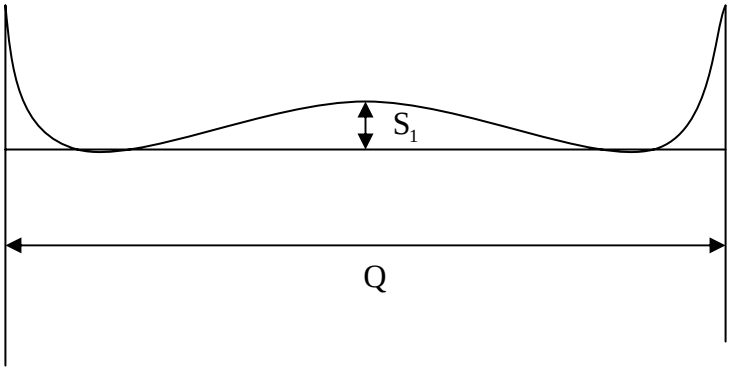
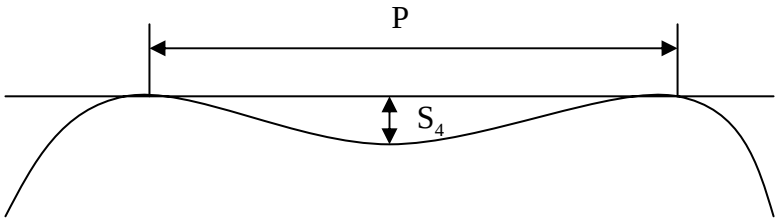
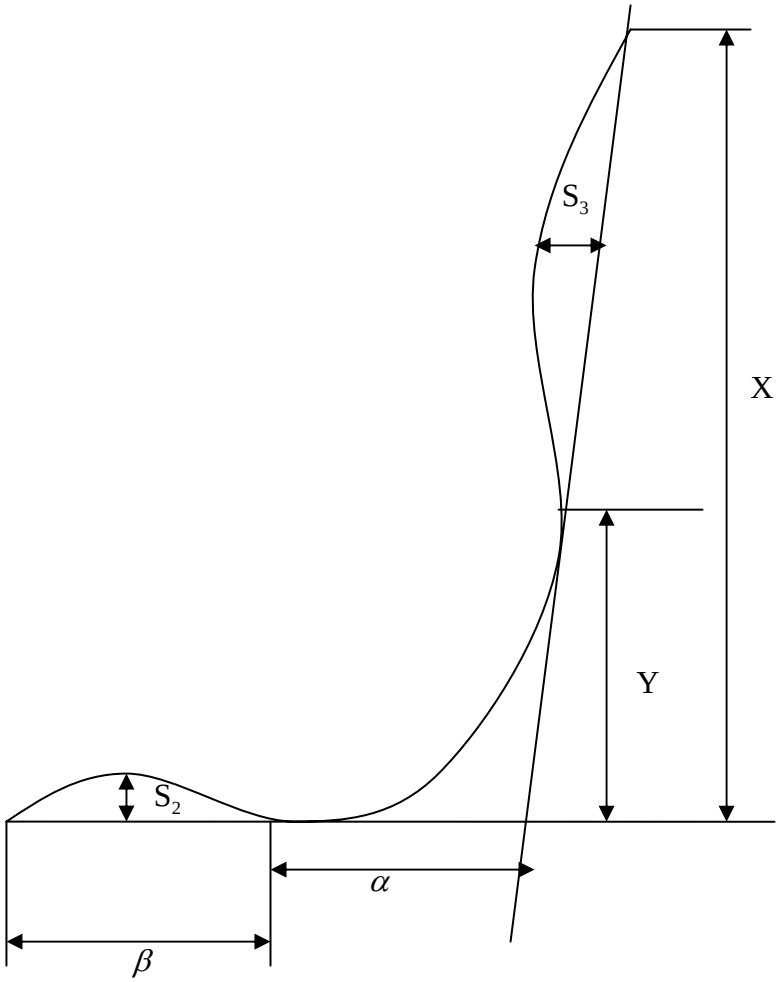
Keterangan :







Tabel Data Mentah

Di bawah ini adalah data yang diperoleh dari 30 responden. Data ini diurutkan dari nilai terkecil hingga terbesar

No	S_1(cm)	S_2(cm)	S_3(cm)	S_4(cm)	α (cm)	β (cm)	X (cm)	Y (cm)	P (cm)	Q(cm)	Z^o
1	0.2	1.0	0.8	0.6	6.0	27.0	30.1	10.8	19.6	32.0	90
2	0.2	1.4	0.8	0.8	6.0	27.0	30.1	10.8	19.6	32.6	95
3	0.3	1.4	1.0	1.0	6.7	27.5	30.1	11.0	22.0	33.0	95
4	0.3	1.8	1.4	1.0	6.7	27.5	30.5	11.0	23.6	33.0	95
5	0.3	1.8	1.4	1.0	6.7	27.5	35.7	11.0	26.9	34.4	95
6	0.4	1.8	1.4	1.0	7.0	27.8	36.9	12.2	28.6	35.5	100
7	0.4	2.0	1.8	1.0	7.0	28.0	37.2	12.2	29.4	36.0	100
8	0.4	2.0	1.8	1.0	7.0	28.0	37.7	12.2	29.5	36.5	100
9	0.4	2.0	1.9	1.2	7.5	28.0	37.9	12.5	30.5	36.5	100
10	0.4	2.0	1.9	1.2	7.5	28.2	38.8	12.5	30.8	36.6	105
11	0.4	2.2	2.0	1.2	7.5	28.2	39.3	12.5	31.5	37.0	105
12	0.4	2.2	2.0	1.2	7.5	28.2	41.0	12.5	31.8	37.2	105
13	0.5	2.2	2.0	1.2	7.5	28.4	42.5	12.8	32.0	37.3	105
14	0.5	2.2	2.0	1.4	7.5	28.4	42.7	12.8	32.0	37.4	105
15	0.5	2.5	2.0	1.4	7.5	28.4	43.6	13.0	32.4	37.5	105
16	0.5	2.5	2.0	1.4	8.0	28.5	43.7	13.0	33.0	37.6	105
17	0.5	2.5	2.0	1.4	8.0	28.5	43.8	13.0	33.0	37.8	105
18	0.5	2.5	2.1	1.4	8.5	29.0	43.9	13.3	33.8	38.0	105
19	0.5	2.6	2.1	1.6	8.5	29.0	44.0	13.3	34.0	38.9	110
20	0.5	2.6	2.1	1.6	8.5	29.0	44.6	13.3	34.6	39.2	110
21	0.5	2.6	2.1	1.6	8.5	29.0	45.4	13.3	34.7	39.4	110
22	0.5	2.8	2.1	1.6	8.5	29.0	45.9	13.6	35.0	39.8	110
23	0.5	2.8	2.1	1.6	8.5	29.0	46.3	13.6	35.4	39.9	110
24	0.6	2.8	2.2	1.6	9.3	29.0	46.5	13.6	35.4	41.0	110
25	0.6	2.8	2.2	1.6	9.3	29.4	46.7	13.6	35.5	41.2	110
26	0.6	2.8	2.2	1.8	10.0	29.4	47.8	14.9	35.8	42.4	115
27	0.6	3.0	2.7	1.8	10.0	29.4	48.5	14.9	36.5	42.4	115
28	0.6	3.0	2.7	1.8	10.0	29.4	48.5	15.8	36.6	42.4	115
29	0.7	3.0	3.0	2.2	12.2	29.4	49.4	15.8	37.3	46.0	115
30	0.7	3.0	3.2	2.2	12.4	29.4	50.8	16.0	41.2	46.0	115

0.2	0.2	0.3	0.3	0.3
0.4	0.4	0.4	0.4	0.4
0.4	0.4	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.6	0.6
0.6	0.6	0.6	0.7	0.7

1	1.4	1.4	1.8	1.8
1.8	2	2	2	2
2.2	2.2	2.2	2.2	2.5
2.5	2.5	2.5	2.6	2.6
2.6	2.8	2.8	2.8	2.8
2.8	3.0	3.0	3.0	3

0.8	0.8	1	1.4	1.4
1.4	1.8	1.8	1.9	1.9
2	2	2	2	2
2	2	2.1	2.1	2.1
2.1	2.1	2.1	2.2	2.2
2.2	2.7	2.7	3.0	3.2

0.6	0.8	1	1	1
1	1	1	1.2	1.2
1.2	1.2	1.2	1.4	1.4
1.4	1.4	1.4	1.6	1.6
1.6	1.6	1.6	1.6	1.6
1.8	1.8	1.8	2.2	2.2

6	6	6.7	6.7	6.7
7.0	7	7	7.5	7.5
7.5	7.5	7.5	7.5	7.5
8	8	8.5	8.5	8.5
8.5	8.5	8.5	9.3	9.3
10	10	10	12.2	12.4

27	27	27.5	27.5	27.5
27.8	28	28	28	28.2
28.2	28.2	28.4	28.4	28.4
28.5	28.5	29	29.0	29
29	29	29	29	29.4
29.4	29.4	29.4	29.4	29.4

30.1	30.1	30.1	30.5	35.7
36.9	37.2	37.7	37.9	38.8
39.3	41.0	42.5	42.7	43.6
43.7	43.8	43.9	44.0	44.6

45.4	45.9	46.3	46.5	46.7
47.8	48.5	48.5	49.4	50.8

10.8	10.8	11	11	11
12.2	12.2	12.2	12.5	12.5
12.5	12.5	12.8	12.8	13
13	13	13.3	13.3	13.3
13.3	13.6	13.6	13.6	13.6
14.9	14.9	15.8	15.8	16.0

19.6	19.6	22	23.6	26.9
28.6	29.4	29.5	30.5	30.8
31.5	31.8	32.0	32.0	32.4
33.0	33.0	33.8	34.0	34.6
34.7	35.0	35.4	35.4	35.5
35.8	36.5	36.6	37.3	41.2

32.0	32.6	33.0	33.0	34.4
35.5	36.0	36.5	36.5	36.6
37.0	37.2	37.3	37.4	37.5
37.6	37.8	38.0	38.9	39.2
39.4	39.8	39.9	41.0	41.2
42.4	42.4	42.4	46.0	46.0

Tabel Data Mentah Anthropometri

Di bawah ini adalah data anthropometri yang diperoleh dari 100 responden. Data ini diurutkan dari nilai terkecil hingga terbesar

No	TDT	TBD	TMD	TSD	TP	TPO	PPO	PKL	LP	LB	LS	PS
1	78.00	41.90	66.90	13.80	7.50	33.50	35.50	41.80	29.00	27.70	11.00	32.50
2	78.50	45.80	67.50	14.20	8.10	34.20	38.00	45.70	29.00	28.00	12.00	33.00
3	79.00	49.60	67.50	15.20	8.30	34.50	38.50	48.80	30.00	28.40	12.50	35.00
4	79.00	51.00	67.80	16.00	9.00	35.80	39.70	49.30	30.10	33.40	12.50	35.00
5	79.50	51.50	68.80	16.40	9.40	36.70	39.80	50.40	30.40	33.70	13.50	36.00
6	79.50	51.80	68.80	17.00	9.50	36.90	40.00	50.50	30.50	34.00	13.50	36.00
7	79.70	52.00	68.90	17.50	9.80	37.00	40.00	50.50	30.50	34.50	14.00	37.00
8	79.70	52.50	70.20	18.00	10.00	37.00	41.50	51.00	31.00	34.70	14.00	37.00
9	80.00	52.60	70.20	18.00	10.00	37.00	42.00	51.30	31.00	35.00	14.00	37.00
10	80.30	52.80	70.30	18.00	10.10	37.40	42.00	52.00	31.50	35.20	14.50	37.50
11	80.30	52.90	70.50	18.00	10.10	37.50	42.00	52.00	32.00	35.30	14.50	38.00
12	80.40	53.00	70.60	18.30	10.50	37.50	42.00	52.00	32.00	35.40	14.80	38.00
13	80.50	53.00	70.90	18.30	10.70	37.70	42.00	52.00	32.00	35.50	15.00	38.00
14	80.50	53.00	70.90	18.50	10.80	38.00	42.10	52.00	32.00	35.70	15.00	38.10
15	80.50	53.10	71.00	18.70	10.80	38.00	42.20	52.50	32.00	35.70	15.00	38.40
16	80.50	53.10	71.00	18.70	11.00	38.10	42.20	52.50	32.00	35.90	15.00	39.00
17	80.60	53.50	71.10	19.20	11.00	38.10	42.50	53.10	32.00	36.00	15.00	39.00
18	80.60	53.60	71.30	19.50	11.10	38.30	42.60	53.10	32.10	36.00	15.00	39.00
19	80.80	53.60	71.50	19.50	11.20	38.50	42.80	53.30	32.30	36.50	15.00	40.00
20	81.00	54.00	71.80	19.60	11.20	38.60	43.00	53.50	32.50	36.50	15.00	40.00
21	81.00	54.00	71.90	19.60	11.50	38.60	43.00	53.80	32.50	36.70	15.50	40.00
22	81.00	54.00	72.30	19.80	11.50	38.80	43.00	54.00	32.50	36.90	15.50	40.00
23	81.00	54.00	72.40	20.00	11.50	39.00	43.00	54.00	32.50	37.00	15.50	40.00
24	81.20	54.20	72.50	20.00	11.70	39.00	43.00	54.00	32.80	37.00	15.50	40.00
25	82.00	54.30	73.00	20.00	12.00	39.50	43.10	54.00	33.00	37.00	16.00	40.00
26	82.00	54.40	73.00	20.20	12.00	39.50	43.50	54.00	33.00	37.10	16.00	40.50
27	82.30	54.70	73.00	20.30	12.00	39.50	43.50	54.50	33.00	37.50	16.00	41.00
28	82.40	55.00	73.00	20.40	12.00	39.60	43.60	54.50	33.00	37.50	16.00	41.00
29	82.50	55.00	73.20	21.00	12.00	39.80	43.80	54.50	33.00	38.00	16.00	41.00
30	82.50	55.00	73.30	21.00	12.00	39.90	44.00	54.60	33.00	38.00	16.00	41.00
31	82.50	55.00	73.40	21.00	12.00	40.00	44.00	54.70	33.00	38.00	16.00	41.00
32	82.60	55.00	73.40	21.00	12.00	40.00	44.00	55.00	33.00	38.00	16.00	41.00
33	82.60	55.00	73.60	21.00	12.20	40.00	44.00	55.00	33.00	38.00	16.50	41.60
34	82.60	56.00	73.60	21.00	12.40	40.20	44.00	55.00	33.20	38.00	16.50	42.00
35	83.00	56.00	73.70	21.00	12.50	40.20	44.00	55.00	33.30	38.50	17.00	42.00
36	83.00	56.00	73.80	21.20	12.50	40.30	44.00	55.00	33.40	39.00	17.00	42.00
37	83.40	56.40	74.00	21.40	12.50	40.40	44.00	55.40	34.00	39.00	17.00	42.00
38	83.60	56.50	74.20	21.50	12.50	40.50	44.30	55.50	34.00	39.00	17.00	42.00
39	84.00	56.50	74.20	21.90	12.50	40.50	44.40	55.90	34.00	39.20	17.00	42.00
40	84.00	56.50	74.20	22.00	12.50	40.50	44.50	56.00	34.00	39.30	17.00	42.00
41	84.00	56.50	74.20	22.00	12.50	40.50	44.50	56.00	34.00	39.40	17.00	42.30
42	84.00	56.50	74.40	22.00	12.60	40.50	44.60	56.00	34.00	39.50	17.00	42.70
43	84.00	56.70	74.60	22.00	12.60	40.80	45.00	56.00	34.00	39.50	17.00	43.00
44	84.00	57.00	74.80	22.00	12.60	41.00	45.00	56.10	34.00	39.50	17.00	43.00
45	84.10	57.00	74.80	22.00	12.70	41.00	45.00	56.30	34.00	40.00	17.00	43.00
46	84.20	57.00	74.80	22.00	12.80	41.00	45.00	56.50	34.00	40.00	17.00	43.00
47	84.30	57.00	74.90	22.30	12.80	41.00	45.00	56.50	34.00	40.00	17.00	43.00
48	84.60	57.00	75.00	22.40	13.00	41.00	45.00	56.50	34.00	40.00	17.00	43.00
49	84.80	57.00	75.00	22.50	13.00	41.00	45.00	56.80	34.10	40.00	17.30	43.00

50	85.20	57.30	75.20	22.50	13.00	41.10	45.00	57.00	34.30	40.00	18.00	43.00
51	85.20	57.40	75.20	23.00	13.00	41.20	45.00	57.00	34.30	40.20	18.00	44.00
52	85.40	57.50	75.20	23.00	13.00	41.30	45.00	57.00	34.40	40.20	18.00	44.50
53	85.50	57.50	75.60	23.00	13.00	41.50	45.20	57.00	34.50	40.30	18.00	45.00
54	86.00	57.50	75.90	23.00	13.00	42.00	45.50	57.10	34.50	40.40	18.00	45.00
55	86.00	57.60	76.00	23.00	13.00	42.00	45.50	57.30	34.50	40.50	18.00	45.00
56	86.00	57.70	76.50	23.00	13.00	42.00	45.50	57.30	34.50	40.50	18.00	46.00
57	86.00	58.00	76.80	23.00	13.20	42.00	45.50	57.40	34.50	41.00	18.00	46.00
58	86.20	58.00	76.80	23.00	13.30	42.00	45.50	57.70	34.50	41.10	18.00	46.00
59	86.40	58.00	76.90	23.20	13.30	42.20	45.50	57.70	34.60	41.10	18.50	46.00
60	86.50	58.00	77.00	23.40	13.50	42.20	46.00	58.00	35.00	41.20	18.50	46.00
61	86.50	58.20	77.20	23.40	13.50	42.20	46.00	58.00	35.00	41.30	19.00	46.00
62	86.50	58.50	77.30	23.80	13.70	42.20	46.00	58.00	35.00	42.00	19.00	46.00
63	86.50	58.50	77.50	24.00	14.00	42.20	46.00	58.00	35.00	42.00	19.00	46.00
64	86.60	58.50	77.50	24.00	14.00	42.30	46.00	58.40	35.00	42.00	19.00	47.00
65	87.00	58.60	77.80	24.00	14.00	42.40	46.00	58.50	35.00	42.00	19.00	47.00
66	87.00	58.60	77.80	24.00	14.00	42.50	46.00	58.50	35.00	42.00	19.00	47.50
67	87.40	59.00	78.00	24.00	14.00	42.70	46.00	58.50	35.00	42.20	19.00	48.00
68	87.50	59.00	78.00	24.00	14.00	42.70	46.00	58.60	35.20	42.20	19.00	48.00
69	87.50	59.70	78.30	24.00	14.00	43.00	46.10	59.00	35.20	42.40	19.00	48.00
70	88.00	60.00	78.30	24.20	14.00	43.00	46.30	59.00	35.50	42.50	19.00	48.00
71	88.00	60.20	78.40	24.50	14.10	43.00	46.40	59.00	35.50	42.50	19.00	48.50
72	88.00	60.40	78.40	24.50	14.10	43.30	46.50	59.00	35.50	42.50	19.50	48.50
73	88.00	60.70	78.90	24.50	14.10	43.50	46.80	59.00	35.70	42.50	19.50	48.70
74	88.50	61.00	79.00	24.50	14.30	43.80	46.80	59.00	36.00	42.70	19.50	48.90
75	88.50	61.00	79.00	25.00	14.40	43.90	47.00	59.00	36.00	42.80	19.50	49.00
76	89.00	61.00	79.00	25.00	14.50	44.00	47.00	59.00	36.00	43.00	19.50	49.00
77	89.00	61.30	79.00	25.00	14.50	44.00	47.00	59.20	36.00	43.00	20.00	49.00
78	89.00	61.30	79.00	25.00	14.50	44.00	47.30	59.30	36.00	43.00	20.00	49.00
79	89.00	61.50	79.00	25.00	14.80	44.00	47.30	59.30	36.00	43.00	20.00	49.70
80	89.00	62.00	79.10	25.00	15.00	44.00	47.50	59.90	36.00	43.00	20.00	50.00
81	89.10	62.00	79.30	25.00	15.10	44.00	47.50	60.00	36.30	43.20	20.00	50.00
82	89.50	62.00	79.30	25.00	15.30	44.00	47.50	60.00	36.50	43.50	20.00	50.00
83	90.00	62.00	79.40	25.20	15.40	44.20	47.70	60.20	36.80	43.50	20.00	50.50
84	90.00	62.10	79.40	25.50	15.60	44.30	47.70	60.50	37.00	44.00	20.50	50.50
85	90.10	62.10	79.80	26.00	15.80	45.00	47.80	60.50	37.00	44.00	21.00	51.00
86	90.30	62.50	80.00	26.00	16.00	45.00	47.90	61.00	37.00	44.00	21.00	51.00
87	90.50	62.50	80.10	26.00	16.40	45.00	48.00	61.00	37.00	44.50	21.00	51.00
88	90.70	63.00	80.20	26.00	16.40	45.10	48.00	61.00	37.00	44.70	21.00	51.30
89	91.00	64.00	80.50	26.50	16.50	46.00	48.00	61.30	37.00	45.00	21.00	52.00
90	91.00	64.00	80.50	27.00	16.60	46.00	48.30	61.60	37.00	45.00	21.00	52.00
91	91.20	64.30	81.00	27.00	17.30	46.00	48.30	61.80	37.50	46.00	21.00	52.90
92	91.50	64.50	81.00	27.00	17.50	47.00	48.50	62.00	37.50	46.00	21.50	53.00
93	92.50	64.80	81.10	27.20	17.70	47.50	48.50	62.00	37.50	47.00	22.00	53.00
94	92.50	65.00	81.80	27.40	18.00	47.60	48.50	62.50	37.50	47.00	22.00	53.00
95	92.60	65.00	82.50	28.00	18.50	48.00	48.80	62.50	38.00	48.00	22.00	55.00
96	94.50	66.00	82.60	28.00	18.50	48.00	49.00	63.00	38.00	48.00	22.00	56.00
97	95.00	66.90	82.90	28.60	19.00	48.30	49.00	63.00	39.40	48.00	23.50	56.50
98	95.00	67.00	83.10	30.00	19.00	48.30	49.00	63.00	39.50	49.00	25.00	57.30
99	95.50	67.00	83.30	30.00	19.40	48.70	49.00	63.20	42.10	49.00	27.00	58.00
##	96.00	67.50	85.40	31.00	23.00	51.00	49.50	63.50	42.30	49.00	28.50	59.00

Gambar Responden pada Sudut Kemiringan Sandaran Kursi 90^{o}

Gambar Responden pada Sudut Kemiringan Sandaran Kursi 95^{o}

Gambar Responden pada Sudut Kemiringan Sandaran Kursi 100^{o}

Gambar Responden pada Sudut Kemiringan Sandaran Kursi 105^{o}

Gambar Responden pada Sudut Kemiringan Sandaran Kursi 110^{o}

Gambar Responden pada Sudut Kemiringan Sandaran Kursi 115^{o}

Kuesioner Penelitian Tugas Akhir

Teman-teman sekalian, saya Susy Susylawati (0023006) ingin meminta sedikit waktu anda untuk mengisi jawaban dari pertanyaan-pertanyaan ini. Jawaban dari pertanyaan ini akan menjadi suatu dasar yang berguna bagi penelitian tugas akhir saya. Adapun penelitian yang saya lakukan mengenai "Perancangan Kursi Kuliah Ergonomis Yang memberikan Kenyamanan Dari segi Konsumsi Energi".

Mohon teman-teman menjawab pertanyaan ini dengan jujur. Atas kesediaannya, saya ucapkan terimakasih.

Nama :

Fakultas :

Jurusan :

NRP :

<u>Kursi kuliah yang akan digunakan dalam penelitian ini :</u>

1. Menurut Anda, apakah kursi kuliah yang digunakan di Universitas Kristen Maranatha sudah memberikan kenyamanan ?

   *nyaman : tidak menimbulkan rasa pegal atau sakit pada anggota tubuh yang bersangkutan

   a. Ya b. Tidak
2. Menurut Anda, sandaran tangan sudah nyaman ?

   a. Ya b. Tidak
3. Menurut Anda, sandaran punggung sudah nyaman ?

   a. Ya b. Tidak
4. Menurut Anda, ukuran meja sudah tepat ?

   a. Ya b. Tidak

5. Menurut Anda, ketinggian kursi sudah tepat ?

   a. Ya b. Tidak

6. Menurut Anda, ukuran alas duduk sudah tepat ?

   a. Ya b. Tidak

7. Menurut Anda, tinggi alas duduk dari lantai sudah tepat ?

   a. Ya b. Tidak

8. Menurut Anda, apakah diperlukan bantalan alas kursi pada kursi kuliah ?

   a. Ya b. Tidak

9. Menurut Anda, apakah diperlukan rak penyimpanan tas pada kursi kuliah ?

   a. Ya b. Tidak

10. Berikut ini merupakan keluhan yang ditemui dalam menggunakan kursi kuliah. Berikan pendapat dengan menjawab salah satu dari pilihan berikut : sering, kadang-kadang atau tidak pernah ?

    Keterangan :

    - Tidak pernah adalah responden tidak pernah satu kali pun mengalami kesulitan
    - Kadang-kadang adalah responden pernah mengalami kesulitan ini, namun sepanjang menggunakan kursi kuliah ini, frekuensi munculnya kesulitan ini tidak banyak
    - Sering adalah responden mengalami kesulitan ini dengan frekuensi yang tinggi atau hampir setiap kali menggunkan kursi kuliah, kesulitan ini selalu muncul

    a. Punggung terasa sakit atau pegal pada waktu duduk di kursi kuliah ?

       B. Sering
       C. Kadang-kadang
       D. Tidak pernah

    b. Pinggang terasa nyeri atau sakit atau pegal pada waktu duduk di kursi kuliah ?

       A. Sering
       B. Kadang-kadang
       C. Tidak pernah

c. Pantat terasa pegal atau sakit pada waktu duduk di kursi kuliah ?
   A. Sering
   B. Kadang-kadang
   C. Tidak pernah

d. Menurut anda, keluhan-keluhan lain (selain keluhan di atas) yang ditemui dalam menggunakan kursi kuliah adalah……...
   ……
   ……

11. Kursi kuliah terdiri dari berbagai bagian, seperti : sudut kemiringan sandaran kursi, lebar sandaran kursi, tinggi sandaran kursi dan panjang alas duduk. Bagian-bagian apa saja yang perlu diperbaiki untuk mengurangi keluhan-keluhan yang ditemui pada waktu menggunakan kursi kuliah……
    …….

    …….

Rekapitulasi Konsumsi Energi (kkal/mnt) dari 30 Responden

Resp/Sudut	90	95	100	105	110	115	Sudut terbaik
1	0.653	0.315	0.251	**0.136**	0.237	0.195	105
2	0.469	0.597	**0.142**	0.099	0.188	0.199	100
3	0.345	0.139	**0.090**	0.276	0.134	0.199	100
4	0.242	0.242	0.195	**0.134**	0.287	0.207	105
5	0.256	0.207	0.321	**0.045**	0.148	0.227	105
6	0.122	0.120	0.191	**0.038**	0.075	0.176	105
7	0.203	0.214	**0.098**	0.188	0.232	0.310	100
8	0.591	**0.173**	0.194	0.225	0.529	0.452	95
9	0.573	0.210	**0.096**	0.371	0.298	0.188	100
10	0.670	1.053	0.479	**0.199**	0.223	0.443	105
11	0.345	0.214	0.265	**0.052**	0.327	0.526	105
12	0.422	0.418	0.403	**0.099**	0.237	0.210	105
13	0.620	0.443	0.665	**0.207**	0.435	0.293	105
14	0.195	0.352	0.591	**0.044**	0.188	0.145	105
15	0.726	0.276	**0.237**	0.383	0.486	0.310	100
16	0.134	0.315	**0.050**	0.532	0.199	0.134	100
17	0.203	0.870	0.207	**0.099**	0.153	0.511	105
18	0.428	0.315	0.360	**0.122**	0.617	0.246	105
19	0.564	0.266	0.480	**0.084**	0.165	0.555	105
20	0.563	0.180	0.134	**0.088**	0.128	0.131	105
21	0.199	0.207	0.261	0.428	**0.103**	0.436	110
22	0.251	**0.153**	0.207	0.304	0.191	0.256	95
23	0.654	0.579	0.385	**0.042**	0.225	0.194	105
24	0.443	0.256	0.227	**0.203**	0.227	0.232	105
25	0.615	0.203	**0.098**	0.426	0.305	0.176	100
26	0.169	0.204	**0.042**	0.237	0.169	0.081	100
27	0.518	0.259	**0.209**	0.219	0.279	0.285	100
28	0.443	0.654	**0.265**	0.352	0.298	0.310	100
29	0.199	0.287	**0.148**	0.304	0.358	0.516	100
30	0.421	0.352	**0.103**	0.191	0.148	0.242	100
Total	12.234	10.070	7.392	6.129	7.590	8.385	
Rata-rata	0.408	0.336	0.246	**0.204**	0.253	0.279	
Standar Deviasi	0.188	0.217	0.156	0.134	0.127	0.132	

Perhitungan Persentil

Langkah-langkah cara lengkap :
1. Menghitung rata-rata (μ)
2. Menghitung standar deviasi (σ)
3. Menghitung Z_1dan Z_2

Untuk P5 $\rightarrow Z_1 = -1.645$
P95 $\rightarrow Z_2 = 1.645$

$P5 = \mu + \sigma (Z_1)$

$P50 = \mu$

$P95 = \mu + \sigma (Z_2)$

1. TDT

$\mu = 85.455$

$\sigma = 4.36777397$

$P5 = \mu + \sigma (Z_1)$

$= 85.455 + 4.36777397 (-1.645) = 78.270012$

$P50 = \mu$

$= 85.455$

$P95 = \mu + \sigma (Z_2)$

$= 85.455 + 4.36777397(1.645) = 92.639988$

2. TBD

$\mu = 57.672$

$\sigma = 4.58301828$

$P5 = \mu + \sigma (Z_1)$

$= 57.672 + 4.58301828 (-1.645) = 50.132936$

$P50 = \mu$

$= 57.672$

$P95 = \mu + \sigma (Z_2)$

$= 57.672 + 4.58301828(1.645) = 65.211064$

3. TMD

$\mu = 75.625$

$\mu = 75.625$

$\sigma = 4.09220434$

$P5 = \mu + \sigma\,(Z_1)$

$= 75.625 + 4.09220434\,(-1.645) = 68.893324$

$P50 = \mu$

$= 75.625$

$P95 = \mu + \sigma\,(Z_2)$

$= 75.625 + 4.09220434(1.645) = 82.356676$

4. TSD

$\mu = 22.498$

$\sigma = 3.42728152$

$P5 = \mu + \sigma\,(Z_1)$

$= 22.498 + 3.42728152\,(-1.645) = 16.860122$

$P50 = \mu$

$= 22.498$

$P95 = \mu + \sigma\,(Z_2)$

$= 22.498 + 3.42728152(1.645) = 28.135878$

5. TP

$\mu = 13.313$

$\sigma = 2.63835942$

$P5 = \mu + \sigma\,(Z_1)$

$= 13.313 + 2.63835942\,(-1.645) = 8.972899$

$P50 = \mu$

$= 13.313$

$P95 = \mu + \sigma\,(Z_2)$

$= 13.313 + 2.63835942(1.645) = 17.653101$

6. TPO

$\mu = 41.551$

$\sigma = 3.38930269$

$P5 = \mu + \sigma\,(Z_1)$

$= 41.551 + 3.38930269\,(-1.645) = 35.975598$

$$= 41.551 + 3.38930269\,(-1.645) = 35.975598$$

$$P50 = \mu$$

$$= 41.551$$

$$P95 = \mu + \sigma\,(Z_2)$$

$$= 41.551 + 3.38930269(1.645) = 47.126402$$

7. PPO

$$\mu = 44.949$$

$$\sigma = 2.67062188$$

$$P5 = \mu + \sigma\,(Z_1)$$

$$= 44.949 + 2.67062188\,(-1.645) = 40.555828$$

$$P50 = \mu$$

$$= 44.949$$

$$P95 = \mu + \sigma\,(Z_2)$$

$$= 44.949 + 2.67062188(1.645) = 49.342172$$

8. PKL

$$\mu = 56.587$$

$$\sigma = 3.94253303$$

$$P5 = \mu + \sigma\,(Z_1)$$

$$= 56.587 + 3.94253303\,(-1.645) = 50.101534$$

$$P50 = \mu$$

$$= 56.587$$

$$P95 = \mu + \sigma\,(Z_2)$$

$$= 56.587 + 3.94253303(1.645) = 63.072466$$

9. LP

$$\mu = 34.403$$

$$\sigma = 2.44149544$$

$$P5 = \mu + \sigma\,(Z_1)$$

$$= 34.403 + 2.44149544\,(-1.645) = 30.386741$$

$$P50 = \mu$$

$$= 34.403$$

$$P95 = \mu + \sigma\,(Z_2)$$

$$= 34.403 + 2.44149544(1.645) = 38.419259$$

$P95 = \mu + \sigma(Z_2)$

$= 34.403 + 2.44149544(1.645) = 38.419259$

10. LB

$\mu = 40.132$

$\sigma = 4.30580721$

$P5 = \mu + \sigma(Z_1)$

$= 40.132 + 4.30580721(-1.645) = 33.048948$

$P50 = \mu$

$= 40.132$

$P95 = \mu + \sigma(Z_2)$

$= 40.132 + 4.30580721(1.645) = 47.215052$

11. LS

$\mu = 17.856$

$\sigma = 2.98380545$

$P5 = \mu + \sigma(Z_1)$

$= 17.856 + 2.98380545(-1.645) = 12.947641$

$P50 = \mu$

$= 17.856$

$P95 = \mu + \sigma(Z_2)$

$= 17.856 + 2.98380545(1.645) = 22.764359$

12. PS

$\mu = 44.729$

$\sigma = 5.82908581$

$P5 = \mu + \sigma(Z_1)$

$= 44.729 + 5.82908581(-1.645) = 35.140154$

$P50 = \mu$

$= 44.729$

$P95 = \mu + \sigma(Z_2)$

$= 44.729 + 5.82908581(1.645) = 54.317846$

Perhitungan Persentil

Langkah-langkah cara lengkap :
1. Menghitung rata-rata (μ)
2. Menghitung standar deviasi (σ)
3. Menghitung Z_1 dan Z_2

Untuk P5 $\rightarrow Z_1 = -1.645$
P95 $\rightarrow Z_2 = 1.645$

$P5 = \mu + \sigma (Z_1)$

$P50 = \mu$

$P95 = \mu + \sigma (Z_2)$

1 S_1

$\mu = 0.466667$
$\sigma = 0.126854$

$P5 = \mu + \sigma (Z_1)$
$= 0.466667 + 0.126854 (-1.645) = 0.2579922$

$P50 = \mu$
$= 0.466667$

$P95 = \mu + \sigma (Z_2)$
$= 0.466667 + 0.126854(1.645) = 0.6753418$

2 S_2

$\mu = 2.33$
$\sigma = 0.53$

$P5 = \mu + \sigma (Z_1)$
$= 2.33 + 0.53 (-1.645) = 1.45815$

$P50 = \mu$
$= 2.33$

$P95 = \mu + \sigma (Z_2)$
$= 2.33 + 0.53(1.645) = 3.20185$

S_3

$\mu = 1.966667$

$\sigma = 0.545409$

$$P5 = \mu + \sigma(Z_1)$$
$$= 1.966667 + 0.545409(-1.645) = 1.0694692$$

$$P50 = \mu$$
$$= 1.966667$$

$$P95 = \mu + \sigma(Z_2)$$
$$= 1.966667 + 0.545409(1.645) = 2.8638648$$

4 S_4

$\mu = 1.38$

$\sigma = 0.380018$

$$P5 = \mu + \sigma(Z_1)$$
$$= 1.38 + 0.380018(-1.645) = 0.7548704$$

$$P50 = \mu$$
$$= 1.38$$

$$P95 = \mu + \sigma(Z_2)$$
$$= 1.38 + 0.380018(1.645) = 2.0051296$$

5 α

$\mu = 8.19$

$\sigma = 1.56$

$$P5 = \mu + \sigma(Z_1)$$
$$= 8.19 + 1.56(-1.645) = 5.6238$$

$$P50 = \mu$$
$$= 8.19$$

$$P95 = \mu + \sigma(Z_2)$$
$$= 8.19 + 1.56(1.645) = 10.7562$$

6

$\mu = 28.48$
$\sigma = 0.73$

$P5 = \mu + \sigma\,(Z_1)$
$= 28.48 + 0.73\,(-1.645) = 27.27915$

$P50 = \mu$
$= 28.48$

$P95 = \mu + \sigma\,(Z_2)$
$= 28.48 + 0.73(1.645) = 29.68085$

7 X

$\mu = 41.66333$
$\sigma = 6.040066$

$P5 = \mu + \sigma\,(Z_1)$
$= 41.66333 + 6.040066\,(-1.645) = 31.727422$

$P50 = \mu$
$= 41.66333$

$P95 = \mu + \sigma\,(Z_2)$
$= 41.66333 + 6.040066(1.645) = 51.599238$

8 Y

$\mu = 13.03$
$\sigma = 1.42$

$P5 = \mu + \sigma\,(Z_1)$
$= 13.03 + 1.42\,(-1.645) = 10.6941$

$P50 = \mu$
$= 13.03$

$P95 = \mu + \sigma\,(Z_2)$
$= 13.03 + 1.42(1.645) = 15.3659$

9

$\sigma = 5.142476$

$$P5 = \mu + \sigma\,(Z_1)$$
$$= 31.73333 + 5.142476\,(-1.645) = 23.273957$$

$$P50 = \mu$$
$$= 31.73333$$

$$P95 = \mu + \sigma\,(Z_2)$$
$$= 31.73333 + 5.142476(1.645) = 40.192703$$

10 Q

$\mu = 38.15$
$\sigma = 3.540285$

$$P5 = \mu + \sigma\,(Z_1)$$
$$= 38.15 + 3.540285\,(-1.645) = 32.326232$$

$$P50 = \mu$$
$$= 38.15$$

$$P95 = \mu + \sigma\,(Z_2)$$
$$= 38.15 + 3.540285(1.645) = 43.973768$$

Uji Kecukupan Data (Tinggi Duduk Tegak/TDT)

Tingkat kepercayaan = 95%
Tingkat ketelitian = 10%
N = 100

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

$$= \left[\frac{{}^{2}\!/\!_{0.1} \sqrt{100\left(78^2 + 78.5^2 + 79^2 + \ldots + 95^2 + 95.5^2 + 96^2\right) - \left(78 + 78.5 + 79 + \ldots + 95 + 95.5 + 96\right)^2}}{78 + 78.5 + 79 + \ldots + 95 + 95.5 + 96} \right]^2$$

$$= 1.034524$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data (Tinggi Bahu Duduk/TBD)

Tingkat kepercayaan = 95%
Tingkat ketelitian = 10%
N = 100

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

$$= \left[\frac{{}^{2}\!/\!_{0.1} \sqrt{100\left(41.9^2 + 45.8^2 + 49.6^2 + \ldots + 67^2 + 67^2 + 67.5^2\right) - \left(41.9 + 45.8 + 49.6 + \ldots + 67 + 67}}{41.9 + 45.8 + 49.6 + \ldots + 67 + 67 + 67.5} \right]$$

$$= 2.5007388$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data (Tinggi Mata Duduk/TMD)

Tingkat kepercayaan = 95%
Ketelitian = 10%
N = 100

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

$$= \left[\frac{{}^{2}\!/\!_{0.1} \sqrt{100\left(66.90^2 + 67.50^2 + 67.50^2 + ... + 83.10^2 + 83.30^2 + 85.40^2\right) - \left(66.90 + 67.50 + 67.50 + ... + 83.10\right.}}{66.90 + 67.50 + 67.50 + ... + 83.10 + 83.30 + 85.40} \right]$$

$$= 1.1595221$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data (Tinggi Siku Duduk/TSD)

Tingkat kepercayaan = 95%
Tingkat ketelitian = 10%
N = 100

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

$$= \left[\frac{{}^{2}\!/\!_{0.1} \sqrt{100\left(13.8^2 + 14.2^2 + 15.2^2 + ... + 30^2 + 30^2 + 31^2\right) - \left(13.8 + 14.2 + 15.2 + ... + 30 + 30 + 31\right)^2}}{13.8 + 14.2 + 15.2 + ... + 30 + 30 + 31} \right]^2$$

$$= 9.1898182$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data (Tebal Paha/TP)

Tingkat kepercayaan = 95%
Tingkat ketelitian = 10%
N = 100

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

$$= \left[\frac{{}^{2}\!/_{0.1} \sqrt{100\left(7.5^2 + 8.1^2 + 8.3^2 + ... + 19^2 + 19.4^2 + 23^2\right) - \left(7.5 + 8.1 + 8.3 + ... + 19 + 19.4 + 23\right)^2}}{7.5 + 8.1 + 8.3 + ... + 19 + 19.4 + 23} \right]^2$$

$$= 15.552895$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data (Tinggi Popliteal/TPO)

Tingkat kepercayaan = 95%
Tingkat ketelitian = 10%
N = 100

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

$$\left[{}^{2}\!/ \sqrt{100\left(33.5^2 + 34.2^2 + 34.5^2 + \quad + 48.3^2 + 48.7^2 + 51^2\right) - \left(33.5 + 34.2 + 34.5 + \quad + 48.3 + 48.7 + 51\right)^2} \right.$$

$$= \left\lfloor \frac{2/0.1\sqrt{100\left(33.5^2+34.2^2+34.5^2+...+48.3^2+48.7^2+51^2\right)-\left(33.5+34.2+34.5+...+48.3+48.7+51\right)^2}}{33.5+34.2+34.5+...+48.3+48.7+51} \right\rfloor$$

$$= 2.6348321$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data (Pantat Popliteal/PPO)

Tingkat kepercayaan = 95%
Tingkat ketelitian = 10%
N = 100

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

$$= \left\lfloor \frac{2/0.1\sqrt{100\left(35.50^2+38^2+38.50^2+...+49^2+49^2+49.50^2\right)-\left(35.50+38+38.50+...+49+49+49.50\right)^2}}{35.50+38+38.50+...+49+49+49.50} \right\rfloor$$

$$= 1.3979123$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data (Pantat ke Lutut/PKL)

Tingkat kepercayaan = 95%
Tingkat ketelitian = 10%
N = 100

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

$$= \left[\frac{{}^{2}/_{0.1} \sqrt{100\left(41.80^2 + 45.70^2 + 48.80^2 + ... + 63^2 + 63.20^2 + 63.50^2\right) - \left(41.80 + 45.70 + 48.80 + ... + 63 + 63.\right.}}{41.80 + 45.70 + 48.80 + ... + 63 + 63.20 + 63.50} \right.$$

$$= 1.9222618$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data (Lebar Pinggul/LP)

Tingkat kepercayaan = 95%
Tingkat ketelitian = 10%
N = 100

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

$$= \left[\frac{{}^{2}/_{0.1} \sqrt{100\left(29^2 + 29^2 + 30^2 + ... + 39.50^2 + 42.10^2 + 42.30^2\right) - \left(29 + 29 + 30 + ... + 39.50 + 42.10 + 42.30\right)^2}}{29 + 29 + 30 + ... + 39.50 + 42.10 + 42.30} \right.$$

$$= 1.9944098$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data (Lebar Bahu/LB)

Tingkat kepercayaan = 95%
Tingkat ketelitian = 10%
N = 100

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

$$= \left[\frac{{}^{2}\!/\!_{0.1} \sqrt{100\left(27.70^2 + 28^2 + 28.40^2 + ... + 49^2 + 49^2 + 49^2\right) - \left(27.70 + 28 + 28.40 + ... + 49 + 49 + 49\right)^2}}{27.70 + 28 + 28.40 + ... + 49 + 49 + 49} \right]^2$$

$$= 4.5585082$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data (Lebar Sandaran/LS)

Tingkat kepercayaan = 95%
Tingkat ketelitian = 10%
N = 100

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

$$= \left[\frac{{}^{2}\!/\!_{0.1} \sqrt{100\left(11^2 + 12^2 + 12.5^2 + ... + 25^2 + 27^2 + 28.5^2\right) - \left(11 + 12 + 12.5 + ... + 25 + 27 + 28.5\right)^2}}{11 + 12 + 12.5 + ... + 25 + 27 + 28.5} \right]^2$$

$$= 11.057777$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data (Panjang Sandaran/PS)

Tingkat kepercayaan = 95%
Tingkat ketelitian = 10%
N = 100

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

$$= \left[\frac{2/0.1 \sqrt{100\left(32.5^2 + 33^2 + 35^2 + ... + 57.3^2 + 58^2 + 59^2\right) - \left(32.5 + 33 + 35 + ... + 57.3 + 58 + 59\right)^2}}{32.5 + 33 + 35 + ... + 57.3 + 58 + 59} \right]^2$$

$$= 6.7253936$$

N' < N maka data yang diambil sudah cukup

$$\left[\frac{}{5+96)^2}\right]^2$$

$$\left[\frac{}{...+67+67+67.5)^2}\right]^2$$

$$\left[\frac{}{50+...+83.10+83.30+85.40)^2}\right]^2$$

$$\left[\frac{}{31)^2}\right]^2$$

$$\left.\right]^2$$

$$\left.\overline{+48.7+51)^2}\right]^2$$

$$\left[\frac{}{+48.7+51)^2}\right]^2$$

$$\left[\frac{}{\cdot 49+49.50)^2}\right]^2$$

$$\left[\frac{}{+...+63+63.20+63.50)^2}\right]^2$$

$$\left[\frac{}{.10+42.30)^2}\right]^2$$

$$\left[\frac{}{(+49)^2}\right]^2$$

$$\left[\right]^2$$

Uji Kecukupan Data S_1
Tingkat kepercayaan = 95%
Ketelitian = 10%
N = 30

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

$$= \left[\frac{{}^{2}\!/\!_{0.1} \sqrt{30\left(0.2^2 + 0.2^2 + 0.3^2 + \ldots + 0.6^2 + 0.7^2 + 0.7^2\right) - \left(0.2 + 0.2 + 0.3 + \ldots + 0.6 + 0.7 + 0.7\right.}}{0.2 + 0.2 + 0.3 + \ldots + 0.6 + 0.7 + 0.7} \right.$$

$$= 28.57143$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data S_2
Tingkat kepercayaan = 95%
Ketelitian = 10%
N = 30

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

$$= \left[\frac{{}^{2}\!/\!_{0.1} \sqrt{30\left(1.0^2 + 1.4^2 + 1.4^2 + \ldots + 3.0^2 + 3.0^2 + 3.0^2\right) - \left(1.0 + 1.4 + 1.4 + \ldots + 3.0 + 3.0 + 3.0\right)^2}}{1.0 + 1.4 + 1.4 + \ldots + 3.0 + 3.0 + 3.0} \right]^2$$

$$= 19.89803$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data S_3
Tingkat kepercayaan = 95%
Ketelitian = 10%
N = 30

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

$$= \left[\frac{{}^{2}\!/\!_{0.1} \sqrt{30\left(0.8^2 + 0.8^2 + 1^2 + \ldots + 2.7^2 + 3^2 + 3.2^2\right) - \left(0.8 + 0.8 + 1 + \ldots + 2.7 + 3 + 3.2\right)^2}}{0.8 + 0.8 + 1 + \ldots + 2.7 + 3 + 3.2} \right]^2$$

$$= 29.73858$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data
Tingkat kepercayaan = 95%
Ketelitian = 10%
N = 30

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

$$= \left[\frac{{}^{2}\!/\!_{0.1} \sqrt{30\left(0.6^2 + 0.8^2 + 1^2 + ... + 1.8^2 + 2.2^2 + 2.2^2\right) - \left(0.6 + 0.8 + 1 + ... + 1.8 + 2.2 + 2.2\right)^2}}{0.6 + 0.8 + 1 + ... + 1.8 + 2.2 + 2.2} \right]^2$$

$$= 29.32157$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data α

Tingkat kepercayaan = 95%

Ketelitian = 10%

N = 30

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

$$= \left[\frac{{}^{2}\!/\!_{0.1} \sqrt{30\left(6.7^2 + 6.7^2 + 6.7^2 + ... + 7.0^2 + 12.2^2 + 12.4^2\right) - \left(6.7 + 6.7 + 6.7 + ... + 7.0 + 12.2 + 12.4\right)^2}}{6.7 + 6.7 + 6.7 + ... + 7.0 + 12.2 + 12.4} \right]^2$$

$$= 14.01816$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data β

Tingkat kepercayaan = 95%

Ketelitian = 10%

N = 30

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

$$= \left[\frac{{}^{2}\!/\!_{0.1} \sqrt{30\left(27.0^2 + 27.0^2 + 27.5^2 + ... + 29.4^2 + 29.4^2 + 29.4^2\right) - \left(27.0 + 27.0 + 27.5 + ... + 29.4 + 29.4 + \right.}}{27.0 + 27.0 + 27.5 + ... + 29.4 + 29.4 + 29.4} \right]^2$$

$$= 0.257063$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data X

Tingkat kepercayaan = 95%

Ketelitian = 10%

N = 30

$$= \left[\frac{{}^{2}/_{0.1}\sqrt{30\left(30.1^2+30.1^2+30.1^2+\ldots+48.5^2+49.4^2+50.8^2\right)-\left(30.1+30.1+30.1+\ldots+48.5+49\right.}}{30.1+30.1+30.1+\ldots+48.5+49.4+50.8} \right.$$

$$= 8.126661$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data Y
Tingkat kepercayaan = 95%
Ketelitian = 10%
N = 30

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

$$= \left[\frac{{}^{2}/_{0.1}\sqrt{30\left(10.80^2+10.80^2+11.00^2+\ldots+15.80^2+15.80^2+16.00^2\right)-\left(10.80+10.80+11.00+\ldots+15.80+1\right.}}{10.80+10.80+11.00+\ldots+15.80+15.80+16.00} \right.$$

$$= 4.585403$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data P
Tingkat kepercayaan = 95%
Ketelitian = 10%
N = 30

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

$$= \left[\frac{{}^{2}/_{0.1}\sqrt{30\left(19.6^2+19.6^2+28.6^2+\ldots+36.6^2+37.3^2+41.2^2\right)-\left(19.6+19.6+28.6+\ldots+36.6+37.3+4\right.}}{19.6+19.6+28.6+\ldots+36.6+37.3+41.2} \right.$$

$$= 10.1543$$

N' < N maka data yang diambil sudah cukup

Uji Kecukupan Data Q
Tingkat kepercayaan = 95%
Ketelitian = 10%
N = 30

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

$$= \left[\frac{{}^{2}/_{0.1}\sqrt{30(32^2+32.6^2+33^2+\ldots+42.4^2+46^2+46^2)-(32+32.6+33+\ldots+42.4+46+46)^2}}{32+32.6+33+\ldots+42.4+46+46} \right]^2$$

$$= 3.329846$$

$= 3.329846$

N' < N maka data yang diambil sudah cukup

$$\left[\frac{}{+ 0.7 + 0.7)^2}\right]^2$$

$$\left[\frac{}{3.0)^2}\right]^2$$

$$\left[\frac{\sqrt{\left(\text{?}+2.2\right)^2}}{}\right]^2$$

$$\left[\frac{\sqrt{\left(12.4\right)^2}}{}\right]^2$$

$$\left[\frac{\sqrt{\left(.4+29.4+29.4\right)^2}}{}\right]^2$$

$$\left[\frac{\cdot 48.5+49.4+50.8)^2}{}\right]^2$$

$$\left[\frac{+\ldots+15.80+15.80+16.00)^2}{}\right]^2$$

$$\left[\frac{5+37.3+41.2)^2}{}\right]^2$$

$$\left[\frac{}{}\right]^2$$

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Uji Kenormalan Data (Tinggi Duduk Tegak/TDT)

k = 1 + 3.3 log n
= 1 + 3.3 log 100
= 1 + 6.6 = 7.6 ≈ 8

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{96 - 78}{7.6} = 2.368 \approx 2.37$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	
<78.00	< 77.995	0	- ∞	-1.707964	0	0.043821	4.3821493	12.193805	11	0.1168767
78.00 - 80.36	77.995 - 80.365	11	-1.707964	-1.165353	0.0438215	0.121938	7.8116561			
80.37 - 82.73	80.365 - 82.735	23	-1.165353	-0.622743	0.1219381	0.266727	14.478865	14.478865	23	5.0148785
82.74 - 85.10	82.735 - 85.105	15	-0.622743	-0.080132	0.2667267	0.468066	20.133923	20.133923	15	1.3090923
85.11 - 87.47	85.105 - 87.475	18	-0.080132	0.462478	0.4680659	0.678131	21.006482	21.006482	18	0.4302926
87.48 - 89.84	87.475 - 89.845	15	0.4624781	1.005089	0.6781307	0.842573	16.444216	16.444216	15	0.1268385
89.85 - 92.21	89.845 - 92.215	10	1.0050886	1.547699	0.8425729	0.939153	9.6579704	9.6579704	10	0.0121127
92.22 - 94.58	92.215 - 94.585	4	1.5476991	2.09031	0.9391526	0.981705	4.2552456			
94.59 - 96.95	94.585 - 96.955	4	2.0903096	2.63292	0.9817051	0.995767	1.4062181	6.0847389	8	0.6028566
>96.95	>96.955	0	2.6329201	+ ∞	0.995767	1	0.4232752			
		100								7.6129479

$$\bar{x} = 85.455$$
$$\sigma = 4.36777397$$

$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{77.995 - 85.455}{4.36777397} = -1.70797$$

$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{80.365 - 85.455}{4.36777397} = -1.16535$$

$P(Z_1) = 0.043821$

$P(Z_2) = 0.121938$

p = $P(Z_2) - P(Z_1)$
= 0.121938 - 0.043821= 0.078116

ei = n * p
= 100 * 0.078116 = 7.811649

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$\alpha = 0.05$

$X^2 = 7.612965$

v = k' - r -1 = 7 - 2 - 1 = 4

$$X^2_{(\alpha,v)} = X^2_{(0.05,4)}$$
$$= 9.49$$
$$X^2_{(\alpha,V)} > X^2$$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data (Tinggi Bahu Duduk/TBD)

k = 1 + 3.3 log n
= 1 + 3.3 log 100
= 1 + 6.6 = 7.6 ≈ 8

$$c = \frac{X_{max} - X_{min}}{k}$$

$$= \frac{67.5 - 41.9}{7.6} = 3.368 \approx 3.37$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	
<41.90	< 41.895	0	- ∞	-3.442491	0	0.000288	0.028824			
41.90 - 45.26	41.895 - 45.265	1	-3.442491	-2.707168	0.0002882	0.003393	0.3104807	10.813248	7	1.3447264
45.27 - 48.63	45.265 - 48.635	1	-2.707168	-1.971845	0.003393	0.024314	2.0920556			
48.64 - 52.00	48.635 - 52.005	5	-1.971845	-1.236521	0.0243136	0.108132	8.3818878			
52.01 - 55.37	52.005 - 55.375	26	-1.236521	-0.501198	0.1081325	0.308116	19.998337	19.998337	26	1.8011475
55.38 - 58.74	55.375 - 58.745	33	-0.501198	0.234125	0.3081159	0.592556	28.444021	28.444021	33	0.7297474
58.75 - 62.11	58.745 - 62.115	19	0.2341252	0.969448	0.5925561	0.833839	24.128321	24.128321	19	1.0899918
62.12 - 65.48	62.115 - 65.485	10	0.9694485	1.704772	0.8338393	0.955882	12.204227			
65.49 - 68.85	65.485 - 68.855	5	1.7047717	2.440095	0.9558815	0.992658	3.6776769	16.616074	15	0.1571788
>68.85	>68.855	0	2.440095	+ ∞	0.992658	1	0.7341702			
		100								5.1227919

$$\bar{x} = 57.672$$

$$\sigma = 4.58301828$$

$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$

$$= \frac{41.895 - 57.672}{4.58301828} = -3.44249$$

$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$

$$= \frac{45.265 - 57.672}{4.58301828} = -2.70717$$

$P(Z_1) = 0.000288$

$P(Z_2) = 0.003393$

p = $P(Z_2) - P(Z_1)$
= 0.003393 - 0.000288= 0.00310481

ei = n * p
= 100 * 0.00310481 = 3.10481

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$$\alpha = 0.05$$

$$X^2 = 5.122792$$

v = k' - r -1 = 5 - 2 - 1 = 2

$$X^2_{(\alpha,v)} = X^2_{(0.05,2)}$$

$$= 5.99$$

$$X^2_{(\alpha,V)} > X^2$$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data (Tinggi Mata Duduk/TMD)

k = 1 + 3.3 log n
= 1 + 3.3 log 100
= 1 + 6.6 = 7.6 ≈ 8

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{85.4 - 66.9}{7.6} = 2.434 \approx 2.44$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	
<66.90	< 66.895	0	- ∞	-2.133325	0	0.016449	1.6448997	6.2138236	7	0.0994675
66.90 - 69.33	66.895 - 69.335	7	-2.133325	-1.537069	0.016449	0.062138	4.568924			
69.34 - 71.77	69.335 - 71.775	12	-1.537069	-0.940813	0.0621382	0.1734	11.126203	11.126203	12	0.0686236
71.78 - 74.21	71.775 - 74.215	22	-0.940813	-0.344558	0.1734003	0.365214	19.181329	19.181329	22	0.4141999
74.22 - 76.65	74.215 - 76.655	15	-0.344558	0.251698	0.3652136	0.599363	23.414916	23.414916	15	3.0241756
76.66 - 79.09	76.655 - 79.095	23	0.2516981	0.847954	0.5993627	0.801768	20.240546	20.240546	23	0.3762047
79.10 - 81.53	79.095 - 81.535	14	0.8479537	1.444209	0.8017682	0.92566	12.389173	12.389173	14	0.209438
81.54 - 83.97	81.535 - 83.975	6	1.4442094	2.040465	0.9256599	0.979348	5.3688137	7.4340082	7	0.025338
83.98 - 86.41	83.975 - 86.415	1	2.0404651	2.636721	0.9793481	0.995814	1.6466319			
>86.41	>86.415	0	2.6367207	$+\infty$	0.995814	1	0.4185626			
		100								4.2174472

$$\bar{x} = 75.625$$
$$\sigma = 4.09220434$$
$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{66.895 - 75.625}{4.09220434} = -2.13332$$
$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{69.335 - 75.625}{4.09220434} = -1.53707$$

$P(Z_1)$ =0.016449

$P(Z_2)$ =0.062138

p = $P(Z_2)$ - $P(Z_1)$
= 0.062138 - 0.016449= 0.04568924

ei = n * p
= 100 * 0.04568924 = 4.568924

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$$\alpha = 0.05$$
$$X^2 = 4.2174472$$
v = k' - r -1 = 7 - 2 - 1 = 4
$$X^2_{(\alpha,v)} = X^2_{(0.05,4)}$$
$$= 9.49$$
$$X^2_{(\alpha,V)} > X^2$$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data (Tinggi Siku Duduk/TSD)

k = 1 + 3.3 log n
= 1 + 3.3 log 100
= 1 + 6.6 = 7.6 ≈ 8

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{31 - 13.8}{7.6} = 2.263 \approx 2.27$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	
<13.80	<13.795	0	- ∞	-2.53933	0	0.005553	0.5553267			
13.80 - 16.06	13.795 - 16.065	4	-2.53933	-1.876998	0.0055533	0.030259	2.4705863	11.224695	13	0.2807835
16.07 - 18.33	16.065 - 18.335	9	-1.876998	-1.214665	0.0302591	0.112247	8.1987815			
18.34 - 20.60	18.335 - 20.605	15	-1.214665	-0.552333	0.1122469	0.29036	17.81132	17.81132	15	0.4437359
20.61 - 22.87	20.605 - 22.875	22	-0.552333	0.11	0.2903601	0.543795	25.34351	25.34351	22	0.4411016
22.88 - 25.14	22.875 - 25.145	32	0.1099997	0.772332	0.5437953	0.780041	23.624598	23.624598	32	2.969251
25.15 - 27.41	25.145 - 27.415	12	0.7723322	1.434665	0.7800412	0.924309	14.42674	14.42674	12	0.4082049
27.42 - 29.68	27.415 - 29.685	3	1.4346648	2.096997	0.9243086	0.982003	5.7694526			
29.69 - 31.95	29.685 - 31.955	3	2.0969973	2.75933	0.9820032	0.997104	1.5100786	7.569137	6	0.3252935
>31.95	>31.955	0	2.7593298	$+\infty$	0.997104	1	0.2896059			
		100								4.8683704

=
$\bar{x} = 22.498$
$\sigma = 3.42728152$ =

$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{13.795 - 22.498}{3.42728152} = -1.2.53933$$

$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{16.065 - 22.498}{3.42728152} = -1.877$$

$P(Z_1)$ =0.0055533
$P(Z_2)$ =0.030259
p = $P(Z_2)$ - $P(Z_1)$
= 0.030259 - 0.0055533= 0.02470586
ei = n * p
= 100 * 0.02470586 = 2.470586

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$\alpha = 0.05$
$X^2 = 4.8683704$
v = k' - r -1 = 6 - 2 - 1 = 3
$X^2_{(\alpha,v)} = X^2_{(0.05,3)}$
$= 7.81$
$X^2_{(\alpha,V)} > X^2$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data (Tebal Paha/TP)

k = 1 + 3.3 log n
= 1 + 3.3 log 100
= 1 + 6.6 = 7.6 ≈ 8

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{23 - 7.5}{7.6} = 2.0395 \approx 2.04$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	
<7.50	<7.495	0	- ∞	-2.205158	0	0.013721	1.3721449			
7.50 - 9.53	7.495 - 9.535	6	-2.205158	-1.43195	0.0137214	0.076079	6.2357595	7.6079044	6	0.3398251
9.54 - 11.57	9.535 - 11.575	17	-1.43195	-0.658743	0.076079	0.25503	17.895139	17.895139	17	0.0447761
11.58 - 13.61	11.575 - 13.615	38	-0.658743	0.114465	0.2550304	0.545565	29.053505	29.053505	38	2.7549096
13.62 - 15.65	13.615 - 15.655	22	0.1144651	0.887673	0.5455655	0.812642	26.707618	26.707618	22	0.8297881
15.66 - 17.69	15.655 - 17.695	9	0.8876728	1.660881	0.8126417	0.951631	13.898965			
17.7 - 19.73	17.695 - 19.735	7	1.6608806	2.434088	0.9516313	0.992535	4.0904018			
19.74 - 21.77	19.735 - 21.775	0	2.4340884	3.207296	0.9925353	0.99933	0.6794666	18.735834	17	0.1608212
21.78 - 23.81	21.775 - 23.815	1	3.2072962	3.980504	0.99933	0.999966	0.0635608			
>23.81	>23.815	0	3.9805039	$+\infty$	0.999966	1	0.003440			
		100								4.1301201

$\bar{x} = 13.313$
$\sigma = 2.63835942$

$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{7.495 - 13.313}{2.63835942} = -2.20516$$
$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{9.535 - 13.313}{2.63835942} = -1.43195$$

$P(Z_1) = 0.0137214$
$P(Z_2) = 0.076079$
$p = P(Z_2) - P(Z_1)$
$= 0.076079 - 0.0137214 = 0.0623576$
$ei = n * p$
$= 100 * 0.0623576 = 6.23576$

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$\alpha = 0.05$
$X^2 = 4.1301201$
$v = k' - r - 1 = 5 - 2 - 1 = 2$
$X^2_{(\alpha, v)} = X^2_{(0.05, 2)}$
$= 5.99$
$X^2_{(\alpha, V)} > X^2$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data (Tinggi Popliteal/TPO)

k = 1 + 3.3 log n
= 1 + 3.3 log 100
= 1 + 6.6 = 7.6 ≈ 8

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{51 - 33.5}{7.6} = 2.303 \approx 2.31$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	
<33.50	<33.495	0	$-\infty$	-2.37689	0	0.00873	0.8729632			
33.50 - 35.80	33.495 - 35.805	4	-2.37689	-1.695334	0.0087296	0.045006	3.6276379	15.534439	17	0.1382649
35.81 - 38.11	35.805 - 38.115	13	-1.695334	-1.013778	0.045006	0.155344	11.033838			
38.12 - 40.42	38.115 - 40.425	20	-1.013778	-0.332222	0.1553444	0.369861	21.451659	21.451659	20	0.0982355
40.43 - 42.73	40.425 - 42.735	31	-0.332222	0.349334	0.369861	0.636581	26.671982	26.671982	31	0.7023004
42.74 - 45.04	42.735 - 45.045	19	0.3493344	1.030891	0.6365808	0.848704	21.21231	21.21231	19	0.2307300
45.05 - 47.35	45.045 - 47.355	5	1.0308905	1.712447	0.8487039	0.956593	10.788894			
47.36 - 49.66	47.355 - 49.665	7	1.7124466	2.394003	0.9565928	0.991667	3.5074358	15.12961	13	0.2997591
49.67 - 51.97	49.665 - 51.975	1	2.3940028	3.075559	0.9916672	0.998949	0.7282193			
>51.97	>51.975	0	3.0755589	$+\infty$	0.998949	1	0.105061			
		100								1.4692899

$$= \bar{x} = 41.551$$
$$\sigma = 3.38930269$$
$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{33.495 - 41.551}{3.38930269} = -2.37689$$
$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{35.805 - 41.551}{3.38930269} = -1.69533$$

$P(Z_1) = 0.0087296$

$P(Z_2) = 0.045006$

$p = P(Z_2) - P(Z_1)$

$= 0.045006 - 0.0087296 = 0.03627638$

$ei = n * p$

$= 100 * 0.03627638 = 3.627638$

Ho :Data berdistribusi normal

Hi : Data tidak berdistribusi normal

$$\alpha = 0.05$$
$$X^2 = 1.4692899$$
$v = k' - r - 1 = 5 - 2 - 1 = 2$

$$X^2_{(\alpha,v)} = X^2_{(0.05,2)}$$
$$= 5.99$$
$$X^2_{(\alpha,V)} > X^2$$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data (Pantat Popliteal/PPO)

k = 1 + 3.3 log n
= 1 + 3.3 log 100
= 1 + 6.6 = 7.6 ≈ 8

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{49.5 - 35.5}{7.6} = 1.842 \approx 1.85$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	
<35.50	<35.495	0	- ∞	-3.539999	0	0.0002	0.0200105	7.1893691	7	0.004988
35.50 - 37.34	35.495 - 37.345	1	-3.539999	-2.847277	0.0002001	0.002205	0.2004708			
37.35 - 39.19	37.345 - 39.195	2	-2.847277	-2.154554	0.0022048	0.015598	1.3393493			
39.20 - 41.04	39.195 - 41.045	4	-2.154554	-1.461832	0.0155983	0.071894	5.6295385			
41.05 - 42.89	41.045 - 42.895	12	-1.461832	-0.769109	0.0718937	0.220914	14.902047	14.902047	12	0.5651489
42.90 - 44.74	42.895 - 44.745	23	-0.769109	-0.076387	0.2209142	0.469556	24.86415	24.86415	23	0.1397616
44.75 - 46.59	44.745 - 46.595	30	-0.076387	0.616336	0.4695557	0.731164	26.160796	26.160796	30	0.5634189
46.60 - 48.44	46.595 - 48.445	19	0.6163358	1.309058	0.7311636	0.904743	17.357903	17.357903	19	0.155346
48.45 - 50.29	48.445 - 50.295	9	1.3090584	2.001781	0.9047427	0.977346	7.2603271	9.5257349	9	0.0290158
>50.29	>50.295	0	2.001781	$+\infty$	0.977346	1	2.265408			
		100								1.4576793

$$\bar{x} = 44.949$$
$$\sigma = 2.67062188$$
$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{35.495 - 44.949}{2.67062188} = -3.54$$
$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{37.345 - 44.949}{2.67062188} = -2.84728$$

$P(Z_1) = 0.0002001$

$P(Z_2) = 0.002205$

$p = P(Z_2) - P(Z_1)$
$= 0.002205 - 0.0002001 = 0.00200471$

$ei = n * p$
$= 100 * 0.00200471 = 0.200471$

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$$\alpha = 0.05$$
$$X^2 = 1.4576793$$
$v = k' - r - 1 = 6 - 2 - 1 = 3$
$$X^2_{(\alpha,v)} = X^2_{(0.05,3)}$$
$$= 7.81$$
$$X^2_{(\alpha,V)} > X^2$$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data (Pantat ke Lutut/PKL)

k = 1 + 3.3 log n
= 1 + 3.3 log 100
= 1 + 6.6 = 7.6 ≈ 8

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{63.5 - 41.8}{7.6} = 2.855 \approx 2.86$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	
<41.80	<41.795	0	- ∞	-3.751903	0	8.78E-05	0.0087776	5.7554774	4	0.5354379
41.80 - 44.65	41.795 - 44.655	1	-3.751903	-3.026481	8.778E-05	0.001237	0.1149386			
44.66 - 47.51	44.655 - 47.515	1	-3.026481	-2.301059	0.0012372	0.010694	0.9456965			
47.52 - 50.37	47.515 - 50.375	2	-2.301059	-1.575637	0.0106941	0.057555	4.6860646			
50.38 - 53.23	50.375 - 53.235	14	-1.575637	-0.850215	0.0575548	0.197603	14.004801	14.004801	14	1.646E-06
53.24 - 56.09	53.235 - 56.095	25	-0.850215	-0.124793	0.1976028	0.450344	25.274095	25.274095	25	0.0029725
56.10 - 58.95	56.095 - 58.955	25	-0.124793	0.600629	0.4503437	0.725957	27.56128	27.56128	25	0.2380206
58.96 - 61.81	58.955 - 61.815	23	0.6006291	1.326051	0.7259565	0.907589	18.163202	18.163202	23	1.2880227
61.82 - 64.67	61.815 - 64.675	9	1.326051	2.051473	0.9075885	0.97989	7.2301073	9.241146	9	0.0062927
>64.67	>64.675	0	2.051473	+ ∞	0.979890	1	2.011039			
		100								2.0707481

$$\bar{x} = 56.587$$
$$\sigma = 3.94253303$$
$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{41.795 - 56.587}{3.94253303} = -3.7519$$
$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{44.655 - 56.587}{3.94253303} = -3.02648$$

$P(Z_1)$ =0.00008778

$P(Z_2)$ =0.001237

p = $P(Z_2)$ - $P(Z_1)$
= 0.001237 - 0.00008778= 0.00114939

ei = n * p
= 100 * 0.00114939 = 0.114939

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$$\alpha = 0.05$$
$$X^2 = 2.0707481$$
v = k' - r -1 = 6 - 2 - 1 = 3
$$X^2_{(\alpha,v)} = X^2_{(0.05,3)}$$
$$= 7.81$$
$$X^2_{(\alpha,V)} > X^2$$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data (Lebar Pinggul/LP)

k = 1 + 3.3 log n
= 1 + 3.3 log 100
= 1 + 6.6 = 7.6 ≈ 8

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{42.3 - 29}{7.6} = 1.75$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	
<29	<28.995	0	$-\infty$	-2.215036	0	0.013379	1.3378755	6.7032616	7	0.0131359
29.00 - 30.74	28.995 - 30.745	7	-2.215036	-1.498262	0.0133788	0.067033	5.3653861			
30.75 - 32.49	30.745 - 32.495	12	-1.498262	-0.781488	0.0670326	0.217258	15.022501	15.022501	12	0.6081219
32.50 - 34.24	32.495 - 34.245	30	-0.781488	-0.064714	0.2172576	0.474201	25.694299	25.694299	30	0.7215243
34.25 - 35.99	34.245 - 35.995	24	-0.064714	0.652059	0.4742006	0.742819	26.861802	26.861802	24	0.3048906
36.00 - 37.74	35.995 - 37.745	21	0.6520594	1.368833	0.7428186	0.914474	17.16556	17.16556	21	0.8565367
37.75 - 39.49	37.745 - 39.495	3	1.3688332	2.085607	0.9144742	0.981493	6.7018716	8.5525769	6	0.7618346
39.50 - 41.24	39.495 - 41.245	1	2.085607	2.802381	0.9814929	0.997464	1.5970645			
41.25 - 42.99	41.245 - 42.995	2	2.8023808	3.519155	0.9974636	0.999783	0.2319903			
>42.99	>42.995	0	3.5191546	$+\infty$	0.999783	1	0.021651			
		100								3.266044

$\bar{x} = 34.403$
$\sigma = 2.44149544$

$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{28.995 - 34.403}{2.69520787} = -2.21504$$
$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{30.745 - 34.403}{2.44149544} = -1.49826$$

$P(Z_1) = 0.0133788$
$P(Z_2) = 0.067033$
$p = P(Z_2) - P(Z_1)$
$= 0.067033 - 0.0133788 = 0.05365386$
$ei = n * p$
$= 100 * 0.05365386 = 5.365386$

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$\alpha = 0.05$
$X^2 = 3.266044$
$v = k' - r - 1 = 6 - 2 - 1 = 3$
$X^2_{(\alpha, v)} = X^2_{(0.05, 3)}$
$= 7.81$
$X^2_{(\alpha, V)} > X^2$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data (Lebar Bahu/LB)

k = 1 + 3.3 log n
= 1 + 3.3 log 100
= 1 + 6.6 = 7.6 ≈ 8

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{49 - 27.7}{7.6} = 2.803 \approx 2.81$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	
<27.70	<27.695	0	- ∞	-2.888425	0	0.001936	0.193595	5.6686728	3	1.2563461
27.70 - 30.50	27.695 - 30.505	3	-2.888425	-2.235818	0.0019359	0.012682	1.0745866			
30.51 - 33.31	30.505 - 33.315	0	-2.235818	-1.583211	0.0126818	0.056687	4.4004913			
33.32 - 36.12	33.315 - 36.125	15	-1.583211	-0.930604	0.0566867	0.176029	11.934256	11.934256	15	0.7875471
36.13 - 38.93	36.125 - 38.935	17	-0.930604	-0.277997	0.1760293	0.390508	21.447824	21.447824	17	0.9223844
38.94 - 41.74	38.935 - 41.745	26	-0.277997	0.37461	0.3905075	0.646025	25.551729	25.551729	26	0.0078643
41.75 - 44.55	41.745 - 44.555	26	0.3746104	1.027217	0.6460248	0.847841	20.181611	20.181611	26	1.6774502
44.56 - 47.36	44.555 - 47.365	7	1.0272174	1.679824	0.8478409	0.953504	10.566336	15.2159	13	0.3227048
47.37 - 50.17	47.365 - 50.175	6	1.6798244	2.332431	0.9535043	0.990161	3.6656736			
>50.17	>50.175	0	2.3324314	$+\infty$	0.990161	1	0.983898			
		100								4.9742967

$\bar{x} = 40.132$

$\sigma = 4.30580721$

$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{27.695 - 40.132}{4.30580721} = -2.88842$$

$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{27.695 - 40.132}{4.30580721} = -2.23582$$

$P(Z_1) = 0.0019359$

$P(Z_2) = 0.012682$

$p = P(Z_2) - P(Z_1)$

$= 0.012682 - 0.0019359 = 0.01074587$

$ei = n * p$

$= 100 * 0.01074587 = 1.074587$

Ho :Data berdistribusi normal

Hi : Data tidak berdistribusi normal

$\alpha = 0.05$

$X^2 = 4.9742967$

v = k' - r -1 = 6 - 2 - 1 = 3

$X^2_{(\alpha,v)} = X^2_{(0.05,3)}$

$= 7.81$

$X^2_{(\alpha,V)} > X^2$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data (Lebar Sandaran/LS)

k = 1 + 3.3 log n
= 1 + 3.3 log 100
= 1 + 6.6 = 7.6 ≈ 8

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{28.5 - 11}{7.6} = 2.303 \approx 2.31$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	
<11.00	<10.995	0	- ∞	-2.299413	0	0.010741	1.074073	6.3600455	4	0.8757508
11.00 - 13.30	10.995 - 13.305	4	-2.299413	-1.525233	0.0107407	0.06360	5.2859725			
13.31 - 15.61	13.305 - 15.615	20	-1.525233	-0.751054	0.0636005	0.22631	16.270945	16.270945	20	0.854643
15.62 - 17.92	15.615 - 17.925	25	-0.751054	0.023125	0.2263099	0.509225	28.291479	28.291479	25	0.3829363
17.93 - 20.23	17.925 - 20.235	34	0.0231248	0.797304	0.5092247	0.787363	27.813812	27.813812	34	1.3758964
20.24 - 22.54	20.235 - 22.545	13	0.797304	1.571483	0.7873628	0.941965	15.460195	15.460195	13	0.391493
22.55 - 24.85	22.545 - 24.855	1	1.5714832	2.345662	0.9419648	0.990503	4.8538604	5.8035238	4	0.5604695
24.86 - 27.16	24.855 - 27.165	2	2.3456623	3.119841	0.9905034	0.999095	0.8591825			
27.17 - 29.47	27.165 - 29.475	1	3.1198415	3.894021	0.9990952	0.999951	0.0855492			
>29.47	>29.475	0	3.8940206	$+\infty$	0.999951	1	0.004932			
		100								4.441189

$$\bar{x} = 17.856$$
$$\sigma = 2.98380545$$

$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{10.995 - 17.856}{2.98380545} = -2.29941$$

$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{13.305 - 17.856}{2.98380545} = -1.52523$$

$P(Z_1)$ =0.0107407

$P(Z_2)$ =0.0636005

p = $P(Z_2)$ - $P(Z_1)$
= 0.0636005 - 0.0107407= 0.05285973

ei = n * p
= 100 * 0.05285973 = 5.285973

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$$\alpha = 0.05$$
$$X^2 = 4.441189$$

v = k' - r -1 = 6 - 2 - 1 = 3

$$X^2_{(\alpha,v)} = X^2_{(0.05,3)}$$
$$= 7.81$$
$$X^2_{(\alpha,V)} > X^2$$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data (Panjang Sandaran/PS)

k = 1 + 3.3 log n
= 1 + 3.3 log 100
= 1 + 6.6 = 7.6 ≈ 8

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{59 - 32.5}{7.6} = 3.487 \approx 3.49$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	
<32.50	<32.495	0	$-\infty$	-2.098785	0	0.017918	1.7917849	6.679898	4	1.0751441
32.50 - 35.98	32.495 - 35.985	4	-2.098785	-1.500064	0.0179178	0.066799	4.888113			
35.99 - 39.47	35.985 - 39.475	14	-1.500064	-0.901342	0.066799	0.183703	11.690424	11.690424	14	0.4562831
39.48 - 42.96	39.475 - 42.965	24	-0.901342	-0.30262	0.1837032	0.38109	19.738645	19.738645	24	0.9199793
42.97 - 46.45	42.965 - 46.455	20	-0.30262	0.296101	0.3810897	0.616424	23.533392	23.533392	20	0.5305167
46.46 - 49.94	46.455 - 49.945	17	0.2961013	0.894823	0.6164236	0.814559	19.813559	19.813559	17	0.3995303
49.95 - 53.43	49.945 - 53.435	15	0.894823	1.493545	0.8145592	0.932353	11.779346	11.779346	15	0.8805764
53.44 - 56.92	53.435 - 56.925	3	1.4935447	2.092266	0.9323526	0.981793	4.9440081	6.7647	6	0.0864516
56.93 - 60.41	56.925 - 60.415	3	2.0922663	2.690988	0.9817927	0.996438	1.4645199			
>60.41	>60.415	0	2.690988	$+\infty$	0.996438	1	0.356209			
		100								4.3484815

$\bar{x} = 44.729$

$\sigma = 5.82908581$

$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{32.495 - 44.729}{5.82908581} = -2.09879$$

$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{35.985 - 44.729}{5.82908581} = -1.50006$$

$P(Z_1) = 0.0212211$

$P(Z_2) = 0.082115$

$p = P(Z_2) - P(Z_1)$
$= 0.082115 - 0.0212211 = 0.06089361$

$ei = n * p$
$= 100 * 0.06089361 = 6.089361$

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$\alpha = 0.05$

$X^2 = 4.3484815$

$v = k' - r - 1 = 6 - 2 - 1 = 3$

$X^2_{(\alpha,v)} = X^2_{(0.05,3)}$
$= 7.81$

$X^2_{(\alpha,V)} > X^2$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data S_1

k = 1 + 3.3 log n
= 1 + 3.3 log 30
= 1 + 4.8745 = 5.8745 ≈ 6

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{0.7 - 0.2}{5.8745} = 0.085 \approx 0.09$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	$\frac{(Oi-ei)^2}{ei}$
< 0.20	< 0.195	0	- ∞	-2.141568	0	0.016114	0.483422	7.048743	5	0.595475
0.20 - 0.28	0.195 - 0.285	2	-2.141568	-1.432092	0.0161141	0.076059	1.798343			
0.29 - 0.37	0.285 - 0.375	3	-1.432092	-0.722615	0.0760588	0.234958	4.766979			
0.38 - 0.46	0.375 - 0.465	7	-0.722615	-0.013138	0.2349581	0.494759	7.794016	7.794016	7	0.08089
0.47 - 0.55	0.465 - 0.555	11	-0.013138	0.696338	0.4947586	0.756892	7.863987	7.863987	11	1.250584
0.56 - 0.64	0.555 - 0.645	5	0.696338	1.405815	0.7568915	0.92011	4.896565	7.293254	7	0.011791
0.65 - 0.73	0.645 - 0.735	2	1.405815	2.115292	0.9201104	0.982798	1.880613			
> 0.73	> 0.735	0	2.115292	+ ∞	0.982798	1	0.516075			
		30								1.93874

$\bar{x} = 0.466667$
$\sigma = 0.126854$

$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{0.195 - 0.466667}{0.126854} = -2.14157$$

$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{0.285 - 0.466667}{0.126854} = -1.43209$$

$P(Z_1)$ =0.016114
$P(Z_2)$ =0.076059
p = $P(Z_2) - P(Z_1)$
= 0.076059 - 0.016114= 0.059945
ei = n * p
= 30 * 0.059945 = 1.79835

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$\alpha = 0.05$
$X^2 = 1.93874$
v = k' - r -1 = 4 - 2 - 1 = 1
$X^2_{(\alpha,v)} = X^2_{(0.05,1)}$
$= 3.84$
$X^2_{(\alpha,V)} > X^2$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data S_2

k = 1 + 3.3 log n
= 1 + 3.3 log 30
= 1 + 4.8745 = 5.8745 ≈ 6

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{3.0 - 1.0}{5.8745} = 0.340 \approx 0.35$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	$\frac{(Oi-ei)^2}{ei}$
< 1.00	< 0.995	0	- ∞	-2.523043	0	0.005817	0.174517	8.903652	10	0.134999
1.00 - 1.34	0.995 - 1.345	1	-2.523043	-1.859915	0.0058172	0.031449	0.7689			
1.35 - 1.69	1.345 - 1.695	2	-1.859915	-1.196788	0.0314487	0.115695	2.527381			
1.70 - 2.04	1.695 - 2.045	7	-1.196788	-0.53366	0.1156947	0.296788	5.43281			
2.05 - 2.39	2.045 - 2.395	4	-0.53366	0.129468	0.2967884	0.551506	7.641537	7.641537	4	1.735357
2.40 - 2.74	2.395 - 2.745	7	0.129468	0.792596	0.5515063	0.785993	7.034611	7.034611	7	0.00017
2.75 - 3.09	2.745 - 3.095	9	0.792596	1.455723	0.7859933	0.927265	4.238162	6.420201	9	1.036629
> 3.09	> 3.095	0	1.455723	+ ∞	0.927265	1	2.182038			
		30								2.907154

$\bar{x} = 2.33$
$\sigma = 0.53$

$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{0.995 - 2.33}{0.53} = -2.52304$$

$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{1.345 - 2.33}{0.53} = -1.85992$$

$P(Z_1)$ =0.005817
$P(Z_2)$ =0.031449
p = $P(Z_2) - P(Z_1)$
= 0.031449 - 0.005817 = 0.025632
ei = n * p
= 30 * 0.025632 = 0.7689

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$\alpha = 0.05$
$X^2 = 2.907154$
v = k' - r -1 = 4 - 2 - 1 = 1
$X^2_{(\alpha,v)} = X^2_{(0.05,1)}$
$= 3.84$
$X^2_{(\alpha,V)} > X^2$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data S_3

k = 1 + 3.3 log n
= 1 + 3.3 log 30
= 1 + 4.8745 = 5.8745 ≈ 6

$$c = \frac{X_{max} - X_{min}}{k} = \frac{3.2 - 0.8}{5.8745} = 0.408 \approx 0.41$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	$\frac{(Oi-ei)^2}{ei}$
< 0.80	< 0.795	0	- ∞	-2.148234	0	0.015848	0.475426	7.786086	6	0.409718
0.80 - 1.20	0.795 - 1.205	3	-2.148234	-1.396505	0.0158475	0.081281	1.963014			
1.21 - 1.61	1.205 - 1.615	3	-1.396505	-0.644776	0.0812813	0.259536	5.347646			
1.62 - 2.02	1.615 - 2.025	11	-0.644776	0.106953	0.2595362	0.542587	8.491526	8.491526	11	0.741026
2.03 - 2.43	2.025 - 2.435	9	0.106953	0.858682	0.542587	0.804742	7.864654	7.864654	9	0.163899
2.44 - 2.84	2.435 - 2.845	2	0.858682	1.610411	0.8047422	0.946346	4.248114	5.857735	4	0.589166
2.85 - 3.25	2.845 - 3.255	2	1.610411	2.362141	0.946346	0.990915	1.337075			
> 3.25	> 3.255	0	2.362141	+ ∞	0.990915	1	0.272546			
		30								1.90381

$\bar{x} = 1.963333$

$\sigma = 0.544238$

$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma} = \frac{0.795 - 1.963333}{0.544238} = -2.14673$$

$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma} = \frac{1.205 - 1.963333}{0.544238} = -1.39338$$

$P(Z_1) = 0.015848$

$P(Z_2) = 0.081281$

$p = P(Z_2) - P(Z_1)$
$= 0.081281 - 0.015848 = 0.065433$

$ei = n * p$
$= 30 * 0.065433 = 1.96299$

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$\alpha = 0.05$

$X^2 = 1.90381$

$v = k' - r - 1 = 4 - 2 - 1 = 1$

$X^2_{(\alpha,v)} = X^2_{(0.05,1)} = 3.84$

$X^2_{(\alpha,V)} > X^2$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data S_4

k = 1 + 3.3 log n
= 1 + 3.3 log 30
= 1 + 4.8745 = 5.8745 ≈ 6

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{2.2 - 0.6}{5.8745} = 0.272 \approx 0.28$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	$\frac{(Oi-ei)^2}{ei}$
< 0.60	< 0.595	0	- ∞	-2.065691	0	0.019429	0.582863	8.306984	8	0.011345
0.60 - 0.87	0.595 - 0.875	2	-2.065691	-1.328884	0.0194288	0.091943	2.17543			
0.88 - 1.15	0.875 - 1.155	6	-1.328884	-0.592077	0.0919432	0.276899	5.548688			
1.16 - 1.43	1.155 - 1.435	10	-0.592077	0.14473	0.2768995	0.557538	8.419155	8.419155	10	0.296832
1.44 - 1.71	1.435 - 1.715	7	0.14473	0.881537	0.557538	0.810986	7.603452	7.603452	7	0.047893
1.72 - 1.99	1.715 - 1.995	3	0.881537	1.618344	0.8109864	0.947206	4.086581	5.670409	5	0.079262
2.00 - 2.27	1.995 - 2.275	2	1.618344	2.355151	0.9472057	0.990742	1.3061			
> 2.27	> 2.275	0	2.355151	+ ∞	0.990742	1	0.277727			
		30								0.435331

$$\bar{x} = 1.38$$
$$\sigma = 0.380018$$
$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{0.595 - 1.38}{0.380018} = -2.06569$$
$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{0.875 - 1.38}{0.380018} = -1.32888$$

$P(Z_1)$ =0.019429
$P(Z_2)$ =0.091943
p = $P(Z_2)$ - $P(Z_1)$
= 0.091943 - 0.019429= 0.072514
ei = n * p
= 30 * 0.072514 = 2.17542

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$\alpha = 0.05$
$X^2 = 0.435331$
v = k' - r -1 = 4 - 2 - 1 = 1
$X^2_{(\alpha,v)} = X^2_{(0.05,1)}$
$= 3.84$
$X^2_{(\alpha,V)} > X^2$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data α

k = 1 + 3.3 log n
= 1 + 3.3 log 30
= 1 + 4.8745 = 5.8745 ≈ 6

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{12.4 - 6}{5.8745} = 1.089 \approx 1.09$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	$\frac{(Oi-ei)^2}{ei}$
< 6.00	< 5.995	0	- ∞	-1.409145	0	0.079396	2.381884	7.161388	8	0.098203
6.00 - 7.08	5.995 - 7.085	8	-1.409145	-0.710449	0.0793961	0.238713	4.779504			
7.09 - 8.17	7.085 - 8.175	9	-0.710449	-0.011752	0.2387129	0.495312	7.697966	7.697966	9	0.220226
8.18 - 9.26	8.175 - 9.265	6	-0.011752	0.686945	0.4953118	0.753941	7.758888	7.758888	6	0.398728
9.27 - 10.35	9.265 - 10.355	5	0.686945	1.385642	0.7539414	0.917072	4.893912	7.381758	5	0.768485
10.36 - 11.44	10.355 - 11.445	0	1.385642	2.084339	0.9170718	0.981435	1.930907			
11.45 - 12.53	11.445 - 12.535	2	2.084339	2.783036	0.9814354	0.997307	0.476157			
> 12.53	> 12.535	0	2.783036	+ ∞	0.997307	1	0.080781			
		30								1.485642

$\bar{x} = 8.19$

$\sigma = 1.56$

$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{5.995 - 8.19}{1.56} = -1.409145$$
$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{7.085 - 8.19}{1.56} = -0.710449$$

$P(Z_1)$ =0.079396

$P(Z_2)$ =0.238713

p = $P(Z_2)$ - $P(Z_1)$
= 0.238713 - 0.079396= 0.159317

ei = n * p
= 30 * 0.159317 = 4.779504

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$\alpha = 0.05$

$X^2 = 1.485642$

v = k' - r -1 = 4 - 2 - 1 = 1

$X^2_{(\alpha,v)} = X^2_{(0.05,1)}$
$= 3.84$

$X^2_{(\alpha,V)} > X^2$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data β

k = 1 + 3.3 log n
= 1 + 3.3 log 30
= 1 + 4.8745 = 5.8745 ≈ 6

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{29.4 - 27.0}{5.8745} = 0.408 \approx 0.41$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	$\frac{(Oi-ei)^2}{ei}$
< 27.00	< 26.995	0	- ∞	-2.026552	0	0.021354	0.640622	5.442184	6	0.057175
27.00 - 27.40	26.995 - 27.405	2	-2.026552	-1.468286	0.0213541	0.071013	1.489779			
27.41 - 27.81	27.405 - 27.815	4	-1.468286	-0.910019	0.0710134	0.181406	3.311783			
27.82 - 28.22	27.815 - 28.225	6	-0.910019	-0.351753	0.1814061	0.362512	5.433169	5.433169	6	0.059136
28.23 - 28.63	28.225 - 28.635	5	-0.351753	0.206513	0.3625118	0.581805	6.578794	6.578794	5	0.378883
28.64 - 29.04	28.635 - 29.045	7	0.206513	0.764779	0.5818049	0.777799	5.87981	5.87981	7	0.213412
29.05 - 29.45	29.045 - 29.455	6	0.764779	1.323046	0.7777986	0.90709	3.878737	6.666042	6	0.066548
> 29.45	> 29.455	0	1.323046	$+\infty$	0.907090	1	2.787305			
		30								0.775155

$\bar{x} = 28.48$
$\sigma = 0.73$

$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{26.995 - 28.48}{0.73} = -2.02655$$
$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{27.405 - 28.48}{0.73} = -1.46829$$

$P(Z_1)$ =0.021354
$P(Z_2)$ =0.071013
p = $P(Z_2) - P(Z_1)$
= 0.071013 - 0.021354= 0.049659
ei = n * p
= 30 * 0.049659 = 1.489779

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$\alpha = 0.05$
$X^2 = 0.775155$
v = k' - r -1 = 5 - 2 - 1 = 2
$X^2_{(\alpha,v)} = X^2_{(0.05,2)}$
$= 5.99$
$X^2_{(\alpha,V)} > X^2$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data X

k = 1 + 3.3 log n
= 1 + 3.3 log 30
= 1 + 4.8745 = 5.8745 ≈ 6

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{50.8 - 30.1}{5.8745} = 3.524 \approx 3.53$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	$\frac{(Oi-ei)^2}{ei}$
< 30.10	< 30.095	0	- ∞	-1.915266	0	0.027729	0.831877	6.831343	6	0.101171
30.10 - 33.62	30.095 - 33.625	4	-1.915266	-1.330835	0.0277292	0.091622	1.916773			
33.63 - 37.15	33.625 - 37.155	2	-1.330835	-0.746405	0.0916217	0.227711	4.082693			
37.16 - 40.68	37.155 - 40.685	5	-0.746405	-0.161974	0.2277114	0.435663	6.238552	6.238552	5	0.245892
40.69 - 44.21	40.685 - 44.215	8	-0.161974	0.422457	0.4356632	0.663654	6.839728	6.839728	8	0.196825
44.22 - 47.74	44.215 - 47.745	6	0.422457	1.006887	0.6636541	0.843006	5.380543	10.09038	11	0.082
47.75 - 51.27	47.745 - 51.275	5	1.006887	1.591318	0.8430055	0.944231	3.036763			
> 51.27	> 51.275	0	1.591318	+ ∞	0.944231	1	1.67307			
		30								0.625888

$\bar{x} = 41.66333$

$\sigma = 6.040066$

$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{30.095 - 41.66333}{6.040066} = -1.91527$$

$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{33.625 - 41.66333}{6.040066} = -1.33084$$

$P(Z_1) = 0.027729$

$P(Z_2) = 0.091622$

$p = P(Z_2) - P(Z_1)$
$= 0.091622 - 0.027729 = 0.063893$

$ei = n * p$
$= 30 * 0.063893 = 1.91679$

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$\alpha = 0.05$

$X^2 = 0.625888$

v = k' - r -1 = 4 - 2 - 1 = 1

$X^2_{(\alpha,v)} = X^2_{(0.05,1)}$
$= 3.84$

$X^2_{(\alpha,V)} > X^2$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data Y

k = 1 + 3.3 log n
= 1 + 3.3 log 30
= 1 + 4.8745 = 5.8745 ≈ 6

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{16.0 - 10.8}{5.8745} = 0.885 \approx 0.89$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	$\frac{(Oi-ei)^2}{ei}$
< 10.8	< 10.795	0	- ∞	-1.57317	0	0.05784	1.735192	5.163898	5	0.005202
10.80 - 11.68	10.795 - 11.685	5	-1.57317	-0.945782	0.0578397	0.17213	3.428706			
11.69 - 12.57	11.685 - 12.575	7	-0.945782	-0.318394	0.1721299	0.375093	6.0889	6.0889	7	0.136331
12.58 - 13.46	12.575 - 13.465	9	-0.318394	0.308995	0.3750933	0.621337	7.387315	7.387315	9	0.352056
13.47 - 14.35	13.465 - 14.355	4	0.308995	0.936383	0.6213371	0.825462	6.123745	6.123745	4	0.736525
14.36 - 15.24	14.355 - 15.245	2	0.936383	1.563771	0.8254619	0.941064	3.468071	5.236142	5	0.01065
15.25 - 16.13	15.245 - 16.135	3	1.563771	2.191159	0.9410643	0.98578	1.341468			
> 16.13	> 16.135	0	2.191159	+ ∞	0.985780	1	0.426603			
		30								1.240764

$\bar{x} = 13.03$
$\sigma = 1.42$

$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{10.795 - 13.03}{1.42} = -1.57317$$

$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{11.685 - 13.03}{1.42} = -0.94578$$

$P(Z_1) = 0.05784$
$P(Z_2) = 0.17213$
$p = P(Z_2) - P(Z_1)$
= 0.17213 - 0.05784= 0.11429
ei = n * p
= 30 * 0.11429 = 3.428706

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$\alpha = 0.05$
$X^2 = 1.240764$
v = k' - r -1 = 5 - 2 - 1 = 2
$X^2_{(\alpha,v)} = X^2_{(0.05,2)}$
$= 5.99$

$X^2_{(\alpha,V)} > X^2$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data P

k = 1 + 3.3 log n
= 1 + 3.3 log 30
= 1 + 4.8745 = 5.8745 ≈ 6

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{41.2 - 19.6}{5.8745} = 3.677 \approx 3.68$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	$\frac{(Oi-ei)^2}{ei}$
< 19.6	< 19.595	0	- ∞	-2.360407	0	0.009127	0.273823	5.291864	5	0.016097
19.60 - 23.27	19.595 - 23.275	2	-2.360407	-1.644798	0.0091274	0.050006	1.226349			
23.28 - 26.95	23.275 - 26.955	3	-1.644798	-0.929189	0.0500057	0.176395	3.791692			
26.96 - 30.63	26.955 - 30.635	4	-0.929189	-0.213581	0.1763955	0.415437	7.171248	7.171248	4	1.40238
30.64 - 34.31	30.635 - 34.315	10	-0.213581	0.502028	0.4154371	0.692176	8.30217	8.30217	10	0.347214
34.32 - 37.99	34.315 - 37.995	10	0.502028	1.217637	0.6921761	0.888319	5.884284	9.234718	11	0.337446
38.00 - 41.67	37.995 - 41.675	1	1.217637	1.933245	0.8883189	0.973397	2.552346			
> 41.67	> 41.675	0	1.933245	$+\infty$	0.973397	1	0.798088			
		30								2.103137

$\bar{x} = 31.73333$
$\sigma = 5.142476$

$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{19.595 - 31.73333}{5.142476} = -2.36041$$

$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{23.275 - 31.73333}{5.142476} = -1.6448$$

$P(Z_1) = 0.009127$
$P(Z_2) = 0.050006$
$p = P(Z_2) - P(Z_1)$
$= 0.050006 - 0.009127 = 0.040879$
$ei = n * p$
$= 30 * 0.040879 = 1.22637$

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$\alpha = 0.05$
$X^2 = 2.103137$
$v = k' - r - 1 = 4 - 2 - 1 = 1$
$X^2_{(\alpha,v)} = X^2_{(0.05,1)}$
$= 3.84$
$X^2_{(\alpha,V)} > X^2$

Kesimpulan : Data berdistribusi normal

Uji Kenormalan Data Q

k = 1 + 3.3 log n
= 1 + 3.3 log 30
= 1 + 4.8745 = 5.8745 ≈ 6

$$c = \frac{X_{max} - X_{min}}{k}$$
$$= \frac{46 - 32}{5.8745} = 2.383 \approx 2.39$$

Tabel Goodness of Fit

Interval Kls	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	ei	ei gab	Oi gab	$\frac{(Oi-ei)^2}{ei}$
< 32.0	< 31.995	0	- ∞	-1.73856	0	0.041056	1.231681	10.46595	10	0.020744
32.00 - 34.38	31.995 - 34.385	4	-1.73856	-1.063474	0.041056	0.143784	3.081829			
34.39 - 36.77	34.385 - 36.775	6	-1.063474	-0.388387	0.1437836	0.348865	6.15244			
36.78 - 39.16	36.775 - 39.165	9	-0.388387	0.2867	0.348865	0.612829	7.918919	7.918919	9	0.147588
39.17 - 41.55	39.165 - 41.555	6	0.2867	0.961787	0.6128289	0.831922	6.572782	6.572782	6	0.049915
41.56 - 43.94	41.555 - 43.945	3	0.961787	1.636874	0.8319217	0.949172	3.517497	5.04235	5	0.000356
43.95 - 46.33	43.945 - 46.335	2	1.636874	2.311961	0.9491716	0.98961	1.213155			
> 46.33	> 46.335	0	2.311961	$+\infty$	0.989610	1	0.311697			
		30								0.218603

$\bar{x} = 38.15$
$\sigma = 3.540285$

$$Z_1 = \frac{\text{Batas bawah} - \bar{x}}{\sigma}$$
$$= \frac{31.995 - 38.15}{3.540285} = -1.73856$$

$$Z_2 = \frac{\text{Batas atas} - \bar{x}}{\sigma}$$
$$= \frac{34.385 - 38.15}{3.540285} = -1.06347$$

$P(Z_1) = 0.041056$
$P(Z_2) = 0.143784$
p = $P(Z_2) - P(Z_1)$
= 0.143784 - 0.041056 = 0.102728
ei = n * p
= 30 * 0.102728 = 3.08184

Ho :Data berdistribusi normal
Hi : Data tidak berdistribusi normal

$\alpha = 0.05$
$X^2 = 0.218603$
v = k' - r -1 = 4 - 2 - 1 = 1
$X^2_{(\alpha,v)} = X^2_{(0.05,1)}$
$= 3.84$
$X^2_{(\alpha,V)} > X^2$

Kesimpulan : Data berdistribusi normal

Pengujian Reliabilitas Kuesioner

Pengujian reliabilitas kuesioner dilakukan dengan pengujian hipotesis untuk proporsi

1. Pengujian reliabilitas nomor satu

Jawaban dari kuesioner adalah sebagai berikut :

Kursi kuliah yang digunakan sudah memberikan kenyamanan?

	Pengukuran 1		Pengukuran 2	
	Jumlah	Desimal	Jumlah	Desimal
a. Ya	26	0.26	28	0.28
b. Tidak	**74**	**0.74**	**72**	**0.72**
Total	100	1	100	1

$Ho : p = 0.74$

$Hi : p \neq 0.74$

n = 100

$\alpha = 5\%$

$p_o = 0.72$

$$\sigma_p = \sqrt{\frac{p_o\,(1 - p_o)}{n}}$$

$$= \sqrt{\frac{0.72\,(0.28)}{100}} = 0.044899888$$

$$Z = \frac{p - p_o}{\sigma_p}$$

$$= \frac{0.74 - 0.72}{0.044899888} = 0.445435409$$

Berdasarkan tabel kumulatif distribusi normal, maka daerah penerimaan Z $\geq$ -1.96 dan Z $\leq$ 1.96

Karena nilai Z berada di dalam daerah penerimaan, maka Ho diterima. Dengan demikian, tidak ada perbedaan antara hasil pengukuran pertama dengan kedua.

2. Pengujian reliabilitas nomor dua

Jawaban dari kuesioner adalah sebagai berikut :
Sandaran tangan sudah kenyamanan?

	Pengukuran 1		Pengukuran 2	
	Jumlah	Desimal	Jumlah	Desimal
a. Ya	31	0.31	38	0.38
b. Tidak	**69**	**0.69**	**62**	**0.62**
Total	100	1	100	1

$Ho : p = 0.69$

$Hi : p \neq 0.69$

n = 100

$\alpha = 5\%$

$p_o = 0.62$

$$\sigma_p = \sqrt{\frac{p_o\,(1 - p_o)}{n}}$$

$$= \sqrt{\frac{0.62\,(0.38)}{100}} = 0.048538644$$

$$Z = \frac{p - p_o}{\sigma_p}$$

$$= \frac{0.69 - 0.62}{0.048538644} = 1.442149888$$

Berdasarkan tabel kumulatif distribusi normal, maka daerah penerimaan Z $\geq$ 1.96 dan Z $\leq$ 1.96
Karena nilai Z berada di dalam daerah penerimaan, maka Ho diterima. Dengan demikian, tidak ada perbedaan antara hasil pengukuran pertama dengan kedua.

Jawaban dari kuesioner adalah sebagai berikut :
Sandaran punggung sudah kenyamanan?

	Pengukuran 1		Pengukuran 2	
	Jumlah	Desimal	Jumlah	Desimal
a. Ya	32	0.32	34	0.34
b. Tidak	**68**	**0.68**	**66**	**0.66**
Total	100	1	100	1

$Ho : p = 0.68$

$Hi : p \neq 0.68$

n = 100

$\alpha = 5\%$

$p_o = 0.66$

$$\sigma_p = \sqrt{\frac{p_o\,(1 - p_o)}{n}}$$

$$= \sqrt{\frac{0.66\,(0.34)}{100}} = 0.047370877$$

$$Z = \frac{p - p_o}{\sigma_p}$$

$$= \frac{0.68 - 0.66}{0.047370877} = 0.422200332$$

Berdasarkan tabel kumulatif distribusi normal, maka daerah penerimaan Z $\geq$ -1.96 dan Z $\leq$ 1.96

Karena nilai Z berada di dalam daerah penerimaan, maka Ho diterima. Dengan demikian, tidak ada perbedaan antara hasil pengukuran pertama dengan kedua.

4. Pengujian reliabilitas nomor empat

Jawaban dari kuesioner adalah sebagai berikut :

Ukuran meja sudah tepat?

	Pengukuran 1		Pengukuran 2	
	Jumlah	Desimal	Jumlah	Desimal
a. Ya	20	0.2	26	0.26
b. Tidak	**80**	**0.8**	**74**	**0.74**
Total	100	1	100	1

$\text{Ho} : \text{p} = 0.8$

$\text{Hi} : \text{p} \neq 0.8$

n = 100

$\alpha = 5\%$

$\text{p}_\text{o} = 0.74$

$$\sigma_\text{p} = \sqrt{\frac{\text{p}_\text{o}\,(1 - \text{p}_\text{o})}{\text{n}}}$$

$$= \sqrt{\frac{0.74\,(0.26)}{100}} = 0.0438663424$$

$$\text{Z} = \frac{\text{p} - \text{p}_\text{o}}{\sigma_\text{p}}$$

$$= \frac{0.8 - 0.74}{0.0438663424} = 1.367791266$$

Berdasarkan tabel kumulatif distribusi normal, maka daerah penerimaan Z -1.96 dan Z $\leq$ 1.96

Karena nilai Z berada di dalam daerah penerimaan, maka Ho diterima. Dengan demikian, tidak ada perbedaan antara hasil pengukuran pertama dengan kedua.

5. Pengujian reliabilitas nomor lima

Jawaban dari kuesioner adalah sebagai berikut :

Ketinggian kursi sudah tepat?

	Pengukuran 1	Pengukuran 2

	Jumlah	Desimal	Jumlah	Desimal
a. Ya	22	0.22	20	0.2
b. Tidak	**78**	**0.78**	**80**	**0.8**
Total	100	1	100	1

$\text{Ho} : \text{p} = 0.78$

$\text{Hi} : \text{p} \neq 0.78$

n = 100

$\alpha = 5\%$

$\text{p}_\text{o} = 0.8$

$$\sigma_\text{p} = \sqrt{\frac{\text{p}_\text{o}\,(1 - \text{p}_\text{o})}{\text{n}}}$$

$$= \sqrt{\frac{0.8\,(0.2)}{100}} = 0.04$$

$$\text{Z} = \frac{\text{p} - \text{p}_\text{o}}{\sigma_\text{p}}$$

$$= \frac{0.78 - 0.8}{0.04} = -0.5$$

Berdasarkan tabel kumulatif distribusi normal, maka daerah penerimaan Z $\geq$ -1.96 dan Z $\leq$ 1.96

Karena nilai Z berada di dalam daerah penerimaan, maka Ho diterima. Dengan demikian, tidak ada perbedaan antara hasil pengukuran pertama dengan kedua.

6. Pengujian reliabilitas nomor enam

Jawaban dari kuesioner adalah sebagai berikut :

Ukuran alas duduk sudah tepat?

	Pengukuran 1		Pengukuran 2	
	Jumlah	Desimal	Jumlah	Desimal

a. Ya	36	0.36	40	0.4
b. Tidak	**64**	**0.64**	**60**	**0.6**
Total	100	1	100	1

$Ho : p = 0.64$

$Hi : p \neq 0.64$

n = 100

$\alpha = 5\%$

$p_o = 0.6$

$$\sigma_p = \sqrt{\frac{p_o\,(1 - p_o)}{n}}$$

$$= \sqrt{\frac{0.6\,(0.4)}{100}} = 0.048989794$$

$$Z = \frac{p - p_o}{\sigma_p}$$

$$= \frac{0.64 - 0.6}{0.048989794} = 0.816496595$$

Berdasarkan tabel kumulatif distribusi normal, maka daerah penerimaan Z ≥ -1.96 dan Z ≤ 1.96
Karena nilai Z berada di dalam daerah penerimaan, maka Ho diterima. Dengan demikian, tidak ada perbedaan antara hasil pengukuran pertama dengan kedua.

7. Pengujian reliabilitas nomor tujuh
   Jawaban dari kuesioner adalah sebagai berikut :
   Tinggi alas duduk dari lantai sudah tepat?

	Pengukuran 1		Pengukuran 2	
	Jumlah	Desimal	Jumlah	Desimal
a. Ya	16	0.16	19	0.19

b. Tidak	**84**	**0.84**	**81**	**0.81**
Total	100	1	100	1

$Ho : p = 0.84$

$Hi : p \neq 0.84$

n = 100

$\alpha = 5\%$

$p_o = 0.81$

$$\sigma_p = \sqrt{\frac{p_o\,(1 - p_o)}{n}}$$

$$= \sqrt{\frac{0.81(0.19)}{100}} = 0.03923009$$

$$Z = \frac{p - p_o}{\sigma_p}$$

$$= \frac{0.84 - 0.81}{0.03923009} = 0.764719122$$

Berdasarkan tabel kumulatif distribusi normal, maka daerah penerimaan Z $\geq$ -1.96 dan Z $\leq$ 1.96

Karena nilai Z berada di dalam daerah penerimaan, maka Ho diterima. Dengan demikian, tidak ada perbedaan antara hasil pengukuran pertama dengan kedua.

8. Pengujian reliabilitas nomor delapan

Jawaban dari kuesioner adalah sebagai berikut :

Perlu bantalan alas kursi ?

	Pengukuran 1		Pengukuran 2	
	Jumlah	Desimal	Jumlah	Desimal
a. Ya	**86**	**0.86**	**83**	**0.83**
b. Tidak	14	0.14	17	0.17

Total	100	1	100	1

$Ho : p = 0.86$

$Hi : p \neq 0.86$

n = 100

$\alpha = 5\%$

$p_o = 0.83$

$$\sigma_p = \sqrt{\frac{p_o\,(1 - p_o)}{n}}$$

$$= \sqrt{\frac{0.83\,(0.17)}{100}} = 0.037563279$$

$$Z = \frac{p - p_o}{\sigma_p}$$

$$= \frac{0.86 - 0.83}{0.037563279} = 0.798652322$$

Berdasarkan tabel kumulatif distribusi normal, maka daerah penerimaan Z $\geq$ -1.96 dan Z $\leq$ 1.96

Karena nilai Z berada di dalam daerah penerimaan, maka Ho diterima. Dengan demikian, tidak ada perbedaan antara hasil pengukuran pertama dengan kedua.

9. Pengujian reliabilitas nomor sembilan

Jawaban dari kuesioner adalah sebagai berikut :

Perlu rak penyimpanan tas ?

	Pengukuran 1		Pengukuran 2	
	Jumlah	Desimal	Jumlah	Desimal
a. Ya	**90**	**0.9**	**88**	**0.88**
b. Tidak	10	0.1	12	0.12
Total	100	1	100	1

$Ho : p = 0.9$

$Hi : p \neq 0.9$

n = 100

$\alpha = 5\%$

$p_o = 0.88$

$$\sigma_p = \sqrt{\frac{p_o\,(1 - p_o)}{n}}$$

$$= \sqrt{\frac{0.88\,(0.12)}{100}} = 0.032496153$$

$$Z = \frac{p - p_o}{\sigma_p}$$

$$= \frac{0.9 - 0.88}{0.032496153} = 0.615457466$$

Berdasarkan tabel kumulatif distribusi normal, maka daerah penerimaan Z $\geq$ -1.96 dan Z $\leq$ 1.96

Karena nilai Z berada di dalam daerah penerimaan, maka Ho diterima. Dengan demikian, tidak ada perbedaan antara hasil pengukuran pertama dengan kedua.

10. Pengujian reliabilitas nomor sepuluh

a. Nomor sepuluh bagian a

Jawaban dari kuesioner adalah sebagai berikut :

Punggung terasa sakit atau pegal ?

	Pengukuran 1		Pengukuran 2	
	Jumlah	Desimal	Jumlah	Desimal
a. Sering	**70**	**0.7**	**75**	**0.75**
b. Kadang-kadang	29	0.29	22	0.22
c. Tidak pernah	1	0.01	3	0.03
Total	100	1	100	1

$\text{Ho} : p = 0.70$

$\text{Hi} : p \neq 0.70$

n = 100

$\alpha = 5\%$

$p_o = 0.75$

$$\sigma_p = \sqrt{\frac{p_o\,(1 - p_o)}{n}}$$

$$= \sqrt{\frac{0.75\,(0.25)}{100}} = 0.04330127$$

$$Z = \frac{p - p_o}{\sigma_p}$$

$$= \frac{0.70 - 0.75}{0.04330127} = -1.154700543$$

Berdasarkan tabel kumulatif distribusi normal,maka daerah penerimaan Z $\geq$ -1.96 dan Z $\leq$ 1.96

Karena nilai Z berada di dalam daerah penerimaan, maka Ho diterima. Dengan demikian, tidak ada perbedaan antara hasil pengukuran pertama dengan kedua.

b. Nomor sepuluh bagian b

Jawaban dari kuesioner adalah sebagai berikut :
Pinggang terasa nyeri atau sakit atau pegal ?

	Pengukuran 1		Pengukuran 2	
	Jumlah	Desimal	Jumlah	Desimal
a. Sering	**69**	**0.69**	**70**	**0.7**
b. Kadang-kadang	21	0.21	23	0.23
c. Tidak pernah	10	0.1	7	0.07
Total	100	1	100	1

$\text{Ho} : p = 0.69$

$\text{Hi} : p \neq 0.69$

n = 100

$\alpha = 5\%$

$p_o = 0.7$

$$\sigma_p = \sqrt{\frac{p_o\,(1 - p_o)}{n}}$$

$$= \sqrt{\frac{0.7\,(0.3)}{100}} = 0.045825756$$

$$Z = \frac{p - p_o}{\sigma_p}$$

$$= \frac{0.69 - 0.7}{0.045825756} = -0.218217894$$

Berdasarkan tabel kumulatif distribusi normal,maka daerah penerimaan Z $\geq$ -1.96 dan Z $\leq$ 1.96
Karena nilai Z berada di dalam daerah penerimaan, maka Ho diterima. Dengan demikian, tidak ada perbedaan antara hasil pengukuran pertama dengan kedua.

c. Nomor sepuluh bagian c
Jawaban dari kuesioner adalah sebagai berikut :

Pantat terasa sakit atau pegal ?

	Pengukuran 1		Pengukuran 2	
	Jumlah	Desimal	Jumlah	Desimal
a. Sering	**51**	**0.51**	**47**	**0.47**
b. Kadang-kadang	45	0.45	49	0.49
c. Tidak pernah	4	0.04	4	0.04
Total	100	1	100	1

$\text{Ho} : p = 0.51$

$\text{Hi} : p \neq 0.51$

n = 100

$\alpha = 5\%$

$p_o = 0.47$

$$\sigma_p = \sqrt{\frac{p_o\,(1 - p_o)}{n}}$$

$$= \sqrt{\frac{0.47\,(0.53)}{100}} = 0.049909918$$

$$Z = \frac{p - p_o}{\sigma_p}$$

$$= \frac{0.51 - 0.47}{0.049909918} = 0.080144391$$

Berdasarkan tabel kumulatif distribusi normal,maka daerah penerimaan Z $\geq$ -1.96 dan Z $\leq$ 1.96

Karena nilai Z berada di dalam daerah penerimaan, maka Ho diterima. Dengan demikian, tidak ada perbedaan antara hasil pengukuran pertama dengan kedua.

d. Nomor sepuluh bagian d

Jawaban dari kuesioner adalah sebagai berikut :

Keluhan-keluhan lain ?

	Pengukuran 1		Pengukuran 2	
	Jumlah	Desimal	Jumlah	Desimal
Meja kurang lebar	**26**	**0.2549**	**26**	**0.25**
Kaki kursi tidak rata	14	0.13725	15	0.14423
Alas duduk kurang tinggi	2	0.01961	4	0.03846
Jarak antar kursi terlalu dekat	15	0.14706	17	0.16346
Kursi terbuat dari kayu(tidak ada bantalan)	16	0.15686	20	0.19231
Tidak ada sandaran kepala	7	0.06863	5	0.04808
Tidak ada sandaran tangan sebelah kiri	4	0.03922	2	0.01923
Tidak menjawab	18	0.17647	15	0.14423
Total	102	1	104	1

$\text{Ho} : \text{p} = 0.2549$

$\text{Hi} : \text{p} \neq 0.2549$

n = 100

$\alpha = 5\%$

$\text{p}_\text{o} = 0.25$

$$\sigma_\text{p} = \sqrt{\frac{\text{p}_\text{o}\,(1 - \text{p}_\text{o})}{\text{n}}}$$

$$= \sqrt{\frac{0.25\,(0.75)}{100}} = 0.04330127$$

$$\text{Z} = \frac{\text{p} - \text{p}_\text{o}}{\sigma_\text{p}}$$

$$= \frac{0.2549 - 0.25}{0.04330127} = 0.113160653$$

Berdasarkan tabel kumulatif distribusi normal,maka daerah penerimaan Z -1.96 dan Z $\leq$ 1.96

Karena nilai Z berada di dalam daerah penerimaan, maka Ho diterima. Dengan demikian, tidak ada perbedaan antara hasil pengukuran pertama dengan kedua.

11. Pengujian reliabilitas nomor sebelas

Jawaban dari kuesioner adalah sebagai berikut :

Bagian-bagian apa saja yang perlu diperbaiki untuk mengatasi keluhan yang ditemui pada saat menggunakan kursi kuliah.

	Pengukuran 1		Pengukuran 2	
	Jumlah	Desimal	Jumlah	Desimal
a. Sudut kemiringan sandaran kursi	**40**	**0.296296**	**36**	**0.2647**
b. Lebar sandaran kursi	24	0.1778	24	0.1765
c. Tinggi sandaran kursi	24	0.1778	24	0.1765
d. Panjang alas duduk	32	0.2370	31	0.2279
Tidak ada bagian yang perlu diperbaiki	10	0.0741	15	0.1103
Ukuran meja	3	0.0222	3	0.0221
Diberi bantalan alas duduk & sandaran	2	0.0148	3	0.0221
Total	135	1	136	1

$$Ho : p = 0.2963$$

$$Hi : p \neq 0.2963$$

n = 100

$\alpha = 5\%$

$p_o = 0.2647$

$$\sigma_p = \sqrt{\frac{p_o\,(1 - p_o)}{n}}$$

$$= \sqrt{\frac{0.2647\,(0.7353)}{100}} = 0.044117333$$

$$Z = \frac{p - p_o}{\sigma_p}$$

$$= \frac{0.2963 - 0.2647}{0.044117333} = 0.716271765$$

Berdasarkan tabel kumulatif distribusi normal,maka daerah penerimaan Z $\geq$ -1.96 dan Z $\leq$ 1.96

Karena nilai Z berada di dalam daerah penerimaan, maka Ho diterima. Dengan demikian, tidak ada perbedaan antara hasil pengukuran pertama dengan kedua.

Uji Keseragaman Data (Tinggi Duduk Tegak/TDT)

Sub Grup ke	Data Athropometri TDT										$\bar{xi}$
	1	2	3	4	5	6	7	8	9	10	
1	78.00	95.50	95.00	95.00	79.50	79.50	79.70	79.70	80.00	80.30	84.22
2	80.30	91.00	90.70	94.50	80.50	80.50	80.60	80.60	80.80	81.00	84.05
3	81.00	89.00	90.50	81.20	82.00	82.00	82.30	82.40	84.00	82.50	83.69
4	82.50	82.60	82.60	82.60	81.00	83.00	83.40	83.60	84.00	92.60	83.79
5	84.00	84.00	84.00	84.00	84.10	84.20	84.30	84.60	84.80	85.20	84.32
6	85.20	85.40	85.50	86.00	86.00	86.00	86.00	86.20	86.40	86.50	85.92
7	86.50	86.50	86.50	86.60	87.00	87.00	87.40	87.50	87.50	88.00	87.05
8	88.00	88.00	88.00	88.50	88.50	89.00	89.00	89.00	81.00	89.00	87.80
9	89.10	89.50	90.00	90.00	90.10	90.30	83.00	80.50	80.40	91.00	87.39
10	91.20	91.50	92.50	92.50	82.50	80.50	79.00	79.00	78.50	96.00	86.32
										$\sum \bar{xi}$	854.55
										$\bar{\bar{x}}$	85.455
										σ	4.36777397
										$\sigma_{\bar{x}}$	1.38121141

Contoh perhitungan :

$$\sum \overline{xi} = 79.32 + 80.57 + 81.79 + 83.13 + 84.32 + 85.92 + 87.05 + 88.60 + 90.22 + 93.63 = 854.55$$

$$\bar{\bar{x}} = \frac{\sum \overline{xi}}{10}$$

$$= \frac{854.55}{10} = 85.455$$

$$\sigma = \sqrt{\frac{\sum \left(xj - \bar{\bar{x}}\right)^2}{n-1}}$$

$$= \sqrt{\frac{(78-85.455)^2 + (95.50-85.455)^2 + (95-85.455)^2 + \ldots (79-85.455)^2 + (78.5-85.455)^2 + (96-85.455)^2}{100-1}}$$

$$= 4.36777397$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{4.36777}{\sqrt{10}} = 1.38121$$

$$BKA = \bar{\bar{x}} + c.\ \sigma_{\bar{x}}$$

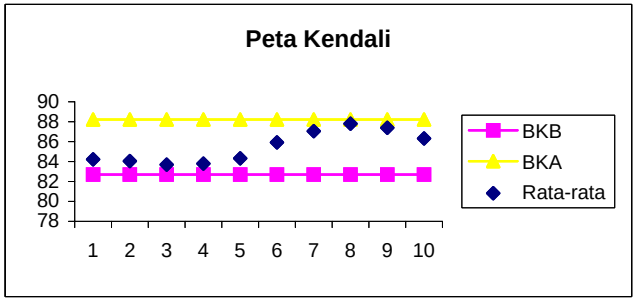
$$= 85.455 + 2.(1.38121)$$

$$= 88.21742$$

$$BKB = \bar{\bar{x}} - c.\ \sigma_{\bar{x}}$$

$$= 85.455 - 2.(1.38121)$$

$$= 82.69258$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga TDT telah memenuhi uji keseragaman data

Uji Keseragaman Data (Tinggi Bahu Duduk/TBD)

Sub Grup ke	Data Athropometri TBD										$\overline{xi}$
	1	2	3	4	5	6	7	8	9	10	
1	41.90	45.80	49.60	66.90	66.00	65.00	65.00	64.80	52.60	52.80	57.04
2	64.00	63.00	62.50	53.00	53.10	53.10	53.50	53.60	53.60	54.00	56.34
3	61.50	61.30	54.00	54.20	54.30	54.40	54.70	55.00	55.00	55.00	55.94
4	55.00	55.00	55.00	56.00	56.00	56.00	56.40	56.50	56.50	56.50	55.89
5	56.50	56.50	56.70	57.00	57.00	57.00	57.00	57.00	57.00	57.30	56.90
6	57.40	57.50	57.50	57.50	57.60	57.70	58.00	58.00	58.00	58.00	57.72
7	58.20	58.50	58.50	58.50	58.60	58.60	59.00	59.00	59.70	60.00	58.86
8	60.20	60.40	60.70	61.00	61.00	61.00	61.30	54.00	54.00	62.00	59.56
9	62.00	62.00	62.00	62.10	62.10	62.50	53.00	53.00	52.90	64.00	59.56
10	64.30	64.50	52.50	52.00	51.80	51.50	51.00	67.00	67.00	67.50	58.91
										$\sum \overline{xi}$	576.72
										$\overline{\overline{x}}$	57.672
										σ	4.58301828
										$\sigma_{\overline{x}}$	1.44927763

Contoh perhitungan :

$$\sum \overline{xi} = 50.15 + 53.28 + 54.46 + 55.89 + 56.90 + 57.72 + 58.86 + 61.04 + 62.62 + 65.80 = 576.72$$

$$\overline{\overline{x}} = \frac{\sum \overline{xi}}{10}$$

$$\frac{576.72}{}$$

$$\bar{\bar{x}} = \frac{\sum \bar{x}i}{10}$$

$$= \frac{576.72}{10} = 57.672$$

$$\sigma = \sqrt{\frac{\sum\left(xj - \bar{\bar{x}}\right)^2}{n-1}}$$

$$= \sqrt{\frac{(41.9-57.672)^2 + (45.80-57.672)^2 + (49.6-57.672)^2 + ...(67-57.672)^2 + (67-57.672)^2 + (67.5-57.672)^2}{100-1}}$$

$$= 4.58301828$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{4.58304828}{\sqrt{10}} = 1.44927763$$

$$BKA = \bar{\bar{x}} + c.\ \sigma_{\bar{x}}$$

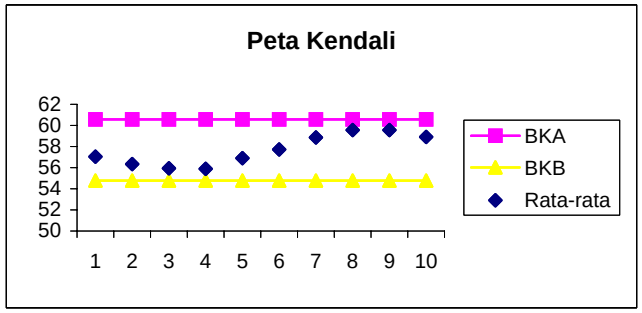
$$= 57.672 + 2.(1.44927763)$$

$$= 60.5705553$$

$$BKB = \bar{\bar{x}} - c.\ \sigma_{\bar{x}}$$

$$= 57.672 - 2.(1.44927763)$$

$$= 54.7734$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga TBD telah memenuhi uji keseragaman data

Uji Keseragaman Data (Tinggi Mata Duduk/TMD)

Sub Grup ke	Data Athropometri TMD										$\bar{x}i$
	1	2	3	4	5	6	7	8	9	10	

1	66.90	67.50	67.50	82.90	82.60	82.50	81.80	70.20	70.20	70.30	74.24
2	80.50	80.50	80.20	80.10	71.00	71.00	71.10	71.30	71.50	71.80	74.90
3	79.10	79.00	72.40	72.50	73.00	73.00	73.00	73.00	73.20	73.30	74.15
4	78.30	73.40	73.60	73.60	73.70	73.80	74.00	74.20	74.20	74.20	74.30
5	74.20	74.40	74.60	74.80	74.80	74.80	74.90	75.00	75.00	75.20	74.77
6	75.20	75.20	75.60	75.90	76.00	76.50	76.80	76.80	76.90	77.00	76.19
7	77.20	77.30	77.50	77.50	77.80	77.80	78.00	78.00	78.30	73.40	77.28
8	78.40	78.40	78.90	79.00	79.00	79.00	79.00	79.00	72.30	71.90	77.49
9	79.30	79.30	79.40	79.40	79.80	80.00	70.90	70.90	70.60	70.50	76.01
10	81.00	81.00	81.10	68.90	68.80	68.80	67.80	83.10	83.30	85.40	76.92
										$\sum \overline{xi}$	756.25
										$\overline{\overline{x}}$	75.625
										σ	4.09220434
										$\sigma_{\overline{x}}$	1.29406864

Contoh perhitungan :

$$\sum \overline{xi} = 74.24 + 74.90 + 74.15 + 74.30 + 74.77 + 76.19 + 77.28 + 77.49 + 76.01 + 76.92 = 756.25$$

$$\overline{\overline{x}} = \frac{\sum \overline{xi}}{10}$$

$$= \frac{756.25}{10} = 75.625$$

$$= \frac{756.25}{10} = 75.625$$

$$\sigma = \sqrt{\frac{\sum\left(xj - \bar{x}\right)^2}{n-1}}$$

$$= \sqrt{\frac{(66.90-75.625)^2 + (67.50-75.625)^2 + (67.5-75.625)^2 + \ldots (83.10-75.625)^2 + (83.30-75.625)^2 + (85.40-75.625)^2}{100-1}}$$

$$= 4.09220434$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{4.09220434}{\sqrt{10}} = 1.29406864$$

$$BKA = \bar{\bar{x}} + c.\ \sigma_{\bar{x}}$$

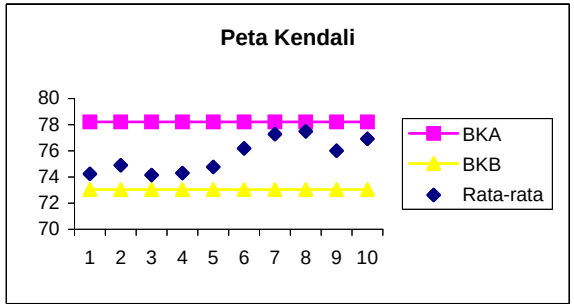
$$= 75.625 + 2.(1.29406864)$$

$$= 78.21313728$$

$$BKB = \bar{\bar{x}} - c.\ \sigma_{\bar{x}}$$

$$= 75.625 - 2.(1.29406864)$$

$$= 73.03686272$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga TMD telah memenuhi uji keseragaman data

Uji Keseragaman Data (Tinggi Siku Duduk/TSD)

Sub Grup ke	Data Athropometri TSD										$\bar{\bar{x}}$i
	1	2	3	4	5	6	7	8	9	10	
1	13.80	14.20	15.20	28.60	28.00	28.00	27.40	27.20	18.00	18.00	21.84
2	27.00	26.50	26.00	18.50	18.70	18.70	19.20	19.50	19.50	19.60	21.32

3	25.00	25.00	20.00	20.00	20.00	20.20	20.30	20.40	21.00	21.00	21.29
4	21.00	21.00	21.00	21.00	21.00	21.20	21.40	21.50	21.90	22.00	21.30
5	22.00	22.00	22.00	22.00	22.00	22.00	22.30	22.40	22.50	22.50	22.17
6	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.20	23.40	23.06
7	23.40	23.80	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.20	23.94
8	24.50	24.50	24.50	24.50	25.00	25.00	25.00	25.00	19.80	19.60	23.74
9	25.00	25.00	25.20	25.50	26.00	26.00	26.00	18.30	18.30	18.00	23.33
10	27.00	27.00	18.00	17.50	17.00	16.40	16.00	30.00	30.00	31.00	22.99
										$\sum \overline{xi}$	224.98
										$\overline{\overline{x}}$	22.498
										σ	3.42728152
										$\sigma_{\overline{x}}$	1.08380158

Contoh perhitungan :

$$\sum \overline{xi} = 16.41 + 18.83 + 20.23 + 21.30 + 22.17 + 23.06 + 23.94 + 24.80 + 25.82 + 28.42 = 224.98$$

$$\overline{\overline{x}} = \frac{\sum \overline{xi}}{10}$$

$$= \frac{224.98}{10} = 22.498$$

10

$$\sigma = \sqrt{\frac{\sum\left(xj - \bar{x}\right)^2}{n-1}}$$

$$= \sqrt{\frac{(13.8-22.498)^2 + (14.2-22.498)^2 + (15.2-22.498)^2 + \ldots (30-22.498)^2 + (30-22.498)^2 + (31-22.498)^2}{100-1}}$$

$$= 3.42728152$$

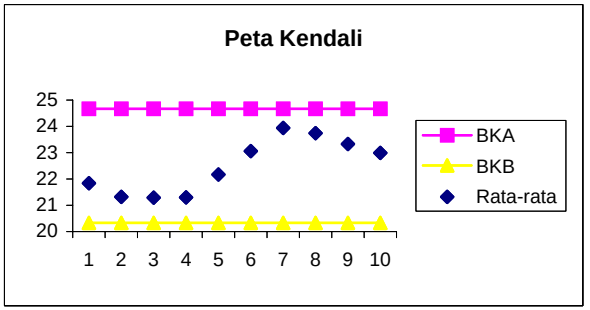
$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{3.42728152}{\sqrt{10}} = 1.08380158$$

$$BKA = \bar{\bar{x}} + c.\ \sigma_{\bar{x}} \qquad BKB = \bar{\bar{x}} - c.\ \sigma_{\bar{x}}$$

$$= 22.498 + 2.(1.08380158) \qquad = 22.498 - 2.(1.08380158)$$

$$= 24.6656032 \qquad = 20.3304$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga TSD telah memenuhi uji keseragaman data

Uji Keseragaman Data (Tebal Paha/TP)

Sub Grup ke	Data Athropometri TP										$\bar{xi}$
	1	2	3	4	5	6	7	8	9	10	
1	7.50	8.10	8.30	19.00	18.50	18.50	18.00	10.00	10.00	10.10	12.80
2	17.70	17.50	16.60	16.50	10.80	11.00	11.00	11.10	11.20	11.20	13.46
3	16.40	16.40	15.00	14.80	12.00	12.00	12.00	12.00	12.00	12.00	13.46
4	12.00	12.00	12.20	12.40	12.50	12.50	12.50	12.50	12.50	12.50	12.36

5	12.50	12.60	12.60	12.60	12.70	12.80	12.80	13.00	13.00	13.00	12.76
6	13.00	13.00	13.00	13.00	13.00	13.00	13.20	13.30	13.30	13.50	13.13
7	13.50	13.70	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	13.92
8	14.10	14.10	14.10	14.30	14.40	14.50	14.50	14.50	11.70	11.50	13.77
9	15.10	15.30	15.40	15.60	15.80	16.00	11.50	11.50	10.80	10.70	13.77
10	17.30	10.50	10.10	9.80	9.50	9.40	9.00	19.00	19.40	23.00	13.70
										$\sum \overline{xi}$	133.13
										$\overline{\overline{x}}$	13.313
										σ	2.63835942
										$\sigma_{\overline{x}}$	0.8343225

Contoh perhitungan :

$$\sum \overline{xi} = 9.17 + 10.84 + 11.82 + 12.36 + 12.76 + 13.13 + 13.92 + 14.43 + 15.91 + 18.79 = 133.13$$

$$\overline{\overline{x}} = \frac{\sum \overline{xi}}{10}$$

$$= \frac{133.13}{10} = 13.313$$

$$\sigma = \sqrt{\frac{\sum \left(xj - \overline{\overline{x}} \right)^2}{n-1}}$$

$$\sqrt{(7.5 - 13.313)^2 + (9.1 - 13.313)^2 + (9.8 - 13.313)^2 + \dots + (19.1 - 13.313)^2 + (23 - 13.313)^2}$$

$$\sigma = \sqrt{\frac{\sum \left(xj - \bar{x}\right)^2}{n-1}}$$

$$= \sqrt{\frac{(7.5-13.313)^2 + (8.1-13.313)^2 + (8.3-13.313)^2 + \ldots (19-13.313)^2 + (19.4-13.313)^2 + (23-13.313)^2}{100-1}}$$

$$= 2.63835942$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{2.63835942}{\sqrt{10}} = 0.8343225$$

$$BKA = \bar{\bar{x}} + c.\ \sigma_{\bar{x}}$$

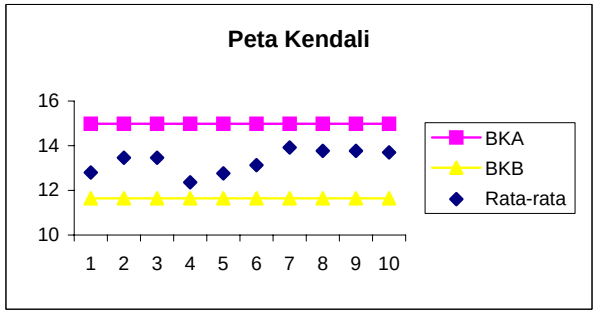
$$= 13.313 + 2.(0.8343225)$$

$$= 14.981645$$

$$BKB = \bar{\bar{x}} - c.\ \sigma_{\bar{x}}$$

$$= 13.313 - 2.(0.8343225)$$

$$= 11.64435$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga TP telah memenuhi uji keseragaman data

Uji Keseragaman Data (Tinggi Popliteal/TPO)

Sub Grup ke	Data Athropometri TPO										$\bar{\bar{x}}$
	1	2	3	4	5	6	7	8	9	10	
1	33.50	34.20	34.50	48.30	48.00	48.00	47.60	37.00	37.00	37.40	40.55
2	47.50	46.00	46.00	38.00	38.00	38.10	38.10	38.30	38.50	38.60	40.71
3	45.10	44.00	39.00	39.00	39.50	39.50	39.50	39.60	39.80	39.90	40.49
4	44.00	40.00	40.00	40.20	40.20	40.30	40.40	40.50	40.50	40.50	40.66
5	40.50	40.50	40.80	41.00	41.00	41.00	41.00	41.00	41.00	41.10	40.89
6	41.20	41.30	41.50	42.00	42.00	42.00	42.00	42.00	42.20	42.20	41.84

7	42.20	42.20	42.20	42.30	42.40	42.50	42.70	42.70	43.00	43.00	42.52
8	43.00	43.30	43.50	43.80	43.90	44.00	44.00	44.00	40.00	38.80	42.83
9	44.00	44.00	44.20	44.30	45.00	45.00	45.00	38.60	37.70	37.50	42.53
10	46.00	47.00	37.50	37.00	36.90	35.80	36.70	48.30	48.70	51.00	42.49
										$\sum \overline{xi}$	415.51
										$\overline{\overline{x}}$	41.551
										σ	3.38930269
										$\sigma_{\overline{\overline{x}}}$	1.07179162

Contoh perhitungan :

$$\sum \overline{xi} = 36 + 38.03 + 39.32 + 40.26 + 40.89 + 41.84 + 42.52 + 43.75 + 44.86 + 48.04 = 415.51$$

$$\overline{\overline{x}} = \frac{\sum \overline{xi}}{10}$$

$$= \frac{415.51}{10} = 41.551$$

$$\sigma = \sqrt{\frac{\sum \left(xj - \overline{\overline{x}} \right)^2}{n-1}}$$

$$= \sqrt{\frac{(33.5 - 41.551)^2 + (34.2 - 41.551)^2 + (34.5 - 41.551)^2 + ...(48.3 - 41.551)^2 + (48.7 - 41.551)^2 + (51 - 41.551)^2}{100 - 1}}$$

$$= \sqrt{\frac{(33.5-41.551)^2+(34.2-41.551)^2+(34.5-41.551)^2+\ldots(48.3-41.551)^2+(48.7-41.551)^2+(51-41.551)^2}{100-1}}$$

$$= 3.38930269$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{3.38930269}{\sqrt{10}} = 1.07179162$$

$$BKA = \bar{\bar{x}} + c.\ \sigma_{\bar{x}}$$

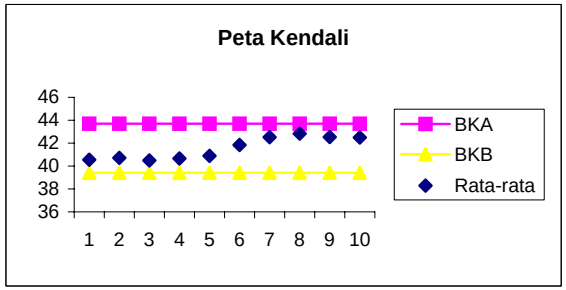
$$= 41.551 + 2.(1.07179162)$$

$$= 43.6945832$$

$$BKB = \bar{\bar{x}} - c.\ \sigma_{\bar{x}}$$

$$= 41.551 - 2.(1.07179162)$$

$$= 39.40742$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga TPO telah memenuhi uji keseragaman data

Uji Keseragaman Data (Pantat Popliteal/PPO)

Sub Grup ke	Data Athropometri PPO										$\bar{xi}$
	1	2	3	4	5	6	7	8	9	10	
1	35.50	38.00	38.50	49.00	49.00	48.80	48.50	48.50	48.50	42.00	44.63
2	48.00	48.00	48.30	41.50	42.20	42.20	42.50	42.60	42.80	43.00	44.11
3	47.50	47.30	43.00	43.00	43.10	43.50	43.50	43.60	43.80	44.00	44.23
4	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.30	44.40	44.50	44.12
5	44.50	44.60	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	44.91
6	45.00	45.00	45.20	45.50	45.50	45.50	45.50	45.50	45.50	46.00	45.42
7	46.00	46.00	46.00	46.00	46.00	46.00	46.00	46.00	46.10	46.30	46.04
8	46.40	46.50	46.80	46.80	47.00	47.00	47.00	47.30	43.00	43.00	46.08

9	47.50	47.50	47.70	47.70	47.80	47.90	42.10	42.00	42.00	42.00	45.42
10	48.30	42.00	39.80	39.70	40.00	40.00	48.00	49.00	49.00	49.50	44.53
										$\sum \overline{xi}$	449.49
										$\overline{\overline{x}}$	44.949
										σ	2.67062188
										$\sigma_{\overline{x}}$	0.84452479

Contoh perhitungan :

$$\sum \overline{xi} = 44.63 + 44.11 + 44.23 + 44.12 + 44.91 + 45.42 + 46.04 + 46.08 + 45.42 + 44.53 = 449.49$$

$$\overline{\overline{x}} = \frac{\sum \overline{xi}}{10}$$

$$= \frac{449.49}{10} = 44.949$$

$$\sigma = \sqrt{\frac{\sum \left(xj - \overline{\overline{x}} \right)^2}{n-1}}$$

$$= \sqrt{\frac{(35.50 - 44.949)^2 + (38 - 44.949)^2 + (38.50 - 44.949)^2 + \ldots (49 - 44.949)^2 + (49 - 44.949)^2 + (49.50 - 44.949)^2}{100 - 1}}$$

$$= 2.67062188$$

$$= \sqrt{\frac{\ldots}{100-1}}$$

$$= 2.67062188$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{2.67062188}{\sqrt{10}} = 0.84452479$$

$$BKA = \bar{\bar{x}} + c \,.\, \sigma_{\bar{x}}$$

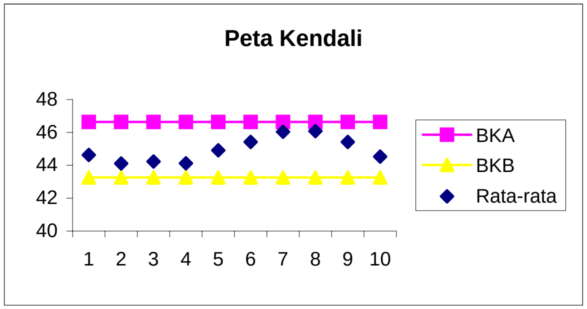
$$= 44.949 + 2 \,.\, (0.84452479)$$

$$= 46.63804958$$

$$BKB = \bar{\bar{x}} - c \,.\, \sigma_{\bar{x}}$$

$$= 44.949 - 2 \,.\, (0.84452479)$$

$$= 43.25995042$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga PPO telah memenuhi uji keseragaman data

Uji Keseragaman Data (Pantat ke Lutut/PKL)

Sub Grup ke	Data Athropometri PKL										$\overline{xi}$
	1	2	3	4	5	6	7	8	9	10	
1	41.80	45.70	48.80	63.00	63.00	62.50	62.50	62.00	51.30	59.00	55.96
2	61.60	61.30	61.00	52.00	52.50	59.30	53.10	53.10	53.30	53.50	56.07
3	59.90	59.30	54.00	54.00	54.00	54.00	54.50	54.50	54.50	54.60	55.33
4	54.70	55.00	55.00	55.00	55.00	55.00	55.40	55.50	55.90	56.00	55.25
5	56.00	56.00	56.00	56.10	56.30	56.50	56.50	56.50	56.80	57.00	56.37
6	57.00	57.00	57.00	57.10	57.30	57.30	57.40	57.70	57.70	58.00	57.35
7	58.00	58.00	58.00	58.40	58.50	58.50	58.50	58.60	59.00	52.00	57.75
8	59.00	59.00	59.00	59.00	59.00	59.00	59.20	52.50	54.00	53.80	57.35
9	60.00	60.00	60.20	60.50	60.50	61.00	61.00	52.00	52.00	52.00	57.92
10	61.80	62.00	51.00	50.50	49.30	50.40	50.50	63.00	63.20	63.50	56.52

$\sum \overline{xi}$	565.87
$\overline{\overline{x}}$	56.587
σ	3.94253303
$\sigma_{\overline{x}}$	1.24673841

Contoh perhitungan :

$$\sum \overline{xi} = 55.96 + 56.07 + 55.33 + 55.25 + 56.37 + 57.35 + 57.75 + 57.35 + 57.92 + 56.52 = 565.87$$

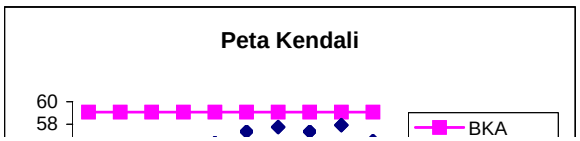
$$\overline{\overline{x}} = \frac{\sum \overline{xi}}{10}$$

$$= \frac{565.87}{10} = 56.587$$

$$\sigma = \sqrt{\frac{\sum \left(xj - \overline{\overline{x}} \right)^2}{n-1}}$$

$$= \sqrt{\frac{(41.80 - 56.587)^2 + (45.70 - 56.587)^2 + (48.80 - 56.587)^2 + ... (63 - 56.587)^2 + (63.20 - 56.587)^2 + (63.50 - 56.587)^2}{100 - 1}}$$

$$= 3.94253303$$



$= 3.94253303$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{3.94253303}{\sqrt{10}} = 1.24673841$$

$$BKA = \bar{\bar{x}} + c.\ \sigma_{\bar{x}}$$

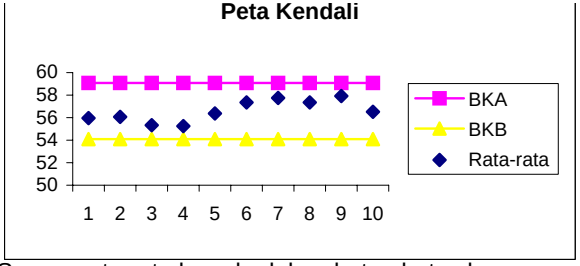
$$= 56.587 + 2.(1.24673841)$$

$$= 59.08047682$$

$$BKB = \bar{\bar{x}} - c.\ \sigma_{\bar{x}}$$

$$= 56.587 - 2.(1.24673841)$$

$$= 54.09352318$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga PKL telah memenuhi uji keseragaman data

Uji Keseragaman Data (Lebar Pinggul/LP)

Sub Grup ke	Data Athropometri LP										$\bar{xi}$
	1	2	3	4	5	6	7	8	9	10	
1	29.00	29.00	30.00	39.40	38.00	37.50	37.50	38.00	31.00	31.50	34.09
2	37.50	37.50	37.00	35.70	32.00	32.00	32.00	32.10	32.30	32.50	34.06
3	37.00	37.00	37.00	32.80	33.00	33.00	33.00	33.00	33.00	33.00	34.18
4	36.00	36.00	33.00	33.20	33.30	33.40	34.00	34.00	34.00	36.80	34.37
5	34.00	34.00	34.00	34.00	34.00	34.00	34.00	34.00	35.50	34.30	34.18
6	34.30	34.40	34.50	34.50	34.50	34.50	34.50	34.50	34.60	35.00	34.53
7	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.20	35.20	34.10	34.95
8	35.50	35.50	32.00	36.00	36.00	36.00	36.00	36.00	33.00	33.00	34.90
9	36.30	36.50	34.00	37.00	37.00	32.50	37.00	32.50	32.00	32.50	34.73
10	32.00	32.00	30.50	30.50	31.00	30.10	30.40	39.50	42.10	42.30	34.04
										$\sum \bar{xi}$	344.03

$\bar{\bar{x}}$	34.403
σ	2.44149544
$\sigma_{\bar{x}}$	0.77206865

Contoh perhitungan :

$$\sum \bar{xi} = 34.09 + 34.06 + 34.18 + 34.37 + 34.18 + 34.53 + 34.95 + 34.90 + 34.73 + 34.04 = 344.03$$

$$\bar{\bar{x}} = \frac{\sum \bar{xi}}{10}$$

$$= \frac{344.03}{10} = 34.403$$

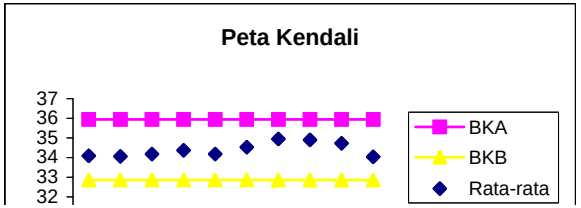
$$\sigma = \sqrt{\frac{\sum \left(xj - \bar{\bar{x}}\right)^2}{n-1}}$$

$$= \sqrt{\frac{(29 - 34.403)^2 + (29 - 34.403)^2 + (30 - 34.403)^2 + \ldots (39.50 - 34.403)^2 + (42.10 - 34.403)^2 + (42.30 - 34.403)^2}{100 - 1}}$$

$$= 2.44149544$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{2.44149544}{\sqrt{10}} = 0.77206865$$



$$\sigma_{\bar{x}} = \frac{}{\sqrt{n}}$$

$$= \frac{2.44149544}{\sqrt{10}} = 0.77206865$$

$$BKA = \bar{\bar{x}} + c.\ \sigma_{\bar{x}}$$

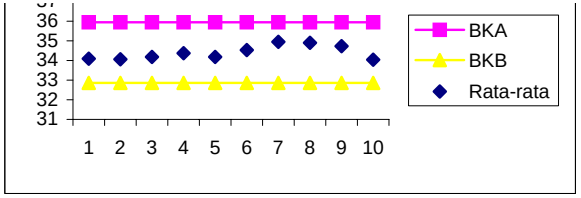
$$= 34.403 + 2.(0.77206865)$$

$$= 35.9471373$$

$$BKB = \bar{\bar{x}} - c.\ \sigma_{\bar{x}}$$

$$= 34.403 - 2.(0.77206865)$$

$$= 32.8588627$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga LP telah memenuhi uji keseragaman data

Uji Keseragaman Data (Lebar Bahu/LB)

Sub Grup ke	Data Athropometri LB										$\bar{xi}$
	1	2	3	4	5	6	7	8	9	10	
1	27.70	28.00	28.40	48.00	48.00	48.00	47.00	47.00	35.00	35.20	39.23
2	45.00	45.00	44.70	39.30	35.70	35.90	36.00	36.00	36.50	36.50	39.06
3	43.00	43.00	43.00	37.00	37.00	37.10	37.50	37.50	38.00	38.00	39.11
4	42.50	42.40	38.00	38.00	38.50	39.00	39.00	39.00	39.20	35.70	39.13
5	39.40	39.50	39.50	39.50	40.00	40.00	40.00	40.00	40.00	40.00	39.79
6	40.20	40.20	40.30	40.40	40.50	40.50	41.00	41.10	41.10	41.20	40.65
7	41.30	42.00	42.00	42.00	42.00	42.00	42.20	42.20	38.00	38.00	41.17
8	42.50	42.50	42.50	42.70	42.80	43.00	43.00	36.70	36.90	37.00	40.96
9	43.20	43.50	43.50	44.00	44.00	44.00	44.50	35.50	35.30	35.40	41.29
10	46.00	46.00	34.50	34.70	33.40	33.70	34.00	49.00	49.00	49.00	40.93
										$\sum \bar{xi}$	401.32
										$\bar{\bar{x}}$	40.132

σ	4.30580721
$\sigma_{\bar{x}}$	1.3616158

Contoh perhitungan :

$$\sum \overline{xi} = 32.46 + 35.85 + 37.27 + 38.60 + 39.79 + 40.65 + 42.06 + 42.80 + 44.14 + 47.70 = 401.32$$

$$\bar{\bar{x}} = \frac{\sum \overline{xi}}{10}$$

$$= \frac{401.32}{10} = 40.132$$

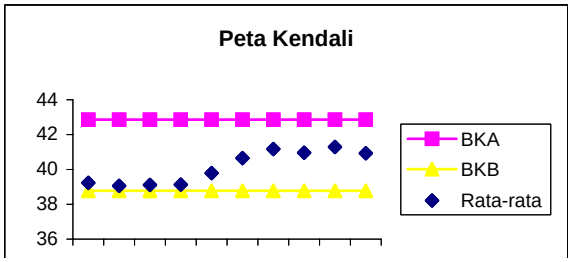
$$\sigma = \sqrt{\frac{\sum \left(xj - \bar{\bar{x}} \right)^2}{n-1}}$$

$$= \sqrt{\frac{(27.70 - 40.132)^2 + (28 - 40.132)^2 + (28.40 - 40.132)^2 + \ldots (49 - 40.132)^2 + (49 - 40.132)^2 + (49 - 40.132)^2}{100 - 1}}$$

$$= 4.30580721$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

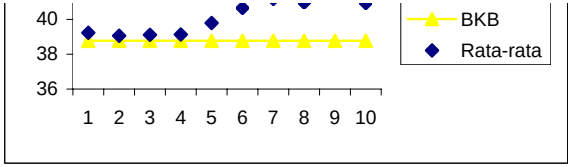
$$= \frac{4.30580721}{\sqrt{10}} = 1.3616158$$



$$= \frac{4.30580721}{\sqrt{10}} = 1.3616158$$

$$BKA = \bar{\bar{x}} + c.\ \sigma_{\bar{x}}$$
$$= 40.132 + 2.(1.3616158)$$
$$= 42.8552316$$

$$BKB = \bar{\bar{x}} - c.\ \sigma_{\bar{x}}$$
$$= 40.132 - 2.(1.3616158)$$
$$= 38.7703842$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga LB telah memenuhi uji keseragaman data

Uji Keseragaman Data (Lebar Sandaran/LS)

Sub Grup ke	Data Athropometri LS										$\bar{xi}$
	1	2	3	4	5	6	7	8	9	10	
1	11.00	12.00	12.50	23.50	22.00	22.00	22.00	14.00	14.00	14.50	16.75
2	22.00	21.50	21.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	16.95
3	21.00	21.00	15.50	15.50	16.00	16.00	16.00	16.00	16.00	16.00	16.90
4	20.00	20.00	16.50	16.50	17.00	17.00	17.00	17.00	17.00	17.00	17.50
5	19.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.30	18.00	17.33
6	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.50	18.50	18.10
7	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	17.00	18.80
8	19.00	19.50	19.50	19.50	19.50	19.50	20.00	20.00	16.00	16.00	18.85
9	20.00	20.00	20.00	20.50	21.00	21.00	21.00	15.50	15.50	15.00	18.95
10	21.00	14.80	14.50	14.00	13.50	13.50	12.50	25.00	27.00	28.50	18.43
										$\sum \bar{xi}$	178.56
										$\bar{\bar{x}}$	17.856
										σ	2.98380545

$\sigma_{\bar{x}}$	0.94356213

Contoh perhitungan :

$$\sum \overline{xi} = 13.15 + 14.93 + 15.8 + 16.7 + 17.13 + 18.10 + 19 + 19.65 + 20.65 + 23.45 = 178.56$$

$$\bar{\bar{x}} = \frac{\sum \overline{xi}}{10}$$

$$= \frac{178.56}{10} = 17.856$$

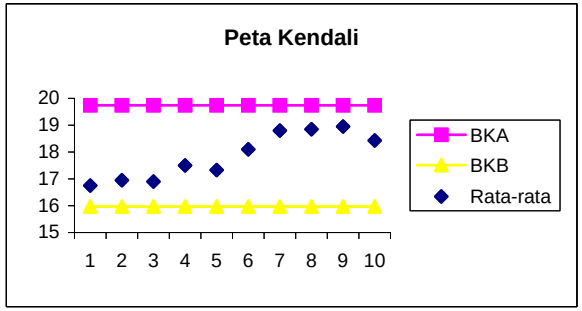
$$\sigma = \sqrt{\frac{\sum \left(xj - \bar{\bar{x}} \right)^2}{n-1}}$$

$$= \sqrt{\frac{(11-17.856)^2 + (12-17.856)^2 + (12.50-17.856)^2 + \ldots (25-17.856)^2 + (27-17.856)^2 + (28.50-17.856)^2}{100-1}}$$

$$= 2.98380545$$

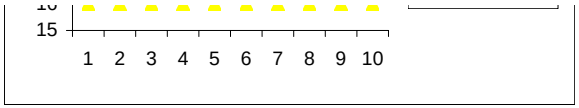
$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{2.98380545}{\sqrt{10}} = 0.94356213$$



$$BKA = \bar{\bar{x}} + c.\ \sigma_{\bar{x}}$$
$$= 17.856 + 2.(2.98380545)$$
$$= 19.7431243$$

$$BKB = \bar{\bar{x}} - c.\ \sigma_{\bar{x}}$$
$$= 17.856 - 2.(2.98380545)$$
$$= 15.96888$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga LS telah memenuhi uji keseragaman data

Uji Keseragaman Data (Panjang Sandaran/PS)

Sub Grup ke	Data Athropometri PS										$\bar{xi}$
	1	2	3	4	5	6	7	8	9	10	
1	32.50	33.00	35.00	56.50	56.00	55.00	53.00	48.00	37.00	37.50	44.35
2	53.00	53.00	52.00	48.00	38.40	39.00	39.00	39.00	40.00	40.00	44.14
3	52.00	51.30	50.00	40.00	40.00	40.50	41.00	41.00	41.00	41.00	43.78
4	51.00	51.00	41.60	42.00	42.00	42.00	42.00	42.00	42.00	42.00	43.76
5	49.70	49.00	43.00	43.00	43.00	43.00	43.00	43.00	43.00	43.00	44.27
6	44.00	44.50	45.00	45.00	45.00	46.00	46.00	46.00	46.00	46.00	45.35
7	49.00	49.00	49.00	47.00	47.00	47.50	48.00	48.00	38.10	37.00	45.96
8	48.50	48.50	48.70	48.90	46.00	46.00	46.00	42.70	42.30	40.00	45.76
9	50.00	50.00	50.50	50.50	51.00	41.00	41.00	40.00	40.00	38.00	45.20
10	52.90	38.00	38.00	37.00	36.00	36.00	35.00	57.30	58.00	59.00	44.72
										$\sum \bar{xi}$	447.29
										$\bar{\bar{x}}$	44.729
										σ	5.82908581
										$\sigma_{\bar{x}}$	1.84331878

Contoh perhitungan :

$$\sum \overline{xi} = 35.6 + 38.75 + 40.45 + 41.76 + 42.9 + 45.35 + 47.15 + 49.03 + 50.93 + 55.37 = 447.29$$

$$\bar{\bar{x}} = \frac{\sum \overline{xi}}{10}$$

$$= \frac{447.29}{10} = 44.729$$

$$\sigma = \sqrt{\frac{\sum \left(xj - \bar{\bar{x}}\right)^2}{n-1}}$$

$$= \sqrt{\frac{(32.5 - 44.729)^2 + (33 - 44.729)^2 + (35 - 44.729)^2 + \ldots (57.3 - 44.729)^2 + (58 - 44.729)^2 + (59 - 44.729)^2}{100 - 1}}$$

$$= 5.82908581$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{5.82908581}{\sqrt{10}} = 1.84331878$$

$$BKA = \bar{\bar{x}} + c\,.\,\sigma_{\bar{x}}$$

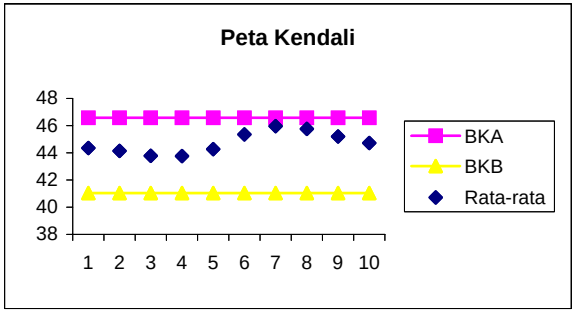
$$= 44.729 + 2\,.\,(1.84331878)$$

$$= 46.5723188$$

$$BKB = \bar{\bar{x}} - c\,.\,\sigma_{\bar{x}}$$

$$= 44.729 - 2\,.\,(1.84331878)$$

$$= 41.04236$$



$= 44.729 + 2 . (1.84331878)$

$= 46.5723188$

$= 44.729 - 2 . (1.84331878)$

$= 41.04236$

Semua rata-rata berada dalam batas-batas keseragaman
Sehingga PS telah memenuhi uji keseragaman data

732144.37	8545.50
	73025570.25

188866.75
434.588023
8691.76047
1.0171155
1.03452393

84.22	82.69258	88.21742
84.05	82.69258	88.21742
83.69	82.69258	88.21742
83.79	82.69258	88.21742
84.32	82.69258	88.21742
85.92	82.69258	88.21742
87.05	82.69258	88.21742
87.80	82.69258	88.21742
87.39	82.69258	88.21742
86.32	82.69258	88.21742

334685.36	5767.20
	33260595.84

207940.16
456.004561
9120.09123
1.58137246
2.50073884

57.04	60.5705553	54.7734

56.34	60.5705553	54.7734
55.94	60.5705553	54.7734
55.89	60.5705553	54.7734
56.90	60.5705553	54.7734
57.72	60.5705553	54.7734
58.86	60.5705553	54.7734
59.56	60.5705553	54.7734
59.56	60.5705553	54.7734
58.91	60.5705553	54.7734

573571.93 7562.50

57191406.25

165786.75
407.169191
8143.38382
1.07681108
1.15952211

74.24	78.21313728	73.03686	
74.90	78.21313728	73.03686	
74.15	78.21313728	73.03686	
74.30	78.21313728	73.03686	2.58813727

74.77	78.21313728	73.03686
76.19	78.21313728	73.03686
77.28	78.21313728	73.03686
77.49	78.21313728	73.03686
76.01	78.21313728	73.03686
76.92	78.21313728	73.03686

51778.88	2249.80
	5061600.04

116287.96
341.010205
6820.2041
3.03147129
9.18981817

21.84	24.6656032	20.3304
21.32	24.6656032	20.3304
21.29	24.6656032	20.3304
21.30	24.6656032	20.3304
22.17	24.6656032	20.3304

23.06	24.6656032	20.3304
23.94	24.6656032	20.3304
23.74	24.6656032	20.3304
23.33	24.6656032	20.3304
22.99	24.6656032	20.3304

18412.73	1331.30
	1772359.69
68913.31	
262.513447	

5250.26895
3.94371588
15.5528949

12.80	14.981645	11.64435
13.46	14.981645	11.64435
13.46	14.981645	11.64435
12.36	14.981645	11.64435
12.76	14.981645	11.64435
13.13	14.981645	11.64435
13.92	14.981645	11.64435

13.77	14.981645	11.64435
13.77	14.981645	11.64435
13.70	14.981645	11.64435

173785.81	4155.10
	17264856.01

113724.99
337.23136
6744.6272
1.62321658

2.63483205

40.55	43.6945832	39.40742
40.71	43.6945832	39.40742
40.49	43.6945832	39.40742
40.66	43.6945832	39.40742
40.89	43.6945832	39.40742
41.84	43.6945832	39.40742
42.52	43.6945832	39.40742
42.83	43.6945832	39.40742
42.53	43.6945832	39.40742

42.49	43.6945832	39.40742

202747.35	4494.90
	20204126.01

70608.99
265.723522
5314.47043
1.18233341
1.39791229

44.63	46.63804958	43.25995
44.11	46.63804958	43.25995
44.23	46.63804958	43.25995
44.12	46.63804958	43.25995
44.91	46.63804958	43.25995
45.42	46.63804958	43.25995
46.04	46.63804958	43.25995
46.08	46.63804958	43.25995
45.42	46.63804958	43.25995
44.53	46.63804958	43.25995

321747.67	5658.70
	32020885.69

153881.31
392.277083
7845.54166
1.38645655
1.92226176

55.96	59.08047682	54.09352
56.07	59.08047682	54.09352
55.33	59.08047682	54.09352
55.25	59.08047682	54.09352
56.37	59.08047682	54.09352
57.35	59.08047682	54.09352
57.75	59.08047682	54.09352
57.35	59.08047682	54.09352
57.92	59.08047682	54.09352
56.52	59.08047682	54.09352

118946.77	3440.30
	11835664.09

59012.91
242.925729
4858.51459
1.41223573
1.99440976

34.09	35.9471373	32.85886
34.06	35.9471373	32.85886
34.18	35.9471373	32.85886
34.37	35.9471373	32.85886
34.18	35.9471373	32.85886
34.53	35.9471373	32.85886
34.95	35.9471373	32.85886
34.90	35.9471373	32.85886
34.73	35.9471373	32.85886
34.04	35.9471373	32.85886

162893.20	4013.20
	16105774.24

183545.76
428.422408
8568.44817
2.13506632
4.5585082

39.23	42.8552316	38.77038	
39.06	42.8552316	38.77038	2.72323159
39.11	42.8552316	38.77038	
39.13	42.8552316	38.77038	
39.79	42.8552316	38.77038	
40.65	42.8552316	38.77038	
41.17	42.8552316	38.77038	
40.96	42.8552316	38.77038	
41.29	42.8552316	38.77038	
40.93	42.8552316	38.77038	

32765.08	1785.60
	3188367.36

88140.64
296.884894
5937.69787
3.32532363
11.0577772

16.75	19.7431243	15.96888
16.95	19.7431243	15.96888
16.90	19.7431243	15.96888
17.50	19.7431243	15.96888
17.33	19.7431243	15.96888
18.10	19.7431243	15.96888
18.80	19.7431243	15.96888
18.85	19.7431243	15.96888
18.95	19.7431243	15.96888
18.43	19.7431243	15.96888

203432.19	4472.90
	20006834.41

336384.59
579.986715
11599.7343
2.59333638
6.7253936

44.35	46.5723188	41.04236
44.14	46.5723188	41.04236
43.78	46.5723188	41.04236
43.76	46.5723188	41.04236
44.27	46.5723188	41.04236
45.35	46.5723188	41.04236
45.96	46.5723188	41.04236
45.76	46.5723188	41.04236
45.20	46.5723188	41.04236
44.72	46.5723188	41.04236

Uji Keseragaman Data S_1

Sub Grup ke-	S_1					$\overline{xi}$
	1	2	3	4	5	
1	0.2	0.2	0.3	0.6	0.6	0.38
2	0.4	0.4	0.4	0.4	0.4	0.40
3	0.4	0.4	0.5	0.5	0.5	0.46
4	0.5	0.5	0.5	0.5	0.5	0.50
5	0.5	0.5	0.5	0.6	0.6	0.54
6	0.3	0.3	0.6	0.7	0.7	0.52
					$\sum \overline{xi}$	2.8
					$\overline{\overline{x}}$	0.46666667
					σ	0.12685407
					$\sigma_{\bar{x}}$	0.05673086

Contoh perhitungan :

$$\sum \overline{xi} = 0.38 + 0.40 + 0.46 + 0.50 + 0.54 + 0.52 = 2.8$$

$$\overline{\overline{x}} = \frac{\sum \overline{xi}}{6}$$

$$= \frac{2.8}{6} = 0.466667$$

$$\sigma = \sqrt{\frac{\sum \left(xj - \overline{\overline{x}} \right)^2}{n-1}}$$

$$= \sqrt{\frac{(0.2-0.466667)^2 + (0.2-0.466667)^2 + (0.3-0.466667)^2 + \ldots (0.6-0.466667)^2 + (0.7-0.466667)^2 + (0.7-0.466667)^2}{30-1}}$$

$$= 0.126854$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{0.126854}{\sqrt{5}} = 0.056731$$

$$BKA = \overline{\overline{x}} + c.\ \sigma_{\bar{x}}$$

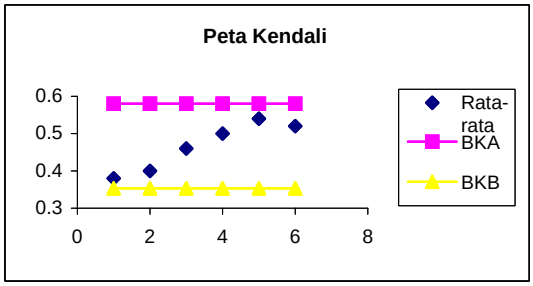
$$= 0.466667 + 2.(0.056731)$$

$$= 0.580129$$

$$BKB = \overline{\overline{x}} - c.\ \sigma_{\bar{x}}$$

$$= 0.466667 - 2.(0.056731)$$

$$= 0.353205$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga S_1 telah memenuhi uji keseragaman data

Uji Keseragaman Data

S_2

Sub Grup ke-	S_2					$\overline{xi}$
	1	2	3	4	5	
1	1.0	1.4	1.4	3.0	2.8	1.92
2	1.8	2.0	2.0	2.0	2.0	1.96
3	2.2	2.2	2.2	2.2	2.5	2.26
4	2.5	2.5	2.5	2.6	2.6	2.54
5	2.6	2.8	2.8	2.8	2.8	2.76
6	1.8	1.8	3.0	3.0	3.0	2.52
					$\sum \overline{xi}$	13.96
					$\bar{\bar{x}}$	2.33
					σ	0.53
					$\sigma_{\bar{x}}$	0.24

Contoh perhitungan :

$$\sum \overline{xi} = 1.92 + 1.96 + 2.26 + 2.54 + 2.76 + 2.52 = 13.96$$

$$\bar{\bar{x}} = \frac{\sum \overline{xi}}{6}$$

$$= \frac{13.96}{6} = 2.33$$

$$\sigma = \sqrt{\frac{\sum \left(xj - \bar{\bar{x}}\right)^2}{n-1}}$$

$$= \sqrt{\frac{(1.0-2.33)^2 + (1.4-2.33)^2 + (1.4-2.33)^2 + \ldots (3.0-2.33)^2 + (3.0-2.33)^2 + (3.0-2.33)^2}{30-1}}$$

$$= 0.53$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{0.53}{\sqrt{5}} = 0.24$$

$$BKA = \bar{\bar{x}} + c.\ \sigma_{\bar{x}}$$

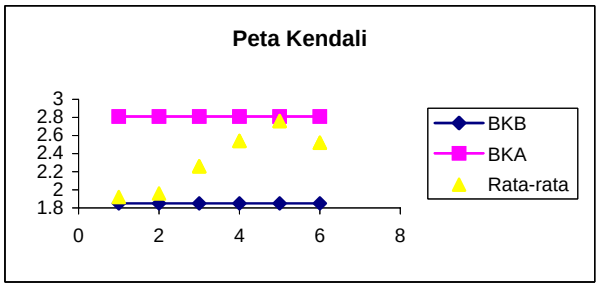
$$= 2.33 + 2.(0.24)$$

$$= 2.81$$

$$BKB = \bar{\bar{x}} - c.\ \sigma_{\bar{x}}$$

$$= 2.33 - 2.(0.24)$$

$$= 1.85$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga S_2 telah memenuhi uji keseragaman data

Uji Keseragaman Data

Sub Grup ke-	S_3					$\overline{xi}$
	1	2	3	4	5	
1	0.8	0.8	1	2.7	2.2	1.5
2	1.9	1.8	1.8	1.9	1.4	1.76
3	2	2	2	2	2	2.00
4	2	2	2.1	2.1	2.1	2.06
5	2.1	2.1	2.1	2.2	2.2	2.14
6	1.4	1.4	2.7	3	3.2	2.34
					$\sum \overline{xi}$	11.8
					$\overline{\overline{x}}$	1.96666667
					σ	0.54540926
					$\sigma_{\bar{x}}$	0.24391444

Contoh perhitungan :

$$\sum \overline{xi} = 1.5 + 1.76 + 2 + 2.06 + 2.14 + 2.34 = 11.8$$

$$\overline{\overline{x}} = \frac{\sum \overline{xi}}{6}$$

$$= \frac{11.8}{6} = 1.966667$$

$$\sigma = \sqrt{\frac{\sum \left(xj - \overline{\overline{x}} \right)^2}{n-1}}$$

$$= \sqrt{\frac{(0.8-1.966667)^2 + (0.8-1.966667)^2 + (1-1.966667)^2 + \ldots (2.7-1.966667)^2 + (3-1.966667)^2 + (3.2-1.966667)^2}{30-1}}$$

$$= 0.545409$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{0.545409}{\sqrt{5}} = 0.243914$$

$$BKA = \overline{\overline{x}} + c.\ \sigma_{\bar{x}}$$

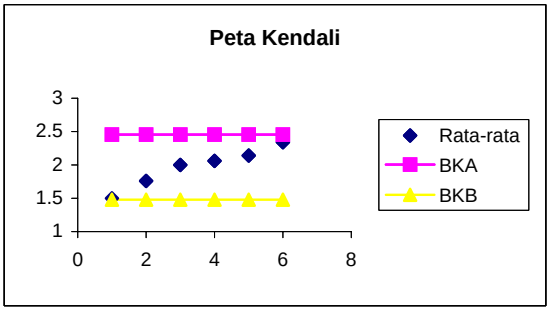
$$= 1.966667 + 2.(0.243914)$$

$$= 2.454495$$

$$BKB = \overline{\overline{x}} - c.\ \sigma_{\bar{x}}$$

$$= 1.966667 - 2.(0.243914)$$

$$= 1.478839$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga S_3 telah memenuhi uji keseragaman data

Uji Keseragaman Data

Sub Grup ke-		

	1	2	3	4	5	$\overline{xi}$
1	0.6	0.8	1	1.8	1.8	1.2
2	1	1	1	1.2	1.4	1.12
3	1.2	1.2	1.2	1.4	1.2	1.24
4	1.4	1.4	1.4	1.6	1.6	1.48
5	1.6	1.6	1.6	1.6	1.6	1.6
6	1	1	1.8	2.2	2.2	1.64
					$\sum \overline{xi}$	8.28
					$\bar{\bar{x}}$	1.38
					σ	0.38001815
					$\sigma_{\bar{x}}$	0.16994928

Contoh perhitungan :

$$\sum \overline{xi} = 1.2 + 1.12 + 1.24 + 1.48 + 1.6 + 1.64 = 8.28$$

$$\bar{\bar{x}} = \frac{\sum \overline{xi}}{6}$$

$$= \frac{8.28}{6} = 1.38$$

$$\sigma = \sqrt{\frac{\sum \left(xj - \bar{\bar{x}}\right)^2}{n-1}}$$

$$= \sqrt{\frac{(0.6-1.38)^2 + (0.8-1.38)^2 + (1-1.38)^2 + \ldots (1.8-1.38)^2 + (2.2-1.38)^2 + (2.2-1.38)^2}{30-1}}$$

$$= 0.380018$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{0.380018}{\sqrt{5}} = 0.169949$$

$$BKA = \bar{\bar{x}} + c.\ \sigma_{\bar{x}}$$

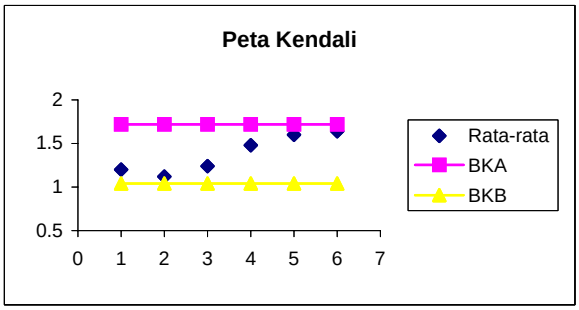
$$= 1.38 + 2.(0.169949)$$

$$= 1.719898$$

$$BKB = \bar{\bar{x}} - c.\ \sigma_{\bar{x}}$$

$$= 1.38 - 2.(0.169949)$$

$$= 1.040102$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga S_4 telah memenuhi uji keseragaman data

Uji Keseragaman Data

Sub Grup ke-						
	1	2	3	4	5	

1	6.7	6.7	6.7	10.0	10.0	8.02
2	7.0	7.0	9.3	7.5	7.5	7.66
3	7.5	7.5	7.5	7.5	7.5	7.50
4	8.0	8.0	8.5	8.5	8.5	8.30
5	8.5	8.5	8.5	10.0	9.3	8.96
6	6.0	6.0	7.0	12.2	12.4	8.72
					$\sum \overline{xi}$	49.16
					$\overline{\overline{x}}$	8.19
					σ	1.56
					$\sigma_{\overline{x}}$	0.70

Contoh perhitungan :

$$\sum \overline{xi} = 8.02 + 7.66 + 7.50 + 8.30 + 8.96 + 8.72 = 49.16$$

$$\overline{\overline{x}} = \frac{\sum \overline{xi}}{6}$$

$$= \frac{49.16}{6} = 8.19$$

$$\sigma = \sqrt{\frac{\sum \left(xj - \overline{\overline{x}}\right)^2}{n-1}}$$

$$= \sqrt{\frac{(6.7-8.19)^2 + (6.7-8.19)^2 + (6.7-8.19)^2 + \ldots (7.0-8.19)^2 + (12.2-8.19)^2 + (12.4-8.19)^2}{30-1}}$$

$$= 1.56$$

$$\sigma_{\overline{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{1.56}{\sqrt{5}} = 0.70$$

$$BKA = \overline{\overline{x}} + c.\ \sigma_{\overline{x}}$$

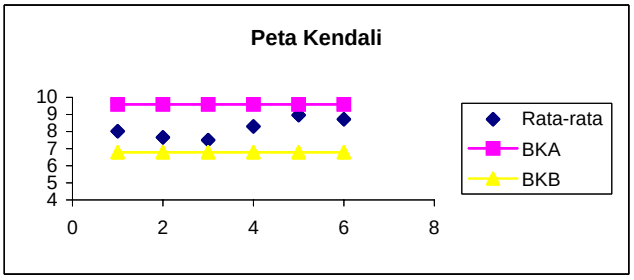
$$= 8.19 + 2.(0.70)$$

$$= 9.59$$

$$BKB = \overline{\overline{x}} - c.\ \sigma_{\overline{x}}$$

$$= 8.19 - 2.(0.70)$$

$$= 6.79$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga α telah memenuhi uji keseragaman data

Uji Keseragaman Data

Sub Grup ke-						
	1	2	3	4	5	
1	27.0	27.0	27.5	29.4	29.4	28.06

2	27.8	28.0	28.0	28.0	29.4	28.24
3	28.2	28.2	28.4	28.4	28.4	28.32
4	28.5	28.5	29.0	29.0	29.0	28.80
5	29.0	29.0	29.0	29.0	28.2	28.84
6	27.5	27.5	29.4	29.4	29.4	28.64
					$\sum \overline{xi}$	170.90
					$\overline{\overline{x}}$	28.48
					σ	0.73
					$\sigma_{\bar{x}}$	0.33

Contoh perhitungan :

$$\sum \overline{xi} = 28.06 + 28.24 + 28.32 + 28.80 + 28.84 + 28.64 = 170.90$$

$$\overline{\overline{x}} = \frac{\sum \overline{xi}}{6}$$

$$= \frac{170.90}{6} = 28.48$$

$$\sigma = \sqrt{\frac{\sum \left(xj - \overline{\overline{x}}\right)^2}{n-1}}$$

$$= \sqrt{\frac{(27.0-28.48)^2 + (27.0-28.48)^2 + (27.5-28.48)^2 + \ldots (29.40-28.48)^2 + (29.40-28.48)^2 + (29.40-28.48)^2}{30-1}}$$

$$= 0.73$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{0.73}{\sqrt{5}} = 0.33$$

$$BKA = \overline{\overline{x}} + c.\ \sigma_{\bar{x}}$$

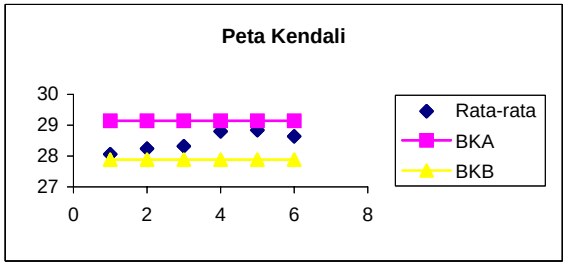
$$= 28.48 + 2.(0.33)$$

$$= 29.14$$

$$BKB = \overline{\overline{x}} - c.\ \sigma_{\bar{x}}$$

$$= 28.48 - 2.(0.33)$$

$$= 27.88$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga β telah memenuhi uji keseragaman data

Uji Keseragaman Data X

Sub Grup ke-	X					
	1	2	3	4	5	
1	30.1	30.1	30.1	47.8	48.5	37.32
2	36.9	37.2	37.7	37.9	38.8	37.70

3	39.3	41	42.5	42.7	43.6	41.82
4	43.7	43.8	43.9	44	44.6	44.00
5	45.4	45.9	46.3	46.5	46.7	46.16
6	30.5	35.7	48.5	49.4	50.8	42.98
					$\sum \overline{xi}$	249.98
					$\overline{\overline{x}}$	41.6633333
					σ	6.04006642
					$\sigma_{\bar{x}}$	2.70119979

Contoh perhitungan :

$$\sum \overline{xi} = 37.32 + 37.7 + 41.82 + 44 + 46.16 + 42.98 = 249.98$$

$$\overline{\overline{x}} = \frac{\sum \overline{xi}}{6}$$

$$= \frac{249.98}{6} = 41.66333$$

$$\sigma = \sqrt{\frac{\sum \left(xj - \overline{\overline{x}}\right)^2}{n-1}}$$

$$= \sqrt{\frac{(0.8-1.966667)^2 + (0.8-1.966667)^2 + (1-1.966667)^2 + ... (2.7-1.966667)^2 + (3-1.966667)^2 + (3.2-1.966667)^2}{30-1}}$$

$$= 6.040066$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{6.040066}{\sqrt{5}} = 2.7012$$

$$BKA = \overline{\overline{x}} + c.\ \sigma_{\bar{x}}$$

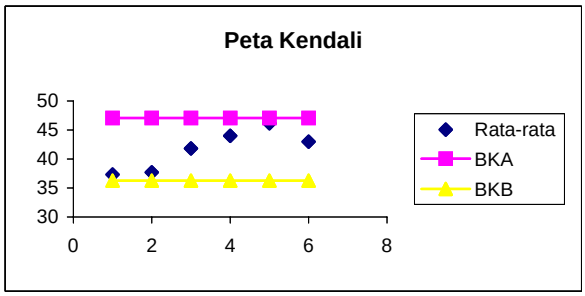
$$= 41.66333 + 2.(2.7012)$$

$$= 47.06573$$

$$BKB = \overline{\overline{x}} - c.\ \sigma_{\bar{x}}$$

$$= 41.66333 - 2.(2.7012)$$

$$= 36.26093$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga X telah memenuhi uji keseragaman data

Uji Keseragaman Data Y

Sub Grup ke-	Y					
	1	2	3	4	5	
1	10.80	10.80	11.00	14.90	14.90	12.48
2	12.20	12.20	12.20	12.50	12.50	12.32
3	12.50	12.50	12.80	12.80	13.00	12.72

4	13.00	13.00	13.30	13.30	13.30	13.18
5	13.30	13.60	13.60	13.60	13.60	13.54
6	11.00	11.00	15.80	15.80	16.00	13.92
					$\sum \overline{xi}$	78.16
					$\overline{\overline{x}}$	13.03
					σ	1.42
					$\sigma_{\bar{x}}$	0.63

Contoh perhitungan :

$$\sum \overline{xi} = 12.48 + 12.32 + 12.72 + 13.18 + 13.54 + 13.92 = 78.16$$

$$\overline{\overline{x}} = \frac{\sum \overline{xi}}{6}$$

$$= \frac{78.16}{6} = 13.03$$

$$\sigma = \sqrt{\frac{\sum \left(xj - \overline{\overline{x}}\right)^2}{n-1}}$$

$$= \sqrt{\frac{(10.80-13.03)^2 + (10.80-13.03)^2 + (11.00-13.03)^2 + \ldots (15.80-13.03)^2 + (15.80-13.03)^2 + (16.00-13.03)^2}{30-1}}$$

$$= 1.42$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{1.42}{\sqrt{5}} = 0.63$$

$$BKA = \overline{\overline{x}} + c.\ \sigma_{\bar{x}}$$

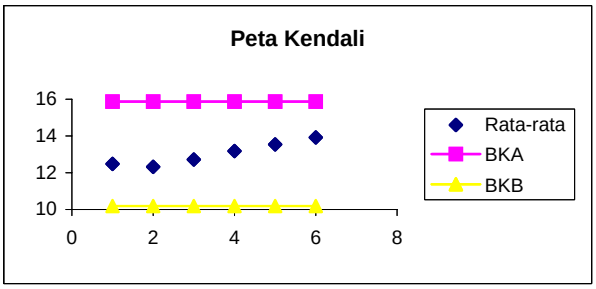
$$= 13.03 + 2.(1.42)$$

$$= 15.87$$

$$BKB = \overline{\overline{x}} - c.\ \sigma_{\bar{x}}$$

$$= 13.03 - 2.(1.42)$$

$$= 10.19$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga Y telah memenuhi uji keseragaman data

Uji Keseragaman Data P

Sub Grup ke-	P					$\overline{xi}$
	1	2	3	4	5	
1	19.6	19.6	28.6	35.8	36.5	28.02
2	22	29.4	29.5	30.5	30.8	28.44
3	31.5	31.8	32	32	32.4	31.94
4	33	33	33.8	34	34.6	33.68

5	34.7	35	35.4	35.4	35.5	35.20
6	23.6	26.9	36.6	37.3	41.2	33.12
					$\sum \overline{xi}$	190.4
					$\overline{\overline{x}}$	31.7333333
					σ	5.14247581
					$\sigma_{\bar{x}}$	2.29978507

Contoh perhitungan :

$$\sum \overline{xi} = 28.02 + 28.44 + 31.94 + 33.68 + 35.2 + 33.12 = 190.4$$

$$\overline{\overline{x}} = \frac{\sum \overline{xi}}{6}$$

$$= \frac{190.4}{6} = 31.73333$$

$$\sigma = \sqrt{\frac{\sum \left(xj - \overline{\overline{x}}\right)^2}{n-1}}$$

$$= \sqrt{\frac{(19.6-31.73333)^2 + (19.6-31.73333)^2 + (28.6-31.73333)^2 + \ldots (36.6-31.73333)^2 + (37.3-31.73333)^2 + (41.2-31.73333)^2}{30-1}}$$

$$= 5.142476$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{5.142476}{\sqrt{5}} = 2.299785$$

$$BKA = \overline{\overline{x}} + c.\ \sigma_{\bar{x}}$$

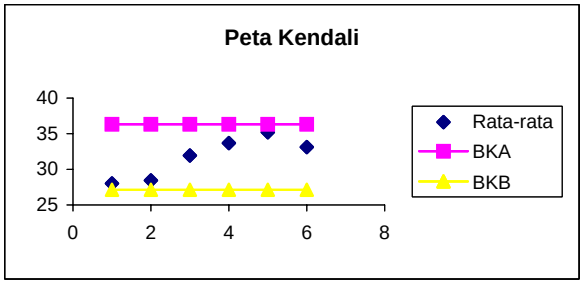
$$= 31.73333 + 2.(2.299785)$$

$$= 36.3329$$

$$BKB = \overline{\overline{x}} - c.\ \sigma_{\bar{x}}$$

$$= 31.73333 - 2.(2.299785)$$

$$= 27.13376$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga P telah memenuhi uji keseragaman data

Uji Keseragaman Data Q

Sub Grup ke-	Q					$\overline{xi}$
	1	2	3	4	5	
1	32.0	32.6	33.0	42.4	42.4	36.48
2	35.5	36.0	36.5	36.5	36.6	36.22
3	37.0	37.2	37.3	37.4	37.5	37.28
4	37.6	37.8	38.0	38.9	39.2	38.30
5	39.4	39.8	39.9	41.0	41.2	40.26

6	33.0	34.4	42.4	46.0	46.0	40.36
					$\sum \overline{xi}$	228.9
					$\overline{\overline{x}}$	38.15
					σ	3.5402854
					$\sigma_{\bar{x}}$	1.58326375

Contoh perhitungan :

$$\sum \overline{xi} = 36.48 + 36.22 + 37.28 + 38.3 + 40.26 + 40.36 = 228.9$$

$$\overline{\overline{x}} = \frac{\sum \overline{xi}}{6}$$

$$= \frac{228.9}{6} = 38.15$$

$$\sigma = \sqrt{\frac{\sum \left(xj - \overline{\overline{x}}\right)^2}{n-1}}$$

$$= \sqrt{\frac{(32-38.15)^2 + (32.6-38.15)^2 + (33-38.15)^2 + \ldots (42.4-38.15)^2 + (46-38.15)^2 + (46-38.15)^2}{30-1}}$$

$$= 3.540285$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$= \frac{3.540285}{\sqrt{5}} = 1.583264$$

$$BKA = \overline{\overline{x}} + c.\ \sigma_{\bar{x}}$$

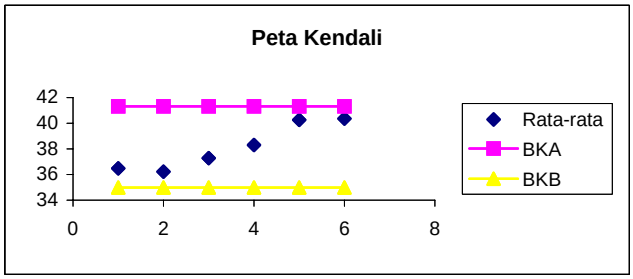
$$= 38.15 + 2.(1.583264)$$

$$= 41.316528$$

$$BKB = \overline{\overline{x}} - c.\ \sigma_{\bar{x}}$$

$$= 38.15 - 2.(1.583264)$$

$$= 34.983472$$



Semua rata-rata berada dalam batas-batas keseragaman
Sehingga Q telah memenuhi uji keseragaman data

14	7	#REF!	#REF!
196			#REF!

14	#REF!
3.741657	#REF!
74.83315	#REF!
5.345225	#REF!
28.57143	#REF!

0.38	0.580129
0.4	0.580129
0.46	0.580129
0.5	0.580129
0.54	0.580129
0.52	0.580129

69.8	170.48
4872.04	
242.36	
15.56792	
311.3583	
4.460721	
19.89803	

1.92	2.81
1.96	2.81
2.26	2.81
2.54	2.81
2.76	2.81
2.52	2.81

59	124.66
3481	
258.8	
16.08726	
321.7452	
5.453309	
29.73858	

1.5	2.454495
1.76	2.454495
2	2.454495
2.06	2.454495
2.14	2.454495
2.34	2.454495

41.4	61.32
1713.96	
125.64	
11.20893	
224.1785	
5.41494	
29.32157	

1.2	1.719898	1.040102
1.12	1.719898	1.040102
1.24	1.719898	1.040102
1.48	1.719898	1.040102
1.6	1.719898	1.040102
1.64	1.719898	1.040102

245.8	2084.5		
60417.64			
2117.36			
46.01478			
920.2956			
3.744083			
14.01816			

	8.02	9.59
	7.66	9.59
	7.50	9.59
	8.30	9.59
	8.96	9.59
9.59	8.72	9.59
6.79		

854.5	24354.65

730170.3

469.25
21.66218
433.2436
0.507014
0.257063

28.06	29.14
28.24	29.14
28.32	29.14
28.8	29.14
28.84	29.14
28.64	29.14

1249.9 53132.99
1562250

31739.69
178.1564
3563.127
2.85073
8.126661

37.32	47.06573
37.7	47.06573
41.82	47.06573
44	47.06573
46.16	47.06573
42.98	47.06573

390.8 5149.18
152724.6

1750.76
41.84208
836.8417
2.141355
4.585403

12.48
12.32
12.72
13.18
13.54
13.92

952 30977.04
906304

23007.2

151.6812
3033.625
3.186581
10.1543

28.02	36.3329
28.44	36.3329
31.94	36.3329
33.68	36.3329
35.2	36.3329
33.12	36.3329

1144.5	44026.15
1309880	

10904.25
104.4234

2088.468
1.824787
3.329846

36.48
36.22
37.28
38.3
40.26
40.36

0.353205
0.353205
0.353205
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1.85
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1.478839
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6.79
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27.88
27.88
27.88
27.88
27.88
27.88

36.26093
36.26093
36.26093
36.26093
36.26093
36.26093

15.87	10.19
15.87	10.19
15.87	10.19
15.87	10.19
15.87	10.19
15.87	10.19

27.13376
27.13376
27.13376
27.13376
27.13376
27.13376

41.31653 34.98347
41.31653 34.98347
41.31653 34.98347
41.31653 34.98347
41.31653 34.98347
41.31653 34.98347

KOMENTAR DOSEN PENGUJI

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NRP	:	0023006
Judul Tugas Akhir	:	Perancangan Kursi Kuliah Ergonomis Yang Memberikan Kenyamanan Dari Segi Konsumsi Energi

Komentar-Komentar Dosen Penguji :

1. Abstrak : Lebih dari 50%, berapa?
2. Pembatasan : no 1
   Responden kuesioner?
3. Perumusan : no 1 tempatkan di no 3
4. Tujuan : no 1 tidak sesuai perumusan
5. Bab 4 : Tabel 4.3
   Hal 4-11 wawancara terhadap siapa?
6. Bab 5 : Tabel 5.19
   Kenapa kesimpulan sudut terbaik diambil dari total KE terkecil?
7. Saran : no 2
8. Perbaiki : Istilah asing (italic)
   Tabel lanjutan beri kop lagi
   Lampiran : no hal bertumpuk
9. Apakah lama waktu pengukuran dapat berpengaruh pada sudut kemiringan terbaik? Saran untuk penelitian lebih lanjut
10. Tabel 5.19 dan Tabel 2.5 : Pengeluaran energi kkal/menit dari data rata-rata 0.3.. dari hasil teori Tabel 2.5 1.5 kkal/menit (posisi sama duduk) Bagaimana dengan pengambilan datanya apakah ini cukup akurat
11. Sudut kemiringan Vs waktu penelitian sebaiknya dilakukan untuk melihat sudut kemiringan waktu penelitian yang optimal

12. Kuisioner diganti menjadi kuesioner (3-5)
13. Tambahkan analisis mengenai kontraksi otot, karena di bab II banyak disingggung mengenai otot
14. Rumus n untuk menentukan jumlah sample di L1-18 dst. Apakah diperlukan? Check lagi

DATA PENULIS

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Nilai Tugas Akhir	:	A
Tanggal USTA	:	4 Februari 2005