.5	164.0	136.0	150.0	156.0	158.09
12	175.0	157.0	159.0	167.4	148.2	152.0	149.0	176.0	150.0	165.0	159.86
13	153.0	159.2	158.0	171.0	150.0	164.0	160.5	160.0	165.0	171.0	161.17
14	153.5	170.0	176.2	166.0	167.0	159.4	163.0	166.0	170.0	172.0	166.31
15	159.0	174.0	169.1	168.0	157.0	146.1	180.0	170.5	158.0	163.6	164.53
16	175.0	159.0	146.5	174.0	156.0	183.0	162.5	171.5	168.0	167.2	166.27
17	163.0	159.3	148.0	174.5	157.0	168.0	179.5	170.0	176.0	153.0	164.83
18	165.4	177.0	153.2	157.0	161.0	165.0	162.5	154.5	159.0	155.5	161.01
19	163.0	173.0	162.0	154.5	166.0	165.0	159.1	166.0	151.0	157.2	161.68
20	160.0	153.0	157.0	153.0	163.5	168.0	157.1	156.5	151.0	152.6	157.17
Σ											3236.37

Perhitungan :

$$1. \quad \bar{X} = \frac{\sum \bar{X}}{k} = \frac{3236.37}{20} = 161.82$$

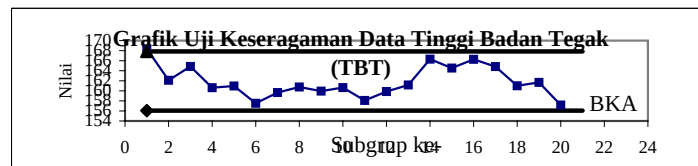
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(161 - 161.82)^2 + (161 - 161.82)^2 + \dots + (152.6 - 161.82)^2}{200 - 1}} = 9.098$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{9.098}{\sqrt{10}} = 2.88$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{X} + (c * \sigma_{\bar{X}}) = 161.82 + (2 * 2.88) = 167.58$$

$$BKB = \bar{X} - (c * \sigma_{\bar{X}}) = 161.82 - (2 * 2.88) = 156.06$$



Kesimpulan :	Data pada subgrup 1	————>	TIDAK SERAGAM
	Data pada subgrup 2	————>	SERAGAM
	Data pada subgrup 3	————>	SERAGAM
	Data pada subgrup 4	————>	SERAGAM
	Data pada subgrup 5	————>	SERAGAM
	Data pada subgrup 6	————>	SERAGAM
	Data pada subgrup 7	————>	SERAGAM
	Data pada subgrup 8	————>	SERAGAM
	Data pada subgrup 9	————>	SERAGAM
	Data pada subgrup 10	————>	SERAGAM
	Data pada subgrup 11	————>	SERAGAM
	Data pada subgrup 12	————>	SERAGAM
	Data pada subgrup 13	————>	SERAGAM
	Data pada subgrup 14	————>	SERAGAM
	Data pada subgrup 15	————>	SERAGAM
	Data pada subgrup 16	————>	SERAGAM
	Data pada subgrup 17	————>	SERAGAM
	Data pada subgrup 18	————>	SERAGAM
	Data pada subgrup 19	————>	SERAGAM
	Data pada subgrup 20	————>	SERAGAM

REVISI : Uji Kenormalan Data Tinggi Badan Tegak (TBT)

❖ Menentukan Jumlah Kelas :

$$k = 3.3 \log n + 1$$

$$= 3.3 \log 190 + 1$$

$$= 8,5 \sim 9 \text{ kelas}$$

❖ Nilai Max = 183

Nilai Min = 125

❖ Mencari rentangan kelas atau panjang kelas :

$$c = (\text{data terbesar} - \text{data terkecil}) / k$$

$$= (183 - 125) / 8,5$$

$$= 6.8$$

❖ Rata -rata = 161.47

Standar Deviasi = 9.032

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²	
	BKB	BKA											
< 125.0	~	124.95	0	~	-4.044	0.00000	0.00003	0.00003	0.005	7.053	3	2.329	
125 - 131.7	124.95	131.75	1	-4.044	-3.291	0.00003	0.00050	0.00047	0.090				
131.8 - 138.5	131.75	138.55	2	-3.291	-2.538	0.00050	0.00558	0.00508	0.964				
138.6 - 145.3	138.55	145.35	0	-2.538	-1.785	0.00558	0.03712	0.03155	5.994				
145.4 - 152.1	145.35	152.15	24	-1.785	-1.032	0.03712	0.15098	0.11386	21.632	21.632	24	0.259	
152.2 - 158.9	152.15	158.95	42	-1.032	-0.279	0.15098	0.38997	0.23899	45.408	45.408	42	0.256	
159.0 - 165.7	158.95	165.75	64	-0.279	0.473	0.38997	0.68205	0.29208	55.496	55.496	64	1.303	
165.8 - 172.5	165.75	172.55	33	0.473	1.226	0.68205	0.88995	0.20790	39.502	39.502	33	1.070	
172.6 - 179.3	172.55	179.35	20	1.226	1.979	0.88995	0.97610	0.08615	16.368	20.909	24	0.457	
179.4 - 186.1	179.35	186.15	4	1.979	2.732	0.97610	0.99685	0.02075	3.943				
> 186.1	186.15	~	0	2.732	~	0.99685	1.00000	0.00315	0.598				
			190						190				5.675

❖ $V = k - r - 1 = 6 - 2 - 1 = 3$

$\alpha = 0.05$

$$x^2_{(v,\alpha)} = 7.815$$

❖ $X^2 \leq X^2_{(v,\alpha)}$ Data mengikuti distribusi normal

$5.675 \leq 7.815$ Data mengikuti distribusi normal

Kesimpulan : Data mengikuti distribusi normal (data NORMAL)

REVISI : Uji Keseragaman Data Tinggi Badan Tegak (TBT)

Subgrup ke-	TBT										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	161.0	163.0	161.0	163.1	150.4	163.0	160.0	161.0	168.0	170.5	162.10
2	164.0	179.0	154.0	161.0	148.0	169.5	181.0	175.0	146.0	171.0	164.85
3	159.4	175.0	162.0	156.8	151.0	159.0	177.0	157.0	158.0	151.0	160.62
4	162.3	165.0	165.4	164.5	156.0	165.0	155.0	165.0	150.5	161.0	160.97
5	145.7	158.5	154.0	149.0	160.0	161.0	165.0	165.0	155.5	161.5	157.52
6	157.5	165.0	148.3	149.6	155.5	177.0	167.0	151.0	157.7	168.0	159.66
7	163.0	163.8	154.0	169.5	167.2	154.0	167.0	159.6	156.9	152.6	160.76
8	161.0	173.0	173.3	159.0	153.0	166.0	163.0	136.0	168.3	146.9	159.95
9	155.0	164.5	150.0	175.0	174.0	156.0	163.0	125.0	176.0	168.0	160.65
10	154.5	162.0	169.4	162.5	165.0	161.5	164.0	136.0	150.0	156.0	158.09
11	175.0	157.0	159.0	167.4	148.2	152.0	149.0	176.0	150.0	165.0	159.86
12	153.0	159.2	158.0	171.0	150.0	164.0	160.5	160.0	165.0	171.0	161.17
13	153.5	170.0	176.2	166.0	167.0	159.4	163.0	166.0	170.0	172.0	166.31
14	159.0	174.0	169.1	168.0	157.0	146.1	180.0	170.5	158.0	163.6	164.53
15	175.0	159.0	146.5	174.0	156.0	183.0	162.5	171.5	168.0	167.2	166.27
16	163.0	159.3	148.0	174.5	157.0	168.0	179.5	170.0	176.0	153.0	164.83
17	165.4	177.0	153.2	157.0	161.0	165.0	162.5	154.5	159.0	155.5	161.01
18	163.0	173.0	162.0	154.5	166.0	165.0	159.1	166.0	151.0	157.2	161.68
19	160.0	153.0	157.0	153.0	163.5	168.0	157.1	156.5	151.0	152.6	157.17
Σ											3068.00

Perhitungan :

$$1. \quad \bar{\bar{X}} = \frac{\sum \bar{X}}{k} = \frac{3068}{19} = 161.47$$

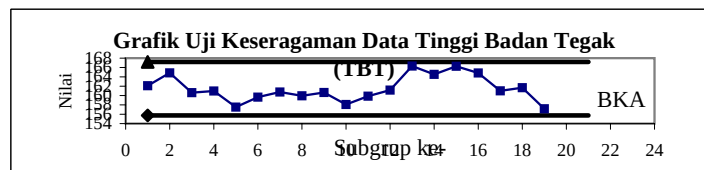
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(161 - 161.47)^2 + (164 - 161.47)^2 + \dots + (152.6 - 161.47)^2}{190 - 1}} = 9.032$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{9.032}{\sqrt{10}} = 2.86$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{\bar{X}} + (c * \sigma_{\bar{X}}) = 161.47 + (2 * 2.86) = 167.19$$

$$BKB = \bar{\bar{X}} - (c * \sigma_{\bar{X}}) = 161.47 - (2 * 2.86) = 155.75$$



Kesimpulan :	Data pada subgrup 1	→	SERAGAM
	Data pada subgrup 2	→	SERAGAM
	Data pada subgrup 3	→	SERAGAM
	Data pada subgrup 4	→	SERAGAM
	Data pada subgrup 5	→	SERAGAM
	Data pada subgrup 6	→	SERAGAM
	Data pada subgrup 7	→	SERAGAM
	Data pada subgrup 8	→	SERAGAM
	Data pada subgrup 9	→	SERAGAM
	Data pada subgrup 10	→	SERAGAM
	Data pada subgrup 11	→	SERAGAM
	Data pada subgrup 12	→	SERAGAM
	Data pada subgrup 13	→	SERAGAM
	Data pada subgrup 14	→	SERAGAM
	Data pada subgrup 15	→	SERAGAM
	Data pada subgrup 16	→	SERAGAM
	Data pada subgrup 17	→	SERAGAM
	Data pada subgrup 18	→	SERAGAM
	Data pada subgrup 19	→	SERAGAM

Uji Kecukupan Data Tinggi Badan Tegak (TBT)

$$N' = \left[\frac{c/\alpha \sqrt{n \sum x^2 - (\sum x)^2}}{\sum x} \right]^2$$

$$N' = \left[\frac{(2 / 0.05) \times \sqrt{190 \times (4969432 .18) - (941262400)}}{30680} \right]^2 = 4.980$$

Kesimpulan : karena $N' \leq N$, maka jumlah data yang diambil sudah **CUKUP**

Perhitungan Persentil Tinggi Badan Tegak (TBT)

Cara Lengkap :

1. $\mu = \bar{X} = 161.47$
2. $\sigma = 9.032$
3. Untuk 5 % $\Rightarrow Z1 = -1.645$
Untuk 95 % $\Rightarrow Z2 = 1.645$
4. $P_5 = \mu + \sigma (Z1)$ $P_5 = 161.47 + 9.032 (-1.645) = 146.61$
 $P_{50} = \mu$ $P_{50} = 161.47$
 $P_{95} = \mu + \sigma (Z2)$ $P_{95} = 161.47 + 9.032 (1.645) = 176.33$

Data Anthropometri Statis Tinggi Bahu Berdiri (TBB)

No	TBB
1	133.0
2	147.0
3	138.5
4	144.2
5	139.0
6	146.0
7	122.7
8	144.0
9	142.0
10	141.0
11	127.0
12	140.5
13	135.5
14	134.7
15	126.0
16	145.0
17	135.0
18	133.0
19	130.0
20	142.5
21	130.2
22	151.0
23	139.0
24	133.5
25	137.0
26	100.0
27	152.0
28	142.0
29	122.0
30	143.0
31	132.0
32	138.0
33	134.0
34	136.5
35	124.0
36	131.5
37	148.0
38	131.3
39	132.0
40	147.0
41	133.5
42	142.0
43	136.6
44	134.0
45	133.0
46	127.5
47	122.0
48	137.0
49	123.5
50	132.6

No.	TBB
51	117.6
52	132.7
53	126.2
54	149.0
55	124.5
56	126.7
57	144.0
58	137.0
59	128.6
60	137.1
61	131.0
62	142.0
63	121.4
64	125.6
65	127.0
66	149.0
67	143.0
68	133.0
69	130.0
70	142.0
71	139.2
72	144.5
73	128.0
74	139.5
75	137.5
76	140.0
77	138.0
78	133.0
79	129.8
80	127.4
81	142.0
82	146.0
83	150.3
84	132.0
85	125.0
86	146.0
87	126.5
88	163.0
89	135.0
90	123.3
91	128.5
92	137.5
93	122.7
94	146.0
95	143.3
96	143.0
97	140.5
98	154.0
99	146.0
100	137.4

No	TBB
101	127.0
102	130.6
103	123.5
104	132.1
105	138.0
106	136.0
107	139.2
108	163.0
109	122.5
110	125.0
111	149.0
112	131.5
113	138.2
114	138.2
115	121.0
116	126.0
117	124.0
118	143.0
119	123.5
120	132.0
121	125.5
122	141.0
123	118.8
124	144.2
125	122.0
126	137.0
127	127.5
128	132.2
129	140.0
130	165.3
131	126.0
132	140.0
133	138.4
134	140.0
135	138.0
136	127.7
137	136.0
138	141.2
139	145.5
140	144.0
141	137.5
142	142.0
143	142.7
144	141.0
145	126.0
146	112.8
147	149.4
148	141.3
149	129.0
150	106.6

No.	TBB
151	143.5
152	143.0
153	128.0
154	146.0
155	126.0
156	152.7
157	133.7
158	142.0
159	144.0
160	139.0
161	142.5
162	130.0
163	128.1
164	147.0
165	125.0
166	139.0
167	146.7
168	141.0
169	150.0
170	127.2
171	138.0
172	148.0
173	135.0
174	132.2
175	132.0
176	135.0
177	133.2
178	126.0
179	132.0
180	132.8
181	146.0
182	144.0
183	135.2
184	127.0
185	136.0
186	142.0
187	129.2
188	137.0
189	123.5
190	130.0
191	134.0
192	125.0
193	129.3
194	128.0
195	135.0
196	134.4
197	131.0
198	128.3
199	125.0
200	128.3

Uji Kenormalan Data Tinggi Bahu Berdiri (TBB)

❖ Menentukan Jumlah Kelas :

$$\begin{aligned} k &= 3.3 \log n + 1 \\ &= 3.3 \log 200 + 1 \\ &= 8,59 \sim 9 \text{ kelas} \end{aligned}$$

❖ Nilai Max = 165.3

Nilai Min = 100

❖ Mencari rentangan kelas atau panjang kelas :

$$\begin{aligned} c &= (\text{data terbesar} - \text{data terkecil}) / k \\ &= (165.3 - 100) / 8,59 \\ &= 7.6 \end{aligned}$$

❖ Rata -rata = 135.37

Standar Deviasi = 9.377

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²	
	BKB	BKA											
< 100.0	~	99.95	0	~	-3.777	0.00000	0.00008	0.00008	0.016	17.848	13	1.317	
100 - 107.5	99.95	107.55	2	-3.777	-2.966	0.00008	0.00151	0.00143	0.285				
107.6 - 115.1	107.55	115.15	1	-2.966	-2.156	0.00151	0.01554	0.01404	2.808				
115.2 - 122.7	115.15	122.75	10	-2.156	-1.345	0.01554	0.08924	0.07370	14.739				
122.8 - 130.3	122.75	130.35	50	-1.345	-0.535	0.08924	0.29634	0.20710	41.419	41.419	50	1.778	
130.4 - 137.9	130.35	137.95	54	-0.535	0.276	0.29634	0.60854	0.31220	62.440	62.440	54	1.141	
138.0 - 145.5	137.95	145.55	57	0.276	1.086	0.60854	0.86126	0.25272	50.544	50.544	57	0.825	
145.6 - 153.1	145.55	153.15	22	1.086	1.896	0.86126	0.97105	0.10979	21.959	21.959	22	0.000	
153.2 - 160.7	153.15	160.75	1	1.896	2.707	0.97105	0.99660	0.02555	5.111	5.790	4	0.553	
160.8 - 168.3	160.75	168.35	3	2.707	3.517	0.99660	0.99978	0.00318	0.635				
> 168.3	168.35	~	0	3.517	~	0.99978	1.00000	0.00022	0.044				
			200						200				5.614

❖ $V = k - r - 1 = 6 - 2 - 1 = 3$

$\alpha = 0.05$

$$x^2_{(v,\alpha)} = 7.815$$

❖ $X^2 \leq X^2_{(v,\alpha)}$ Data mengikuti distribusi normal

$5.614 \leq 7.815$ Data mengikuti distribusi normal

Kesimpulan : Data mengikuti distribusi normal (data NORMAL)

Uji Keseragaman Data Tinggi Bahu Berdiri (TBB)

Subgrup ke-	TBB										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	133.0	147.0	138.5	144.2	139.0	146.0	122.7	144.0	142.0	141.0	139.74
2	127.0	140.5	135.5	134.7	126.0	145.0	135.0	133.0	130.0	142.5	134.92
3	130.2	151.0	139.0	133.5	137.0	100.0	152.0	142.0	122.0	143.0	134.97
4	132.0	138.0	134.0	136.5	124.0	131.5	148.0	131.3	132.0	147.0	135.43
5	133.5	142.0	136.6	134.0	133.0	127.5	122.0	137.0	123.5	132.6	132.17
6	117.6	132.7	126.2	149.0	124.5	126.7	144.0	137.0	128.6	137.1	132.34
7	131.0	142.0	121.4	125.6	127.0	149.0	143.0	133.0	130.0	142.0	134.40
8	139.2	144.5	128.0	139.5	137.5	140.0	138.0	133.0	129.8	127.4	135.69
9	142.0	146.0	150.3	132.0	125.0	146.0	126.5	163.0	135.0	123.3	138.91
10	128.5	137.5	122.7	146.0	143.3	143.0	140.5	154.0	146.0	137.4	139.89
11	127.0	130.6	123.5	132.1	138.0	136.0	139.2	163.0	122.5	125.0	133.69
12	149.0	131.5	138.2	138.2	121.0	126.0	124.0	143.0	123.5	132.0	132.64
13	125.5	141.0	118.8	144.2	122.0	137.0	127.5	132.2	140.0	165.3	135.35
14	126.0	140.0	138.4	140.0	138.0	127.7	136.0	141.2	145.5	144.0	137.68
15	137.5	142.0	142.7	141.0	126.0	112.8	149.4	141.3	129.0	106.6	132.83
16	143.5	143.0	128.0	146.0	126.0	152.7	133.7	142.0	144.0	139.0	139.79
17	142.5	130.0	128.1	147.0	125.0	139.0	146.7	141.0	150.0	127.2	137.65
18	138.0	148.0	135.0	132.2	132.0	135.0	133.2	126.0	132.0	132.8	134.42
19	146.0	144.0	135.2	127.0	136.0	142.0	129.2	137.0	123.5	130.0	134.99
20	134.0	125.0	129.3	128.0	135.0	134.4	131.0	128.3	125.0	128.3	129.83
Σ											2707.33

Perhitungan :

$$1. \quad \bar{X} = \frac{\sum \bar{X}}{k} = \frac{2707.33}{20} = 135.37$$

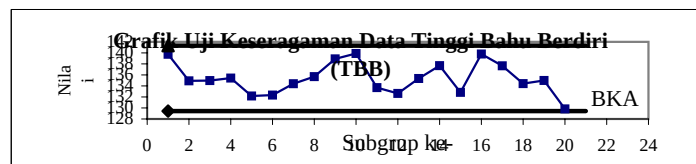
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(133 - 135.37)^2 + (127 - 135.37)^2 + \dots + (128.3 - 135.37)^2}{200 - 1}} = 9.377$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{9.377}{\sqrt{10}} = 2.97$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{X} + (c * \sigma_{\bar{X}}) = 135.37 + (2 * 2.97) = 141.31$$

$$BKB = \bar{X} - (c * \sigma_{\bar{X}}) = 135.37 - (2 * 2.97) = 129.43$$



Kesimpulan :	Data pada subgrup 1	→	SERAGAM
	Data pada subgrup 2	→	SERAGAM
	Data pada subgrup 3	→	SERAGAM
	Data pada subgrup 4	→	SERAGAM
	Data pada subgrup 5	→	SERAGAM
	Data pada subgrup 6	→	SERAGAM
	Data pada subgrup 7	→	SERAGAM
	Data pada subgrup 8	→	SERAGAM
	Data pada subgrup 9	→	SERAGAM
	Data pada subgrup 10	→	SERAGAM
	Data pada subgrup 11	→	SERAGAM
	Data pada subgrup 12	→	SERAGAM
	Data pada subgrup 13	→	SERAGAM
	Data pada subgrup 14	→	SERAGAM
	Data pada subgrup 15	→	SERAGAM
	Data pada subgrup 16	→	SERAGAM
	Data pada subgrup 17	→	SERAGAM
	Data pada subgrup 18	→	SERAGAM
	Data pada subgrup 19	→	SERAGAM
	Data pada subgrup 20	→	SERAGAM

Uji Kecukupan Data Tinggi Bahu Berdiri (TBB)

$$N' = \left[\frac{c/\alpha \sqrt{n \sum x^2 - (\sum x)^2}}{\sum x} \right]^2$$

$$N' = \left[\frac{(2/0.05) \times \sqrt{200 \times (3682316.23) - (732963572.89)}}{27073.30} \right]^2 = 7.640$$

Kesimpulan : karena $N' \leq N$, maka jumlah data yang diambil sudah **CUKUP**

Perhitungan Persentil Tinggi Bahu Berdiri (TBB)

Cara Lengkap :

1. $\mu = \bar{X} = 135.37$

2. $\sigma = 9.377$

3. Untuk 5 % → $Z_1 = -1.645$

Untuk 95 % $Z_2 = 1.645$

4. $P_5 = \mu + \sigma (Z_1)$ $P_5 = 135.37 + 9.377 (-1.645) = 119.94$

$P_{50} = \mu$ $P_{50} = 135.37$

$P_{95} = \mu + \sigma (Z_2)$ $P_{95} = 135.37 + 9.377 (1.645) = 150.80$

Data Anthropometri Statis Tebal Badan (TB)

No	TB
1	20.0
2	18.5
3	20.3
4	19.5
5	18.2
6	30.0
7	20.0
8	21.0
9	31.0
10	18.0
11	22.5
12	18.0
13	19.5
14	16.3
15	16.0
16	20.5
17	21.5
18	17.0
19	21.0
20	22.0
21	23.0
22	23.0
23	19.5
24	20.8
25	16.0
26	24.0
27	19.0
28	17.0
29	24.0
30	21.0
31	18.5
32	18.0
33	19.5
34	18.6
35	16.0
36	24.0
37	18.5
38	19.0
39	23.5
40	21.0
41	20.6
42	18.5
43	24.2
44	14.7
45	15.0
46	27.5
47	18.5
48	17.0
49	28.0
50	20.5

No.	TB
51	20.3
52	23.9
53	18.2
54	20.0
55	16.0
56	22.0
57	19.0
58	17.0
59	21.0
60	19.5
61	22.8
62	12.2
63	20.3
64	21.7
65	17.0
66	21.5
67	21.0
68	22.0
69	19.1
70	20.0
71	26.4
72	19.2
73	19.8
74	19.5
75	18.8
76	18.0
77	19.0
78	22.0
79	22.0
80	20.2
81	18.6
82	20.2
83	21.4
84	18.5
85	15.0
86	22.0
87	20.0
88	22.0
89	20.0
90	19.5
91	16.0
92	19.2
93	21.0
94	19.0
95	22.0
96	18.5
97	21.0
98	18.0
99	24.5
100	18.0

No	TB
101	20.1
102	18.2
103	19.3
104	23.0
105	18.0
106	17.0
107	23.0
108	20.0
109	21.0
110	18.5
111	20.8
112	27.0
113	20.2
114	22.0
115	16.3
116	21.3
117	22.0
118	18.5
119	18.5
120	18.5
121	19.0
122	18.5
123	21.8
124	26.0
125	20.0
126	19.5
127	19.0
128	22.0
129	20.0
130	20.0
131	23.2
132	17.5
133	18.4
134	21.4
135	20.0
136	23.7
137	21.0
138	26.0
139	20.5
140	18.0
141	20.0
142	19.0
143	25.4
144	20.0
145	20.0
146	18.7
147	23.2
148	26.5
149	21.5
150	19.1

No.	TB
151	23.8
152	19.6
153	15.3
154	22.6
155	20.5
156	15.8
157	23.6
158	18.0
159	23.0
160	19.0
161	27.0
162	20.5
163	16.0
164	23.0
165	22.3
166	20.2
167	23.6
168	9.0
169	21.0
170	21.0
171	19.8
172	19.5
173	16.5
174	17.4
175	24.5
176	18.3
177	17.5
178	18.0
179	18.0
180	21.5
181	20.0
182	20.0
183	18.8
184	16.4
185	17.3
186	19.2
187	16.0
188	20.0
189	22.0
190	19.0
191	20.0
192	20.6
193	19.5
194	15.1
195	19.8
196	18.0
197	20.0
198	17.0
199	17.0
200	21.5

Uji Kenormalan Data Tebal Badan (TB)

- ❖ Menentukan Jumlah Kelas :

$$k = 3.3 \log n + 1$$

$$= 3.3 \log 200 + 1$$

$$= 8,59 \sim 9 \text{ kelas}$$

- ❖ Nilai Max = 31

$$\text{Nilai Min} = 9$$

- ❖ Mencari rentangan kelas atau panjang kelas :

$$c = (\text{data terbesar} - \text{data terkecil}) / k$$

$$= (31 - 9) / 8,59$$

$$= 2.6$$

- ❖ Rata -rata = 20.09

$$\text{Standar Deviasi} = 2.922$$

Tabel goodness of fit

Interval Kelas	Batas Kelas		Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	X ²	
	BKB	BKA											
< 9.0	~	8.95	0	~	-3.812	0.00000	0.00007	0.00007	0.014	25.296	19	1.567	
9 - 11.5	8.95	11.55	1	-3.812	-2.923	0.00007	0.00173	0.00167	0.333				
11.6 - 14.1	11.55	14.15	1	-2.923	-2.033	0.00173	0.02103	0.01929	3.859				
14.2 - 16.7	14.15	16.75	17	-2.033	-1.143	0.02103	0.12648	0.10545	21.091				
16.8 - 19.3	16.75	19.35	62	-1.143	-0.253	0.12648	0.39997	0.27349	54.699	54.699	62	0.975	
19.4 - 21.9	19.35	21.95	72	-0.253	0.636	0.39997	0.73773	0.33775	67.550	67.550	72	0.293	
22.0 - 24.5	21.95	24.55	36	0.636	1.526	0.73773	0.93651	0.19878	39.757	39.757	36	0.355	
24.6 - 27.1	24.55	27.15	7	1.526	2.416	0.93651	0.99215	0.05564	11.128	12.698	11	0.227	
27.2 - 29.7	27.15	29.75	2	2.416	3.306	0.99215	0.99953	0.00737	1.475				
29.8 - 32.3	29.75	32.35	2	3.306	4.195	0.99953	0.99999	0.00046	0.092				
> 32.3	32.35	~	0	4.195	~	0.99999	1.00000	0.00001	0.003				
			200						200				3.417

- ❖ $V = k - r - 1 = 5 - 2 - 1 = 2$

$$\alpha = 0.05$$

$$x^2_{(v,\alpha)} = 5.991$$

- ❖ $X^2 \leq X^2_{(v,\alpha)}$ Data mengikuti distribusi normal

$$3.513 \leq 5.991 \quad \text{Data mengikuti distribusi normal}$$

Kesimpulan : Data mengikuti distribusi normal (data NORMAL)

Uji Keseragaman Data Tebal Badan (TB)

Subgrup ke-	TB										$\bar{X}$
	1	2	3	4	5	6	7	8	9	10	
1	20.0	18.5	20.3	19.5	18.2	30.0	20.0	21.0	31.0	18.0	21.65
2	22.5	18.0	19.5	16.3	16.0	20.5	21.5	17.0	21.0	22.0	19.43
3	23.0	23.0	19.5	20.8	16.0	24.0	19.0	17.0	24.0	21.0	20.73
4	18.5	18.0	19.5	18.6	16.0	24.0	18.5	19.0	23.5	21.0	19.66
5	20.6	18.5	24.2	14.7	15.0	27.5	18.5	17.0	28.0	20.5	20.45
6	20.3	23.9	18.2	20.0	16.0	22.0	19.0	17.0	21.0	19.5	19.69
7	22.8	12.2	20.3	21.7	17.0	21.5	21.0	22.0	19.1	20.0	19.76
8	26.4	19.2	19.8	19.5	18.8	18.0	19.0	22.0	22.0	20.2	20.49
9	18.6	20.2	21.4	18.5	15.0	22.0	20.0	22.0	20.0	19.5	19.72
10	16.0	19.2	21.0	19.0	22.0	18.5	21.0	18.0	24.5	18.0	19.72
11	20.1	18.2	19.3	23.0	18.0	17.0	23.0	20.0	21.0	18.5	19.81
12	20.8	27.0	20.2	22.0	16.3	21.3	22.0	18.5	18.5	18.5	20.51
13	19.0	18.5	21.8	26.0	20.0	19.5	19.0	22.0	20.0	20.0	20.58
14	23.2	17.5	18.4	21.4	20.0	23.7	21.0	26.0	20.5	18.0	20.97
15	20.0	19.0	25.4	20.0	20.0	18.7	23.2	26.5	21.5	19.1	21.34
16	23.8	19.6	15.3	22.6	20.5	15.8	23.6	18.0	23.0	19.0	20.12
17	27.0	20.5	16.0	23.0	22.3	20.2	23.6	9.0	21.0	21.0	20.36
18	19.8	19.5	16.5	17.4	24.5	18.3	17.5	18.0	18.0	21.5	19.1
19	20.0	20.0	18.8	16.4	17.3	19.2	16.0	20.0	22.0	19.0	18.87
20	20.0	20.6	19.5	15.1	19.8	18.0	20.0	17.0	17.0	21.5	18.85
Σ											401.81

Perhitungan :

$$1. \quad \bar{\bar{X}} = \frac{\sum \bar{X}}{k} = \frac{401.81}{20} = 20.09$$

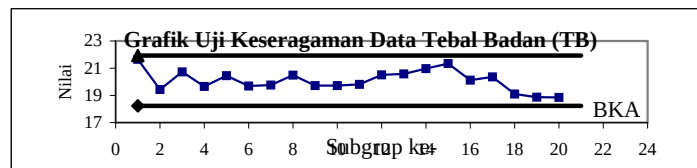
$$2. \quad \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{(20 - 20.09)^2 + (22.5 - 20.09)^2 + \dots + (21.5 - 20.09)^2}{200 - 1}} = 2.922$$

$$3. \quad \sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} = \frac{2.922}{\sqrt{10}} = 0.92$$

4. Tingkat kepercayaan 95%; c = 2

$$BKA = \bar{\bar{X}} + (c * \sigma_{\bar{X}}) = 20.09 + (2 * 0.92) = 21.93$$

$$BKB = \bar{\bar{X}} - (c * \sigma_{\bar{X}}) = 20.09 - (2 * 0.92) = 18.23$$



Kesimpulan :	Data pada subgrup 1	→	SERAGAM
	Data pada subgrup 2	→	SERAGAM
	Data pada subgrup 3	→	SERAGAM
	Data pada subgrup 4	→	SERAGAM
	Data pada subgrup 5	→	SERAGAM
	Data pada subgrup 6	→	SERAGAM
	Data pada subgrup 7	→	SERAGAM
	Data pada subgrup 8	→	SERAGAM
	Data pada subgrup 9	→	SERAGAM
	Data pada subgrup 10	→	SERAGAM
	Data pada subgrup 11	→	SERAGAM
	Data pada subgrup 12	→	SERAGAM
	Data pada subgrup 13	→	SERAGAM
	Data pada subgrup 14	→	SERAGAM
	Data pada subgrup 15	→	SERAGAM
	Data pada subgrup 16	→	SERAGAM
	Data pada subgrup 17	→	SERAGAM
	Data pada subgrup 18	→	SERAGAM
	Data pada subgrup 19	→	SERAGAM
	Data pada subgrup 20	→	SERAGAM

Uji Kecukupan Data Tebal Badan (TB)

$$N' = \left[\frac{c/\alpha \sqrt{n \sum x^2 - (\sum x)^2}}{\sum x} \right]^2$$

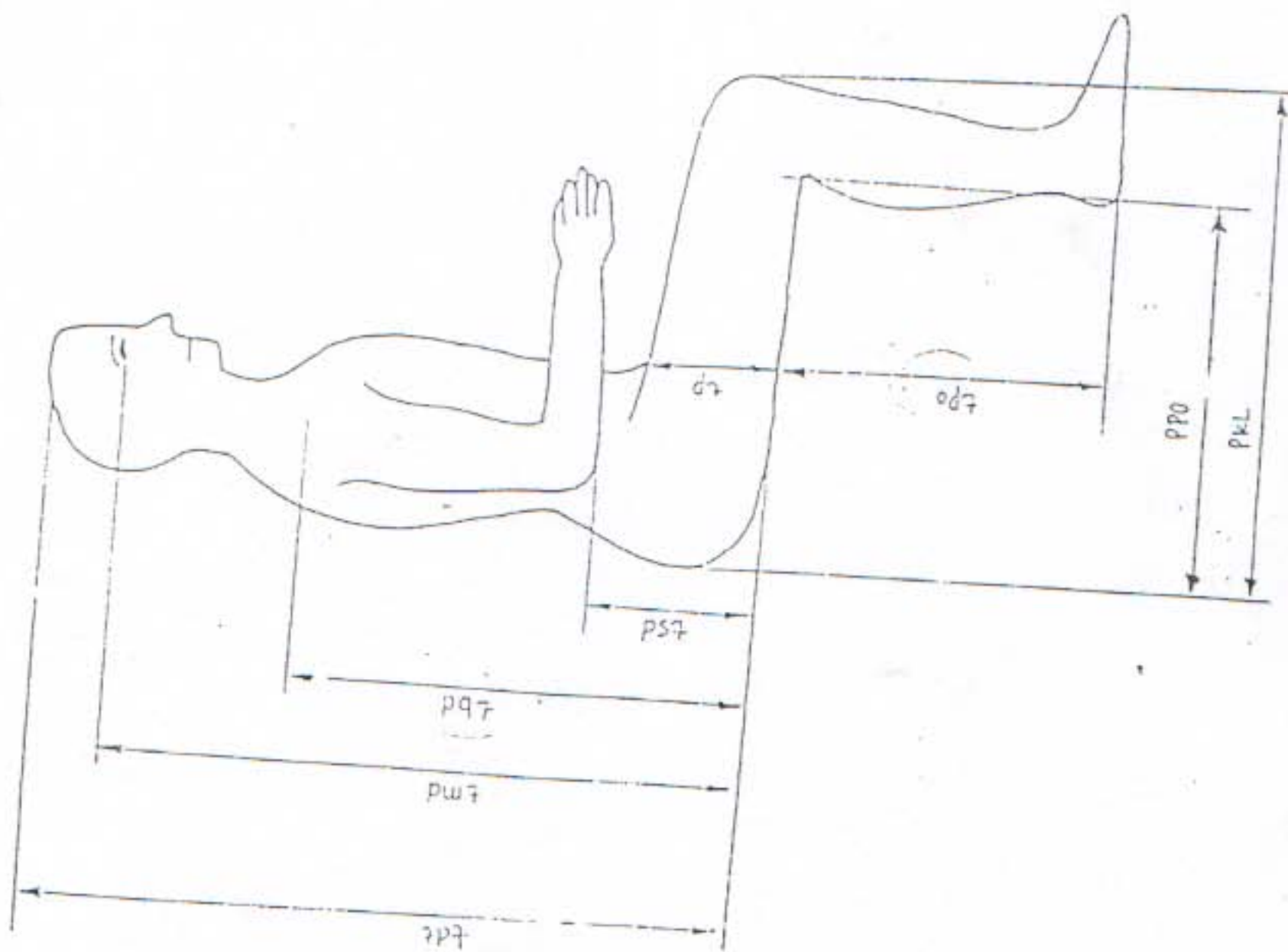
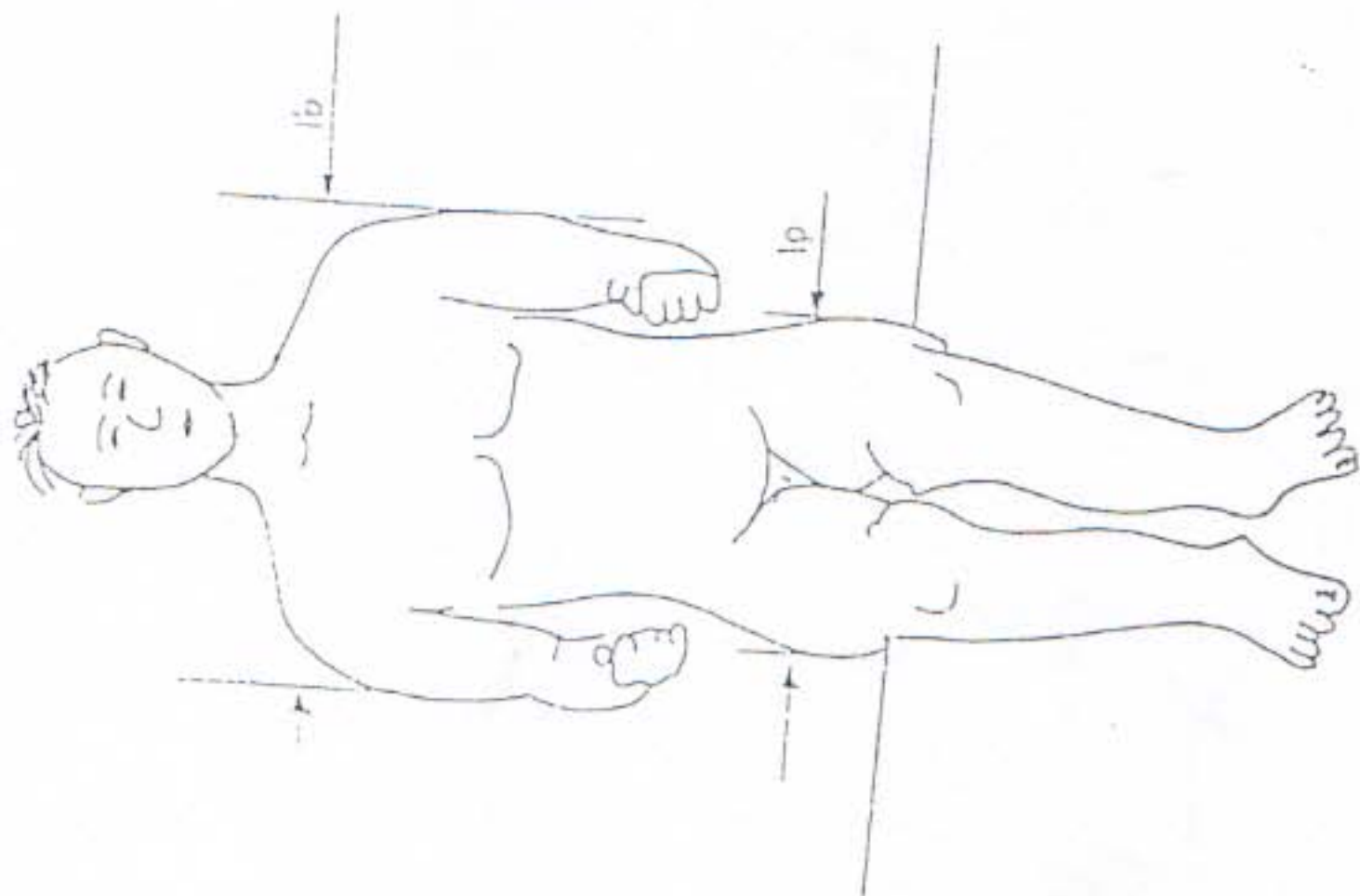
$$N' = \left[\frac{(2 / 0.05) \times \sqrt{200 \times (82424.85) - (16145127.61)}}{4018.1} \right]^2 = 33.679$$

Kesimpulan : karena $N' \leq N$, maka jumlah data yang diambil sudah **CUKUP**

Perhitungan Persentil Tebal Badan (TB)

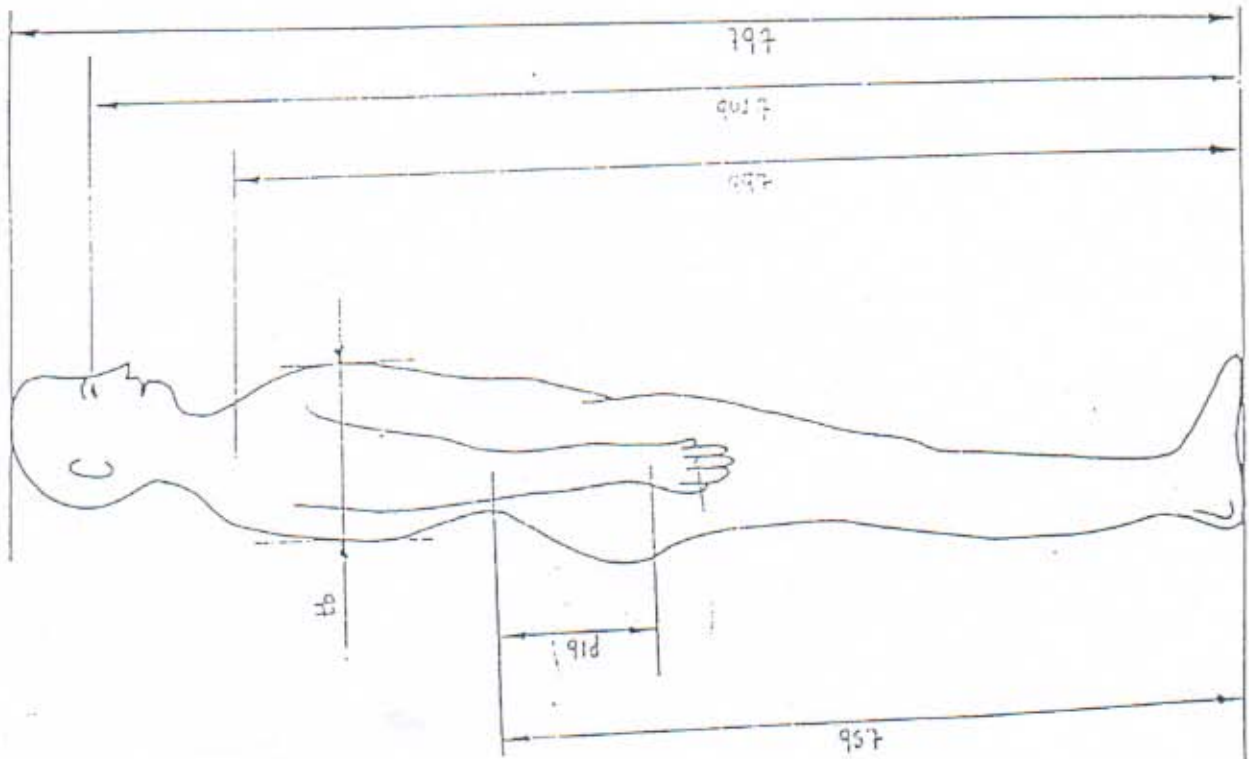
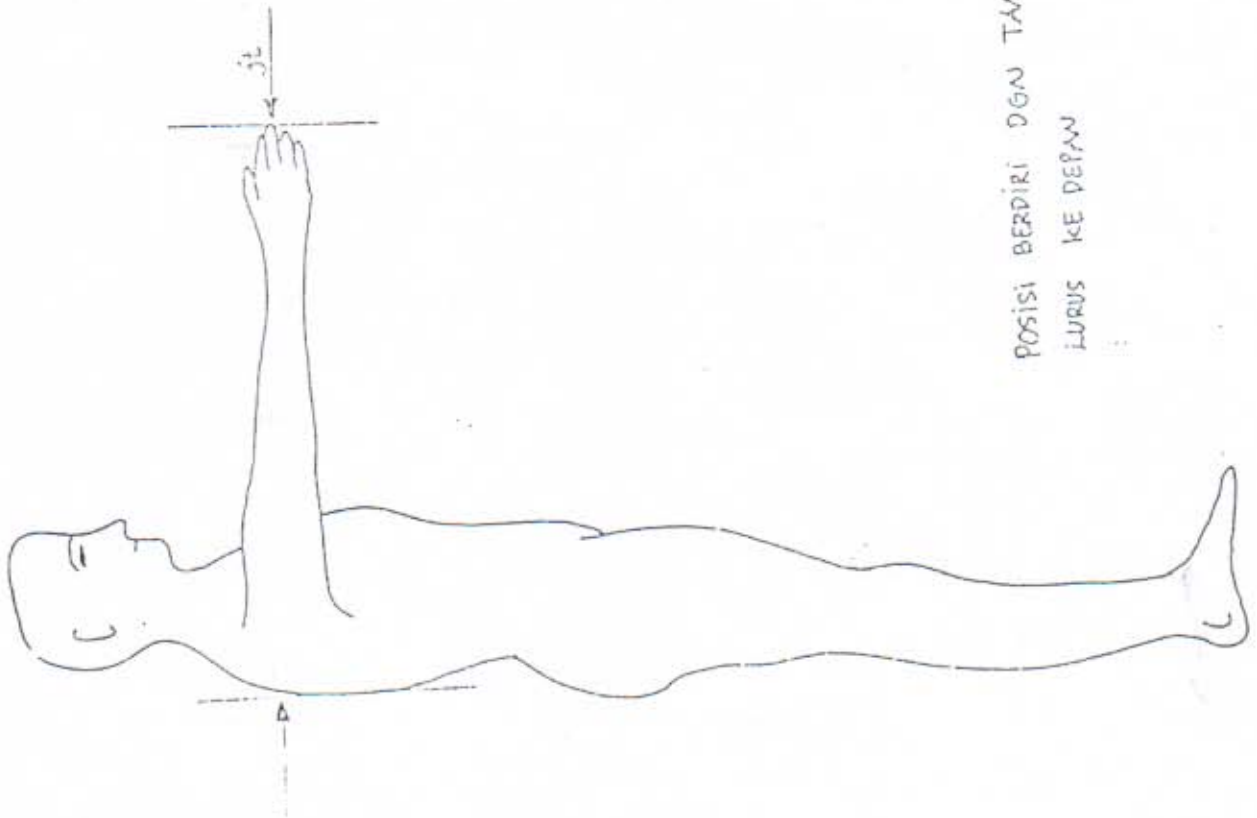
Cara Lengkap :

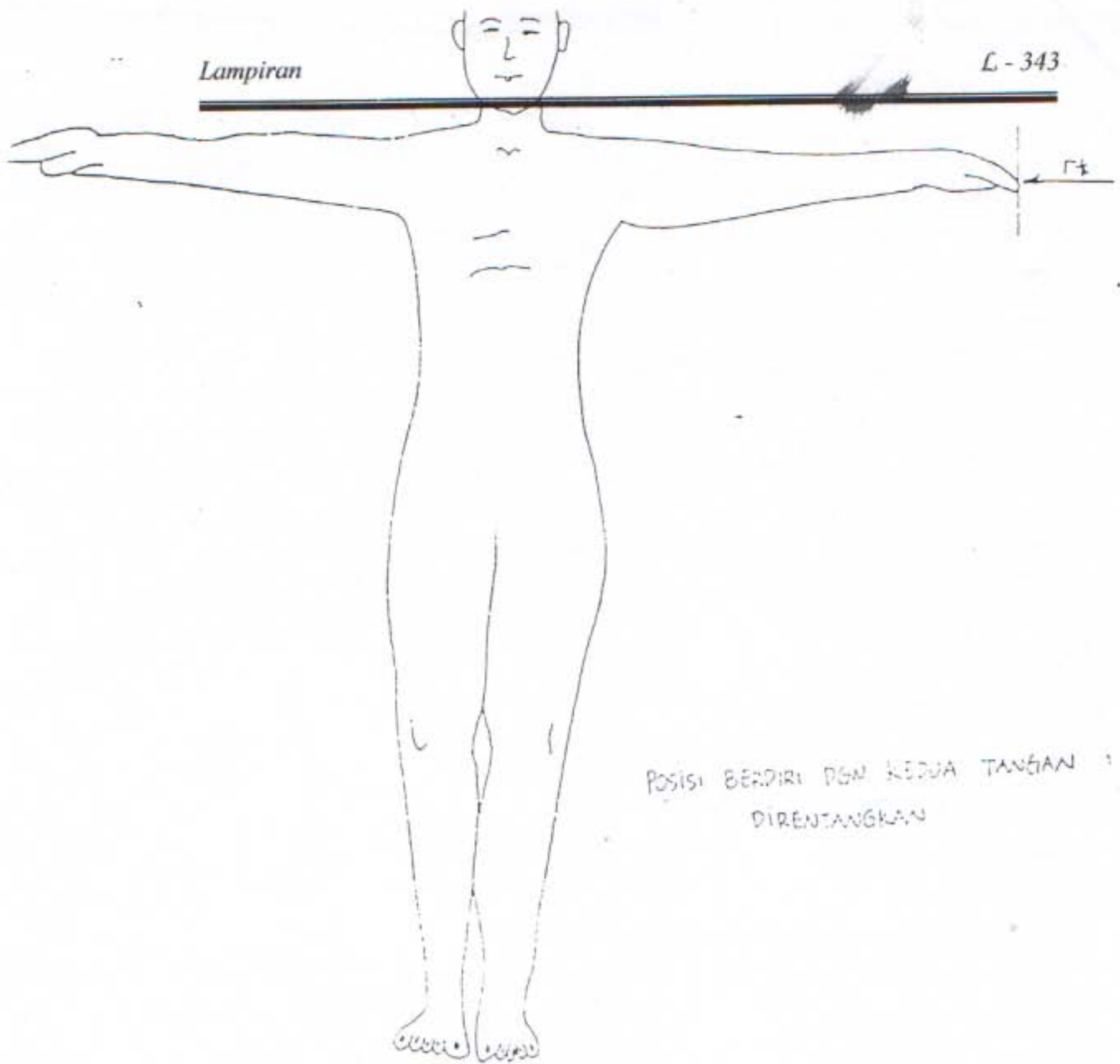
1. $\mu = \bar{X} = 20.09$
2. $\sigma = 2.922$
3. Untuk 5 % → $Z_1 = -1.645$
Untuk 95 % → $Z_2 = 1.645$
4. $P_5 = \mu + \sigma (Z_1)$ $P_5 = 20.09 + 2.922 (-1.645) = 15.28$
 $P_{50} = \mu$ $P_{50} = 20.09$
 $P_{95} = \mu + \sigma (Z_2)$ $P_{95} = 20.09 + 2.922 (1.645) = 24.90$



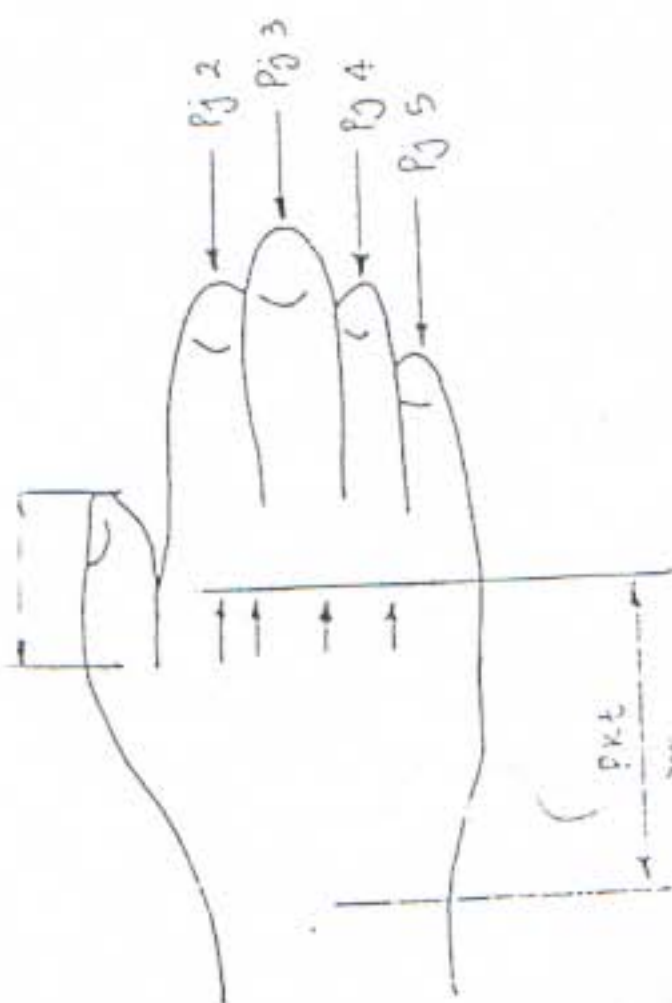
10W

Benny W





POSISI BERDIRI DENGAN KEDUA TANGAN
DIRENTANGKAN



LUX	DAYA LAMPU NEON (WATT)						
	5	8	14	18	26	8+18	
0	48900	54900	56300	58700	116200	68500	-41%
1	20500	30500	44300	46100	54700	42500	-22%
2	14700	15300	22800	23400	24100	29500	22%
3	6500	7600	11900	14000	17400	19500	12%
4	5200	6700	8800	9600	12700	14000	10%
J A R A K (C M)	5	3330	3480	4060	5470	5950	50%
	10	1650	1120	1510	1840	2180	131%
	15	505	530	719	942	1080	79%
	20	317	317	445	565	618	93%
	25	202	228	316	412	503	56%
	30	245	167	231	294	377	52%
	35	111	128	177	242	285	53%
	40	88	103	142	193	236	41%
	45	73	86	119	160	201	39%
	50	60	74	104	135	171	37%
	55	52	62	90	122	149	38%
	60	45	55	79	105	132	36%
	65	41	49	78	95	123	32%
	70	37	45	73	88	113	30%
	75	34	42	68	81	101	33%
	80	31	38	63	74	95	34%
	85	28	35	60	70	88	33%
	90	27	32	57	66	84	30%
	95	25	30	55	63	79	32%
	100	23	28	54	60	77	27%
J A R A K (C M)	105	22	27	52	58	73	30%
	110	21	26	49	56	71	31%
	115	20	24	50	54	69	26%
	120	19	23	48	53	69	25%
	125	18	23	49	53	68	25%
	130	17	25	48	51	68	25%
	135	16	25	46	49	66	26%
	140	16	24	44	47	63	29%
	145	15	23	43	46	60	27%

Antropometri

Disusun oleh :
Wawan Yudiantyo

Bagian dari Ergonomi

- Tujuan dari ergonomi :
 - Untuk menambah efektivitas penggunaan objek fisik dan fasilitas yang digunakan manusia, dan merawat atau menambah nilai tertentu yang layak. (kesehatan, keselamatan, kenyamanan, kepuasan, dst)

Antropometri

- Suatu ilmu yang mempelajari tatacara pengukuran dimensi tubuh manusia.
- Dibagi menjadi dua :
 - Antropometri statis
 - Pengukuran dilakukan pada saat tubuh diam.
 - Antropometri dinamis
 - Pengukuran dilakukan pada saat tubuh bergerak.

Hal-hal yang mempengaruhi dimensi tubuh manusia

- Umur
- Jenis kelamin
- Suku bangsa
- Pekerjaan / latihan



Analisa Nilai

- Suatu prosedur untuk mengidentifikasi “ongkos-ongkos” yang tidak ada perlu. (*L.D. Miles, GE AS*).
- Value Engineering
 - Menganalisa produk baru.
- Value Analysis
 - Menganalisa dengan membandingkan dengan produk lain yang sejenis.









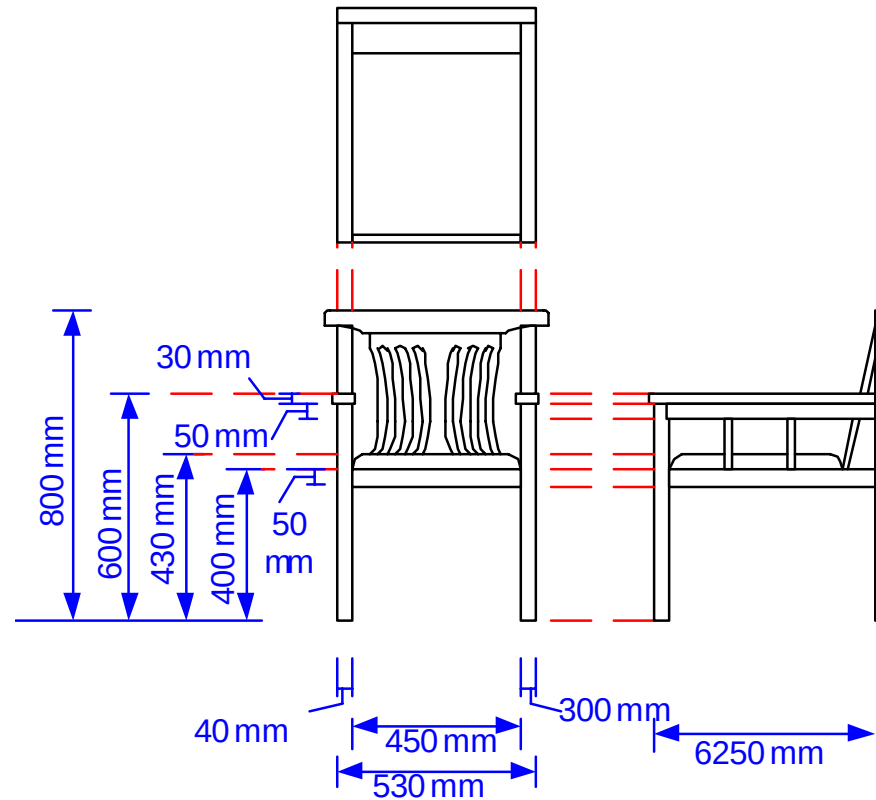


Thank you



Yang harus diperhatikan
dalam laporan Tugas Akhir

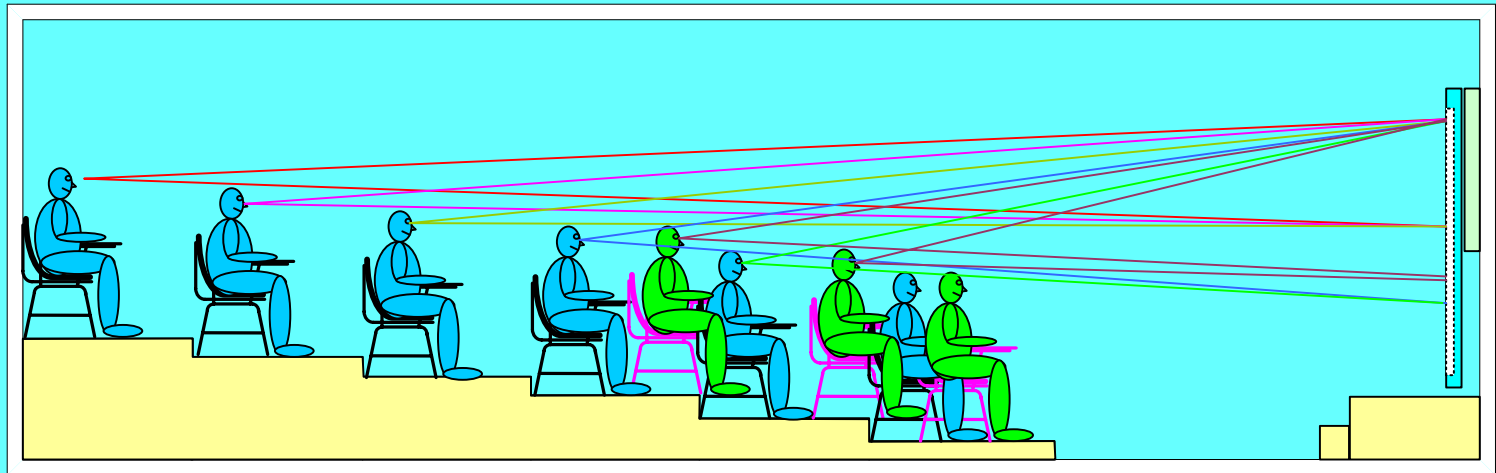
**Tiap objek ada tampak 2D (depan, atas dan samping)
serta ada ukurannya.**



Tiap objek ada sketsa tampak 3D atau foto.



Tiap ruangan ada tampak 2D samping dan foto.



Spesifikasi Produk.

No.		1
Nama barang/peralatan		Shower
Tipe		-
Dimensi (mm)	Panjang	250
	Lebar	80
	Tinggi	2050
Bahan (dominan / dari bawah ke atas)		Besi
Warna dominant		Perak
Fungsi		Sebagai alat untuk memancarkan air pada waktu mandi
Lokasi		Di sudut sebelah dalam kamar mandi, pada area shower

Persentil – Patokan - Selisih

Bagian Produk	Dimensi (mm)	Data Anthropometri	Persentil	Nilai Persentil (mm)	Allowance	Besar Allowance (mm)	Ukuran Yang Disarankan (mm)	Patokan	Selisih (%)	Kes
Panjang Alas Duduk	280	LP	Max	398,10	Pakaian	10	408,10	Min	45,75 %	Kurang Panjang
Lebar Alas Duduk	280	PPO	Min	417,46			417,46	Max	49,09 %	Sudah Baik
Tinggi Alas Duduk Dari Lantai	600	TPO	Min	375,28	Hak Sepatu	25	400,28	Max	33,28 %	Terlalu Tinggi

Hal-hal lain :

1. Kuesioner → kesimpulan → prioritas.
 - Konsisten dengan apa yang sudah diprioritaskan.
2. Konsistensi dengan mana yang panjang dan mana yang lebar untuk semua gambar.
3. Pencahayaan dikukur untuk tiap titik pemakai.
 - Bila ada gorden/jendela, pencahayaan dihitung dengan memperhatikan masuknya cahaya matahari.

Hal-hal lain :

1. Kata dalam bahasa inggris di cetak miring.
2. Dalam perancangan, yang harus diperhatikan :
 - Jarak antar objek pada ruangan.
 - Tata Letak objek.
 - Arah objek
 - Kemudahan pemakaian objek
3. Tiap alternatif rancangan arau referensi pasar, dianalisa keunggulan dan keterbatasannya.

TABEL III
NILAI-NILAI r PRODUCT MOMENT

14

N	Tingkat Signifikan		N	Tingkat Signifikan		N	Tingkat Signifikan	
	5%	1%		5%	1%		5%	1%
3	0,997	0,999	37	0,381	0,487	55	0,266	0,346
4	0,960	0,990	38	0,374	0,478	60	0,254	0,330
5	0,878	0,959	39	0,367	0,470	65	0,244	0,317
6	0,811	0,917	40	0,361	0,463	70	0,235	0,306
7	0,754	0,874	41	0,356	0,458	75	0,227	0,298
8	0,707	0,834	42	0,349	0,449	80	0,220	0,290
9	0,668	0,798	43	0,344	0,442	85	0,213	0,278
10	0,632	0,765	44	0,339	0,436	90	0,207	0,270
11	0,602	0,735	45	0,334	0,430	95	0,202	0,263
12	0,576	0,708	46	0,329	0,424	100	0,196	0,256
13	0,553	0,684	47	0,325	0,418	125	0,176	0,238
14	0,532	0,661	48	0,320	0,413	150	0,169	0,219
15	0,514	0,641	49	0,316	0,408	175	0,166	0,194
16	0,497	0,623	50	0,312	0,403	200	0,158	0,181
17	0,482	0,606	41	0,308	0,398	300	0,113	0,148
18	0,468	0,590	42	0,304	0,393	400	0,098	0,128
19	0,456	0,575	43	0,301	0,389	500	0,088	0,115
20	0,444	0,561	44	0,297	0,384	600	0,080	0,105
21	0,433	0,549	45	0,294	0,380	700	0,074	0,097
22	0,423	0,537	46	0,291	0,376	800	0,070	0,091
23	0,413	0,526	47	0,288	0,372	900	0,065	0,086
24	0,404	0,515	48	0,284	0,368	1000	0,062	0,081
25	0,396	0,505	49	0,281	0,364			
26	0,388	0,496	50	0,278	0,361			

TABEL A.12
Angka Asli (Barisan)

Baris	Kolom							
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40
26	84827	81473	19453	95401	01363	40795	86000	78317
27	97965	30432	92410	42482	31448	78338	53152	27863
28	96097	51256	61546	93683	46277	30113	37682	15694
29	77733	98610	86615	19007	29402	26348	96477	97154
30	73139	81085	96957	48358	90944	58135	73014	79515
31	19074	14518	91372	73333	42832	17500	91049	74510
32	82098	95483	17986	79141	92419	36887	65473	65875
33	10916	60700	33527	26169	07313	08349	31397	63568
34	08693	25225	54798	60498	32040	60310	36587	30579
35	50451	52350	37860	40950	14377	16485	62250	96104
36	73128	88093	01832	19463	28038	60222	83868	74422
37	89677	39620	49118	49640	96822	71822	66195	28204
38	67828	36965	63617	60332	10525	78030	06835	59222
39	30001	63542	05680	12956	96358	80149	79950	39309
40	14283	75479	39727	79075	87965	34464	49102	93185
41	84054	28694	03883	97247	43378	48213	97929	49951
42	80813	60959	58747	30798	43435	18738	58154	95800
43	28513	30696	23612	87285	96888	25681	65397	50837
44	17500	25186	12526	19012	42374	47886	43367	61813
45	66814	38016	43219	14760	99030	38070	81369	94157
46	49751	96432	63666	47760	70492	10567	87197	95801
47	35597	97760	47288	34709	25369	91520	03045	24344
48	03026	00712	49279	80372	30085	61603	26715	89026
49	96637	00092	97446	73109	53899	93915	37789	13073
50	34324	90440	76234	71230	92581	06794	39559	05362

TABEL A.12
Angka Acak

Baris	Kolom							
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40
1	62956	95735	70988	86027	27648	65155	46301	27217
2	17143	50118	41681	87224	75674	43371	09846	83403
3	99285	01369	94610	71099	69207	01999	23931	34711
4	12940	81308	40436	82916	74245	70324	88555	82182
5	28089	80216	08681	83524	00583	55179	31911	68484
6	78079	74747	17626	74930	47800	04858	85634	42398
7	36009	01306	33858	96930	71087	11354	85891	52644
8	95695	52933	39459	84218	34670	91542	02186	86134
9	89221	34158	16364	16532	50070	78159	18445	05884
10	91937	35854	13168	24642	22369	87396	64367	89259
11	07339	63159	94886	51002	85834	94109	56843	03769
12	73238	34352	81008	95682	13029	76288	22054	54849
13	87940	32625	44838	39920	57188	41771	43185	74236
14	46904	92456	64675	66930	54980	11631	54596	50563
15	02580	92653	33907	54380	00763	60452	18860	48829
16	86983	20150	78561	97095	15990	45947	88542	86519
17	92608	22144	67209	88807	82087	06616	16605	95621
18	26988	49617	87118	28108	13110	40286	21216	01567
19	75370	38794	51939	20879	30221	73593	76238	85702
20	18826	84055	91391	78487	07594	74994	64239	00808
21	20198	45182	09914	45305	97352	00516	56804	10931
22	74784	75807	79881	45290	56117	39798	62617	26912
23	08050	25691	87922	75747	55031	82704	97667	03734
24	63096	27823	94686	39205	68047	02108	62144	31291
25	23099	48428	16897	82597	74983	22452	46283	97317

TABEL A.6*
Nilai Kritis Sederhanakan Kalkulasi



α	z							
	0.001	0.01	0.025	0.05	0.10	0.205	0.40	0.605
1	0.07995	0.07913	0.07826	0.07734	0.07643	0.07554	0.07467	0.07381
2	0.05400	0.05319	0.05229	0.05141	0.05054	0.04969	0.04885	0.04802
3	0.02912	0.02831	0.02743	0.02656	0.02571	0.02487	0.02404	0.02321
4	0.0207	0.0200	0.0193	0.0186	0.0180	0.0174	0.0168	0.0162
5	0.0192	0.0186	0.0180	0.0174	0.0169	0.0164	0.0159	0.0154
6	0.0176	0.0171	0.0166	0.0161	0.0156	0.0152	0.0147	0.0143
7	0.0160	0.0156	0.0152	0.0148	0.0144	0.0140	0.0136	0.0133
8	0.0146	0.0143	0.0139	0.0136	0.0133	0.0130	0.0127	0.0125
9	0.0133	0.0130	0.0127	0.0125	0.0122	0.0120	0.0117	0.0115
10	0.0125	0.0122	0.0120	0.0117	0.0115	0.0113	0.0111	0.0109
11	0.0109	0.0107	0.0105	0.0103	0.0101	0.0099	0.0097	0.0095
12	0.0095	0.0093	0.0091	0.0089	0.0087	0.0085	0.0083	0.0081
13	0.0081	0.0079	0.0077	0.0075	0.0073	0.0071	0.0069	0.0067
14	0.0067	0.0065	0.0063	0.0061	0.0059	0.0057	0.0055	0.0053
15	0.0053	0.0051	0.0049	0.0047	0.0045	0.0043	0.0041	0.0039
16	0.0039	0.0037	0.0035	0.0033	0.0031	0.0029	0.0027	0.0025
17	0.0025	0.0023	0.0021	0.0019	0.0017	0.0015	0.0013	0.0011
18	0.0011	0.0009	0.0007	0.0005	0.0003	0.0001	0.0000	0.0000
19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
27	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

*Diringkas dari Tabel 5. Biometrika Tables for Statisticians, Vol. 1, dengan izin dari R. L. Pearson dan Biometrika Trusts.

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年	月	日	星期	晴雨	温度	湿度	风速	风向	气压	能见度	云量	日照	降水	蒸发	土壤湿度	植物生长	动物活动	人类活动
1990	1	1	星期一	晴	15~25	60%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	2	星期二	晴	16~26	62%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	3	星期三	晴	17~27	64%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	4	星期四	晴	18~28	66%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	5	星期五	晴	19~29	68%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	6	星期六	晴	20~30	70%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	7	星期日	晴	21~31	72%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	8	星期一	晴	22~32	74%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	9	星期二	晴	23~33	76%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	10	星期三	晴	24~34	78%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	11	星期四	晴	25~35	80%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	12	星期五	晴	26~36	82%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	13	星期六	晴	27~37	84%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	14	星期日	晴	28~38	86%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	15	星期一	晴	29~39	88%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	16	星期二	晴	30~40	90%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	17	星期三	晴	31~41	92%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	18	星期四	晴	32~42	94%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	19	星期五	晴	33~43	96%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	20	星期六	晴	34~44	98%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	21	星期日	晴	35~45	100%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	22	星期一	晴	36~46	100%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	23	星期二	晴	37~47	100%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	24	星期三	晴	38~48	100%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	25	星期四	晴	39~49	100%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	26	星期五	晴	40~50	100%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	27	星期六	晴	41~51	100%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	28	星期日	晴	42~52	100%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	29	星期一	晴	43~53	100%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	30	星期二	晴	44~54	100%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常
1990	1	31	星期三	晴	45~55	100%	3m/s	东南	1013	10km	10%	8h	0mm	5mm	15%	正常	正常	正常

TABEL 5.1

Jurnal Statistik (Angka)

REKAMISTUAN JUMLAH SAMPEL DARI POPULASI TERTENTU DENGAN TARAF KESALAHAN 1%, 5%, DAN 10%

N	n			N	n			N	n		
	1%	5%	10%		1%	5%	10%		1%	5%	10%
10	10	10	10	100	197	131	108	1000	197	131	108
20	10	10	10	200	201	136	140	2000	199	132	108
30	10	10	10	300	201	141	143	3000	198	132	110
40	10	10	10	400	206	147	147	4000	199	130	114
50	10	10	10	500	225	171	151	5000	198	132	110
60	10	10	10	600	234	177	153	6000	196	126	117
70	10	10	10	700	242	182	158	7000	198	129	119
80	10	10	10	800	270	186	162	8000	196	131	121
90	10	10	10	900	277	190	167	9000	193	134	120
100	10	10	10	1000	285	197	168	10000	199	132	123
110	10	10	10	1100	272	198	171	11000	192	134	123
120	10	10	10	1200	279	202	173	12000	193	140	126
130	10	10	10	1300	285	207	176	13000	197	142	127
140	10	10	10	1400	288	213	182	14000	199	141	128
150	10	10	10	1500	313	221	187	15000	193	147	129
160	10	10	10	1600	329	227	191	16000	193	148	130
170	10	10	10	1700	348	233	195	17000	194	146	131
180	10	10	10	1800	358	243	202	18000	194	147	131
190	10	10	10	1900	373	247	205	19000	193	147	131
200	10	10	10	2000	382	251	208	20000	193	148	131
210	10	10	10	2100	391	255	211	21000	192	148	131
220	10	10	10	2200	394	258	213	22000	192	148	131
230	10	10	10	2300	414	265	217	23000	192	148	131
240	10	10	10	2400	427	270	221	24000	193	148	131
250	10	10	10	2500	435	273	224	25000	193	148	131
260	10	10	10	2600	450	279	227	26000	193	148	131
270	10	10	10	2700	460	283	229	27000	193	148	131
280	10	10	10	2800	469	286	232	28000	193	148	131
290	10	10	10	2900	487	289	234	29000	193	148	131
300	10	10	10	3000	492	292	235	30000	193	148	131
310	10	10	10	3100	492	294	237	31000	193	148	131
320	10	10	10	3200	498	297	238	32000	193	148	131
330	10	10	10	3300	510	301	241	33000	193	148	131
340	10	10	10	3400	520	304	243	34000	193	148	131
350	10	10	10	3500	529	307	245	35000	193	148	131

KUESIONER
MENGENAI PEMILIHAN KRITERIA UNTUK FASILITAS FISIK PADA
LABORATORIUM KOMPUTER TEKNOLOGI INFORMASI
UNIVERSITAS KRISTEN MARANATHA

Kepada Yth. Mahasiswa/i Universitas Kristen Maranatha,

Dalam rangka menyusun Tugas Akhir tentang perancangan Laboratorium Komputer di Gedung Grha Widya Maranatha, saya sebagai mahasiswa Universitas Kristen Maranatha Jurusan Teknik Industri melakukan penelitian mengenai faktor-faktor penunjang laboratorium komputer yang ergonomis.

Oleh karena itu, maka saya menyebarkan kuesioner ini kepada mahasiswa/i pengguna laboratorium komputer di **GAP Lantai 3 Universitas Kristen Maranatha**. Saya mengharapkan kesediaan saudara untuk mengisi kuesioner ini. Sebelum dan sesudahnya saya ucapkan terima kasih atas waktu yang telah saudara luangkan untuk mengisi kuesioner ini.

Hormat saya,
Renny Resiana

Urutkan kriteria di bawah ini dengan urutan yang menurut saudara paling penting sebagai urutan pertama.

Meja Komputer Mahasiswa

No	Kriteria
1	Sesuai dengan ukuran tubuh
2	Kenyamanan
3	Model
4	Bahan dan Warna
5	Tidak Boros Tempat

Bobot	Kriteria No.
5	
4	
3	
2	
1	

Kursi Mahasiswa

No	Kriteria
1	Sesuai dengan ukuran tubuh
2	Ketinggian dapat disesuaikan
3	Kenyamanan
4	Model
5	Bahan dan Warna

Bobot	Kriteria No.
5	
4	
3	
2	
1	

Lemari Tas

No	Kriteria
1	Sesuai dengan ukuran tubuh
2	Kekuatan
3	Kenyamanan
4	Model
5	Tidak boros tempat
6	Estetika

Bobot	Kriteria No.
6	
5	
4	
3	
2	
1	

Rekap Hasil Kuesioner Mahasiswa

Dari kuesioner yang disebarkan kepada 30 responden maka diperoleh :

Jumlah bobot 5 yang responden berikan pada tiap kriteria untuk

Meja Komputer Mahasiswa

Kriteria	Jumlah Nilai Bobot 5
Sesuai dengan ukuran tubuh	9
Kenyamanan	7
Model	6
Bahan dan Warna	5
Tidak Boros Tempat	3
Jumlah	30

Maka urutan kriteria dan bobot untuk meja komputer mahasiswa adalah :

Kriteria	Bobot
Sesuai dengan ukuran tubuh	5
Kenyamanan	4
Model	3
Bahan dan Warna	2
Tidak Boros Tempat	1

Jumlah bobot 5 yang responden berikan pada tiap kriteria untuk

Kursi Mahasiswa

Kriteria	Jumlah Nilai Bobot 5
Sesuai dengan ukuran tubuh	10
Ketinggian dapat disesuaikan	7
Kenyamanan	6
Model	4
Bahan dan Warna	3
Jumlah	30

Maka urutan kriteria dan bobot untuk kursi mahasiswa adalah :

Kriteria	Bobot
Sesuai dengan ukuran tubuh	5
Ketinggian dapat disesuaikan	4
Kenyamanan	3
Model	2
Bahan dan Warna	1

Jumlah bobot 5 yang responden berikan pada tiap kriteria untuk

Lemari Penyimpan Tas

Kriteria	Jumlah Nilai Bobot 5
Sesuai dengan ukuran tubuh	10
Kekuatan	8
Model	6
Tidak Boros Tempat	4
Estetika	2
Jumlah	30

Maka urutan kriteria dan bobot untuk lemari penyimpanan tas mahasiswa adalah :

Kriteria	Bobot
Sesuai dengan ukuran tubuh	5
Kekuatan	4
Model	3
Tidak Boros Tempat	2
Estetika	1

KUESIONER
MENGENAI PEMILIHAN KRITERIA UNTUK FASILITAS FISIK PADA
LABORATORIUM KOMPUTER TEKNOLOGI INFORMASI
UNIVERSITAS KRISTEN MARANATHA

Kepada Yth. Bapak/Ibu Dosen Fakultas Teknologi Informasi UKM,

Dalam rangka menyusun Tugas Akhir tentang perancangan Laboratorium Komputer di Gedung Grha Widya Maranatha, saya sebagai mahasiswa Universitas Kristen Maranatha Jurusan Teknik Industri melakukan penelitian mengenai faktor-faktor penunjang laboratorium komputer yang ergonomis.

Oleh karena itu, maka saya menyebarkan kuesioner ini kepada Bapak/Ibu Dosen Fakultas Teknologi Informasi pengguna laboratorium komputer. Saya mengharapkan kesediaan Bapak/Ibu untuk mengisi kuesioner ini.

Sebelum dan sesudahnya saya ucapkan terima kasih atas waktu yang telah diluangkan untuk mengisi kuesioner ini.

Hormat saya,
Renny Resiana

Urutkan kriteria berikut ini dengan urutan yang dianggap paling penting sebagai urutan pertama.

Meja Komputer Dosen

No	Kriteria
1	Sesuai dengan ukuran tubuh
2	Kenyamanan
3	Model
4	Bahan
5	Warna
6	Tidak Boros Tempat

Bobot	Kriteria No.
6	
5	
4	
3	
2	
1	

Kursi Dosen

No	Kriteria
1	Sesuai dengan ukuran tubuh
2	Ketinggian dapat disesuaikan
3	Kenyamanan
4	Model
5	Bahan dan Warna

Bobot	Kriteria No.
5	
4	
3	
2	
1	

Meja LCD

No	Kriteria
1	Mudah dipindahkan
2	Kekuatan
4	Model
5	Tidak boros tempat
6	Estetika

Panggung

No	Kriteria
1	Kenyamanan
2	Keamanan
3	Warna
4	Model

Bobot	Kriteria No.
4	
3	
2	
1	

Rekap Hasil Kuesioner Dosen

Dari kuesioner yang disebarkan kepada 15 responden maka diperoleh :

Jumlah bobot 6 yang responden berikan pada tiap kriteria untuk

Meja Komputer Dosen

Kriteria	Jumlah nilai bobot 6
Sesuai dengan ukuran tubuh	4
Kenyamanan	3
Model	3
Bahan	2
Warna	2
Tidak Boros Tempat	1
Jumlah	15

Maka urutan kriteria dan bobot untuk meja komputer dosen adalah :

Kriteria	Bobot
Sesuai dengan ukuran tubuh	6
Kenyamanan	5
Model	4
Bahan	3
Warna	2
Tidak Boros Tempat	1

Jumlah bobot 5 yang responden berikan pada tiap kriteria untuk

Kursi Dosen

Kriteria	Jumlah nilai bobot 5
Sesuai dengan ukuran tubuh	5
Ketinggian dapat disesuaikan	4
Kenyamanan	3
Model	2
Bahan dan Warna	1
Jumlah	15

Maka urutan kriteria dan bobot untuk kursi dosen adalah :

Kriteria	Bobot
Sesuai dengan ukuran tubuh	5
Ketinggian dapat disesuaikan	4
Kenyamanan	3
Model	2
Bahan dan Warna	1

Jumlah bobot 5 yang responden berikan pada tiap kriteria untuk

Meja LCD

Kriteria	Jumlah nilai bobot 5
Mudah dipindahkan	5
Kekuatan	4
Model	3
Tidak boros tempat	2
Estetika	1
Jumlah	15

Maka urutan kriteria dan bobot untuk Meja LCD adalah :

Kriteria	Bobot
Mudah dipindahkan	5
Kekuatan	4
Model	3
Tidak boros tempat	2
Estetika	1

Jumlah bobot 4 yang responden berikan pada tiap kriteria untuk

Panggung

Kriteria	Jumlah nilai bobot 4
Kenyamanan	6
Keamanan	5
Warna	3
Model	2
Jumlah	15