Lampiran 1

- **Pengolahan Data Anthropometri**
  - **Uji Kenormalan Data**
  - **Uji Keseragaman Data**
  - **Uji Kecukupan Data**
- **Perhitungan Persentil Data Anthropometri**

Tabel Data Mentah Anthropometri Tinggi Badan Tegak (TBT)

Data Anthropometri Tinggi Badan Tegak (TBT)									
154.7	167.9	169.5	177.0	165.0	160.0	166.7	156.5	154.5	171.0
167.0	150.5	149.7	172.8	150.0	157.0	159.0	151.0	162.5	179.5
161.0	172.0	168.2	155.5	171.0	163.0	165.0	164.0	154.1	167.2
158.7	171.0	171.0	158.0	170.5	157.8	156.9	163.0	168.0	167.5
168.0	159.4	176.1	166.0	177.0	152.5	164.0	181.0	161.5	167.5
151.0	168.0	166.0	153.0	168.3	151.5	165.0	173.3	173.0	172.2
172.0	177.0	169.5	168.0	166.0	156.0	170.0	154.0	163.0	168.5
175.0	168.3	165.0	171.5	154.1	158.0	170.5	166.0	170.6	158.0
156.5	152.6	163.0	146.1	174.6	157.7	180.0	165.0	160.0	157.0
172.5	163.6	152.6	159.1	157.1	161.0	151.0	170.0	153.4	161.5
161.0	168.2	172.0	158.5	167.0	153.0	174.0	170.0	161.5	156.0
175.0	151.0	155.0	167.5	150.4	169.0	173.3	158.1	168.0	174.0
159.0	175.0	153.0	176.2	157.0	168.0	150.0	166.0	151.5	159.0
171.0	162.5	167.0	159.0	169.4	171.5	166.0	164.5	165.4	161.0
152.0	168.0	173.0	190.0	165.0	164.5	148.3	169.0	148.2	154.5
155.0	165.0	163.5	155.0	175.0	147.5	163.0	158.0	167.0	164.0
165.4	160.0	153.0	166.0	150.0	157.0	167.2	163.8	156.0	162.3
167.4	153.0	154.5	157.5	177.0	173.0	163.1	157.5	158.0	167.0
171.0	148.0	156.8	170.0	157.0	171.0	150.0	158.5	163.0	174.0
151.0	159.3	169.5	158.0	169.1	163.0	160.0	153.0	165.0	154.0

Uji Kenormalan Data Tinggi Badan Tegak (TBT)

Interval Kelas			Batas Kelas			Oi	Z_1	Z_2	$P(Z_1)$	$P(Z_2)$	$P(Z_2)$-$P(Z_1)$	ei	ei gab	Oi gab	$(Oi - ei)^2/ei$
< 146.10			< 146.05			0	0	-2.104	0	0.01770	0.01770	3.540	14.012	17	0.6373
146.10	-	151.10	146.05	-	151.15	17	-2.104	-1.475	0.01770	0.07006	0.05236	10.472			
151.20	-	156.20	151.15	-	156.25	28	-1.475	-0.847	0.07006	0.19851	0.12845	25.690	25.690	28	0.2078
156.30	-	161.30	156.25	-	161.35	39	-0.847	-0.219	0.19851	0.41349	0.21498	42.996	42.996	39	0.3715
161.40	-	166.40	161.35	-	166.45	39	-0.219	0.410	0.41349	0.65903	0.24554	49.108	49.108	39	2.0804
166.50	-	171.50	166.45	-	171.55	48	0.410	1.038	0.65903	0.85041	0.19138	38.277	38.277	48	2.4699
171.60	-	176.60	171.55	-	176.65	21	1.038	1.667	0.85041	0.95220	0.10179	20.358	20.358	21	0.0202
176.70	-	181.70	176.65	-	181.75	7	1.667	2.295	0.95220	0.98913	0.03693	7.386	9.560	8	0.2545
181.80	-	186.80	181.75	-	186.85	0	2.295	2.923	0.98913	0.99827	0.00914	1.827			
186.90	-	191.90	186.85	-	191.95	1	2.923	3.552	0.99827	0.99981	0.00154	0.308			
> 191.90			> 191.95			0	3.552	1	0.99981	1	0.00019	0.038			
						200					1	200			6.0416

Jumlah Kelas :

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

$k = 1 + (3.3 \log 200)$

$k = 8.59 \approx 9$

Rentang Kelas :

$$c = \frac{(\max - \min)}{k} = \frac{190.0 - 146.1}{8.59}$$

$$= 5.10 \approx 5.1$$

Rata – rata :

$$\mu = \frac{\Sigma x_i}{n}$$

$$= \frac{(154.7 + 161.0 + ... + 154.0)}{200}$$

$$= 163.124$$

Standar Deviasi :

$$S = \sqrt{\frac{\Sigma(x_i - \mu)^2}{N - 1}} = 8.116$$

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

$x^2_{(hitung)} = 6.0416 \quad x^2_{(0.05,4)} = 9.488$

$x^2_{(hitung)} < x^2_{(0.05,4)} \longrightarrow 6.0416 < 9.488 \longrightarrow$ Data Berdistribusi Normal

Contoh Perhitungan Tabel:

$$Z_1 = \frac{BKB - \mu}{\sigma}$$
$$= \frac{146.05 - 163.124}{8.116}$$
$$= -2.104$$

$$Z_2 = \frac{BKA - \mu}{\sigma}$$
$$= \frac{151.15 - 163.124}{8.116}$$
$$= -1.475$$

$P(Z_1) = P(-2.104) = 0.01770$

$P(Z_2) = P(-1.475) = 0.07006$

$P(Z_2) - P(Z_1) = 0.07006 - 0.01770 = 0.05236$

$e_i = [P(Z_2) - P(Z_1)] \times \sum O_i = 0.05236 \times 200 = 10.472$

e_i gab $= \geq 1$ atau $\geq 5 = 3.540 + 10.472 = 14.012$

$$\frac{(O_i - e_i)^2}{e_i} = \frac{(17 - 14.012)^2}{14.012} = 0.6373$$

Uji Keseragaman Data Tinggi Badan Tegak (TBT)

Subgrup Ke-	Data Anthropometri Tinggi Badan Tegak (TBT)										Harga Rata-rata
	1	2	3	4	5	6	7	8	9	10	
1	154.7	167.9	169.5	177.0	165.0	160.0	166.7	156.5	154.5	171.0	164.28
2	167.0	150.5	149.7	172.8	150.0	157.0	159.0	151.0	162.5	179.5	159.90
3	161.0	172.0	168.2	155.5	171.0	163.0	165.0	164.0	154.1	167.2	164.10
4	158.7	171.0	171.0	158.0	170.5	157.8	156.9	163.0	168.0	167.5	164.24
5	168.0	159.4	176.1	166.0	177.0	152.5	164.0	181.0	161.5	167.5	167.30
6	151.0	168.0	166.0	153.0	168.3	151.5	165.0	173.3	173.0	172.2	164.13
7	172.0	177.0	169.5	168.0	166.0	156.0	170.0	154.0	163.0	168.5	166.40
8	175.0	168.3	165.0	171.5	154.1	158.0	170.5	166.0	170.6	158.0	165.70
9	156.5	152.6	163.0	146.1	174.6	157.7	180.0	165.0	160.0	157.0	161.25
10	172.5	163.6	152.6	159.1	157.1	161.0	151.0	170.0	153.4	161.5	160.18
11	161.0	168.2	172.0	158.5	167.0	153.0	174.0	170.0	161.5	156.0	164.12
12	175.0	151.0	155.0	167.5	150.4	169.0	173.3	158.1	168.0	174.0	164.13
13	159.0	175.0	153.0	176.2	157.0	168.0	150.0	166.0	151.5	159.0	161.47
14	171.0	162.5	167.0	159.0	169.4	171.5	166.0	164.5	165.4	161.0	165.73
15	152.0	168.0	173.0	190.0	165.0	164.5	148.3	169.0	148.2	154.5	163.25
16	155.0	165.0	163.5	155.0	175.0	147.5	163.0	158.0	167.0	164.0	161.30
17	165.4	160.0	153.0	166.0	150.0	157.0	167.2	163.8	156.0	162.3	160.07
18	167.4	153.0	154.5	157.5	177.0	173.0	163.1	157.5	158.0	167.0	162.80
19	171.0	148.0	156.8	170.0	157.0	171.0	150.0	158.5	163.0	174.0	161.93
20	151.0	159.3	169.5	158.0	169.1	163.0	160.0	153.0	165.0	154.0	160.19
										$\sum \bar{x}$	3262.47

Harga Rata-rata Subgrup (x):

$$\bar{\bar{x}} = \frac{\sum \bar{x}}{k} = \frac{3262.47}{20} = 163.124$$

Standar Deviasi:

$$\sigma = \sqrt{\frac{\sum (x_i - \mu)^2}{N-1}}$$

$$= \sqrt{\frac{(154.7-163.124)^2 + (167.9-163.124)^2 + ... + (154.0-163.124)^2}{200-1}}$$

$$= 8.116$$

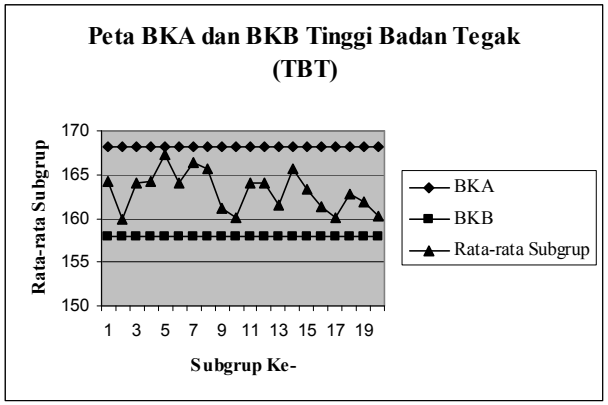
Standar Deviasi Subgrup:

$$\sigma_x = \frac{\sigma}{\sqrt{n}} = \frac{8.116}{\sqrt{10}} = 2.567$$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$BKA = \bar{\bar{x}} + (c \,.\, \sigma_x)$$
$$= 163.124 + (2 * 2.567)$$
$$= 168.258$$

$$BKB = \bar{\bar{x}} - (c \,.\, \sigma_x)$$
$$= 163.124 - (2 * 2.567)$$
$$= 157.99$$



Uji Kecukupan Data Tinggi Badan Tegak (TBT)

$\Sigma x_i^{\,2} = 5334964.15$

$(\Sigma x_i)^2 = 1064371050.09$

$\Sigma x_i = 32624.7$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$N' = \left[\frac{c/\alpha \sqrt{N.\sum xi^2 - \left(\sum xi\right)^2}}{\sum xi} \right]^2 = 3.941$$

N' < N $\longrightarrow$ 3.941 < 200 $\longrightarrow$ Data Cukup

Perhitungan Persentil Data Tinggi Badan Tegak (TBT)

Max = 190.0

Min = 146.1

Range = 43.9

P 5% = (43.9*0.05) + 146.1 = 148.295

P 50% = (43.9*0.5) + 146.1 = 168.05

P 95% = (43.9*0.95) + 146.1 = 187.805

Tabel Data Mentah Anthropometri Tinggi Duduk Tegak (TDT)

Data Anthropometri Tinggi Duduk Tegak (TDT)									
81.9	93.0	88.0	92.0	82.0	83.3	79.0	83.5	84.5	90.0
87.0	83.2	78.0	91.7	81.2	88.0	89.5	96.2	88.1	91.0
85.5	79.7	87.2	81.4	91.0	86.0	81.6	89.0	90.8	92.5
92.5	87.0	89.0	83.5	87.0	82.5	81.5	80.0	85.1	90.3
82.8	90.6	89.5	86.0	90.0	80.5	90.0	86.6	89.5	87.1
90.0	89.8	87.5	81.6	89.2	82.1	82.6	87.5	88.0	90.0
85.0	95.0	87.0	90.2	87.7	90.2	83.5	80.0	85.0	95.4
91.1	83.7	89.0	89.0	81.8	86.0	85.0	87.0	86.0	84.5
87.2	82.2	87.0	75.8	88.5	86.4	85.0	89.6	86.0	82.0
91.5	86.2	87.0	82.8	84.4	84.5	76.5	92.0	83.0	91.0
84.2	87.4	91.1	79.5	86.0	81.2	86.0	90.0	78.5	80.4
92.0	78.0	84.0	90.2	81.1	91.0	88.5	86.0	83.5	86.0
83.4	89.5	91.2	84.0	84.6	89.5	80.0	82.5	91.5	80.6
85.5	86.6	90.0	89.0	79.0	88.5	81.0	89.5	87.5	92.5
80.3	86.5	89.5	88.9	82.3	86.3	79.5	88.5	83.0	86.5
82.5	82.4	87.5	81.1	88.2	84.0	81.2	83.9	83.2	85.2
87.8	82.5	80.4	82.6	80.5	85.4	82.6	87.0	86.0	88.7
90.1	80.3	83.0	86.2	79.6	84.2	88.3	82.5	92.0	88.0
90.3	79.0	86.4	88.9	90.0	85.4	90.5	82.5	84.0	87.9
79.0	83.7	91.0	80.8	88.2	85.5	96.0	79.7	80.1	81.6

Uji Kenormalan Data Tinggi Duduk Tegak (TDT)

Interval Kelas			Batas Kelas			Oi	Z_1	Z_2	$P(Z_1)$	$P(Z_2)$	$P(Z_2)$-$P(Z_1)$	ei	ei gab	Oi gab	$(Oi - ei)^2/ei$
< 75.8			< 75.75			0	0	-2.460	0	0.00695	0.00695	1.390	6.054	4	0.6970
75.80	-	78.10	75.75	-	78.15	4	-2.460	-1.877	0.00695	0.03027	0.02332	4.665			
78.20	-	80.50	78.15	-	80.55	20	-1.877	-1.294	0.03027	0.09788	0.06761	13.522	13.522	20	3.1039
80.60	-	82.90	80.55	-	82.95	32	-1.294	-0.711	0.09788	0.23865	0.14077	28.155	28.155	32	0.5251
83.00	-	85.30	82.95	-	85.35	31	-0.711	-0.128	0.23865	0.44925	0.21060	42.120	42.120	31	2.9357
85.40	-	87.70	85.35	-	87.75	40	-0.128	0.456	0.44925	0.67564	0.22639	45.277	45.277	40	0.6151
87.80	-	90.10	87.75	-	90.15	41	0.456	1.039	0.67564	0.85051	0.17487	34.974	34.974	41	1.0381
90.20	-	92.50	90.15	-	92.55	24	1.039	1.622	0.85051	0.94757	0.09706	19.411	19.411	24	1.0847
92.60	-	94.90	92.55	-	94.95	4	1.622	2.205	0.94757	0.98627	0.03870	7.740			
95.00	-	97.30	94.95	-	97.35	4	2.205	2.788	0.98627	0.99735	0.01108	2.216	10.486	8	0.5895
> 97.30			> 97.35			0	2.788	1	0.99735	1	0.00265	0.531			
						200					1	200			10.5892

Jumlah Kelas :

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

$k = 1 + (3.3 \log 200)$

$k = 8.59 \approx 9$

Rentang Kelas :

$$c = \frac{(\max - \min)}{k} = \frac{96.2 - 75.8}{8.59}$$

$$= 2.37 \approx 2.4$$

Rata – rata :

$$\mu = \frac{\Sigma x_i}{n}$$

$$= \frac{(81.9 + 85.5 + ... + 81.6)}{200}$$

$$= 85.875$$

Standar Deviasi :

$$S = \sqrt{\frac{\Sigma(x_i - \mu)^2}{N - 1}} = 4.116$$

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

$x^2_{(hitung)} = 10.5892 \quad x^2_{(0.05,5)} = 11.070$

$x^2_{(hitung)} < x^2_{(0.05,5)} \rightarrow 10.5892 < 11.070 \rightarrow$ Data Berdistribusi Normal

Contoh Perhitungan Tabel:

$$Z_1 = \frac{BKB - \mu}{\sigma}$$
$$= \frac{77.75 - 85.875}{4.116}$$
$$= -2.460$$

$$Z_2 = \frac{BKA - \mu}{\sigma}$$
$$= \frac{78.15 - 85.875}{4.116}$$
$$= -1.877$$

$$P(Z_1) = P(-2.460) = 0.00695$$
$$P(Z_2) = P(-1.877) = 0.03027$$
$$P(Z_2) - P(Z_1) = 0.03027 - 0.00695 = 0.02332$$

$$e_i = [P(Z_2) - P(Z_1)] \times \sum O_i = 0.02332 \times 200 = 4.665$$

$$e_i \text{ gab} = \geq 1 \text{ atau} \geq 5 = 1.390 + 4.665 = 6.054$$

$$\frac{(O_i - e_i)^2}{e_i} = \frac{(4 - 6.054)^2}{6.054} = 0.6970$$

Uji Keseragaman Data Tinggi Duduk Tegak (TDT)

Subgrup Ke-	Data Anthropometri Tinggi Duduk Tegak (TDT)										Harga Rata-rata
	1	2	3	4	5	6	7	8	9	10	
1	81.9	93.0	88.0	92.0	82.0	83.3	79.0	83.5	84.5	90.0	85.72
2	87.0	83.2	78.0	91.7	81.2	88.0	89.5	96.2	88.1	91.0	87.39
3	85.5	79.7	87.2	81.4	91.0	86.0	81.6	89.0	90.8	92.5	86.47
4	92.5	87.0	89.0	83.5	87.0	82.5	81.5	80.0	85.1	90.3	85.84
5	82.8	90.6	89.5	86.0	90.0	80.5	90.0	86.6	89.5	87.1	87.26
6	90.0	89.8	87.5	81.6	89.2	82.1	82.6	87.5	88.0	90.0	86.83
7	85.0	95.0	87.0	90.2	87.7	90.2	83.5	80.0	85.0	95.4	87.90
8	91.1	83.7	89.0	89.0	81.8	86.0	85.0	87.0	86.0	84.5	86.31
9	87.2	82.2	87.0	75.8	88.5	86.4	85.0	89.6	86.0	82.0	84.97
10	91.5	86.2	87.0	82.8	84.4	84.5	76.5	92.0	83.0	91.0	85.89
11	84.2	87.4	91.1	79.5	86.0	81.2	86.0	90.0	78.5	80.4	84.43
12	92.0	78.0	84.0	90.2	81.1	91.0	88.5	86.0	83.5	86.0	86.03
13	83.4	89.5	91.2	84.0	84.6	89.5	80.0	82.5	91.5	80.6	85.68
14	85.5	86.6	90.0	89.0	79.0	88.5	81.0	89.5	87.5	92.5	86.91
15	80.3	86.5	89.5	88.9	82.3	86.3	79.5	88.5	83.0	86.5	85.13
16	82.5	82.4	87.5	81.1	88.2	84.0	81.2	83.9	83.2	85.2	83.92
17	87.8	82.5	80.4	82.6	80.5	85.4	82.6	87.0	86.0	88.7	84.35
18	90.1	80.3	83.0	86.2	79.6	84.2	88.3	82.5	92.0	88.0	85.42
19	90.3	79.0	86.4	88.9	90.0	85.4	90.5	82.5	84.0	87.9	86.49
20	79.0	83.7	91.0	80.8	88.2	85.5	96.0	79.7	80.1	81.6	84.56
										$\sum \bar{x}$	1717.50

Harga Rata-rata Subgrup (x):

$$\bar{\bar{x}} = \frac{\sum \bar{x}}{k} = \frac{1717.50}{20} = 85.875$$

Standar Deviasi:

$$\sigma = \sqrt{\frac{\sum (x_i - \mu)^2}{n-1}}$$

$$= \sqrt{\frac{(81.9-85.875)^2 + (93.0-85.875)^2 + ... + (81.6-85.875)^2}{200-1}}$$

$$= 4.116$$

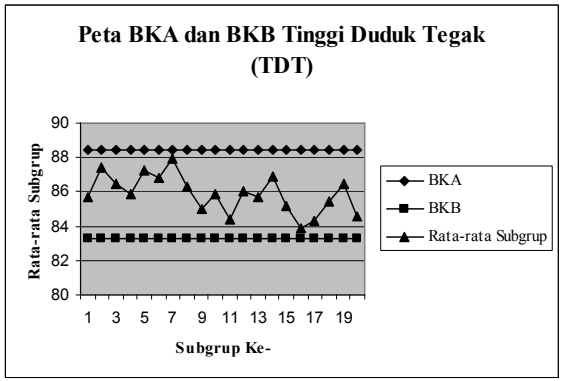
Standar Deviasi Subgrup:

$$\sigma_x = \frac{\sigma}{\sqrt{n}} = \frac{4.116}{\sqrt{10}} = 1.302$$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$BKA = \bar{\bar{x}} + (c.\sigma_x)$$
$$= 85.875 + (2*1.302)$$
$$= 88.479$$

$$BKB = \bar{\bar{x}} - (c.\sigma_x)$$
$$= 85.875 - (2*1.302)$$
$$= 83.271$$



Uji Kecukupan Data Tinggi Duduk Tegak (TDT)

$\Sigma x_i^{\,2} = 1478273.76$

$(\Sigma x_i)^2 = 294980625.0$

$\Sigma x_i = 17175.0$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$N' = \left[\frac{c/\alpha \sqrt{N \sum x_i^{\,2} - \left(\sum x_i\right)^2}}{\sum x_i} \right]^2 = 3.657$$

N' < N $\longrightarrow$ 3.657 < 200 $\longrightarrow$ Data Cukup

Perhitungan Persentil Data Tinggi Duduk Tegak (TDT)

Max = 96.2

Min = 75.8

Range = 20.4

P 5% = (20.4*0.05) + 75.8 = 76.82

P 50% = (20.4*0.5) + 75.8 = 86.0

P 95% = (20.4*0.95) + 75.8 = 95.18

Tabel Data Mentah Anthropometri Tinggi Bahu Berdiri (TBB)

Data Anthropometri Tinggi Bahu Berdiri (TBB)									
126.7	129.2	142.5	149.0	136.0	132.2	137.9	128.3	126.0	145.0
143.0	123.5	122.0	145.5	125.0	129.0	146.3	125.0	133.7	122.5
132.0	144.0	140.0	132.8	146.0	112.8	129.0	150.0	142.0	139.0
131.2	147.0	131.6	129.0	141.3	130.7	129.8	133.0	127.7	152.0
142.1	130.0	143.0	140.0	149.0	146.7	137.0	126.5	143.0	139.2
133.0	137.4	133.0	127.2	135.0	133.0	132.0	154.0	141.0	144.6
132.0	148.0	140.5	144.0	122.0	137.0	141.0	137.0	142.4	134.4
142.0	139.0	137.0	140.0	130.3	132.0	141.5	133.8	119.8	136.0
127.7	128.3	136.0	130.0	146.7	134.0	149.4	142.0	135.0	131.3
146.0	129.4	127.4	134.0	131.0	132.6	147.0	146.0	128.3	137.1
134.7	136.0	127.0	130.5	142.4	117.6	131.9	142.5	146.0	126.0
126.0	143.3	128.0	139.2	146.0	122.7	150.3	130.6	142.0	118.8
141.0	143.5	127.8	132.0	125.0	138.0	122.0	128.0	127.0	128.1
144.2	132.1	127.0	138.4	123.5	144.5	140.5	137.5	139.0	138.0
128.0	142.0	146.0	138.2	135.5	134.0	121.4	140.0	132.5	133.0
125.0	138.0	135.0	127.0	149.0	124.0	121.0	130.2	139.0	143.0
136.6	124.5	125.5	127.5	130.0	131.5	137.5	137.2	133.0	133.5
138.2	125.0	127.0	136.0	148.0	144.0	134.7	131.0	134.0	139.0
148.0	137.0	136.5	140.0	134.0	141.6	146.0	132.7	132.0	142.0
124.0	130.0	139.5	131.0	125.0	136.7	134.0	127.0	142.0	139.0

Uji Kenormalan Data Tinggi Bahu Berdiri (TBB)

Interval Kelas			Batas Kelas			Oi	Z_1	Z_2	$P(Z_1)$	$P(Z_2)$	$P(Z_2)-P(Z_1)$	ei	ei gab	Oi gab	$(Oi - ei)^2/ei$
< 112.8			< 112.75			0	0	-2.861	0	0.00211	0.00211	0.422	10.165	9	0.1335
112.80	-	117.50	112.75	-	117.55	1	-2.861	-2.249	0.00211	0.01225	0.01014	2.029			
117.60	-	122.30	117.55	-	122.35	8	-2.249	-1.637	0.01225	0.05082	0.03857	7.714			
122.40	-	127.10	122.35	-	127.15	25	-1.637	-1.025	0.05082	0.15274	0.10192	20.384	20.384	25	1.0455
127.20	-	131.90	127.15	-	131.95	36	-1.025	-0.413	0.15274	0.33996	0.18722	37.443	37.443	36	0.0556
132.00	-	136.70	131.95	-	136.75	42	-0.413	0.200	0.33996	0.57910	0.23914	47.828	47.828	42	0.7102
136.80	-	141.50	136.75	-	141.55	38	0.200	0.812	0.57910	0.79153	0.21243	42.487	42.487	38	0.4739
141.60	-	146.30	141.55	-	146.35	35	0.812	1.424	0.79153	0.92277	0.13123	26.246	26.246	35	2.9196
146.40	-	151.10	146.35	-	151.15	13	1.424	2.036	0.92277	0.97913	0.05636	11.273	15.447	15	0.0129
151.20	-	155.90	151.15	-	155.95	2	2.036	2.648	0.97913	0.99595	0.01683	3.365			
> 155.90			> 155.95			0	2.648	1	0.99595	1	0.00405	0.809			
						200					1	200			5.3513

Jumlah Kelas :

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

$k = 1 + (3.3 \log 200)$

$k = 8.59 \approx 9$

Rentang Kelas :

$$c = \frac{(\max - \min)}{k} = \frac{154.0 - 112.8}{8.59}$$

$$= 4.79 \approx 4.8$$

Rata – rata :

$$\mu = \frac{\Sigma x_i}{n}$$

$$= \frac{(126.7 + 129.2 + ... + 13.90)}{200}$$

$$= 135.185$$

Standar Deviasi :

$$S = \sqrt{\frac{\Sigma(x_i - \mu)^2}{N - 1}} = 7.841$$

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

$x^2_{(hitung)} = 5.3513 \qquad x^2_{(0.05,4)} = 9.488$

$x^2_{(hitung)} < x^2_{(0.05,4)} \longrightarrow 5.3513 < 9.488 \longrightarrow$ Data Berdistribusi Normal

Contoh Perhitungan Tabel:

$$Z_1 = \frac{BKB - \mu}{\sigma}$$
$$= \frac{112.75 - 135.185}{7.841}$$
$$= -2.861$$

$$Z_2 = \frac{BKA - \mu}{\sigma}$$
$$= \frac{117.55 - 135.185}{7.841}$$
$$= -2.249$$

$$P(Z_1) = P(-2.861) = 0.00211$$
$$P(Z_2) = P(-2.249) = 0.01225$$
$$P(Z_2) - P(Z_1) = 0.01225 - 0.00211 = 0.01014$$

$$e_i = \left[P(Z_1) - P(Z_2)\right] \times \sum O_i = 0.01014 \times 200 = 2.029$$

$$e_i \text{ gab} = \geq 1 \text{ atau} \geq 5 = 0.422 + 2.029 + 7.714 = 10.165$$

$$\frac{(O_i - e_i)^2}{e_i} = \frac{(9 - 10.165)^2}{10.165} = 0.1335$$

Uji Keseragaman Data Tinggi Bahu Berdiri (TBB)

Subgrup Ke-	Data Anthropometri Tinggi Bahu Berdiri (TBB)										Harga Rata-rata
	1	2	3	4	5	6	7	8	9	10	
1	126.7	129.2	142.5	149.0	136.0	132.2	137.9	128.3	126.0	145.0	135.28
2	143.0	123.5	122.0	145.5	125.0	129.0	146.3	125.0	133.7	122.5	131.55
3	132.0	144.0	140.0	132.8	146.0	112.8	129.0	150.0	142.0	139.0	136.76
4	131.2	147.0	131.6	129.0	141.3	130.7	129.8	133.0	127.7	152.0	135.33
5	142.1	130.0	143.0	140.0	149.0	146.7	137.0	126.5	143.0	139.2	139.65
6	133.0	137.4	133.0	127.2	135.0	133.0	132.0	154.0	141.0	144.6	137.02
7	132.0	148.0	140.5	144.0	122.0	137.0	141.0	137.0	142.4	134.4	137.83
8	142.0	139.0	137.0	140.0	130.3	132.0	141.5	133.8	119.8	136.0	135.14
9	127.7	128.3	136.0	130.0	146.7	134.0	149.4	142.0	135.0	131.3	136.04
10	146.0	129.4	127.4	134.0	131.0	132.6	147.0	146.0	128.3	137.1	135.88
11	134.7	136.0	127.0	130.5	142.4	117.6	131.9	142.5	146.0	126.0	133.46
12	126.0	143.3	128.0	139.2	146.0	122.7	150.3	130.6	142.0	118.8	134.69
13	141.0	143.5	127.8	132.0	125.0	138.0	122.0	128.0	127.0	128.1	131.24
14	144.2	132.1	127.0	138.4	123.5	144.5	140.5	137.5	139.0	138.0	136.47
15	128.0	142.0	146.0	138.2	135.5	134.0	121.4	140.0	132.5	133.0	135.06
16	125.0	138.0	135.0	127.0	149.0	124.0	121.0	130.2	139.0	143.0	133.12
17	136.6	124.5	125.5	127.5	130.0	131.5	137.5	137.2	133.0	133.5	131.68
18	138.2	125.0	127.0	136.0	148.0	144.0	134.7	131.0	134.0	139.0	135.69
19	148.0	137.0	136.5	140.0	134.0	141.6	146.0	132.7	132.0	142.0	138.98
20	124.0	130.0	139.5	131.0	125.0	136.7	134.0	127.0	142.0	139.0	132.82
										$\sum \bar{x}$	2703.69

Harga Rata-rata Subgrup (x):

$$\bar{\bar{x}} = \frac{\sum \bar{x}}{k} = \frac{2703.69}{20} = 135.185$$

Standar Deviasi:

$$\sigma = \sqrt{\frac{\sum (x_i - \mu)^2}{N-1}}$$

$$= \sqrt{\frac{(136.7-135.185)^2 + (129.2-135.185)^2 + ... + (139.0-135.185)^2}{200-1}}$$

$$= 7.841$$

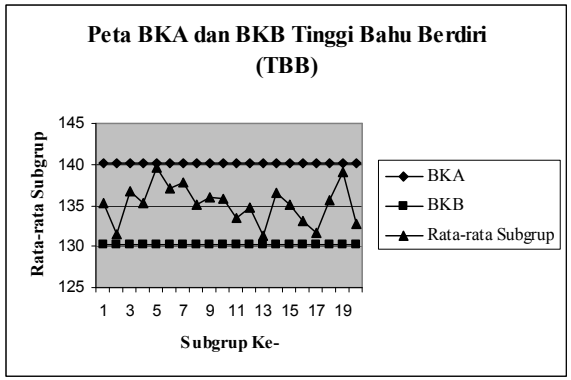
Standar Deviasi Subgrup:

$$\sigma_x = \frac{\sigma}{\sqrt{n}} = \frac{7.8414}{\sqrt{10}} = 2.479$$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$BKA = \bar{\bar{x}} + (c.\sigma_x)$$
$$= 135.1846 + (2 * 2.479)$$
$$= 140.1426$$

$$BKB = \bar{\bar{x}} - (c.\sigma_x)$$
$$= 135.1846 - (2 * 2.479)$$
$$= 130.2266$$



Uji Kecukupan Data Tinggi Bahu Berdiri (TBB)

$\sum x_i^2 = 3667211.326$

$\left(\sum x_i\right)^2 = 730995043.086$

$\sum x_i = 27036.92$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$N' = \left[\frac{c/\alpha\sqrt{N\sum x_i^2 - \left(\sum xi\right)^2}}{\sum x_i}\right]^2 = 5.357$$

N' < N $\longrightarrow$ 5.357 < 200 $\longrightarrow$ Data Cukup

Perhitungan Persentil Data Tinggi Bahu Berdiri (TBB)

Max = 154.0

Min = 112.8

Range = 41.2

P 5% = (41.2*0.05) + 112.8 = 114.86

P 50% = (41.2*0.5) + 112.8 = 133.4

P 95% = (41.2*0.95) + 112.8 = 151.94

Tabel Data Mentah Anthropometri Tinggi Bahu Duduk (TBD)

Data Anthropometri Tinggi Bahu Duduk (TBD)									
54.5	57.0	65.0	62.0	54.0	57.3	57.9	67.5	50.0	66.0
59.0	52.3	51.5	62.5	55.0	59.0	60.7	55.0	61.0	60.0
54.0	56.1	58.7	55.2	56.0	56.0	54.5	58.0	62.6	57.2
51.9	59.5	60.0	62.5	56.0	66.0	55.0	62.5	57.8	60.0
61.3	63.1	60.5	58.0	61.6	53.5	60.0	59.0	63.0	61.2
54.8	64.3	58.0	53.3	63.0	56.0	64.1	55.0	59.0	59.6
59.0	54.0	58.0	68.0	60.4	59.2	56.5	66.9	54.4	56.0
63.8	67.5	60.0	55.0	54.5	56.9	58.5	60.5	58.0	57.5
56.3	59.1	59.4	49.0	50.7	56.6	60.4	52.5	60.0	57.3
57.2	56.3	57.4	60.0	58.0	55.0	58.0	67.0	54.0	56.7
64.0	56.5	60.9	54.4	54.2	53.6	56.0	64.0	53.0	56.0
65.5	51.0	54.0	62.0	54.0	57.5	58.3	61.0	59.5	58.0
55.0	57.5	62.1	64.0	56.4	53.2	54.0	59.8	54.2	57.0
64.8	45.8	63.0	59.9	60.3	52.9	64.0	59.8	53.0	62.0
54.3	57.5	59.2	69.0	57.6	56.5	53.9	62.1	54.7	62.0
56.0	53.1	59.0	66.7	58.0	53.1	52.8	52.2	64.0	55.0
59.8	53.6	60.2	52.6	51.5	60.8	57.3	65.0	58.5	58.9
57.5	55.0	55.0	57.7	60.4	61.5	59.2	54.7	54.0	57.0
62.0	54.0	56.5	58.0	61.1	55.0	60.0	54.5	57.0	50.9
58.6	56.4	65.0	56.7	52.2	58.0	55.8	53.6	59.0	55.9

Uji Kenormalan Data Tinggi Bahu Duduk (TBD)

Interval Kelas			Batas Kelas			Oi	Z_1	Z_2	$P(Z_1)$	$P(Z_2)$	$P(Z_2)$-$P(Z_1)$	ei	ei gab	Oi gab	$(Oi - ei)^2/ei$
< 45.80			< 45.75			0	0	-3.004	0	0.00133	0.00133	0.266	1.917	1	0.4388
45.80	-	48.40	45.75	-	48.45	1	-3.004	-2.342	0.00133	0.00959	0.00826	1.651			
48.50	-	51.10	48.45	-	51.15	5	-2.342	-1.680	0.00959	0.04649	0.03690	7.380	7.380	5	0.7677
51.20	-	53.80	51.15	-	53.85	20	-1.680	-1.018	0.04649	0.15442	0.10793	21.587	21.587	20	0.1166
53.90	-	56.50	53.85	-	56.55	53	-1.018	-0.355	0.15442	0.36114	0.20672	41.344	41.344	53	3.2859
56.60	-	59.20	56.55	-	59.25	51	-0.355	0.307	0.36114	0.62052	0.25938	51.875	51.875	51	0.0148
59.30	-	61.90	59.25	-	61.95	33	0.307	0.969	0.62052	0.83375	0.21323	42.646	42.646	33	2.1820
62.00	-	64.60	61.95	-	64.65	23	0.969	1.631	0.83375	0.94859	0.11484	22.968	22.968	23	0.0000
64.70	-	67.30	64.65	-	67.35	10	1.631	2.294	0.94859	0.98909	0.04050	8.100			
67.40	-	70.00	67.35	-	70.05	4	2.294	2.956	0.98909	0.99844	0.00935	1.870	10.282	14	1.3447
> 70.00			> 70.05			0	2.956	1	0.99844	1	0.00156	0.312			
						200					1	200			8.1504

Jumlah Kelas :

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

$k = 1 + (3.3 \log 200)$

$k = 8.59 \approx 9$

Rentang Kelas :

$$c = \frac{(\max - \min)}{k} = \frac{69.0 - 45.8}{8.59}$$

$$= 2.70 \approx 2.7$$

Rata – rata :

$$\mu = \frac{\sum x_i}{n}$$

$$= \frac{(54.5 + 57.0 + ... + 55.9)}{200}$$

$$= 57.999$$

Standar Deviasi :

$$S = \sqrt{\frac{\sum (x_i - \mu)^2}{N - 1}} = 4.077$$

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

$x^2_{(hitung)} = 8.1504 \quad x^2_{(0.05,5)} = 11.070$

$x^2_{(hitung)} < x^2_{(0.05,5)} \longrightarrow 8.1504 < 11.070 \longrightarrow$ Data Berdistribusi Normal

Contoh Perhitungan Tabel:

$$Z_1 = \frac{BKB - \mu}{\sigma}$$
$$= \frac{45.75 - 57.9985}{4.0775}$$
$$= -3.004$$

$$Z_2 = \frac{BKA - \mu}{\sigma}$$
$$= \frac{48.45 - 57.9985}{4.0775}$$
$$= -2.342$$

$$P(Z_1) = P(-3.004) = 0.00133$$
$$P(Z_2) = P(-2.342) = 0.00959$$
$$P(Z_2) - P(Z_1) = 0.00959 - 0.00133 = 0.00826$$

$$e_i = \left[P(Z_2) - P(Z_1)\right] \times \sum O_i = 0.00826 \times 200 = 1.651$$

$$e_i \text{ gab} = \geq 1 \text{ atau} \geq 5 = 0.266 + 1.651 = 1.917$$

$$\frac{(O_i - e_i)^2}{e_i} = \frac{(1 - 1.917)^2}{1.917} = 0.4388$$

Uji Keseragaman Data Tinggi Bahu Duduk (TBD)

Subgrup Ke-	Data Anthropometri Tinggi Bahu Duduk (TBD)										Harga Rata-rata
	1	2	3	4	5	6	7	8	9	10	
1	54.5	57.0	65.0	62.0	54.0	57.3	57.9	67.5	50.0	66.0	59.12
2	59.0	52.3	51.5	62.5	55.0	59.0	60.7	55.0	61.0	60.0	57.60
3	54.0	56.1	58.7	55.2	56.0	56.0	54.5	58.0	62.6	57.2	56.83
4	51.9	59.5	60.0	62.5	56.0	66.0	55.0	62.5	57.8	60.0	59.12
5	61.3	63.1	60.5	58.0	61.6	53.5	60.0	59.0	63.0	61.2	60.12
6	54.8	64.3	58.0	53.3	63.0	56.0	64.1	55.0	59.0	59.6	58.71
7	59.0	54.0	58.0	68.0	60.4	59.2	56.5	66.9	54.4	56.0	59.24
8	63.8	67.5	60.0	55.0	54.5	56.9	58.5	60.5	58.0	57.5	59.22
9	56.3	59.1	59.4	49.0	50.7	56.6	60.4	52.5	60.0	57.3	56.13
10	57.2	56.3	57.4	60.0	58.0	55.0	58.0	67.0	54.0	56.7	57.96
11	64.0	56.5	60.9	54.4	54.2	53.6	56.0	64.0	53.0	56.0	57.26
12	65.5	51.0	54.0	62.0	54.0	57.5	58.3	61.0	59.5	58.0	58.08
13	55.0	57.5	62.1	64.0	56.4	53.2	54.0	59.8	54.2	57.0	57.32
14	64.8	45.8	63.0	59.9	60.3	52.9	64.0	59.8	53.0	62.0	58.55
15	54.3	57.5	59.2	69.0	57.6	56.5	53.9	62.1	54.7	62.0	58.68
16	56.0	53.1	59.0	66.7	58.0	53.1	52.8	52.2	64.0	55.0	56.99
17	59.8	53.6	60.2	52.6	51.5	60.8	57.3	65.0	58.5	58.9	57.82
18	57.5	55.0	55.0	57.7	60.4	61.5	59.2	54.7	54.0	57.0	57.20
19	62.0	54.0	56.5	58.0	61.1	55.0	60.0	54.5	57.0	50.9	56.90
20	58.6	56.4	65.0	56.7	52.2	58.0	55.8	53.6	59.0	55.9	57.12
										$\sum \bar{x}$	1159.97

Harga Rata-rata Subgrup (x):

$$\bar{\bar{x}} = \frac{\sum \bar{x}}{k} = \frac{11599.70}{20} = 57.999$$

Standar Deviasi:

$$\sigma = \sqrt{\frac{\sum (x_i - \mu)^2}{N-1}}$$

$$= \sqrt{\frac{(54.5-57.999)^2 + (57.0-57.999)^2 + ... + (55.9-57.999)^2}{200-1}}$$

$$= 4.077$$

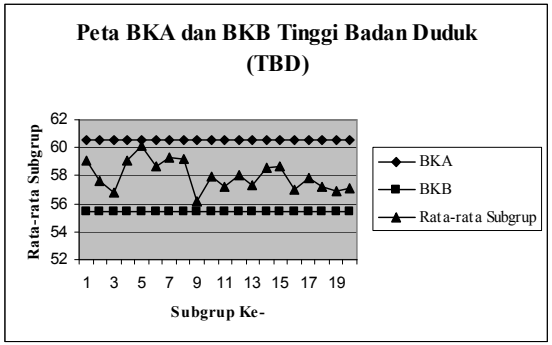
Standar Deviasi Subgrup:

$$\sigma_x = \frac{\sigma}{\sqrt{n}} = \frac{4.077}{\sqrt{10}} = 1.289$$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$BKA = \bar{\bar{x}} + (c.\sigma_x)$$
$$= 57.9985 + (2*1.289)$$
$$= 60.5765$$

$$BKB = \bar{\bar{x}} - (c*\sigma_x)$$
$$= 57.9985 - (2*1.289)$$
$$= 55.4205$$



Uji Kecukupan Data Tinggi Bahu Duduk (TBD)

$\sum x_i^{\,2} = 676072.79$

$\left(\sum x_i\right)^2 = 134553040.090$

$\sum x_i = 11599.70$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$N' = \left[\frac{c/\alpha\sqrt{N.\sum x_i^{\,2} - \left(\sum x_i\right)^2}}{\sum x_i}\right]^2 = 7.866$$

N' < N $\longrightarrow$ 7.866 < 200 $\longrightarrow$ Data Cukup

Perhitungan Persentil Data Tinggi Bahu Duduk (TBD)

Max = 69.0

Min = 45.8

Range = 23.2

P 5% = (23.2*0.05) + 45.8 = 46.96

P 50% = (23.2*0.5) + 45.8 = 57.4

P 95% = (23.2*0.95) + 45.8 = 67.84

Tabel Data Mentah Anthropometri Lebar Bahu (LB)

Data Anthropometri Lebar Bahu (LB)									
37.0	42.0	46.2	43.0	36.0	40.0	37.9	40.0	36.0	46.0
43.0	35.0	37.5	42.7	35.7	38.0	43.2	36.0	38.7	41.7
38.0	42.0	38.0	49.4	38.5	44.0	37.3	39.0	43.0	46.7
38.8	42.5	45.5	42.0	42.0	39.7	41.4	38.0	37.1	42.0
42.7	38.6	41.0	51.0	46.0	38.0	40.0	41.5	42.0	43.5
42.0	44.6	49.6	36.8	44.2	35.5	37.5	40.0	45.0	42.5
42.5	43.0	41.0	41.0	39.5	42.2	39.0	36.0	44.5	43.0
44.5	46.7	40.0	45.0	39.1	40.6	42.0	38.0	44.8	40.0
42.9	39.1	39.1	36.2	43.2	36.3	46.1	34.0	33.3	39.0
40.0	40.3	50.4	38.6	40.5	38.5	38.0	39.0	46.0	37.0
43.3	39.2	47.3	39.0	40.0	48.8	42.5	42.0	36.7	47.5
45.0	35.0	39.5	45.5	37.0	46.4	43.2	35.0	40.5	41.0
38.0	35.0	39.0	39.0	44.5	45.1	36.0	42.0	38.0	38.1
43.4	34.0	40.0	36.7	38.4	43.0	32.0	36.5	42.8	45.5
37.2	47.5	32.1	39.0	42.7	36.7	47.0	34.5	37.8	45.0
40.0	40.5	32.3	42.6	42.3	37.1	37.0	39.9	37.3	37.5
35.6	36.7	39.5	37.1	36.0	38.7	38.2	44.5	40.0	43.3
41.3	36.0	47.0	39.2	42.0	38.8	41.3	44.0	43.1	40.9
44.0	37.0	40.4	42.5	36.2	35.0	39.5	39.4	38.7	35.0
38.1	38.0	47.0	37.5	39.7	43.0	42.3	38.9	35.6	36.7

Uji Kenormalan Data Lebar Bahu (LB)

Interval Kelas			Batas Kelas			Oi	Z_1	Z_2	$P(Z_1)$	$P(Z_2)$	$P(Z_2)$-$P(Z_1)$	ei	ei gab	Oi gab	$(Oi - ei)^2/ei$
< 32.0			< 31.95			0	0	-2.268	0	0.01167	0.01167	2.335	9.829	6	1.4914
32.00	-	34.20	31.95	-	34.25	6	-2.268	-1.653	0.01167	0.04914	0.03747	7.494			
34.30	-	36.50	34.25	-	36.55	22	-1.653	-1.039	0.04914	0.14946	0.10032	20.064	20.064	22	0.1868
36.60	-	38.80	36.55	-	38.85	47	-1.039	-0.424	0.14946	0.33569	0.18623	37.245	37.245	47	2.5549
38.90	-	41.10	38.85	-	41.15	45	-0.424	0.190	0.33569	0.57543	0.23974	47.949	47.949	45	0.1813
41.20	-	43.40	41.15	-	43.45	40	0.190	0.805	0.57543	0.78950	0.21407	42.814	42.814	40	0.1850
43.50	-	45.70	43.45	-	45.75	21	0.805	1.419	0.78950	0.92208	0.13257	26.515	26.515	21	1.1469
45.80	-	48.00	45.75	-	48.05	14	1.419	2.034	0.92208	0.97901	0.05693	11.386	15.585	19	0.7485
48.10	-	50.30	48.05	-	50.35	3	2.034	2.648	0.97901	0.99595	0.01695	3.389			
50.40	-	52.60	50.35	-	52.65	2	2.648	3.263	0.99595	0.99945	0.00349	0.699			
> 52.60			> 52.65			0	3.263	1	0.99945	1	0.00055	0.110			
						200					1	200			6.4949

Jumlah Kelas :

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

$k = 1 + (3.3 \log 200)$

$k = 8.59 \approx 9$

Rentang Kelas :

$$c = \frac{(\max - \min)}{k} = \frac{51.0 - 32.0}{8.59}$$

$$= 2.21 \approx 2.3$$

Rata – rata :

$$\mu = \frac{\sum x_i}{n}$$

$$= \frac{(37.0 + 42.0 + ... + 36.7)}{200}$$

$$= 40.438$$

Standar Deviasi :

$$S = \sqrt{\frac{\sum (x_i - \mu)^2}{N - 1}} = 3.743$$

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

$x^2_{(hitung)} = 6.4949 \quad x^2_{(0.05,4)} = 9.488$

$x^2_{(hitung)} < x^2_{(0.05,4)} \longrightarrow 6.4949 < 9.488 \longrightarrow$ Data Berdistribusi Normal

Contoh Perhitungan Tabel:

$$Z_1 = \frac{BKB - \mu}{\sigma}$$
$$= \frac{31.95 - 40.438}{3.743}$$
$$= -2.268$$

$$Z_2 = \frac{BKA - \mu}{\sigma}$$
$$= \frac{34.25 - 40.438}{3.743}$$
$$= -1.653$$

$$P(Z_1) = P(-2.268) = 0.01167$$
$$P(Z_2) = P(-1.680) = 0.04914$$
$$P(Z_2) - P(Z_1) = 0.04914 - 0.01167 = 0.03747$$

$$e_i = \left[P(Z_2) - P(Z_1)\right] \times \sum O_i = 0.03747 \times 200 = 7.494$$

$$e_i \text{ gab} = \geq 1 \text{ atau} \geq 5 = 2.335 + 7.494 = 9.829$$

$$\frac{(O_i - e_i)^2}{e_i} = \frac{(6 - 9.829)^2}{9.829} = 1.4914$$

Uji Keseragaman Data Lebar Bahu (LB)

Subgrup Ke-	Data Anthropometri Lebar Bahu (LB)										Harga Rata-rata
	1	2	3	4	5	6	7	8	9	10	
1	37.0	42.0	46.2	43.0	36.0	40.0	37.9	40.0	36.0	46.0	40.41
2	43.0	35.0	37.5	42.7	35.7	38.0	43.2	36.0	38.7	41.7	39.15
3	38.0	42.0	38.0	49.4	38.5	44.0	37.3	39.0	43.0	46.7	41.59
4	38.8	42.5	45.5	42.0	42.0	39.7	41.4	38.0	37.1	42.0	40.90
5	42.7	38.6	41.0	51.0	46.0	38.0	40.0	41.5	42.0	43.5	42.43
6	42.0	44.6	49.6	36.8	44.2	35.5	37.5	40.0	45.0	42.5	41.77
7	42.5	43.0	41.0	41.0	39.5	42.2	39.0	36.0	44.5	43.0	41.17
8	44.5	46.7	40.0	45.0	39.1	40.6	42.0	38.0	44.8	40.0	42.07
9	42.9	39.1	39.1	36.2	43.2	36.3	46.1	34.0	33.3	39.0	38.92
10	40.0	40.3	50.4	38.6	40.5	38.5	38.0	39.0	46.0	37.0	40.83
11	43.3	39.2	47.3	39.0	40.0	48.8	42.5	42.0	36.7	47.5	42.63
12	45.0	35.0	39.5	45.5	37.0	46.4	43.2	35.0	40.5	41.0	40.81
13	38.0	35.0	39.0	39.0	44.5	45.1	36.0	42.0	38.0	38.1	39.47
14	43.4	34.0	40.0	36.7	38.4	43.0	32.0	36.5	42.8	45.5	39.23
15	37.2	47.5	32.1	39.0	42.7	36.7	47.0	34.5	37.8	45.0	39.95
16	40.0	40.5	32.3	42.6	42.3	37.1	37.0	39.9	37.3	37.5	38.65
17	35.6	36.7	39.5	37.1	36.0	38.7	38.2	44.5	40.0	43.3	38.96
18	41.3	36.0	47.0	39.2	42.0	38.8	41.3	44.0	43.1	40.9	41.36
19	44.0	37.0	40.4	42.5	36.2	35.0	39.5	39.4	38.7	35.0	38.77
20	38.1	38.0	47.0	37.5	39.7	43.0	42.3	38.9	35.6	36.7	39.68
										$\sum \bar{x}$	808.75

Harga Rata-rata Subgrup (x):

$$\bar{\bar{x}} = \frac{\sum \bar{x}}{k} = \frac{808.75}{20} = 40.438$$

Standar Deviasi:

$$\sigma = \sqrt{\frac{\sum (x_i - \mu)^2}{N-1}}$$

$$= \sqrt{\frac{(37.0-40.438)^2 + (42.0-40.438)^2 + ... + (36.7-40.438)^2}{200-1}}$$

$$= 3.743$$

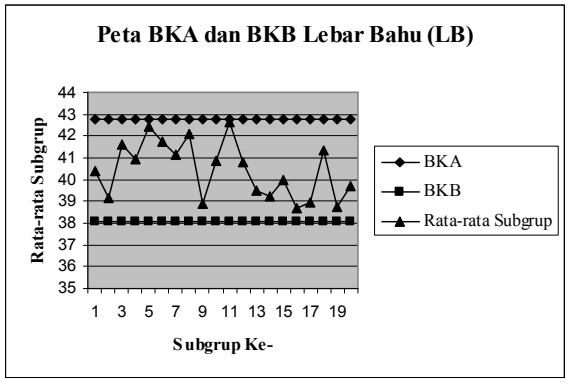
Standar Deviasi Subgrup:

$$\sigma_x = \frac{\sigma}{\sqrt{n}} = \frac{3.743}{\sqrt{10}} = 1.184$$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$BKA = \bar{\bar{x}} + (c.\sigma_x)$$
$$= 40.438 + (2*1.184)$$
$$= 42.806$$

$$BKB = \bar{\bar{x}} - (c.\sigma_x)$$
$$= 40.438 - (2*1.184)$$
$$= 38.07$$



Uji Kecukupan Data Lebar Bahu (LB)

$\sum x_i^{\,2} = 329825.59$

$\left(\sum x_i\right)^2 = 65407656.25$

$\sum x_i = 8087.50$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$N' = \left[\frac{c/\alpha\sqrt{N.\sum x_i^{\,2} - \left(\sum x_i\right)^2}}{\sum x_i}\right]^2 = 13.637$$

N' < N $\longrightarrow$ 13.637 < 200 $\longrightarrow$ Data Cukup

Perhitungan Persentil Data Lebar Bahu (LB)

Max = 51.0

Min = 32.0

Range = 19.0

P 5% = (19.0*0.05) + 32.0 = 32.95

P 50% = (19.0*0.5) + 32.0 = 41.5

P 95% = (19.0*0.95) + 32.0 = 50.05

Tabel Data Mentah Anthropometri Jangkauan Tangan (JT)

Data Anthropometri Jangkauan Tangan (JT)									
67.5	76.5	74.0	82.0	77.0	79.6	81.1	77.0	74.0	71.3
82.0	78.5	66.0	82.0	73.0	79.0	82.5	73.0	79.0	83.0
68.0	82.0	69.5	75.0	85.0	70.0	67.9	76.0	68.0	81.4
78.7	73.6	81.0	78.0	77.0	79.0	74.2	69.0	74.0	93.5
88.5	82.9	76.5	82.0	71.0	86.7	74.0	75.8	79.0	87.0
74.0	76.0	73.0	72.3	78.0	71.5	74.0	77.0	88.0	85.4
69.0	81.0	83.6	71.5	85.0	80.8	82.0	83.5	89.0	81.0
70.0	90.0	81.5	87.0	77.6	83.0	85.0	78.0	67.0	77.0
77.9	70.3	76.0	65.0	80.0	74.0	80.2	84.9	69.0	67.0
83.0	80.6	75.7	65.6	73.5	79.0	78.5	88.0	67.3	71.0
81.0	83.5	75.0	76.0	90.0	73.3	70.0	80.5	67.5	76.0
87.0	72.5	75.0	81.0	76.0	83.0	82.8	68.0	67.0	65.0
78.0	82.5	85.0	82.0	65.0	80.5	66.0	70.5	63.5	76.5
89.0	80.0	69.0	81.0	76.5	78.0	76.0	91.0	81.0	77.0
67.8	83.0	78.0	78.5	82.7	74.0	70.9	81.0	72.3	72.2
68.0	79.0	79.0	79.5	91.0	72.0	78.8	81.5	81.0	96.5
82.0	70.0	77.0	74.0	77.5	75.0	82.0	84.3	69.5	78.6
82.0	75.0	75.0	75.0	89.0	82.0	76.7	77.0	72.9	76.0
79.0	72.0	78.0	81.0	71.0	80.2	85.0	80.0	66.0	84.0
71.0	78.4	76.0	82.5	71.1	81.0	77.0	70.0	76.0	68.5

Uji Kenormalan Data Jangkauan Tangan (JT)

Interval Kelas			Batas Kelas			Oi	Z_1	Z_2	$P(Z_1)$	$P(Z_2)$	$P(Z_2)$-$P(Z_1)$	ei	ei gab	Oi gab	$(Oi - ei)^2/ei$
< 63.5			< 63.45			0	0	-2.195	0	0.01408	0.01408	2.815	11.461	12	0.0253
63.50	-	67.30	63.45	-	67.35	12	-2.195	-1.578	0.01408	0.05731	0.04323	8.646			
67.40	-	71.20	67.35	-	71.25	28	-1.578	-0.960	0.05731	0.16842	0.11112	22.223	22.223	28	1.5017
71.30	-	75.10	71.25	-	75.15	33	-0.960	-0.343	0.16842	0.36578	0.19736	39.472	39.472	33	1.0613
75.20	-	79.00	75.15	-	79.05	51	-0.343	0.274	0.36578	0.60809	0.24230	48.461	48.461	51	0.1330
79.10	-	82.90	79.05	-	82.95	43	0.274	0.892	0.60809	0.81373	0.20564	41.128	41.128	43	0.0852
83.00	-	86.80	82.95	-	86.85	18	0.892	1.509	0.81373	0.93436	0.12064	24.127	24.127	18	1.5559
86.90	-	90.70	86.85	-	90.75	11	1.509	2.126	0.93436	0.98327	0.04890	9.781			
90.80	-	94.60	90.75	-	94.65	3	2.126	2.744	0.98327	0.99696	0.01370	2.739	13.127	15	0.2672
94.70	-	98.50	94.65	-	98.55	1	2.744	3.361	0.99696	0.99961	0.00265	0.530			
> 98.50			> 98.55			0	3.361	1	0.99961	1	0.00039	0.078			
						200					1	200			4.6297

Jumlah Kelas :

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

$k = 1 + (3.3 \log 200)$

$k = 8.59 \approx 9$

Rentang Kelas :

$$c = \frac{(\max - \min)}{k} = \frac{96.5 - 63.5}{8.59}$$

$$= 3.84 \approx 3.9$$

Rata – rata :

$$\mu = \frac{\sum x_i}{n}$$

$$= \frac{(67.5 + 76.5 + ... + 68.5)}{200}$$

$$= 77.317$$

Standar Deviasi :

$$S = \sqrt{\frac{\sum (x_i - \mu)^2}{N - 1}} = 6.317$$

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

$x^2_{(hitung)} = 4.6297 \quad x^2_{(0.05,4)} = 9.488$

$x^2_{(hitung)} < x^2_{(0.05,4)} \longrightarrow 4.6297 < 9.488 \longrightarrow$ Data Berdistribusi Normal

Contoh Perhitungan Tabel:

$$Z_1 = \frac{BKB - \mu}{\sigma} = \frac{63.45 - 77.317}{6.317} = -2.195$$

$$Z_2 = \frac{BKA - \mu}{\sigma} = \frac{67.35 - 77.317}{6.317} = -1.578$$

$$P(Z_1) = P(-2.195) = 0.01408$$

$$P(Z_2) = P(-1.578) = 0.05731$$

$$P(Z_2) - P(Z_1) = 0.05731 - 0.01408 = 0.04323$$

$$e_i = \left[P(Z_2) - P(Z_1)\right] \times \sum O_i = 0.04323 \times 200 = 8.646$$

$$e_i \text{ gab} = \geq 1 \text{ atau} \geq 5 = 2.815 + 8.646 = 11.461$$

$$\frac{(O_i - e_i)^2}{e_i} = \frac{(12 - 11.461)^2}{11.461} = 0.0253$$

Uji Keseragaman Data Jangkauan Tangan (JT)

Subgrup Ke-	Data Anthropometri Jangkauan Tangan										Harga Rata-rata
	1	2	3	4	5	6	7	8	9	10	
1	67.5	76.5	74.0	82.0	77.0	79.6	81.1	77.0	74.0	71.3	76.00
2	82.0	78.5	66.0	82.0	73.0	79.0	82.5	73.0	79.0	83.0	77.80
3	68.0	82.0	69.5	75.0	85.0	70.0	67.9	76.0	68.0	81.4	74.28
4	78.7	73.6	81.0	78.0	77.0	79.0	74.2	69.0	74.0	93.5	77.80
5	88.5	82.9	76.5	82.0	71.0	86.7	74.0	75.8	79.0	87.0	80.34
6	74.0	76.0	73.0	72.3	78.0	71.5	74.0	77.0	88.0	85.4	76.92
7	69.0	81.0	83.6	71.5	85.0	80.8	82.0	83.5	89.0	81.0	80.64
8	70.0	90.0	81.5	87.0	77.6	83.0	85.0	78.0	67.0	77.0	79.61
9	77.9	70.3	76.0	65.0	80.0	74.0	80.2	84.9	69.0	67.0	74.43
10	83.0	80.6	75.7	65.6	73.5	79.0	78.5	88.0	67.3	71.0	76.22
11	81.0	83.5	75.0	76.0	90.0	73.3	70.0	80.5	67.5	76.0	77.28
12	87.0	72.5	75.0	81.0	76.0	83.0	82.8	68.0	67.0	65.0	75.73
13	78.0	82.5	85.0	82.0	65.0	80.5	66.0	70.5	63.5	76.5	74.95
14	89.0	80.0	69.0	81.0	76.5	78.0	76.0	91.0	81.0	77.0	79.85
15	67.8	83.0	78.0	78.5	82.7	74.0	70.9	81.0	72.3	72.2	76.04
16	68.0	79.0	79.0	79.5	91.0	72.0	78.8	81.5	81.0	96.5	80.63
17	82.0	70.0	77.0	74.0	77.5	75.0	82.0	84.3	69.5	78.6	76.99
18	82.0	75.0	75.0	75.0	89.0	82.0	76.7	77.0	72.9	76.0	78.06
19	79.0	72.0	78.0	81.0	71.0	80.2	85.0	80.0	66.0	84.0	77.62
20	71.0	78.4	76.0	82.5	71.1	81.0	77.0	70.0	76.0	68.5	75.15
										$\sum \bar{x}$	1546.34

Harga Rata-rata Subgrup (x):

$$\bar{\bar{x}} = \frac{\sum \bar{x}}{k} = \frac{1546.34}{20} = 77.317$$

Standar Deviasi:

$$\sigma = \sqrt{\frac{\sum (x_i - \mu)^2}{N-1}}$$

$$= \sqrt{\frac{(67.5-77.317)^2 + (76.5-77.317)^2 + ... + (68.5-77.317)^2}{200-1}}$$

$$= 6.317$$

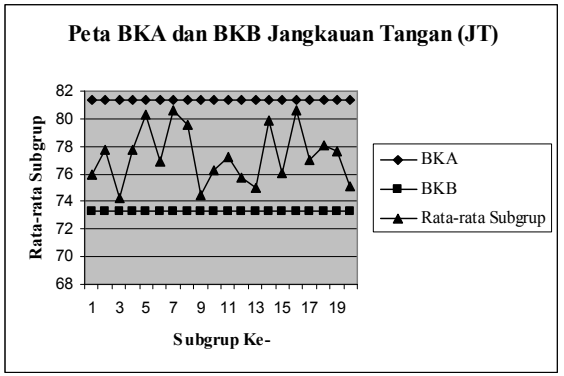
Standar Deviasi Subgrup:

$$\sigma_x = \frac{\sigma}{\sqrt{n}} = \frac{6.317}{\sqrt{10}} = 1.998$$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$BKA = \bar{\bar{x}} + (c.\sigma_x)$$
$$= 77.317 + (2*1.998)$$
$$= 81.313$$

$$BKB = \bar{\bar{x}} - (c.\sigma_x)$$
$$= 77.317 - (2*1.998)$$
$$= 73.321$$



Uji Kecukupan Data Jangkauan Tangan (JT)

$\sum x_i^{\,2} = 1203525.32$

$\left(\sum x_i\right)^2 = 239116739.56$

$\sum x_i = 15463.4$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$N' = \left[\frac{c/\alpha\sqrt{N.\sum x_i^{\,2} - \left(\sum x_i\right)^2}}{\sum x_i}\right]^2 = 10.628$$

N' < N $\longrightarrow$ 10.628 < 200 $\longrightarrow$ Data Cukup

Perhitungan Persentil Data Jangkauan Tangan (JT)

Max = 96.5

Min = 63.5

Range = 33.0

P 5% = (33.0*0.05) + 63.5 = 65.15

P 50% = (33.0*0.5) + 63.5 = 80.0

P 95% = (33.0*0.95) + 63.5 = 94.85

Tabel Data Mentah Anthropometri Tinggi Siku Duduk (TSD)

Data Anthropometri Tinggi Siku Duduk (TSD)									
21.4	24.5	21.0	22.3	18.0	29.6	18.3	15.0	27.5	22.5
17.0	19.6	15.0	28.0	19.3	22.5	18.7	19.0	24.6	22.7
18.0	22.5	15.6	23.5	22.5	22.5	15.3	22.0	25.6	25.0
19.2	27.0	22.5	19.5	19.0	18.0	18.5	20.8	23.6	21.0
23.6	24.6	20.0	22.5	25.0	21.0	27.0	26.0	20.6	23.0
16.4	20.0	25.5	21.9	20.0	19.5	22.5	25.0	20.4	25.1
23.0	24.0	31.3	29.5	18.5	28.9	17.6	26.8	20.0	22.0
25.3	15.5	23.0	25.0	21.1	16.2	24.5	20.0	14.6	16.0
22.3	24.2	30.0	19.2	37.0	20.5	14.4	23.6	17.5	18.0
25.0	27.4	25.6	28.5	21.5	18.5	23.5	22.0	24.0	25.0
21.0	23.0	20.8	22.0	24.5	20.3	23.0	19.5	22.0	25.0
26.0	21.0	20.0	22.3	26.0	26.0	22.2	22.3	24.4	25.0
28.0	22.5	28.0	23.0	19.5	21.6	21.0	19.5	18.7	22.3
25.2	24.2	26.0	18.0	23.5	22.4	21.5	28.3	21.0	22.0
19.5	23.0	22.1	23.0	19.6	21.6	24.0	23.4	18.7	24.0
20.3	18.5	23.0	18.9	24.4	26.7	16.0	19.3	25.0	20.4
24.2	16.4	19.6	22.0	17.0	22.8	22.0	19.2	18.3	26.3
27.2	20.4	21.4	23.4	18.2	19.0	19.6	20.5	18.6	24.0
23.8	22.5	18.7	28.4	22.4	13.8	17.5	20.8	23.0	25.6
18.0	21.7	24.0	23.0	20.1	18.0	22.0	15.2	22.0	23.5

Uji Kenormalan Data Tinggi Siku Duduk (TSD)

Interval Kelas			Batas Kelas			Oi	Z_1	Z_2	$P(Z_1)$	$P(Z_2)$	$P(Z_2)$-$P(Z_1)$	ei	ei gab	Oi gab	$(Oi - ei)^2/ei$
< 13.8			< 13.75			0	0	-2.314	0	0.01033	0.01033	2.067	11.996	14	0.3350
13.80	-	16.40	13.75	-	16.45	14	-2.314	-1.555	0.01033	0.05998	0.04964	9.929			
16.50	-	19.10	16.45	-	19.15	28	-1.555	-0.796	0.05998	0.21305	0.15307	30.614	30.614	28	0.2232
19.20	-	21.80	19.15	-	21.85	48	-0.796	-0.037	0.21305	0.48531	0.27226	54.453	54.453	48	0.7647
21.90	-	24.50	21.85	-	24.55	67	-0.037	0.722	0.48531	0.76493	0.27962	55.923	55.923	67	2.1941
24.60	-	27.20	24.55	-	27.25	29	0.722	1.481	0.76493	0.93074	0.16581	33.162	33.162	29	0.5224
27.30	-	29.90	27.25	-	29.95	11	1.481	2.240	0.93074	0.98747	0.05673	11.346	13.853	14	0.0016
30.00	-	32.60	29.95	-	32.65	2	2.240	2.999	0.98747	0.99865	0.01118	2.236			
32.70	-	35.30	32.65	-	35.35	0	2.999	3.759	0.99865	0.99991	0.00127	0.253			
35.40	-	38.00	35.35	-	38.05	1	3.759	4.518	0.99991	1.00000	0.00008	0.016			
> 38.00			> 38.05			0	4.518	1	1.00000	1	0.00000	0.001			
						200					1	200			4.0409

Jumlah Kelas :

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

$k = 1 + (3.3 \log 200)$

$k = 8.59 \approx 9$

Rentang Kelas :

$$c = \frac{(\max - \min)}{k} = \frac{37.0 - 13.8}{8.59}$$

$$= 2.70 \approx 2.7$$

Rata – rata :

$$\mu = \frac{\sum x_i}{n}$$

$$= \frac{(21.4 + 24.5 + ... + 23.5)}{200}$$

$$= 21.981$$

Standar Deviasi :

$$S = \sqrt{\frac{\sum (x_i - \mu)^2}{N - 1}} = 3.557$$

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

$x^2_{(hitung)} = 4.0409 \quad x^2_{(0.05,3)} = 7.815$

$x^2_{(hitung)} < x^2_{(0.05,3)} \rightarrow 4.0409 < 7.815 \rightarrow$ Data Berdistribusi Normal

Contoh Perhitungan Tabel:

$$Z_1 = \frac{BKB - \mu}{\sigma}$$
$$= \frac{13.75 - 21.981}{3.557}$$
$$= -2.314$$

$$Z_2 = \frac{BKA - \mu}{\sigma}$$
$$= \frac{16.45 - 21.981}{3.557}$$
$$= -1.555$$

$$P(Z_1) = P(-2.314) = 0.01033$$
$$P(Z_2) = P(-1.555) = 0.05998$$
$$P(Z_2) - P(Z_1) = 0.05998 - 0.01033 = 0.04964$$

$$e_i = \left[P(Z_2) - P(Z_1)\right] \times \sum O_i = 0.04964 \times 200 = 9.929$$

$$e_i \text{ gab} = \geq 1 \text{ atau} \geq 5 = 2.067 + 9.929 = 11.996$$

$$\frac{(O_i - e_i)^2}{e_i} = \frac{(14 - 11.996)^2}{11.996} = 0.3350$$

Uji Keseragaman Data Tinggi Siku Duduk (TSD)

Subgrup Ke-	Data Anthropometri Tinggi Siku Duduk (TSD)										Harga Rata-rata
	1	2	3	4	5	6	7	8	9	10	
1	21.4	24.5	21.0	22.3	18.0	29.6	18.3	15.0	27.5	22.5	22.01
2	17.0	19.6	15.0	28.0	19.3	22.5	18.7	19.0	24.6	22.7	20.64
3	18.0	22.5	15.6	23.5	22.5	22.5	15.3	22.0	25.6	25.0	21.25
4	19.2	27.0	22.5	19.5	19.0	18.0	18.5	20.8	23.6	21.0	20.91
5	23.6	24.6	20.0	22.5	25.0	21.0	27.0	26.0	20.6	23.0	23.33
6	16.4	20.0	25.5	21.9	20.0	19.5	22.5	25.0	20.4	25.1	21.63
7	23.0	24.0	31.3	29.5	18.5	28.9	17.6	26.8	20.0	22.0	24.16
8	25.3	15.5	23.0	25.0	21.1	16.2	24.5	20.0	14.6	16.0	20.12
9	22.3	24.2	30.0	19.2	37.0	20.5	14.4	23.6	17.5	18.0	22.67
10	25.0	27.4	25.6	28.5	21.5	18.5	23.5	22.0	24.0	25.0	24.10
11	21.0	23.0	20.8	22.0	24.5	20.3	23.0	19.5	22.0	25.0	22.11
12	26.0	21.0	20.0	22.3	26.0	26.0	22.2	22.3	24.4	25.0	23.52
13	28.0	22.5	28.0	23.0	19.5	21.6	21.0	19.5	18.7	22.3	22.41
14	25.2	24.2	26.0	18.0	23.5	22.4	21.5	28.3	21.0	22.0	23.21
15	19.5	23.0	22.1	23.0	19.6	21.6	24.0	23.4	18.7	24.0	21.89
16	20.3	18.5	23.0	18.9	24.4	26.7	16.0	19.3	25.0	20.4	21.25
17	24.2	16.4	19.6	22.0	17.0	22.8	22.0	19.2	18.3	26.3	20.78
18	27.2	20.4	21.4	23.4	18.2	19.0	19.6	20.5	18.6	24.0	21.23
19	23.8	22.5	18.7	28.4	22.4	13.8	17.5	20.8	23.0	25.6	21.65
20	18.0	21.7	24.0	23.0	20.1	18.0	22.0	15.2	22.0	23.5	20.75
										$\sum \bar{x}$	439.62

Harga Rata-rata Subgrup (x):

$$\bar{\bar{x}} = \frac{\sum \bar{x}}{k} = \frac{439.62}{20} = 21.981$$

Standar Deviasi:

$$\sigma = \sqrt{\frac{\sum (x_i - \mu)^2}{N-1}}$$

$$= \sqrt{\frac{(21.4-21.981)^2 + (24.5-21.981)^2 + ... + (23.5-21.981)^2}{200-1}}$$

$$= 3.557$$

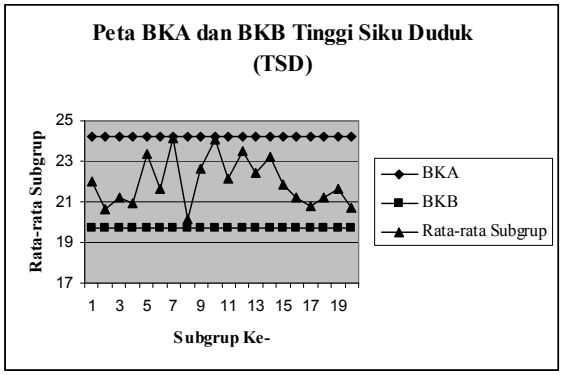
Standar Deviasi Subgrup:

$$\sigma_x = \frac{\sigma}{\sqrt{n}} = \frac{3.557}{\sqrt{10}} = 1.125$$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$BKA = \bar{\bar{x}} + (c.\sigma_x)$$
$$= 21.981 + (2*1.125)$$
$$= 24.231$$

$$BKB = \bar{\bar{x}} - (c.\sigma_x)$$
$$= 21.981 - (2*1.125)$$
$$= 19.731$$



Uji Kecukupan Data Tinggi Siku Duduk (TSD)

$\sum x_i^2 = 99149.776$

$\left(\sum x_i\right)^2 = 19326574.44$

$\sum x_i = 4396.19$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$N' = \left[\frac{c/\alpha\sqrt{N.\sum x_i^2 - \left(\sum x_i\right)^2}}{\sum x_i}\right]^2 = 41.674$$

N' < N $\longrightarrow$ 41.674 < 200 $\longrightarrow$ Data Cukup

Perhitungan Persentil Data Tinggi Siku Duduk (TSD)

Max = 37.0

Min = 13.8

Range = 23.2

P 5% = (23.2*0.05) + 13.8 = 14.96

P 50% = (23.2*0.5) + 13.8 = 25.4

P 95% = (23.2*0.95) + 13.8 = 35.84

Tabel Data Mentah Anthropometri Panjang Lengan Bawah (PLB)

Data Anthropometri Panjang Lengan Bawah (PLB)									
23.0	25.0	29.5	24.6	27.0	26.5	28.0	22.0	23.0	26.5
27.0	24.0	25.0	27.0	23.0	24.0	24.3	24.0	25.4	24.0
25.0	29.0	28.0	26.0	26.0	27.5	25.3	25.0	25.5	28.0
23.9	24.7	29.0	27.5	29.5	22.0	24.0	26.0	23.2	25.0
27.0	25.1	24.5	25.0	28.5	25.0	27.0	29.0	22.0	24.2
22.0	28.5	27.0	23.0	30.0	23.0	26.0	24.0	27.0	27.6
26.0	27.0	25.5	28.0	25.5	26.9	26.5	24.5	30.0	25.9
25.0	24.5	28.0	29.5	24.0	25.0	27.0	25.0	29.0	22.5
25.2	21.5	27.0	22.5	27.0	25.5	28.2	27.8	30.0	26.0
28.0	25.4	24.0	23.6	24.0	26.0	26.0	22.0	24.8	24.0
28.0	24.5	25.0	25.0	27.0	23.7	24.0	29.5	25.3	23.0
28.0	23.0	23.7	29.0	24.0	26.0	27.3	22.0	26.0	25.0
27.5	24.0	28.0	25.5	23.0	27.0	24.0	29.0	23.0	28.0
25.0	24.0	26.0	24.5	23.0	28.0	25.0	26.0	24.0	27.0
29.0	28.0	28.0	24.3	25.5	27.0	28.0	27.0	25.0	26.5
24.0	24.0	26.0	28.0	28.0	22.5	24.0	24.0	29.0	22.5
26.0	26.0	25.0	22.0	24.5	25.0	24.5	25.8	26.0	25.2
25.0	23.5	29.7	24.0	25.0	24.0	23.2	25.0	27.0	24.0
23.5	23.0	24.0	26.0	25.0	26.0	30.0	23.0	26.0	26.0
25.0	25.4	27.5	23.5	22.6	28.0	26.0	24.0	23.8	24.0

Uji Kenormalan Data Panjang Lengan Bawah (PLB)

Interval Kelas			Batas Kelas			Oi	Z_1	Z_2	$P(Z_1)$	$P(Z_2)$	$P(Z_2)$-$P(Z_1)$	ei	ei gab	Oi gab	$(Oi - ei)^2/ei$
< 21.5			< 21.45			0	0	-2.050	0	0.02020	0.02020	4.040	12.039	8	1.3552
21.50	-	22.40	21.45	-	22.45	8	-2.050	-1.553	0.02020	0.06020	0.04000	7.999			
22.50	-	23.40	22.45	-	23.45	19	-1.553	-1.057	0.06020	0.14535	0.08515	17.030	17.030	19	0.2279
23.50	-	24.40	23.45	-	24.45	37	-1.057	-0.560	0.14535	0.28771	0.14237	28.473	28.473	37	2.5534
24.50	-	25.40	24.45	-	25.45	41	-0.560	-0.064	0.28771	0.47466	0.18695	37.390	37.390	41	0.3486
25.50	-	26.40	25.45	-	26.45	29	-0.064	0.433	0.47466	0.66748	0.19282	38.564	38.564	29	2.3718
26.50	-	27.40	26.45	-	27.45	23	0.433	0.929	0.66748	0.82368	0.15620	31.240	31.240	23	2.1736
27.50	-	28.40	27.45	-	28.45	24	0.929	1.426	0.82368	0.92307	0.09939	19.877	19.877	24	0.8552
28.50	-	29.40	28.45	-	29.45	10	1.426	1.923	0.92307	0.97273	0.04966	9.933	9.933	10	0.0005
29.50	-	30.40	29.45	-	30.45	9	1.923	2.419	0.97273	0.99222	0.01949	3.898	5.454	9	2.3059
> 30.40			> 30.45			0	2.419	1	0.99222	1	0.00778	1.556			
						200					1	200			12.1921

Jumlah Kelas :

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

$k = 1 + (3.3 \log 200)$

$k = 8.59 \approx 9$

Rentang Kelas :

$$c = \frac{(\max - \min)}{k} = \frac{30.0 - 21.5}{8.59}$$

$$= 0.99 \approx 1.0$$

Rata – rata :

$$\mu = \frac{\sum x_i}{n}$$

$$= \frac{(23.0 + 25.0 + ... + 24.0)}{200}$$

$$= 25.578$$

Standar Deviasi :

$$S = \sqrt{\frac{\sum (x_i - \mu)^2}{N - 1}} = 2.014$$

$v = k - r - 1 = 9 - 2 - 1 = 6$

$x^2_{(hitung)} = 12.1921 \quad x^2_{(0.05,6)} = 12.592$

$x^2_{(hitung)} < x^2_{(0.05,6)} \rightarrow 12.1921 < 12.592 \rightarrow$ Data Berdistribusi Normal

Contoh Perhitungan Tabel:

$$Z_1 = \frac{BKB - \mu}{\sigma}$$
$$= 2.014$$
$$= -2.050$$

$$Z_2 = \frac{BKA - \mu}{\sigma}$$
$$= \frac{22.45 - 25.578}{2.014}$$
$$= -1.553$$

$$P(Z_1) = P(-2.050) = 0.02020$$
$$P(Z_2) = P(-1.553) = 0.06020$$
$$P(Z_2) - P(Z_1) = 0.06020 - 0.02020 = 0.04000$$

$$e_i = \left[P(Z_2) - P(Z_1)\right] \times \sum O_i = 0.04000 \times 200 = 7.999$$

$$e_i \text{ gab} = \geq 1 \text{ atau} \geq 5 = 4.040 + 7.999 = 12.039$$

$$\frac{(O_i - e_i)^2}{e_i} = \frac{(8 - 12.039)^2}{12.039} = 1.3552$$

Uji Keseragaman Data Panjang Lengan Bawah (PLB)

Subgrup Ke-	Data Anthropometri Panjang Lengan Bawah										Harga Rata-rata
	1	2	3	4	5	6	7	8	9	10	
1	23.0	25.0	29.5	24.6	27.0	26.5	28.0	22.0	23.0	26.5	25.51
2	27.0	24.0	25.0	27.0	23.0	24.0	24.3	24.0	25.4	24.0	24.77
3	25.0	29.0	28.0	26.0	26.0	27.5	25.3	25.0	25.5	28.0	26.53
4	23.9	24.7	29.0	27.5	29.5	22.0	24.0	26.0	23.2	25.0	25.48
5	27.0	25.1	24.5	25.0	28.5	25.0	27.0	29.0	22.0	24.2	25.73
6	22.0	28.5	27.0	23.0	30.0	23.0	26.0	24.0	27.0	27.6	25.81
7	26.0	27.0	25.5	28.0	25.5	26.9	26.5	24.5	30.0	25.9	26.58
8	25.0	24.5	28.0	29.5	24.0	25.0	27.0	25.0	29.0	22.5	25.95
9	25.2	21.5	27.0	22.5	27.0	25.5	28.2	27.8	30.0	26.0	26.07
10	28.0	25.4	24.0	23.6	24.0	26.0	26.0	22.0	24.8	24.0	24.78
11	28.0	24.5	25.0	25.0	27.0	23.7	24.0	29.5	25.3	23.0	25.50
12	28.0	23.0	23.7	29.0	24.0	26.0	27.3	22.0	26.0	25.0	25.40
13	27.5	24.0	28.0	25.5	23.0	27.0	24.0	29.0	23.0	28.0	25.90
14	25.0	24.0	26.0	24.5	23.0	28.0	25.0	26.0	24.0	27.0	25.25
15	29.0	28.0	28.0	24.3	25.5	27.0	28.0	27.0	25.0	26.5	26.83
16	24.0	24.0	26.0	28.0	28.0	22.5	24.0	24.0	29.0	22.5	25.20
17	26.0	26.0	25.0	22.0	24.5	25.0	24.5	25.8	26.0	25.2	25.00
18	25.0	23.5	29.7	24.0	25.0	24.0	23.2	25.0	27.0	24.0	25.04
19	23.5	23.0	24.0	26.0	25.0	26.0	30.0	23.0	26.0	26.0	25.25
20	25.0	25.4	27.5	23.5	22.6	28.0	26.0	24.0	23.8	24.0	24.98
										$\sum \bar{x}$	511.56

Harga Rata-rata Subgrup (x):

$$\bar{\bar{x}} = \frac{\sum \bar{x}}{k} = \frac{511.56}{20} = 25.578$$

Standar Deviasi:

$$\sigma = \sqrt{\frac{\sum (x_i - \mu)^2}{N-1}}$$

$$= \sqrt{\frac{(23.0-25.578)^2 + (25.0-25.578)^2 + ... + (24.0-25.578)^2}{200-1}}$$

$$= 2.014$$

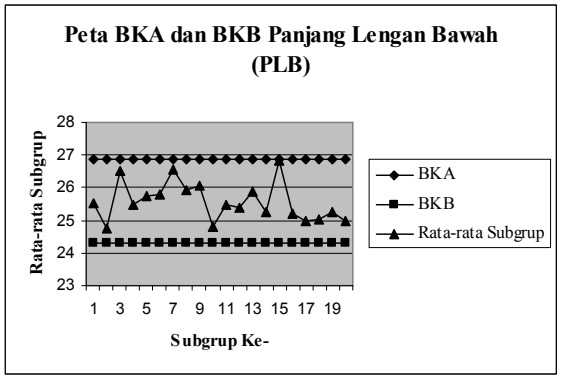
Standar Deviasi Subgrup:

$$\sigma_x = \frac{\sigma}{\sqrt{n}} = \frac{2.014}{\sqrt{10}} = 0.637$$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$BKA = \bar{\bar{x}} + (c.\sigma_x)$$
$$= 25.578 + (2 * 0.637)$$
$$= 26.852$$

$$BKB = \bar{\bar{x}} - (c.\sigma_x)$$
$$= 25.578 - (2 * 0.637)$$
$$= 24.304$$



Uji Kecukupan Data Panjang Lengan Bawah (PLB)

$\sum x_i^2 = 131653.92$

$\left(\sum x_i\right)^2 = 26169363.36$

$\sum x_i = 5115.6$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$N' = \left[\frac{c/\alpha\sqrt{N.\sum x_i^2 - \left(\sum x_i\right)^2}}{\sum x_i}\right]^2 = 9.869$$

N' < N $\longrightarrow$ 9.869 < 200 $\longrightarrow$ Data Cukup

Perhitungan Persentil Data Panjang Lengan Bawah (PLB)

Max = 30.0

Min = 21.5

Range = 8.5

P 5% = (8.5*0.05) + 21.5 = 21.925

P 50% = (8.5*0.5) + 21.5 = 25.75

P 95% = (8.5*0.95) + 21.5 = 29.575

Tabel Data Mentah Anthropometri Tinggi Popliteal (TPO)

Data Anthropometri Tinggi Popliteal (TPO)									
42.0	41.0	43.5	39.9	42.5	42.0	43.0	40.0	41.6	40.0
43.1	41.0	43.0	41.8	42.2	44.1	42.5	41.5	40.8	41.3
44.0	41.0	43.5	41.5	42.0	42.5	43.5	43.0	44.0	43.9
41.8	42.4	45.5	40.2	42.5	40.2	42.3	38.0	43.2	44.0
42.0	39.3	45.5	42.0	41.0	40.0	45.5	41.5	42.6	44.0
39.5	43.0	44.0	40.5	38.5	40.0	41.2	43.0	42.5	43.0
42.5	44.1	44.0	39.0	43.0	43.5	44.0	42.5	43.0	41.5
43.9	43.5	42.1	41.8	43.0	38.9	45.0	41.1	42.0	43.5
43.4	43.8	42.1	42.9	41.5	42.5	41.4	44.0	39.8	41.1
42.6	42.0	44.0	40.8	42.8	43.0	44.0	38.8	43.4	42.9
41.5	42.0	38.7	43.6	39.7	44.0	43.7	40.6	43.0	42.3
38.9	41.0	39.0	41.3	40.0	42.5	42.0	43.6	44.0	42.4
42.5	39.0	43.5	39.4	43.0	43.5	40.2	43.1	42.5	41.1
43.8	40.0	42.0	41.3	38.5	44.0	40.3	41.2	41.0	43.3
39.1	42.0	41.5	44.2	40.0	42.1	42.3	40.3	42.4	44.0
43.5	44.0	42.0	42.2	45.0	42.0	42.0	44.3	39.9	41.5
39.5	40.0	37.0	39.6	42.7	40.4	43.8	42.9	42.7	45.5
39.0	44.0	40.0	42.0	41.2	40.2	41.9	44.0	44.0	38.3
41.3	42.8	41.0	41.0	42.4	39.8	38.6	42.3	42.2	41.2
40.8	40.5	45.0	40.5	41.3	40.5	44.5	43.5	43.9	40.0

Uji Kenormalan Data Tinggi Popliteal (TPO)

Interval Kelas			Batas Kelas			Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	(Oi - ei)2/ei
< 37.0			< 36.95			0	0	-2.944	0	0.00162	0.00162	0.324	7.614	10	0.7479
37.00	-	37.90	36.95	-	37.95	1	-2.944	-2.359	0.00162	0.00917	0.00755	1.510			
38.00	-	38.90	37.95	-	38.95	9	-2.359	-1.774	0.00917	0.03807	0.02890	5.780			
39.00	-	39.90	38.95	-	39.95	15	-1.774	-1.188	0.03807	0.11734	0.07927	15.853	15.853	15	0.0459
40.00	-	40.90	39.95	-	40.95	25	-1.188	-0.603	0.11734	0.27316	0.15583	31.165	31.165	25	1.2197
41.00	-	41.90	40.95	-	41.95	34	-0.603	-0.018	0.27316	0.49276	0.21960	43.920	43.920	34	2.2407
42.00	-	42.90	41.95	-	42.95	49	-0.018	0.567	0.49276	0.71464	0.22188	44.376	44.376	49	0.4819
43.00	-	43.90	42.95	-	43.95	37	0.567	1.152	0.71464	0.87537	0.16073	32.145	32.145	37	0.7333
44.00	-	44.90	43.95	-	44.95	23	1.152	1.737	0.87537	0.95883	0.08346	16.693	16.693	23	2.3833
45.00	-	45.90	44.95	-	45.95	7	1.737	2.322	0.95883	0.98989	0.03106	6.213	8.234	7	0.1849
> 45.90			> 45.95			0	2.322	1	0.98989	1	0.01011	2.021			
						200					1	200			8.0376

Jumlah Kelas :

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

$k = 1 + (3.3 \log 200)$

$k = 8.59 \approx 9$

Rentang Kelas :

$$c = \frac{(\max - \min)}{k} = \frac{45.5 - 37.0}{8.59}$$

$$= 0.99 \approx 1.0$$

Rata – rata :

$$\mu = \frac{\sum x_i}{n}$$

$$= \frac{(42.0 + 41.0 + ... + 42.5)}{200}$$

$$= 41.981$$

Standar Deviasi :

$$S = \sqrt{\frac{\sum (x_i - \mu)^2}{N - 1}} = 1.709$$

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

$x^2_{(hitung)} = 8.0376 \qquad x^2_{(0.05,5)} = 11.070$

$x^2_{(hitung)} < x^2_{(0.05,5)} \rightarrow 8.0376 < 11.070 \rightarrow$ Data Berdistribusi Normal

Contoh Perhitungan Tabel:

$$Z_1 = \frac{BKB - \mu}{\sigma}$$
$$= \frac{36.95 - 41.981}{1.709}$$
$$= -2.944$$

$$Z_2 = \frac{BKA - \mu}{\sigma}$$
$$= \frac{37.95 - 41.981}{1.709}$$
$$= -2.359$$

$$P(Z_1) = P(-2.944) = 0.00162$$
$$P(Z_2) = P(-2.359) = 0.00917$$
$$P(Z_2) - P(Z_1) = 0.00917 - 0.00162 = 0.00755$$

$$e_i = \left[P(Z_2) - P(Z_1)\right] \times \sum O_i = 0.00755 \times 200 = 1.510$$

$$e_i \text{ gab} = \geq 1 \text{ atau} \geq 5 = 0.324 + 1.510 + 5.780 = 7.614$$

$$\frac{(O_i - e_i)^2}{e_i} = \frac{(10 - 7.614)^2}{7.614} = 0.7479$$

Uji Keseragaman Data Tinggi Popliteal (TPO)

Subgrup Ke-	Data Anthropometri Tinggi Popliteal (TPO)										Harga Rata-rata
	1	2	3	4	5	6	7	8	9	10	
1	42.0	41.0	43.5	39.9	42.5	42.0	43.0	40.0	41.6	40.0	41.55
2	43.1	41.0	43.0	41.8	42.2	44.1	42.5	41.5	40.8	41.3	42.13
3	44.0	41.0	43.5	41.5	42.0	42.5	43.5	43.0	44.0	43.9	42.89
4	41.8	42.4	45.5	40.2	42.5	40.2	42.3	38.0	43.2	44.0	42.01
5	42.0	39.3	45.5	42.0	41.0	40.0	45.5	41.5	42.6	44.0	42.34
6	39.5	43.0	44.0	40.5	38.5	40.0	41.2	43.0	42.5	43.0	41.52
7	42.5	44.1	44.0	39.0	43.0	43.5	44.0	42.5	43.0	41.5	42.71
8	43.9	43.5	42.1	41.8	43.0	38.9	45.0	41.1	42.0	43.5	42.48
9	43.4	43.8	42.1	42.9	41.5	42.5	41.4	44.0	39.8	41.1	42.25
10	42.6	42.0	44.0	40.8	42.8	43.0	44.0	38.8	43.4	42.9	42.43
11	41.5	42.0	38.7	43.6	39.7	44.0	43.7	40.6	43.0	42.3	41.91
12	38.9	41.0	39.0	41.3	40.0	42.5	42.0	43.6	44.0	42.4	41.47
13	42.5	39.0	43.5	39.4	43.0	43.5	40.2	43.1	42.5	41.1	41.78
14	43.8	40.0	42.0	41.3	38.5	44.0	40.3	41.2	41.0	43.3	41.54
15	39.1	42.0	41.5	44.2	40.0	42.1	42.3	40.3	42.4	44.0	41.79
16	43.5	44.0	42.0	42.2	45.0	42.0	42.0	44.3	39.9	41.5	42.64
17	39.5	40.0	37.0	39.6	42.7	40.4	43.8	42.9	42.7	45.5	41.41
18	39.0	44.0	40.0	42.0	41.2	40.2	41.9	44.0	44.0	38.3	41.46
19	41.3	42.8	41.0	41.0	42.4	39.8	38.6	42.3	42.2	41.2	41.26
20	40.8	40.5	45.0	40.5	41.3	40.5	44.5	43.5	43.9	40.0	42.05
										$\sum \bar{x}$	839.62

Harga Rata-rata Subgrup (x):

$$\bar{\bar{x}} = \frac{\sum \bar{x}}{k} = \frac{839.62}{20} = 41.981$$

Standar Deviasi:

$$\sigma = \sqrt{\frac{\sum (x_i - \mu)^2}{N-1}}$$

$$= \sqrt{\frac{(42.0-41.981)^2 + (41.0-41.981)^2 + ... + (42.5-41.981)^2}{200-1}}$$

$$= 1.709$$

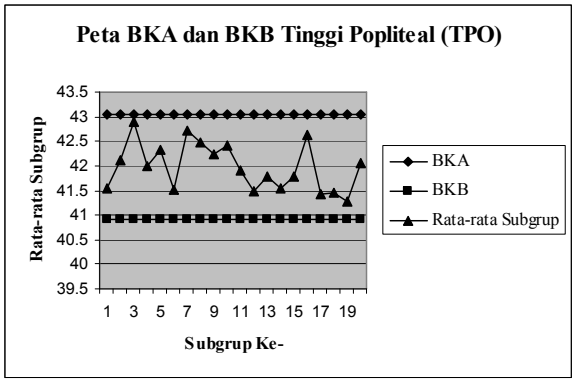
Standar Deviasi Subgrup:

$$\sigma_x = \frac{\sigma}{\sqrt{n}} = \frac{1.709}{\sqrt{10}} = 0.540$$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$BKA = \bar{\bar{x}} + (c.\sigma_x)$$
$$= 41.981 + (2 * 0.540)$$
$$= 43.061$$

$$BKB = \bar{\bar{x}} - (c.\sigma_x)$$
$$= 41.981 - (2 * 0.540)$$
$$= 40.901$$



Uji Kecukupan Data Tinggi Popliteal (TPO)

$\sum x_i^2 = 353062.12$

$\left(\sum x_i\right)^2 = 70496174.44$

$\sum x_i = 8396.2$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$N' = \left[\frac{c/\alpha\sqrt{N.\sum x_i^2 - \left(\sum x_i\right)^2}}{\sum x_i}\right]^2 = 2.638$$

N' < N $\longrightarrow$ 2.638 < 200 $\longrightarrow$ Data Cukup

Perhitungan Persentil Data Tinggi Popliteal (TPO)

Max = 45.5

Min = 37.0

Range = 8.5

P 5% = (8.5*0.05) + 37.0 = 37.425

P 50% = (8.5*0.5) + 37.0 = 41.25

P 95% = (8.5*0.95) + 37.0 = 45.075

Tabel Data Mentah Anthropometri Pantat Popliteal (PPO)

Data Anthropometri Pantat Popliteal (PPO)									
42.6	45.0	50.2	48.9	47.0	47.5	47.5	44.0	47.8	48.5
46.0	45.4	49.0	45.0	43.1	46.0	43.6	46.0	47.8	49.4
44.0	49.0	54.2	46.8	47.3	47.0	43.6	45.0	43.5	45.6
47.2	48.5	48.0	50.0	48.5	51.5	46.0	44.9	48.3	46.5
40.3	48.8	50.0	45.0	48.5	43.0	49.5	54.0	48.0	45.5
42.0	48.2	47.4	49.4	47.8	42.4	47.0	46.0	47.0	42.5
44.0	48.0	50.0	47.8	47.1	47.1	45.5	50.6	42.2	49.0
47.2	54.2	45.8	47.0	47.9	40.3	52.0	46.0	43.0	44.5
46.9	51.0	49.0	46.6	42.7	48.6	49.0	48.3	45.5	51.9
47.2	45.1	46.4	45.3	42.0	43.1	45.0	42.0	49.5	44.7
44.6	43.2	47.3	47.0	50.0	45.2	48.8	46.6	40.3	43.7
52.9	41.0	43.3	47.3	49.0	48.3	51.2	44.0	48.5	43.5
45.1	50.5	47.5	47.6	46.0	44.3	46.0	45.9	46.0	44.1
49.7	44.4	48.0	45.5	47.0	51.1	46.0	47.1	44.9	47.8
43.0	49.4	51.0	44.3	46.3	46.7	45.0	45.3	47.6	48.6
47.6	49.4	47.3	44.1	48.4	41.8	47.0	46.0	44.5	43.9
45.0	43.7	43.7	45.1	45.0	45.5	41.7	48.8	47.1	44.6
47.5	51.5	44.1	49.5	46.0	50.0	47.5	46.4	49.9	48.0
44.4	44.6	45.2	41.0	47.9	54.4	42.5	52.5	45.8	49.0
44.4	48.4	49.5	43.0	44.9	46.9	43.9	45.0	45.8	50.5

Uji Kenormalan Data Pantat Popliteal (PPO)

Interval Kelas	Batas Kelas	Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	(Oi - ei)2/ei
< 40.3	< 40.25	0	0	-2.278	0	0.01137	0.01137	2.274	9.490	7	0.6531
40.30 - 41.90	40.25 - 41.95	7	-2.278	-1.670	0.01137	0.04745	0.03608	7.215			
42.00 - 43.60	41.95 - 43.65	19	-1.670	-1.063	0.04745	0.14399	0.09655	19.309	19.309	19	0.0050
43.70 - 45.30	43.65 - 45.35	42	-1.063	-0.455	0.14399	0.32457	0.18057	36.114	36.114	42	0.9592
45.40 - 47.00	45.35 - 47.05	33	-0.455	0.153	0.32457	0.56065	0.23608	47.216	47.216	33	4.2803
47.10 - 48.70	47.05 - 48.75	48	0.153	0.760	0.56065	0.77643	0.21578	43.156	43.156	48	0.5436
48.80 - 50.40	48.75 - 50.45	33	0.760	1.368	0.77643	0.91431	0.13788	27.576	27.576	33	1.0670
50.50 - 52.10	50.45 - 52.15	10	1.368	1.975	0.91431	0.97589	0.06158	12.316			
52.20 - 53.80	52.15 - 53.85	4	1.975	2.583	0.97589	0.99510	0.01922	3.843	17.139	18	0.0433
53.90 - 55.50	53.85 - 55.55	4	2.583	3.190	0.99510	0.99929	0.00419	0.838			
> 55.50	> 55.55	0	3.190	1	0.99929	1	0.00071	0.142			
		200					1	200			7.5514

Jumlah Kelas :

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

$k = 1 + (3.3 \log 200)$

$k = 8.59 \approx 9$

Rentang Kelas :

$$c = \frac{(\max - \min)}{k} = \frac{54.4 - 40.3}{8.59}$$

$$= 1.64 \approx 1.7$$

Rata – rata :

$$\mu = \frac{\sum x_i}{n}$$

$$= \frac{(42.6 + 45.0 + ... + 45.8)}{200}$$

$$= 46.666$$

Standar Deviasi :

$$S = \sqrt{\frac{\sum (x_i - \mu)^2}{N - 1}} = 2.798$$

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

$x^2_{(hitung)} = 7.5514 \qquad x^2_{(0.05,4)} = 9.488$

$x^2_{(hitung)} < x^2_{(0.05,4)} \longrightarrow 7.5514 < 9.488 \longrightarrow$ Data Berdistribusi Normal

Contoh Perhitungan Tabel:

$$Z_1 = \frac{BKB - \mu}{\sigma}$$
$$= \frac{40.25 - 46.623}{2.798}$$
$$= -2.278$$

$$Z_2 = \frac{BKA - \mu}{\sigma}$$
$$= \frac{41.95 - 46.623}{2.798}$$
$$= -1.670$$

$$P(Z_1) = P(-2.278) = 0.01137$$
$$P(Z_2) = P(-1.670) = 0.04745$$
$$P(Z_2) - P(Z_1) = 0.04745 - 0.01137 = 0.03608$$

$$e_i = \left[P(Z_2) - P(Z_1)\right] \times \sum O_i = 0.03608 \times 200 = 7.215$$

$$e_i \text{ gab} = \geq 1 \text{ atau} \geq 5 = 2.274 + 7.215 = 9.490$$

$$\frac{(O_i - e_i)^2}{e_i} = \frac{(7 - 9.490)^2}{9.490} = 0.6531$$

Uji Keseragaman Data Pantat Popliteal (PPO)

Subgrup Ke-	Data Anthropometri Pantat Popliteal (PPO)										Harga Rata-rata
	1	2	3	4	5	6	7	8	9	10	
1	42.6	45.0	50.2	48.9	47.0	47.5	47.5	44.0	47.8	48.5	46.90
2	46.0	45.4	49.0	45.0	43.1	46.0	43.6	46.0	47.8	49.4	46.13
3	44.0	49.0	54.2	46.8	47.3	47.0	43.6	45.0	43.5	45.6	46.60
4	47.2	48.5	48.0	50.0	48.5	51.5	46.0	44.9	48.3	46.5	47.94
5	40.3	48.8	50.0	45.0	48.5	43.0	49.5	54.0	48.0	45.5	47.26
6	42.0	48.2	47.4	49.4	47.8	42.4	47.0	46.0	47.0	42.5	45.97
7	44.0	48.0	50.0	47.8	47.1	47.1	45.5	50.6	42.2	49.0	47.13
8	47.2	54.2	45.8	47.0	47.9	40.3	52.0	46.0	43.0	44.5	46.79
9	46.9	51.0	49.0	46.6	42.7	48.6	49.0	48.3	45.5	51.9	47.95
10	47.2	45.1	46.4	45.3	42.0	43.1	45.0	42.0	49.5	44.7	45.03
11	44.6	43.2	47.3	47.0	50.0	45.2	48.8	46.6	40.3	43.7	45.67
12	52.9	41.0	43.3	47.3	49.0	48.3	51.2	44.0	48.5	43.5	46.90
13	45.1	50.5	47.5	47.6	46.0	44.3	46.0	45.9	46.0	44.1	46.30
14	49.7	44.4	48.0	45.5	47.0	51.1	46.0	47.1	44.9	47.8	47.15
15	43.0	49.4	51.0	44.3	46.3	46.7	45.0	45.3	47.6	48.6	46.72
16	47.6	49.4	47.3	44.1	48.4	41.8	47.0	46.0	44.5	43.9	46.00
17	45.0	43.7	43.7	45.1	45.0	45.5	41.7	48.8	47.1	44.6	45.02
18	47.5	51.5	44.1	49.5	46.0	50.0	47.5	46.4	49.9	48.0	48.04
19	44.4	44.6	45.2	41.0	47.9	54.4	42.5	52.5	45.8	49.0	46.73
20	44.4	48.4	49.5	43.0	44.9	46.9	43.9	45.0	45.8	50.5	46.23
										$\sum \bar{x}$	932.46

Harga Rata-rata Subgrup (x):

$$\bar{\bar{x}} = \frac{\sum \bar{x}}{k} = \frac{932.46}{20} = 46.623$$

Standar Deviasi:

$$\sigma = \sqrt{\frac{\sum (x_i - \mu)^2}{N-1}}$$

$$= \sqrt{\frac{(42.6-46.623)^2 + (45.0-46.623)^2 + ... + (45.8-46.623)^2}{200-1}}$$

$$= 2.798$$

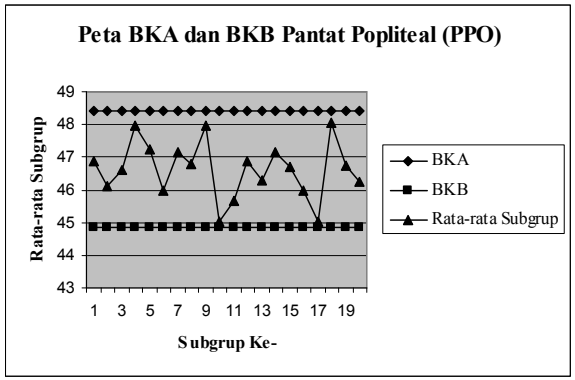
Standar Deviasi Subgrup:

$$\sigma_x = \frac{\sigma}{\sqrt{n}} = \frac{2.798}{\sqrt{10}} = 0.885$$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$BKA = \bar{\bar{x}} + (c.\sigma_x)$$
$$= 46.623 + (2 * 0.885)$$
$$= 48.393$$

$$BKB = \bar{\bar{x}} - (c.\sigma_x)$$
$$= 46.623 - (2 * 0.885)$$
$$= 44.853$$



Uji Kecukupan Data Pantat Popliteal (PPO)

$\sum x_i^2 = 436298.38$

$\left(\sum x_i\right)^2 = 86948165.16$

$\sum x_i = 9324.6$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$N' = \left[\frac{c/\alpha\sqrt{N.\sum x_i^2 - \left(\sum x_i\right)^2}}{\sum x_i}\right]^2 = 5.732$$

N' < N $\longrightarrow$ 5.732 < 200 $\longrightarrow$ Data Cukup

Perhitungan Persentil Data Pantat Popliteal (PPO)

Max = 54.4

Min = 40.3

Range = 14.1

P 5% = (14.1*0.05) + 40.3 = 41.005

P 50% = (14.1*0.5) + 40.3 = 47.35

P 95% = (14.1*0.95) + 40.3 = 53.695

Tabel Data Mentah Anthropometri Lebar Pinggul (LP)

Data Anthropometri Lebar Pinggul (LP)									
32.1	36.7	40.8	36.2	40.5	35.7	32.8	35.7	35.5	37.0
37.0	39.1	34.0	34.6	33.5	36.5	34.0	33.0	37.6	33.8
38.0	35.5	35.7	34.6	40.0	37.0	33.9	36.0	39.5	36.1
35.2	41.7	37.0	36.0	40.3	34.0	38.2	31.7	35.7	38.8
36.0	36.5	33.1	38.0	39.0	34.5	46.0	36.0	41.2	40.9
32.5	34.2	38.0	35.8	38.2	34.3	33.0	33.5	37.5	35.5
35.0	34.0	40.6	35.0	35.5	36.1	43.5	40.1	37.2	32.5
37.3	38.5	33.0	41.0	35.8	35.5	40.0	37.3	38.0	36.5
37.2	34.7	37.7	35.0	35.7	34.3	37.9	35.6	36.2	37.0
46.0	34.1	36.2	35.5	37.5	39.1	36.0	36.0	36.4	35.8
38.0	35.0	37.2	35.0	35.0	35.6	36.0	44.0	34.0	35.0
33.0	37.0	36.0	33.0	37.0	36.2	36.0	34.5	36.6	34.0
38.7	39.0	42.5	30.5	34.5	37.0	33.0	32.0	34.0	36.8
41.3	32.0	37.0	40.5	38.0	36.5	38.0	32.0	40.0	44.0
36.0	38.2	37.0	39.0	39.7	33.4	35.2	40.0	35.0	39.5
35.7	38.5	38.0	38.0	37.0	37.5	36.5	40.5	39.5	37.5
37.8	38.0	35.0	36.0	35.0	36.0	40.0	36.4	38.0	36.0
34.1	34.5	37.5	36.5	36.5	36.5	32.6	37.2	36.4	35.5
35.0	36.0	36.4	35.7	37.0	35.9	41.0	35.8	35.0	31.5
36.5	38.0	31.0	35.5	33.5	40.0	35.9	37.5	36.0	33.5

Uji Kenormalan Data Lebar Pinggul (LP)

Interval Kelas			Batas Kelas			Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	(Oi - ei)2/ei
< 30.5			< 30.45			0	0	-2.314	0	0.01033	0.01033	2.067	10.281	8	0.5059
30.50	-	32.20	30.45	-	32.25	8	-2.314	-1.631	0.01033	0.05140	0.04107	8.214			
32.30	-	34.00	32.25	-	34.05	25	-1.631	-0.949	0.05140	0.17136	0.11996	23.991	23.991	25	0.0424
34.10	-	35.80	34.05	-	35.85	47	-0.949	-0.266	0.17136	0.39504	0.22368	44.736	44.736	47	0.1146
35.90	-	37.60	35.85	-	37.65	64	-0.266	0.416	0.39504	0.66143	0.26640	53.279	53.279	64	2.1572
37.70	-	39.40	37.65	-	39.45	27	0.416	1.099	0.66143	0.86411	0.20268	40.535	40.535	27	4.5196
39.50	-	41.20	39.45	-	41.25	21	1.099	1.782	0.86411	0.96259	0.09848	19.696	19.696	21	0.0863
41.30	-	43.00	41.25	-	43.05	3	1.782	2.464	0.96259	0.99313	0.03054	6.109	7.482	8	0.0359
43.10	-	44.80	43.05	-	44.85	3	2.464	3.147	0.99313	0.99917	0.00604	1.208			
44.90	-	46.60	44.85	-	46.65	2	3.147	3.829	0.99917	0.99994	0.00076	0.152			
> 46.60			> 46.65			0	3.829	1	0.99994	1	0.00006	0.013			
						200					1	200			7.4619

Jumlah Kelas :

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

$k = 1 + (3.3 \log 200)$

$k = 8.59 \approx 9$

Rentang Kelas :

$$c = \frac{(\max - \min)}{k} = \frac{46.0 - 30.5}{8.59}$$

$$= 1.80 \approx 1.8$$

Rata – rata :

$$\mu = \frac{\sum x_i}{n}$$

$$= \frac{(32.1 + 36.7 + ... + 33.5)}{200}$$

$$= 36.552$$

Standar Deviasi :

$$S = \sqrt{\frac{\sum (x_i - \mu)^2}{N - 1}} = 2.637$$

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

$x^2_{(hitung)} = 7.4619 \qquad x^2_{(0.05,4)} = 9.488$

$x^2_{(hitung)} < x^2_{(0.05,4)} \longrightarrow 7.4619 < 9.488 \longrightarrow$ Data Berdistribusi Normal

Contoh Perhitungan Tabel:

$$Z_1 = \frac{BKB - \mu}{\sigma}$$
$$= \frac{30.45 - 36.552}{2.637}$$
$$= -2.314$$

$$Z_2 = \frac{BKA - \mu}{\sigma}$$
$$= \frac{32.25 - 36.552}{2.637}$$
$$= -1.631$$

$$P(Z_1) = P(-2.314) = 0.01033$$
$$P(Z_2) = P(-1.631) = 0.05140$$
$$P(Z_2) - P(Z_1) = 0.05140 - 0.01033 = 0.04107$$

$$e_i = \left[P(Z_2) - P(Z_1)\right] \times \sum O_i = 0.04107 \times 200 = 8.214$$

$$e_i \text{ gab} = \geq 1 \text{ atau} \geq 5 = 2.067 + 8.214 = 10.281$$

$$\frac{(O_i - e_i)^2}{e_i} = \frac{(8 - 10.281)^2}{10.281} = 0.5059$$

Uji Keseragaman Data Lebar Pinggul (LP)

Subgrup Ke-	Data Anthropometri Lebar Pinggul (LP)										Harga Rata-rata
	1	2	3	4	5	6	7	8	9	10	
1	32.1	36.7	40.8	36.2	40.5	35.7	32.8	35.7	35.5	37.0	36.30
2	37.0	39.1	34.0	34.6	33.5	36.5	34.0	33.0	37.6	33.8	35.31
3	38.0	35.5	35.7	34.6	40.0	37.0	33.9	36.0	39.5	36.1	36.63
4	35.2	41.7	37.0	36.0	40.3	34.0	38.2	31.7	35.7	38.8	36.86
5	36.0	36.5	33.1	38.0	39.0	34.5	46.0	36.0	41.2	40.9	38.12
6	32.5	34.2	38.0	35.8	38.2	34.3	33.0	33.5	37.5	35.5	35.25
7	35.0	34.0	40.6	35.0	35.5	36.1	43.5	40.1	37.2	32.5	36.95
8	37.3	38.5	33.0	41.0	35.8	35.5	40.0	37.3	38.0	36.5	37.29
9	37.2	34.7	37.7	35.0	35.7	34.3	37.9	35.6	36.2	37.0	36.13
10	46.0	34.1	36.2	35.5	37.5	39.1	36.0	36.0	36.4	35.8	37.26
11	38.0	35.0	37.2	35.0	35.0	35.6	36.0	44.0	34.0	35.0	36.48
12	33.0	37.0	36.0	33.0	37.0	36.2	36.0	34.5	36.6	34.0	35.33
13	38.7	39.0	42.5	30.5	34.5	37.0	33.0	32.0	34.0	36.8	35.80
14	41.3	32.0	37.0	40.5	38.0	36.5	38.0	32.0	40.0	44.0	37.93
15	36.0	38.2	37.0	39.0	39.7	33.4	35.2	40.0	35.0	39.5	37.30
16	35.7	38.5	38.0	38.0	37.0	37.5	36.5	40.5	39.5	37.5	37.87
17	37.8	38.0	35.0	36.0	35.0	36.0	40.0	36.4	38.0	36.0	36.82
18	34.1	34.5	37.5	36.5	36.5	36.5	32.6	37.2	36.4	35.5	35.73
19	35.0	36.0	36.4	35.7	37.0	35.9	41.0	35.8	35.0	31.5	35.93
20	36.5	38.0	31.0	35.5	33.5	40.0	35.9	37.5	36.0	33.5	35.74
										$\sum \bar{x}$	731.03

Harga Rata-rata Subgrup (x):

$$\bar{\bar{x}} = \frac{\sum \bar{x}}{k} = \frac{731.03}{20} = 36.552$$

Standar Deviasi:

$$\sigma = \sqrt{\frac{\sum (x_i - \mu)^2}{N-1}}$$

$$= \sqrt{\frac{(32.1-36.552)^2 + (36.7-36.552)^2 + ... + (33.5-36.552)^2}{200-1}}$$

$$= 2.637$$

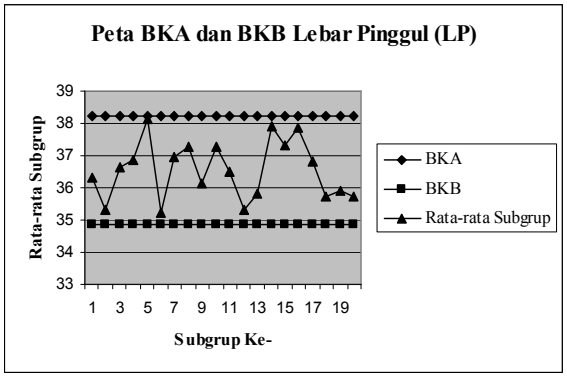
Standar Deviasi Subgrup:

$$\sigma_x = \frac{\sigma}{\sqrt{n}} = \frac{2.637}{\sqrt{10}} = 0.834$$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$BKA = \bar{\bar{x}} + (c.\sigma_x)$$
$$= 36.552 + (2 * 0.834)$$
$$= 38.22$$

$$BKB = \bar{\bar{x}} - (c.\sigma_x)$$
$$= 36.552 - (2 * 0.834)$$
$$= 34.884$$



Uji Kecukupan Data Lebar Pinggul (LP)

$\sum x_i^{\,2} = 268586.47$

$\left(\sum x_i\right)^2 = 53440486.09$

$\sum x_i = 7310.3$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$N' = \left[\frac{c/\alpha\sqrt{N.\sum x_i^{\,2} - \left(\sum x_i\right)^2}}{\sum x_i}\right]^2 = 8.288$$

N' < N $\longrightarrow$ 8.288< 200 $\longrightarrow$ Data Cukup

Perhitungan Persentil Data Lebar Pinggul (LP)

Max = 46.0

Min = 30.5

Range = 15.5

P 5% = (15.5*0.05) + 30.5 = 31.275

P 50% = (15.5*0.5) + 30.5 = 38.25

P 95% = (15.5*0.95) + 30.5 = 45.225

Tabel Data Mentah Anthropometri Tinggi Mata Berdiri (TMB)

Data Anthropometri Tinggi Mata Berdiri (TMB)									
144.5	154.6	157.5	166.0	142.0	150.0	153.6	144.3	162.2	157.0
154.0	149.5	138.3	161.6	141.0	152.0	164.3	139.0	150.1	168.5
151.0	163.0	156.8	145.5	165.5	151.0	156.0	149.0	155.0	159.0
147.9	162.0	160.0	150.0	157.0	146.7	144.4	153.0	156.0	155.5
156.5	152.1	158.2	153.0	163.0	140.0	152.0	171.0	158.0	153.0
146.0	154.3	152.3	142.0	158.0	139.8	150.0	151.0	163.0	163.6
148.0	167.0	155.4	157.0	139.9	154.2	156.3	168.0	143.0	151.0
165.0	154.2	152.0	160.0	144.3	145.7	161.5	154.0	160.5	148.0
142.6	141.9	154.0	147.0	164.5	146.6	170.0	157.0	149.5	149.7
163.0	152.0	141.3	148.0	145.3	150.0	146.0	142.3	151.1	149.0
153.1	157.5	159.0	147.0	155.0	140.7	158.5	158.0	156.0	143.0
163.5	139.0	144.3	155.2	140.5	157.5	165.2	146.0	156.0	152.0
148.5	162.5	166.0	147.0	141.0	156.0	163.0	147.0	155.0	144.0
158.5	148.1	153.0	154.3	144.0	167.2	143.0	150.6	152.6	159.0
141.5	157.0	161.0	153.8	150.0	153.0	137.5	158.0	149.0	158.0
141.6	153.0	151.5	142.5	161.0	154.0	155.0	147.0	151.0	167.5
154.1	144.0	141.0	161.0	145.0	145.8	139.0	153.3	157.5	149.2
156.3	144.0	141.5	149.0	164.0	158.0	151.3	147.0	147.4	155.0
158.0	153.0	144.7	143.0	149.0	150.0	163.0	146.0	152.0	164.0
140.0	146.5	158.5	147.0	157.5	159.0	149.0	143.0	159.0	145.0

Uji Kenormalan Data Tinggi Mata Berdiri (TMB)

Interval Kelas			Batas Kelas			Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	(Oi - ei)2/ei
< 137.50			< 137.45			0	0	-1.964	0	0.02477	0.02477	4.953	14.623	15	0.0097
137.50	-	141.30	137.45	-	141.35	15	-1.964	-1.453	0.02477	0.07312	0.04835	9.670			
141.40	-	145.20	141.35	-	145.25	26	-1.453	-0.942	0.07312	0.17311	0.09999	19.998	19.998	26	1.8013
145.30	-	149.10	145.25	-	149.15	25	-0.942	-0.431	0.17311	0.33325	0.16015	32.029	32.029	25	1.5426
149.20	-	153.00	149.15	-	153.05	35	-0.431	0.080	0.33325	0.53190	0.19865	39.730	39.730	35	0.5632
153.10	-	156.90	153.05	-	156.95	38	0.080	0.591	0.53190	0.72276	0.19086	38.171	38.171	38	0.0008
157.00	-	160.80	156.95	-	160.85	29	0.591	1.102	0.72276	0.86478	0.14202	28.405	28.405	29	0.0125
160.90	-	164.70	160.85	-	164.75	20	1.102	1.613	0.86478	0.94664	0.08185	16.370	16.370	20	0.8048
164.80	-	168.60	164.75	-	168.65	10	1.613	2.124	0.94664	0.98317	0.03653	7.306	10.673	12	0.1650
168.70	-	172.50	168.65	-	172.55	2	2.124	2.635	0.98317	0.99579	0.01263	2.525			
> 172.5			> 172.55			0	2.635	1	0.99579	1	0.00421	0.841			
						200					1	200			4.8998

Jumlah Kelas :

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

$k = 1 + (3.3 \log 200)$

$k = 8.59 \approx 9$

Rentang Kelas :

$$c = \frac{(\max - \min)}{k} = \frac{171.0 - 137.5}{8.59}$$

$$= 3.90 \approx 3.9$$

Rata – rata :

$$\mu = \frac{\sum x_i}{n}$$

$$= \frac{(144.5 + 154.6 + ... + 145.0)}{200}$$

$$= 152.439$$

Standar Deviasi :

$$S = \sqrt{\frac{\sum (x_i - \mu)^2}{N - 1}} = 7.632$$

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

$x^2_{(hitung)} = 4.8998 \quad x^2_{(0.05,5)} = 11.070$

$x^2_{(hitung)} < x^2_{(0.05,5)} \rightarrow 4.8998 < 11.070 \rightarrow$ Data Berdistribusi Normal

Contoh Perhitungan Tabel:

$$Z_1 = \frac{BKB - \mu}{\sigma}$$
$$= \frac{137.45 - 152.439}{7.632}$$
$$= -1.964$$

$$Z_2 = \frac{BKA - \mu}{\sigma}$$
$$= \frac{141.35 - 152.439}{7.632}$$
$$= -1.453$$

$$P(Z_1) = P(-1.964) = 0.02477$$
$$P(Z_2) = P(-1.453) = 0.07312$$
$$P(Z_2) - P(Z_1) = 0.07312 - 0.02477 = 0.04835$$

$$e_i = [P(Z_2) - P(Z_1)] \times \sum O_i = 0.04835 \times 200 = 9.670$$

$$e_i \text{ gab} = \geq 1 \text{atau} \geq 5 = 4.953 + 9.670 = 14.632$$

$$\frac{(O_i - e_i)^2}{e_i} = \frac{(15 - 14.632)^2}{14.632} = 0.0097$$

Uji Keseragaman Data Tinggi Mata Berdiri (TMB)

Subgrup Ke-	Data Anthropometri Tinggi Mata Berdiri (TMB)										Harga Rata-rata
	1	2	3	4	5	6	7	8	9	10	
1	144.5	154.6	157.5	166.0	142.0	150.0	153.6	144.3	162.2	157.0	153.17
2	154.0	149.5	138.3	161.6	141.0	152.0	164.3	139.0	150.1	168.5	151.83
3	151.0	163.0	156.8	145.5	165.5	151.0	156.0	149.0	155.0	159.0	155.18
4	147.9	162.0	160.0	150.0	157.0	146.7	144.4	153.0	156.0	155.5	153.25
5	156.5	152.1	158.2	153.0	163.0	140.0	152.0	171.0	158.0	153.0	155.68
6	146.0	154.3	152.3	142.0	158.0	139.8	150.0	151.0	163.0	163.6	152.00
7	148.0	167.0	155.4	157.0	139.9	154.2	156.3	168.0	143.0	151.0	153.98
8	165.0	154.2	152.0	160.0	144.3	145.7	161.5	154.0	160.5	148.0	154.52
9	142.6	141.9	154.0	147.0	164.5	146.6	170.0	157.0	149.5	149.7	152.28
10	163.0	152.0	141.3	148.0	145.3	150.0	146.0	142.3	151.1	149.0	148.80
11	153.1	157.5	159.0	147.0	155.0	140.7	158.5	158.0	156.0	143.0	152.78
12	163.5	139.0	144.3	155.2	140.5	157.5	165.2	146.0	156.0	152.0	151.92
13	148.5	162.5	166.0	147.0	141.0	156.0	163.0	147.0	155.0	144.0	153.00
14	158.5	148.1	153.0	154.3	144.0	167.2	143.0	150.6	152.6	159.0	153.03
15	141.5	157.0	161.0	153.8	150.0	153.0	137.5	158.0	149.0	158.0	151.88
16	141.6	153.0	151.5	142.5	161.0	154.0	155.0	147.0	151.0	167.5	152.41
17	154.1	144.0	141.0	161.0	145.0	145.8	139.0	153.3	157.5	149.2	148.99
18	156.3	144.0	141.5	149.0	164.0	158.0	151.3	147.0	147.4	155.0	151.35
19	158.0	153.0	144.7	143.0	149.0	150.0	163.0	146.0	152.0	164.0	152.27
20	140.0	146.5	158.5	147.0	157.5	159.0	149.0	143.0	159.0	145.0	150.45
										$\sum \bar{x}$	3048.77

Harga Rata-rata Subgrup (x):

$$\bar{\bar{x}} = \frac{\sum \bar{x}}{k} = \frac{3048.77}{20} = 152.439$$

Standar Deviasi:

$$\sigma = \sqrt{\frac{\sum (x_i - \mu)^2}{N-1}}$$

$$= \sqrt{\frac{(144.5-152.439)^2 + (154.6-152.439)^2 + ... + (145.0-152.439)^2}{200-1}}$$

$$= 7.632$$

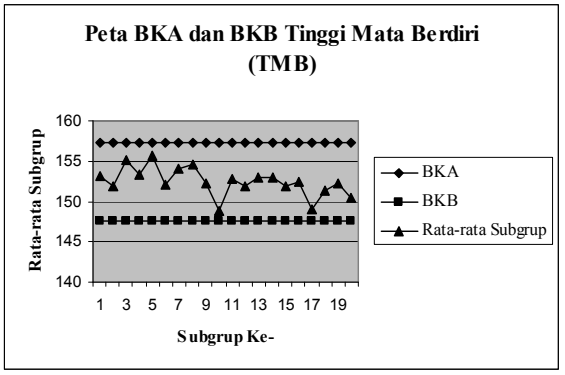
Standar Deviasi Subgrup:

$$\sigma_x = \frac{\sigma}{\sqrt{n}} = \frac{7.632}{\sqrt{10}} = 2.413$$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$BKA = \bar{\bar{x}} + (c.\sigma_x)$$
$$= 152.439 + (2 * 2.413)$$
$$= 157.265$$

$$BKB = \bar{\bar{x}} - (c.\sigma_x)$$
$$= 152.439 - (2 * 2.413)$$
$$= 147.613$$



Uji Kecukupan Data Tinggi Mata Berdiri (TMB)

$\sum x_i^2 = 4659095.817$

$\left(\sum x_i\right)^2 = 929500461.044$

$\sum x_i = 30487.71$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$N' = \left[\frac{c/\alpha\sqrt{N.\sum x_i^2 - \left(\sum x_i\right)^2}}{\sum x_i}\right]^2 = 3.991$$

N' < N $\longrightarrow$ 3.991 < 200 $\longrightarrow$ Data Cukup

Perhitungan Persentil Data Tinggi Mata Berdiri (TMB)

Max = 171.0

Min = 137.5

Range = 33.5

P 5% = (33.5*0.05) + 137.5 = 139.175

P 50% = (33.5*0.5) + 137.5 = 154.25

P 95% = (33.5*0.95) + 137.5 = 169.325

Tabel Data Mentah Anthropometri Lebar Jari Ke-2345 (LJ)

Data Anthropometri Lebar Jari Ke-2345 (LJ)									
8.0	7.0	7.0	8.0	6.5	6.5	7.9	8.7	5.0	9.0
6.0	8.5	6.7	7.0	6.5	7.0	7.0	6.0	7.6	6.1
4.5	8.5	7.0	6.4	7.5	8.0	5.0	7.5	9.0	7.1
7.0	6.5	9.0	6.0	7.0	6.5	7.8	8.9	6.0	8.8
7.0	6.1	7.0	8.5	6.5	6.0	8.0	6.5	7.0	6.0
6.4	7.6	8.0	6.7	7.2	6.5	6.5	8.0	7.8	7.0
6.9	6.7	7.5	8.0	6.0	7.9	7.0	8.0	7.2	6.0
7.8	6.5	8.0	7.6	7.8	8.5	6.0	7.8	8.0	8.5
6.9	7.4	6.7	7.8	6.5	7.0	7.5	7.9	6.0	6.7
8.0	5.5	8.0	7.9	7.0	6.0	7.0	7.0	8.3	6.6
6.5	8.0	7.7	6.5	6.0	7.7	7.0	6.7	8.4	7.0
6.0	7.2	7.3	7.0	6.5	7.0	7.0	6.0	8.5	7.0
8.9	7.1	6.5	7.5	6.8	7.8	8.0	7.9	7.0	7.0
6.8	6.5	7.0	6.5	6.4	7.0	6.0	6.7	7.0	6.9
6.0	6.5	7.4	8.0	7.0	7.0	6.8	7.4	7.0	7.5
7.0	8.0	7.2	6.0	9.5	7.0	8.0	7.4	7.7	5.5
7.0	7.5	7.0	7.0	7.5	8.3	8.0	7.3	6.5	7.2
8.5	7.5	7.0	6.5	7.5	8.0	6.5	7.0	6.4	7.0
7.5	6.5	6.0	7.7	6.8	7.8	8.2	8.7	8.0	8.5
6.5	7.6	7.2	6.0	7.9	8.5	7.5	6.8	7.3	8.0

Uji Kenormalan Data Lebar Jari Ke-2345 (LJ-2345)

Interval Kelas			Batas Kelas			Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	(Oi - ei)2/ei
< 4.50			< 4.45			0	0	-3.243	0	0.00059	0.00059	0.118	6.902	5	0.5241
4.50	-	5.00	4.45	-	5.05	3	-3.243	-2.531	0.00059	0.00569	0.00510	1.020			
5.10	-	5.60	5.05	-	5.65	2	-2.531	-1.818	0.00569	0.03451	0.02882	5.764			
5.70	-	6.20	5.65	-	6.25	21	-1.818	-1.106	0.03451	0.13443	0.09992	19.984	19.984	21	0.0517
6.30	-	6.80	6.25	-	6.85	40	-1.106	-0.393	0.13443	0.34712	0.21269	42.538	42.538	40	0.1514
6.90	-	7.40	6.85	-	7.45	53	-0.393	0.319	0.34712	0.62532	0.27820	55.640	55.640	53	0.1252
7.50	-	8.00	7.45	-	8.05	38	0.319	1.032	0.62532	0.84898	0.22366	44.732	44.732	38	1.0132
8.10	-	8.60	8.05	-	8.65	34	1.032	1.745	0.84898	0.95948	0.11050	22.100	22.100	34	6.4082
8.70	-	9.20	8.65	-	9.25	8	1.745	2.457	0.95948	0.99300	0.03352	6.704	8.104	9	0.0990
9.30	-	9.80	9.25	-	9.85	1	2.457	3.170	0.99300	0.99924	0.00624	1.248			
> 9.80			> 9.85			0	3.170	1	0.99924	1	0.00076	0.153			
						200					1	200			8.3729

Jumlah Kelas :

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

$k = 1 + (3.3 \log 200)$

$k = 8.59 \approx 9$

Rentang Kelas :

$$c = \frac{(\max - \min)}{k} = \frac{9.5 - 4.5}{8.59}$$

$$= 0.58 \approx 0.6$$

Rata – rata :

$$\mu = \frac{\sum x_i}{n}$$

$$= \frac{(8.0 + 7.0 + ... + 8.0)}{200}$$

$$= 7.181$$

Standar Deviasi :

$$S = \sqrt{\frac{\sum (x_i - \mu)^2}{N - 1}} = 0.842$$

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

$x^2_{(hitung)} = 8.3729$ $x^2_{(0.05,4)} = 9.488$

$x^2_{(hitung)} < x^2_{(0.05,4)}$ $\rightarrow$ $8.3729 < 9.488$ $\rightarrow$ Data Berdistribusi Normal

Contoh Perhitungan Tabel:

$$Z_1 = \frac{BKB - \mu}{\sigma}$$
$$= \frac{4.45 - 7.181}{0.842}$$
$$= -3.243$$

$$Z_2 = \frac{BKA - \mu}{\sigma}$$
$$= \frac{5.05 - 7.181}{0.842}$$
$$= -2.531$$

$$P(Z_1) = P(-3.243) = 0.00059$$
$$P(Z_2) = P(-2.531) = 0.00569$$
$$P(Z_2) - P(Z_1) = 0.00569 - 0.00510 = 0.00510$$

$$e_i = \left[P(Z_2) - P(Z_1)\right] \times \sum O_i = 0.00510 \times 200 = 1.020$$

$$e_i \text{ gab} = \geq 1 \text{ atau} \geq 5 = 0.118 + 1.020 + 5.764 = 6.902$$

$$\frac{(O_i - e_i)^2}{e_i} = \frac{(5 - 6.902)^2}{6.902} = 0.5241$$

Uji Keseragaman Data Lebar Jari Ke-2345 (LJ-2345)

Subgrup Ke-	Data Anthropometri Lebar Jari ke-2345										Harga Rata-rata
	1	2	3	4	5	6	7	8	9	10	
1	8.0	7.0	7.0	8.0	6.5	6.5	7.9	8.7	5.0	9.0	7.36
2	6.0	8.5	6.7	7.0	6.5	7.0	7.0	6.0	7.6	6.1	6.84
3	4.5	8.5	7.0	6.4	7.5	8.0	5.0	7.5	9.0	7.1	7.05
4	7.0	6.5	9.0	6.0	7.0	6.5	7.8	8.9	6.0	8.8	7.35
5	7.0	6.1	7.0	8.5	6.5	6.0	8.0	6.5	7.0	6.0	6.86
6	6.4	7.6	8.0	6.7	7.2	6.5	6.5	8.0	7.8	7.0	7.17
7	6.9	6.7	7.5	8.0	6.0	7.9	7.0	8.0	7.2	6.0	7.12
8	7.8	6.5	8.0	7.6	7.8	8.5	6.0	7.8	8.0	8.5	7.65
9	6.9	7.4	6.7	7.8	6.5	7.0	7.5	7.9	6.0	6.7	7.04
10	8.0	5.5	8.0	7.9	7.0	6.0	7.0	7.0	8.3	6.6	7.13
11	6.5	8.0	7.7	6.5	6.0	7.7	7.0	6.7	8.4	7.0	7.15
12	6.0	7.2	7.3	7.0	6.5	7.0	7.0	6.0	8.5	7.0	6.95
13	8.9	7.1	6.5	7.5	6.8	7.8	8.0	7.9	7.0	7.0	7.45
14	6.8	6.5	7.0	6.5	6.4	7.0	6.0	6.7	7.0	6.9	6.68
15	6.0	6.5	7.4	8.0	7.0	7.0	6.8	7.4	7.0	7.5	7.06
16	7.0	8.0	7.2	6.0	9.5	7.0	8.0	7.4	7.7	5.5	7.33
17	7.0	7.5	7.0	7.0	7.5	8.3	8.0	7.3	6.5	7.2	7.33
18	8.5	7.5	7.0	6.5	7.5	8.0	6.5	7.0	6.4	7.0	7.19
19	7.5	6.5	6.0	7.7	6.8	7.8	8.2	8.7	8.0	8.5	7.57
20	6.5	7.6	7.2	6.0	7.9	8.5	7.5	6.8	7.3	8.0	7.33
										$\sum \bar{x}$	143.61

Harga Rata-rata Subgrup (x):

$$\bar{\bar{x}} = \frac{\sum \bar{x}}{k} = \frac{143.61}{20} = 7.181$$

Standar Deviasi:

$$\sigma = \sqrt{\frac{\sum (x_i - \mu)^2}{N-1}}$$

$$= \sqrt{\frac{(8.0-7.181)^2 + (7.0-7.181)^2 + ... + (8.0-7.181)^2}{200-1}}$$

$$= 0.842$$

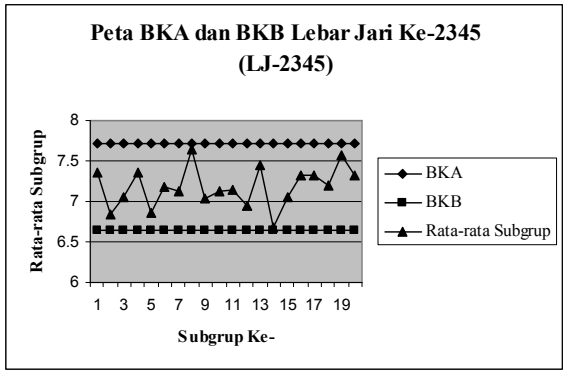
Standar Deviasi Subgrup:

$$\sigma_x = \frac{\sigma}{\sqrt{n}} = \frac{0.842}{\sqrt{10}} = 0.266$$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$BKA = \bar{\bar{x}} + (c.\sigma_x)$$
$$= 7.181 + (2 * 0.266)$$
$$= 7.713$$

$$BKB = \bar{\bar{x}} - (c.\sigma_x)$$
$$= 7.181 - (2 * 0.266)$$
$$= 6.649$$



Uji Kecukupan Data Lebar Jari Ke-2345 (LJ-2345)

$\sum x_i^2 = 10453.05$

$\left(\sum x_i\right)^2 = 2062383.21$

$\sum x_i = 1436.1$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$N' = \left[\frac{c/\alpha\sqrt{N.\sum x_i^2 - \left(\sum x_i\right)^2}}{\sum x_i}\right]^2 = 21.898$$

N' < N $\longrightarrow$ 21.898 < 200 $\longrightarrow$ Data Cukup

Perhitungan Persentil Data Lebar Jari Ke-2345 (LJ-2345)

Max = 9.5

Min = 4.5

Range = 5.0

P 5% = (5.0*0.05) + 4.5 = 4.75

P 50% = (5.0*0.5) + 4.5 = 7.0

P 95% = (5*0.95) + 4.5 = 9.25

Tabel Data Mentah Anthropometri Rentangan Tangan (RT)

Data Anthropometri Rentangan Tangan (RT)									
156.7	164.5	178.5	186.0	158.0	163.0	168.5	159.0	154.0	159.2
171.0	153.2	153.0	175.0	148.5	163.0	180.3	147.0	166.8	183.7
158.5	175.0	163.5	155.0	180.0	161.5	159.0	163.0	165.0	164.3
156.8	171.3	174.0	158.0	174.0	159.0	161.1	162.0	147.5	173.0
169.0	163.4	165.0	170.0	180.0	148.0	165.0	185.0	172.0	171.5
145.5	176.0	172.0	150.0	170.2	144.5	162.0	164.0	179.0	178.0
161.0	175.0	170.6	168.5	165.5	168.2	172.0	189.8	169.5	158.5
190.0	169.0	170.0	178.0	156.3	158.0	177.0	165.0	177.0	160.0
159.3	146.5	158.8	143.5	178.0	161.0	180.0	176.3	154.0	157.0
181.0	162.2	149.5	159.5	157.5	167.0	155.7	146.0	157.5	168.0
164.0	170.3	181.0	160.0	175.5	150.8	157.0	166.5	143.0	155.0
176.0	151.0	155.0	168.0	147.0	174.0	175.0	157.5	171.0	167.0
161.3	172.0	180.0	162.0	159.0	171.5	148.0	154.0	150.0	158.5
169.0	161.0	164.0	161.5	155.0	178.0	166.0	161.0	170.0	150.0
150.2	178.0	185.0	170.0	160.0	160.0	143.8	171.0	164.0	170.0
157.3	161.0	168.0	160.0	182.0	145.0	146.5	154.0	168.0	154.0
176.0	160.5	161.0	165.5	158.0	156.0	170.0	170.0	160.0	154.0
169.0	158.0	156.0	163.0	182.5	174.5	153.6	162.0	154.8	162.0
172.5	141.0	155.0	181.2	156.0	160.0	170.0	160.5	164.0	183.0
146.5	156.4	173.0	163.0	143.0	178.0	180.0	153.0	148.0	178.0

Uji Kenormalan Data Rentangan Tangan (RT)

Interval Kelas			Batas Kelas			Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	(Oi - ei)2/ei
< 141.0			< 140.95			0	0	-2.169	0	0.01506	0.01506	3.011	10.236	12	0.3041
141.00	-	146.60	140.95	-	146.65	12	-2.169	-1.634	0.01506	0.05118	0.03612	7.224			
146.70	-	152.30	146.65	-	152.35	14	-1.634	-1.098	0.05118	0.13600	0.08482	16.964	16.964	14	0.5179
152.40	-	158.00	152.35	-	158.05	35	-1.098	-0.563	0.13600	0.28658	0.15058	30.116	30.116	35	0.7922
158.10	-	163.70	158.05	-	163.75	43	-0.563	-0.028	0.28658	0.48869	0.20211	40.423	40.423	43	0.1643
163.80	-	169.40	163.75	-	169.45	29	-0.028	0.507	0.48869	0.69382	0.20513	41.026	41.026	29	3.5251
169.50	-	175.10	169.45	-	175.15	33	0.507	1.042	0.69382	0.85124	0.15742	31.484	31.484	33	0.0730
175.20	-	180.80	175.15	-	180.85	22	1.042	1.577	0.85124	0.94258	0.09134	18.268	18.268	22	0.7623
180.90	-	186.50	180.85	-	186.55	10	1.577	2.112	0.94258	0.98265	0.04007	8.014	11.483	12	0.0232
186.60	-	192.20	186.55	-	192.25	2	2.112	2.647	0.98265	0.99594	0.01329	2.657			
> 192.20			> 192.25			0	2.647	1	0.99594	1	0.00406	0.812			
						200					1	200			6.1622

Jumlah Kelas :

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

$k = 1 + (3.3 \log 200)$

$k = 8.59 \approx 9$

Rentang Kelas :

$$c = \frac{(\max - \min)}{k} = \frac{190.0 - 141.0}{8.59}$$

$$= 5.70 \approx 5.7$$

Rata – rata :

$$\mu = \frac{\sum x_i}{n}$$

$$= \frac{(156.7 + 171.3 + ... + 150.0)}{200}$$

$$= 164.052$$

Standar Deviasi :

$$S = \sqrt{\frac{\sum (x_i - \mu)^2}{N - 1}} = 10.653$$

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

$x^2_{(hitung)} = 6.1622 \quad x^2_{(0.05,5)} = 11.070$

$x^2_{(hitung)} < x^2_{(0.05,5)} \rightarrow 6.1622 < 11.070 \rightarrow$ Data Berdistribusi Normal

Contoh Perhitungan Tabel:

$$Z_1 = \frac{BKB - \mu}{\sigma}$$
$$= \frac{140.95 - 164.052}{10.653}$$
$$= -2.169$$

$$Z_2 = \frac{BKA - \mu}{\sigma}$$
$$= \frac{146.65 - 164.052}{10.653}$$
$$= -1.634$$

$$P(Z_1) = P(-2.169) = 0.05118$$
$$P(Z_2) = P(-1.634) = 0.01506$$
$$P(Z_2) - P(Z_1) = 0.05118 - 0.01506 = 0.03612$$

$$e_i = [P(Z_2) - P(Z_1)] \times \sum O_i = 0.03612 \times 200 = 7.224$$

$$e_i \text{ gab} = \geq 1 \text{atau} \geq 5 = 3.011 + 7.224 = 10.236$$

$$\frac{(O_i - e_i)^2}{e_i} = \frac{(12 - 10.236)^2}{10.236} = 0.3041$$

Uji Keseragaman Data Rentangan Tangan (RT)

Subgrup Ke-	Data Anthropometri Rentangan Tangan (RT)										Harga Rata-rata
	1	2	3	4	5	6	7	8	9	10	
1	156.7	164.5	178.5	186.0	158.0	163.0	168.5	159.0	154.0	159.2	164.74
2	171.0	153.2	153.0	175.0	148.5	163.0	180.3	147.0	166.8	183.7	164.15
3	158.5	175.0	163.5	155.0	180.0	161.5	159.0	163.0	165.0	164.3	164.48
4	156.8	171.3	174.0	158.0	174.0	159.0	161.1	162.0	147.5	173.0	163.67
5	169.0	163.4	165.0	170.0	180.0	148.0	165.0	185.0	172.0	171.5	168.89
6	145.5	176.0	172.0	150.0	170.2	144.5	162.0	164.0	179.0	178.0	164.12
7	161.0	175.0	170.6	168.5	165.5	168.2	172.0	189.8	169.5	158.5	169.86
8	190.0	169.0	170.0	178.0	156.3	158.0	177.0	165.0	177.0	160.0	170.03
9	159.3	146.5	158.8	143.5	178.0	161.0	180.0	176.3	154.0	157.0	161.44
10	181.0	162.2	149.5	159.5	157.5	167.0	155.7	146.0	157.5	168.0	160.39
11	164.0	170.3	181.0	160.0	175.5	150.8	157.0	166.5	143.0	155.0	162.31
12	176.0	151.0	155.0	168.0	147.0	174.0	175.0	157.5	171.0	167.0	164.15
13	161.3	172.0	180.0	162.0	159.0	171.5	148.0	154.0	150.0	158.5	161.63
14	169.0	161.0	164.0	161.5	155.0	178.0	166.0	161.0	170.0	150.0	163.55
15	150.2	178.0	185.0	170.0	160.0	160.0	143.8	171.0	164.0	170.0	165.20
16	157.3	161.0	168.0	160.0	182.0	145.0	146.5	154.0	168.0	154.0	159.58
17	176.0	160.5	161.0	165.5	158.0	156.0	170.0	170.0	160.0	154.0	163.10
18	169.0	158.0	156.0	163.0	182.5	174.5	153.6	162.0	154.8	162.0	163.54
19	172.5	141.0	155.0	181.2	156.0	160.0	170.0	160.5	164.0	183.0	164.32
20	146.5	156.4	173.0	163.0	143.0	178.0	180.0	153.0	148.0	178.0	161.89
										$\sum \bar{x}$	3281.04

Harga Rata-rata Subgrup (x):

$$\bar{\bar{x}} = \frac{\sum \bar{x}}{k} = \frac{3281.04}{20} = 164.052$$

Standar Deviasi:

$$\sigma = \sqrt{\frac{\sum (x_i - \mu)^2}{N-1}}$$

$$= \sqrt{\frac{(156.7-164.025)^2 + (171.3-164.052)^2 + ... + (150.0-164.052)^2}{200-1}}$$

$$= 10.653$$

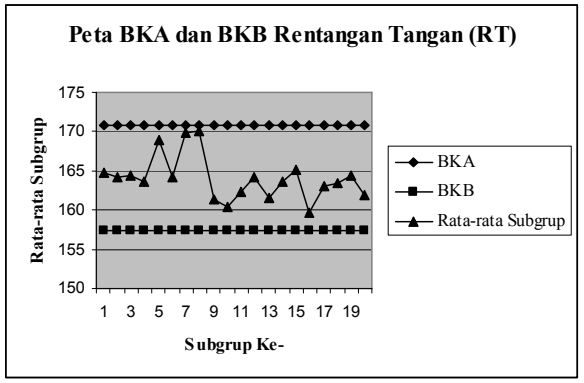
Standar Deviasi Subgrup:

$$\sigma_x = \frac{\sigma}{\sqrt{n}} = \frac{10.653}{\sqrt{10}} = 3.369$$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$BKA = \bar{\bar{x}} + (c.\sigma_x)$$
$$= 164.052 + (2*3.369)$$
$$= 170.79$$

$$BKB = \bar{\bar{x}} - (c.\sigma_x)$$
$$= 164.052 - (2*3.369)$$
$$= 157.314$$



Uji Kecukupan Data Rentangan Tangan (RT)

$\sum x_i^{\,2} = 5405194.64$

$\left(\sum x_i\right)^2 = 1076522348.16$

$\sum x_i = 32810.40$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$N' = \left[\frac{c/\alpha\sqrt{N.\sum x_i^{\,2} - \left(\sum x_i\right)^2}}{\sum x_i}\right]^2 = 6.713$$

N' < N $\longrightarrow$ 6.713 < 200 $\longrightarrow$ Data Cukup

Perhitungan Persentil Data Rentangan Tangan (RT)

Max = 190.0

Min = 141.0

Range = 49.0

P 5% = (49.0*0.05) + 141.0 = 143.45

P 50% = (49.0*0.5) + 141.0 = 165.5

P 95% = (49.0*0.95) + 141.0 = 187.55

Tabel Data Mentah Anthropometri Tinggi Siku Berdiri (TSB)

Data Anthropometri Tinggi Siku Berdiri (TSB)									
96.8	101.2	110.5	104.0	99.0	97.5	99.1	96.5	98.0	107.5
98.0	93.2	102.0	97.0	100.0	97.0	102.1	96.0	92.0	102.3
101.0	110.0	98.0	96.5	107.0	102.0	102.0	103.0	104.0	103.0
94.3	109.0	105.0	95.5	103.0	94.2	94.0	103.0	92.6	104.0
109.5	98.7	103.0	99.0	99.4	92.0	106.0	106.0	101.0	100.5
95.3	104.0	107.0	95.2	97.0	96.0	101.0	101.0	104.0	102.2
100.0	106.0	100.5	109.0	106.0	97.6	99.0	104.0	104.0	100.0
108.0	94.0	97.0	102.0	98.0	101.0	102.5	104.0	99.0	96.0
102.0	99.4	106.0	94.3	108.0	95.5	108.1	109.8	98.5	96.0
105.5	98.8	98.7	97.2	97.0	98.4	87.6	94.0	95.4	99.7
96.2	108.0	99.5	98.0	108.0	97.5	94.9	95.5	92.0	93.0
102.0	94.0	93.9	101.0	98.0	111.0	105.0	95.6	105.0	96.0
92.0	103.5	104.0	94.0	94.0	101.0	93.0	104.5	97.4	99.5
102.5	101.0	98.0	100.9	96.5	108.2	106.0	97.5	102.2	103.0
94.0	96.0	100.0	102.2	101.5	93.5	93.2	101.8	99.0	94.5
91.1	106.0	96.0	93.5	105.5	95.0	99.0	93.2	100.0	97.0
95.2	96.5	94.5	101.0	98.0	95.5	98.0	99.6	98.5	97.5
114.0	92.0	96.0	97.0	103.0	101.5	94.7	96.5	97.4	104.0
101.0	96.8	92.5	109.0	101.0	106.0	106.0	97.5	101.0	110.0
92.0	98.0	101.5	94.0	104.4	99.5	103.0	95.0	93.0	102.0

Uji Kenormalan Data Tinggi Siku Berdiri (TSB)

Interval Kelas			Batas Kelas			Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	(Oi - ei)2/ei
< 87.6			< 87.55			0	0	-2.514	0	0.00597	0.00597	1.194	6.060	1	4.2252
87.60	-	90.60	87.55	-	90.65	1	-2.514	-1.876	0.00597	0.03030	0.02433	4.866			
90.70	-	93.70	90.65	-	93.75	17	-1.876	-1.239	0.03030	0.10771	0.07741	15.482	15.482	17	0.1488
93.80	-	96.80	93.75	-	96.85	43	-1.239	-0.601	0.10771	0.27386	0.16614	33.229	33.229	43	2.8733
96.90	-	99.90	96.85	-	99.95	46	-0.601	0.036	0.27386	0.51452	0.24066	48.133	48.133	46	0.0945
100.00	-	103.00	99.95	-	103.05	39	0.036	0.674	0.51452	0.74985	0.23532	47.065	47.065	39	1.3820
103.10	-	106.10	103.05	-	106.15	35	0.674	1.312	0.74985	0.90517	0.15533	31.065	31.065	35	0.4983
106.20	-	109.20	106.15	-	109.25	12	1.312	1.949	0.90517	0.97436	0.06919	13.838	13.838	12	0.2442
109.30	-	112.30	109.25	-	112.35	6	1.949	2.587	0.97436	0.99516	0.02079	4.158	5.127	7	0.6841
112.40	-	115.40	112.35	-	115.45	1	2.587	3.224	0.99516	0.99937	0.00421	0.842			
> 115.40			> 115.45			0	3.224	1	0.99937	1	0.00063	0.126			
						200					1	200			10.1504

Jumlah Kelas :

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

$k = 1 + (3.3 \log 200)$

$k = 8.59 \approx 9$

Rentang Kelas :

$$c = \frac{(\max - \min)}{k} = \frac{114.0 - 87.6}{8.59}$$

$$= 3.07 \approx 3.1$$

Rata – rata :

$$\mu = \frac{\sum x_i}{n}$$

$$= \frac{(96.8 + 101.2 + ... + 102.0)}{200}$$

$$= 99.773$$

Standar Deviasi :

$$S = \sqrt{\frac{\sum (x_i - \mu)^2}{N - 1}} = 4.862$$

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

$x^2_{(hitung)} = 10.1504 \quad x^2_{(0.05,5)} = 11.070$

$x^2_{(hitung)} < x^2_{(0.05,5)} \rightarrow 10.1504 < 11.070 \rightarrow$ Data Berdistribusi Normal

Contoh Perhitungan Tabel:

$$Z_1 = \frac{BKB - \mu}{\sigma}$$
$$= \frac{87.55 - 99.773}{4.862}$$
$$= -2.514$$

$$Z_2 = \frac{BKA - \mu}{\sigma}$$
$$= \frac{90.65 - 99.773}{4.862}$$
$$= -1.876$$

$$P(Z_1) = P(-2.514) = 0.03030$$
$$P(Z_2) = P(-1.876) = 0.00597$$
$$P(Z_2) - P(Z_1) = 0.03030 - 0.00597 = 0.02433$$

$$e_i = [P(Z_2) - P(Z_1)] \times \sum O_i = 0.02433 \times 200 = 4.866$$

$$e_i \text{ gab} = \geq 1 \text{atau} \geq 5 = 1.194 + 4.866 = 6.060$$

$$\frac{(O_i - e_i)^2}{e_i} = \frac{(1 - 6.060)^2}{6.060} = 4.2252$$

Uji Keseragaman Data Tinggi Siku Berdiri (TSB)

Subgrup Ke-	Data Anthropometri Tinggi Siku Berdiri (TSB)										Harga Rata-rata
	1	2	3	4	5	6	7	8	9	10	
1	96.8	101.2	110.5	104.0	99.0	97.5	99.1	96.5	98.0	107.5	101.01
2	98.0	93.2	102.0	97.0	100.0	97.0	102.1	96.0	92.0	102.3	97.96
3	101.0	110.0	98.0	96.5	107.0	102.0	102.0	103.0	104.0	103.0	102.65
4	94.3	109.0	105.0	95.5	103.0	94.2	94.0	103.0	92.6	104.0	99.46
5	109.5	98.7	103.0	99.0	99.4	92.0	106.0	106.0	101.0	100.5	101.51
6	95.3	104.0	107.0	95.2	97.0	96.0	101.0	101.0	104.0	102.2	100.27
7	100.0	106.0	100.5	109.0	106.0	97.6	99.0	104.0	104.0	100.0	102.61
8	108.0	94.0	97.0	102.0	98.0	101.0	102.5	104.0	99.0	96.0	100.15
9	102.0	99.4	106.0	94.3	108.0	95.5	108.1	109.8	98.5	96.0	101.76
10	105.5	98.8	98.7	97.2	97.0	98.4	87.6	94.0	95.4	99.7	97.23
11	96.2	108.0	99.5	98.0	108.0	97.5	94.9	95.5	92.0	93.0	98.26
12	102.0	94.0	93.9	101.0	98.0	111.0	105.0	95.6	105.0	96.0	100.15
13	92.0	103.5	104.0	94.0	94.0	101.0	93.0	104.5	97.4	99.5	98.29
14	102.5	101.0	98.0	100.9	96.5	108.2	106.0	97.5	102.2	103.0	101.58
15	94.0	96.0	100.0	102.2	101.5	93.5	93.2	101.8	99.0	94.5	97.57
16	91.1	106.0	96.0	93.5	105.5	95.0	99.0	93.2	100.0	97.0	97.63
17	95.2	96.5	94.5	101.0	98.0	95.5	98.0	99.6	98.5	97.5	97.43
18	114.0	92.0	96.0	97.0	103.0	101.5	94.7	96.5	97.4	104.0	99.61
19	101.0	96.8	92.5	109.0	101.0	106.0	106.0	97.5	101.0	110.0	102.08
20	92.0	98.0	101.5	94.0	104.4	99.5	103.0	95.0	93.0	102.0	98.24
										$\sum \bar{x}$	1995.45

Harga Rata-rata Subgrup (x):

$$\bar{\bar{x}} = \frac{\sum \bar{x}}{k} = \frac{1995.45}{20} = 99.773$$

Standar Deviasi:

$$\sigma = \sqrt{\frac{\sum (x_i - \mu)^2}{N-1}}$$

$$= \sqrt{\frac{(96.8 - 99.773)^2 + (101.2 - 99.773)^2 + ... + (102.0 - 99.773)^2}{200 - 1}}$$

$$= 4.862$$

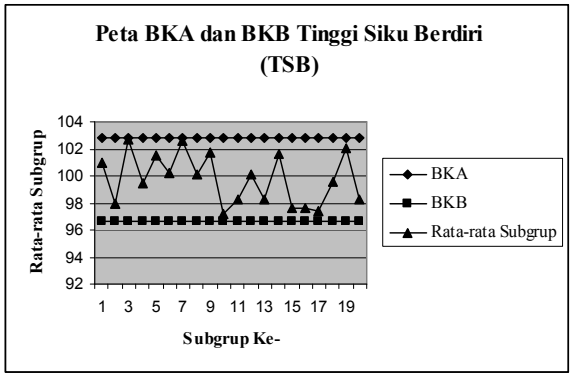
Standar Deviasi Subgrup:

$$\sigma_x = \frac{\sigma}{\sqrt{n}} = \frac{4.862}{\sqrt{10}} = 1.537$$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$BKA = \bar{\bar{x}} + (c.\sigma_x)$$
$$= 99.773 + (2 * 1.537)$$
$$= 102.847$$

$$BKB = \bar{\bar{x}} - (c.\sigma_x)$$
$$= 99.773 - (2 * 1.537)$$
$$= 96.699$$



Uji Kecukupan Data Tinggi Siku Berdiri (TSB)

$\sum x_i^2 = 1995614.73$

$\left(\sum x_i\right)^2 = 398182070.25$

$\sum x_i = 19954.50$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$N' = \left[\frac{c/\alpha\sqrt{N.\sum x_i^2 - \left(\sum x_i\right)^2}}{\sum x_i}\right]^2 = 3.781$$

N' < N $\longrightarrow$ 3.781 < 200 $\longrightarrow$ Data Cukup

Perhitungan Persentil Data Tinggi Siku Berdiri (TSB)

Max = 114.0

Min = 87.6

Range = 26.4

P 5% = (26.4*0.05) + 87.6 = 88.92

P 50% = (26.4*0.5) + 87.6 = 100.8

P 95% = (26.4*0.95) + 87.6 = 112.68

Tabel Data Mentah Anthropometri Tebal Badan (TB)

Data Anthropometri Tebal Badan (TB)									
22.0	15.0	19.7	18.0	24.2	21.7	19.7	21.0	24.2	20.5
16.0	18.0	20.1	18.5	21.5	20.3	23.8	19.5	16.0	16.0
24.0	17.2	18.5	21.0	21.0	19.6	21.5	20.2	19.0	18.6
20.0	21.5	21.0	23.0	18.7	20.0	18.5	20.2	24.2	17.5
18.0	25.5	21.5	22.0	20.0	23.0	22.3	22.0	18.5	19.2
22.0	21.7	21.0	19.6	19.1	20.6	19.8	14.7	19.0	18.5
18.2	19.5	23.0	27.0	23.2	19.0	20.0	20.3	18.8	22.6
17.0	22.0	19.0	22.6	19.2	27.0	15.3	20.3	23.4	23.9
18.0	20.0	21.0	20.0	21.5	19.2	18.0	19.7	15.0	17.0
20.5	19.0	20.0	20.0	19.0	20.5	18.5	24.2	20.6	19.0
21.0	17.1	22.0	17.0	24.5	19.0	26.0	24.3	22.0	16.0
28.0	26.0	18.0	22.3	19.1	20.0	23.0	18.0	15.0	20.5
19.0	20.0	20.5	17.0	20.2	23.0	20.0	19.8	16.4	19.5
20.5	21.5	21.0	17.5	21.1	26.4	18.4	22.5	17.3	20.0
17.5	26.5	20.0	19.7	20.0	16.0	19.3	20.8	19.5	20.3
16.0	18.1	22.0	23.5	20.5	18.5	19.2	20.0	20.0	24.5
17.6	22.0	18.5	22.5	21.0	21.4	18.0	16.3	16.3	20.0
17.0	15.5	18.0	20.0	24.0	18.2	19.2	23.0	22.8	17.6
23.6	23.7	24.0	18.0	20.2	12.2	22.0	18.2	21.8	21.0
23.6	23.0	25.7	19.0	19.5	16.0	22.0	20.1	21.0	19.5

Uji Kenormalan Data Tebal Badan (TB)

Interval Kelas			Batas Kelas			Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	(Oi - ei)2/ei
< 12.20			< 12.15			0	0	-3.052	0	0.00114	0.00114	0.228	1.958	1	0.4691
12.20	-	14.00	12.15	-	14.05	1	-3.052	-2.334	0.00114	0.00979	0.00865	1.731			
14.10	-	15.90	14.05	-	15.95	6	-2.334	-1.617	0.00979	0.05297	0.04318	8.636	8.636	6	0.8046
16.00	-	17.80	15.95	-	17.85	23	-1.617	-0.899	0.05297	0.18428	0.13131	26.262	26.262	23	0.4051
17.90	-	19.70	17.85	-	19.75	50	-0.899	-0.182	0.18428	0.42793	0.24365	48.730	48.730	50	0.0331
19.80	-	21.60	19.75	-	21.65	58	-0.182	0.536	0.42793	0.70398	0.27605	55.210	55.210	58	0.1410
21.70	-	23.50	21.65	-	23.55	36	0.536	1.253	0.70398	0.89497	0.19099	38.198	38.198	36	0.1265
23.60	-	25.40	23.55	-	25.45	17	1.253	1.971	0.89497	0.97563	0.08066	16.133			
25.50	-	27.30	25.45	-	27.35	6	1.971	2.688	0.97563	0.99641	0.02078	4.155	21.006	26	1.1872
27.40	-	29.20	27.35	-	29.25	3	2.688	3.406	0.99641	0.99967	0.00326	0.652			
> 29.20			> 29.25			0	3.406	1	0.99967	1	0.00033	0.066			
						200					1	200			3.1667

Jumlah Kelas :

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

$k = 1 + (3.3 \log 200)$

$k = 8.59 \approx 9$

Rentang Kelas :

$$c = \frac{(\max - \min)}{k} = \frac{12.2 - 28.0}{8.59}$$

$$= 1.84 \approx 1.9$$

Rata – rata :

$$\mu = \frac{\sum x_i}{n}$$

$$= \frac{(22.0 + 15.0 + ... + 19.5)}{200}$$

$$= 20.231$$

Standar Deviasi :

$$S = \sqrt{\frac{\sum (x_i - \mu)^2}{N - 1}} = 2.648$$

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

$x^2_{(hitung)} = 3.1667 \quad x^2_{(0.05,4)} = 9.488$

$x^2_{(hitung)} < x^2_{(0.05,4)} \rightarrow 3.1667 < 9.488 \rightarrow$ Data Berdistribusi Normal

Contoh Perhitungan Tabel:

$$Z_1 = \frac{BKB - \mu}{\sigma}$$
$$= \frac{12.15 - 20.231}{2.648}$$
$$= -3.052$$

$$Z_2 = \frac{BKA - \mu}{\sigma}$$
$$= \frac{14.05 - 20.231}{2.648}$$
$$= -2.334$$

$$P(Z_1) = P(-3.052) = 0.00114$$
$$P(Z_2) = P(-2.334) = 0.00979$$
$$P(Z_2) - P(Z_1) = 0.00979 - 0.00114 = 0.00865$$

$$e_i = [P(Z_2) - P(Z_1)] \times \sum O_i = 0.00865 \times 200 = 1.731$$

$$e_i \text{ gab} = \geq 1 \text{atau} \geq 5 = 0.228 + 1.731 = 1.958$$

$$\frac{(O_i - e_i)^2}{e_i} = \frac{(1 - 1.958)^2}{1.958} = 0.4691$$

Uji Keseragaman Data Tebal Badan (TB)

Subgrup Ke-	Data Anthropometri Tebal Badan (TB)										Harga Rata-rata
	1	2	3	4	5	6	7	8	9	10	
1	22.0	15.0	19.7	18.0	24.2	21.7	19.7	21.0	24.2	20.5	20.60
2	16.0	18.0	20.1	18.5	21.5	20.3	23.8	19.5	16.0	16.0	18.97
3	24.0	17.2	18.5	21.0	21.0	19.6	21.5	20.2	19.0	18.6	20.06
4	20.0	21.5	21.0	23.0	18.7	20.0	18.5	20.2	24.2	17.5	20.46
5	18.0	25.5	21.5	22.0	20.0	23.0	22.3	22.0	18.5	19.2	21.20
6	22.0	21.7	21.0	19.6	19.1	20.6	19.8	14.7	19.0	18.5	19.60
7	18.2	19.5	23.0	27.0	23.2	19.0	20.0	20.3	18.8	22.6	21.16
8	17.0	22.0	19.0	22.6	19.2	27.0	15.3	20.3	23.4	23.9	20.97
9	18.0	20.0	21.0	20.0	21.5	19.2	18.0	19.7	15.0	17.0	18.94
10	20.5	19.0	20.0	20.0	19.0	20.5	18.5	24.2	20.6	19.0	20.13
11	21.0	17.1	22.0	17.0	24.5	19.0	26.0	24.3	22.0	16.0	20.89
12	28.0	26.0	18.0	22.3	19.1	20.0	23.0	18.0	15.0	20.5	20.99
13	19.0	20.0	20.5	17.0	20.2	23.0	20.0	19.8	16.4	19.5	19.54
14	20.5	21.5	21.0	17.5	21.1	26.4	18.4	22.5	17.3	20.0	20.62
15	17.5	26.5	20.0	19.7	20.0	16.0	19.3	20.8	19.5	20.3	19.96
16	16.0	18.1	22.0	23.5	20.5	18.5	19.2	20.0	20.0	24.5	20.23
17	17.6	22.0	18.5	22.5	21.0	21.4	18.0	16.3	16.3	20.0	19.36
18	17.0	15.5	18.0	20.0	24.0	18.2	19.2	23.0	22.8	17.6	19.53
19	23.6	23.7	24.0	18.0	20.2	12.2	22.0	18.2	21.8	21.0	20.47
20	23.6	23.0	25.7	19.0	19.5	16.0	22.0	20.1	21.0	19.5	20.94
										$\sum \bar{x}$	404.62

Harga Rata-rata Subgrup (x):

$$\bar{\bar{x}} = \frac{\sum \bar{x}}{k} = \frac{404.62}{20} = 20.231$$

Standar Deviasi:

$$\sigma = \sqrt{\frac{\sum (x_i - \mu)^2}{N-1}}$$

$$= \sqrt{\frac{(22.0-20.231)^2 + (15.0-20.231)^2 + ... + (19.5-20.231)^2}{200-1}}$$

$$= 2.648$$

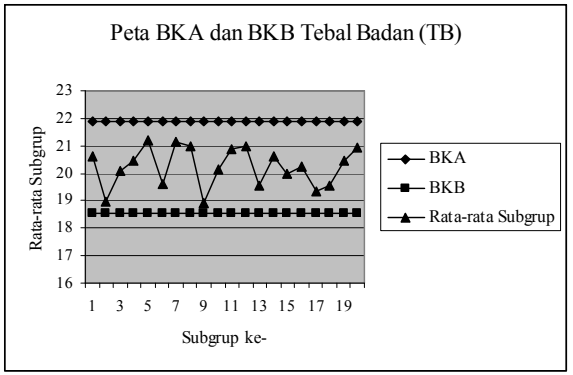
Standar Deviasi Subgrup:

$$\sigma_x = \frac{\sigma}{\sqrt{n}} = \frac{2.648}{\sqrt{10}} = 0.837$$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$BKA = \bar{\bar{x}} + (c.\sigma_x)$$
$$= 20.231 + (2 * 0.837)$$
$$= 21.905$$

$$BKB = \bar{\bar{x}} - (c.\sigma_x)$$
$$= 20.231 - (2 * 0.837)$$
$$= 18.557$$



Uji Kecukupan Data Tebal Badan (TB)

$\sum x_i^2 = 83254.56$

$\left(\sum x_i\right)^2 = 16371734.44$

$\sum x_i = 4046.20$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$N' = \left[\frac{c/\alpha\sqrt{N.\sum x_i^2 - \left(\sum x_i\right)^2}}{\sum x_i}\right]^2 = 27.28$$

N' < N $\longrightarrow$ 27.28 < 200 $\longrightarrow$ Data Cukup

Perhitungan Persentil Data Tebal Badan (TB)

Max = 28.0

Min = 12.2

Range = 15.8

P 5% = (15.8*0.05) + 12.2 = 12.99

P 50% = (15.8*0.5) + 12.2 = 20.1

P 95% = (15.8*0.95) + 12.2 = 27.21

Tabel Data Mentah Anthropometri Tebal Paha (TP)

Data Anthropometri Tebal Paha (TP)									
10.0	13.5	13.5	14.5	15.7	16.4	16.6	12.0	15.2	14.4
15.2	14.5	15.0	14.0	16.4	14.3	12.4	14.0	13.0	12.0
16.5	11.4	14.8	12.0	14.5	14.2	15.3	12.5	10.9	12.2
12.5	14.1	14.5	14.5	15.6	11.5	14.0	15.0	13.2	8.8
15.5	14.0	16.1	10.7	13.5	16.4	14.0	13.5	12.5	12.5
11.9	13.0	11.5	17.0	9.6	10.6	11.0	14.8	12.9	13.3
10.2	11.6	14.0	13.0	14.3	13.0	12.0	9.5	15.6	10.7
12.0	10.3	13.5	11.0	13.4	11.3	11.4	10.8	11.5	15.0
12.5	16.2	12.7	15.4	13.0	13.7	13.5	13.0	13.0	11.0
11.0	11.8	15.5	14.0	10.1	16.0	12.6	12.5	13.7	16.4
15.0	12.2	13.8	11.2	15.8	15.8	12.5	12.6	12.4	13.0
11.6	15.0	13.5	13.7	11.0	13.0	15.0	11.1	15.4	11.2
11.0	16.5	12.3	16.0	12.4	12.0	12.0	14.0	16.5	16.2
12.0	13.5	12.4	14.0	14.6	14.5	9.5	11.2	15.3	14.0
12.6	16.1	9.6	10.6	10.3	9.5	14.1	12.5	14.4	12.2
12.5	14.0	15.0	10.6	12.0	10.0	15.9	10.5	15.1	15.8
14.2	15.3	11.0	16.0	14.5	12.1	10.1	10.8	14.0	14.2
11.0	9.4	10.5	14.0	14.0	10.3	14.0	15.7	12.4	12.6
13.1	15.8	13.5	13.3	11.4	12.2	14.1	10.0	13.6	11.8
16.9	13.0	15.9	12.0	11.0	14.0	16.5	12.2	10.5	16.0

Uji Kenormalan Data Tebal Paha (TP)

Interval Kelas			Batas Kelas			Oi	Z1	Z2	P(Z1)	P(Z2)	P(Z2)-P(Z1)	ei	ei gab	Oi gab	(Oi - ei)2/ei
< 8.8			< 8.75			0	0	-2.292	0	0.01094	0.01094	2.189	7.576	7	0.0438
8.80	-	9.70	8.75	-	9.75	7	-2.292	-1.776	0.01094	0.03788	0.02694	5.388			
9.80	-	10.70	9.75	-	10.75	15	-1.776	-1.259	0.03788	0.10396	0.06608	13.216	13.216	15	0.2408
10.80	-	11.70	10.75	-	11.75	27	-1.259	-0.743	0.10396	0.22881	0.12485	24.970	24.970	27	0.1651
11.80	-	12.70	11.75	-	12.75	34	-0.743	-0.226	0.22881	0.41051	0.18170	36.339	36.339	34	0.1506
12.80	-	13.70	12.75	-	13.75	30	-0.226	0.290	0.41051	0.61420	0.20370	40.739	40.739	30	2.8309
13.80	-	14.70	13.75	-	14.75	31	0.290	0.807	0.61420	0.79011	0.17591	35.182	35.182	31	0.4972
14.80	-	15.70	14.75	-	15.75	25	0.807	1.323	0.79011	0.90714	0.11703	23.405	23.405	25	0.1087
15.80	-	16.70	15.75	-	16.75	20	1.323	1.840	0.90714	0.96711	0.05997	11.993	11.993	20	5.3452
16.80	-	17.70	16.75	-	17.75	11	1.840	2.356	0.96711	0.99077	0.02367	4.733	6.711	11	2.7412
> 17.70			> 17.75			0	2.331	1	0.99011	1	0.00989	1.978			
						200					1	200			12.1233

Jumlah Kelas :

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

$k = 1 + (3.3 \log 200)$

$k = 8.59 \approx 9$

Rentang Kelas :

$$c = \frac{(\max - \min)}{k} = \frac{17.0 - 8.8}{8.59}$$

$$= 0.95 \approx 1.0$$

Rata – rata :

$$\mu = \frac{\sum x_i}{n}$$

$$= \frac{(10.0 + 13.5 + ... + 16.0)}{200}$$

$$= 13.188$$

Standar Deviasi :

$$S = \sqrt{\frac{\sum (x_i - \mu)^2}{N - 1}} = 1.936$$

$v = k - r - 1 = 9 - 2 - 1 = 6$

$x^2_{(hitung)} = 12.1233 \quad x^2_{(0.05,6)} = 14.067$

$x^2_{(hitung)} < x^2_{(0.05,6)}$ ⟶ 12.1233 < 14.067 → Data Berdistribusi Normal

Contoh Perhitungan Tabel:

$$Z_1 = \frac{BKB - \mu}{\sigma}$$
$$= \frac{8.75 - 13.188}{1.936}$$
$$= -2.292$$

$$Z_2 = \frac{BKA - \mu}{\sigma}$$
$$= \frac{9.75 - 13.188}{1.936}$$
$$= -1.776$$

$$P(Z_1) = P(-2.292) = 0.01094$$
$$P(Z_2) = P(-1.776) = 0.03788$$
$$P(Z_2) - P(Z_1) = 0.03788 - 0.01094 = 0.02694$$

$$e_i = [P(Z_2) - P(Z_1)] \times \sum O_i = 0.02694 \times 200 = 5.388$$

$$e_i \text{ gab} = \geq 1 \text{atau} \geq 5 = 2.189 + 5.388 = 7.576$$

$$\frac{(O_i - e_i)^2}{e_i} = \frac{(7 - 7.576)^2}{7.576} = 0.0438$$

Uji Keseragaman Data Tebal Paha (TP)

Subgrup Ke-	Data Anthropometri Tebal Paha (TP)										Harga Rata-rata
	1	2	3	4	5	6	7	8	9	10	
1	10.0	13.5	13.5	14.5	15.7	16.4	16.6	12.0	15.2	14.4	14.18
2	15.2	14.5	15.0	14.0	16.4	14.3	12.4	14.0	13.0	12.0	14.08
3	16.5	11.4	14.8	12.0	14.5	14.2	15.3	12.5	10.9	12.2	13.43
4	12.5	14.1	14.5	14.5	15.6	11.5	14.0	15.0	13.2	8.8	13.37
5	15.5	14.0	16.1	10.7	13.5	16.4	14.0	13.5	12.5	12.5	13.87
6	11.9	13.0	11.5	17.0	9.6	10.6	11.0	14.8	12.9	13.3	12.56
7	10.2	11.6	14.0	13.0	14.3	13.0	12.0	9.5	15.6	10.7	12.39
8	12.0	10.3	13.5	11.0	13.4	11.3	11.4	10.8	11.5	15.0	12.02
9	12.5	16.2	12.7	15.4	13.0	13.7	13.5	13.0	13.0	11.0	13.40
10	11.0	11.8	15.5	14.0	10.1	16.0	12.6	12.5	13.7	16.4	13.36
11	15.0	12.2	13.8	11.2	15.8	15.8	12.5	12.6	12.4	13.0	13.43
12	11.6	15.0	13.5	13.7	11.0	13.0	15.0	11.1	15.4	11.2	13.05
13	11.0	16.5	12.3	16.0	12.4	12.0	12.0	14.0	16.5	16.2	13.89
14	12.0	13.5	12.4	14.0	14.6	14.5	9.5	11.2	15.3	14.0	13.10
15	12.6	16.1	9.6	10.6	10.3	9.5	14.1	12.5	14.4	12.2	12.19
16	12.5	14.0	15.0	10.6	12.0	10.0	15.9	10.5	15.1	15.8	13.14
17	14.2	15.3	11.0	16.0	14.5	12.1	10.1	10.8	14.0	14.2	13.22
18	11.0	9.4	10.5	14.0	14.0	10.3	14.0	15.7	12.4	12.6	12.39
19	13.1	15.8	13.5	13.3	11.4	12.2	14.1	10.0	13.6	11.8	12.88
20	16.9	13.0	15.9	12.0	11.0	14.0	16.5	12.2	10.5	16.0	13.80
										$\sum \bar{x}$	263.75

Harga Rata-rata Subgrup (x):

$$\bar{\bar{x}} = \frac{\sum \bar{x}}{k} = \frac{263.75}{20} = 13.188$$

Standar Deviasi:

$$\sigma = \sqrt{\frac{\sum (x_i - \mu)^2}{N-1}}$$

$$= \sqrt{\frac{(10.0-13.188)^2 + (13.5-13.18)^2 + ... + (16.0-13.188)^2}{200-1}}$$

$$= 1.936$$

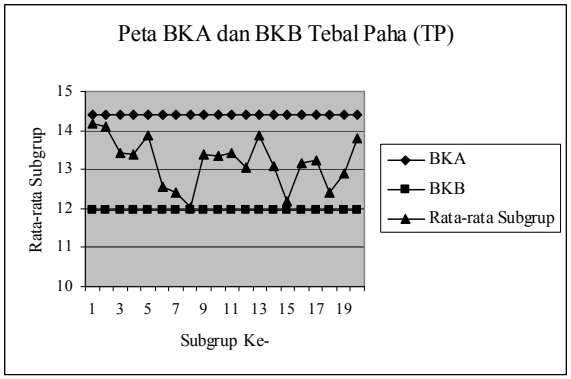
Standar Deviasi Subgrup:

$$\sigma_x = \frac{\sigma}{\sqrt{n}} = \frac{1.936}{\sqrt{10}} = 0.612$$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$BKA = \bar{\bar{x}} + (c.\sigma_x)$$
$$= 13.188 + (2 * 0.612)$$
$$= 14.412$$

$$BKB = \bar{\bar{x}} - (c.\sigma_x)$$
$$= 13.188 - (2 * 0.612)$$
$$= 11.964$$



Uji Kecukupan Data Tebal Paha (TP)

$\sum x_i^2 = 35528.17$

$\left(\sum x_i\right)^2 = 6956406.25$

$\sum x_i = 2637.50$

Tingkat Kepercayaan 95% $\rightarrow$ $c = 2$, $\alpha = 0.05$

$$N' = \left[\frac{c/\alpha\sqrt{N.\sum x_i^2 - \left(\sum x_i\right)^2}}{\sum x_i}\right]^2 = 34.32$$

N' < N $\longrightarrow$ 34.32 < 200 $\longrightarrow$ Data Cukup

Perhitungan Persentil Data Tebal Paha (TP)

Max = 17.0

Min = 8.8

Range = 8.2

P 5% = (8.2*0.05) + 8.8 = 9.21

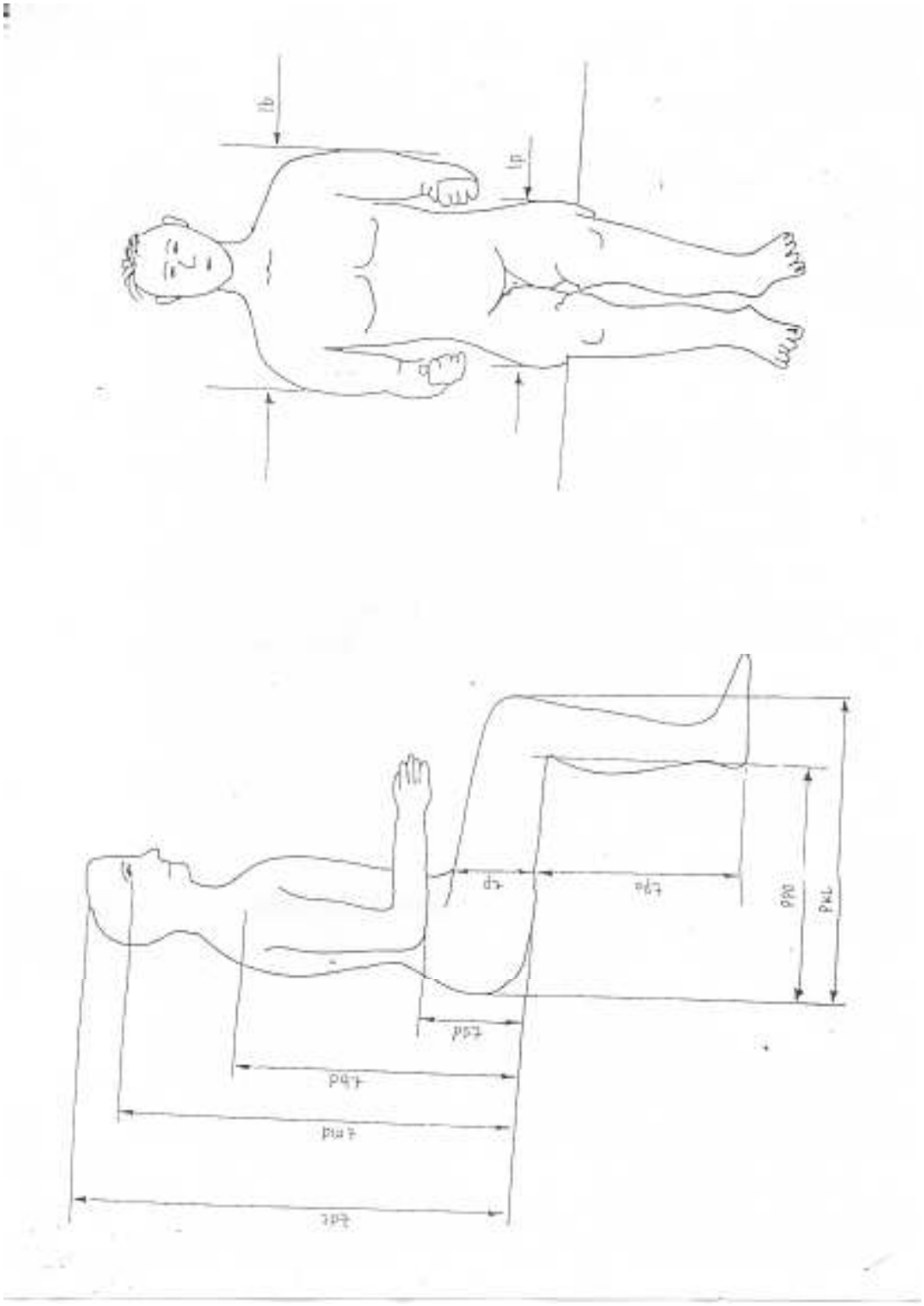
P 50% = (8.2*0.5) + 8.8 = 12.9

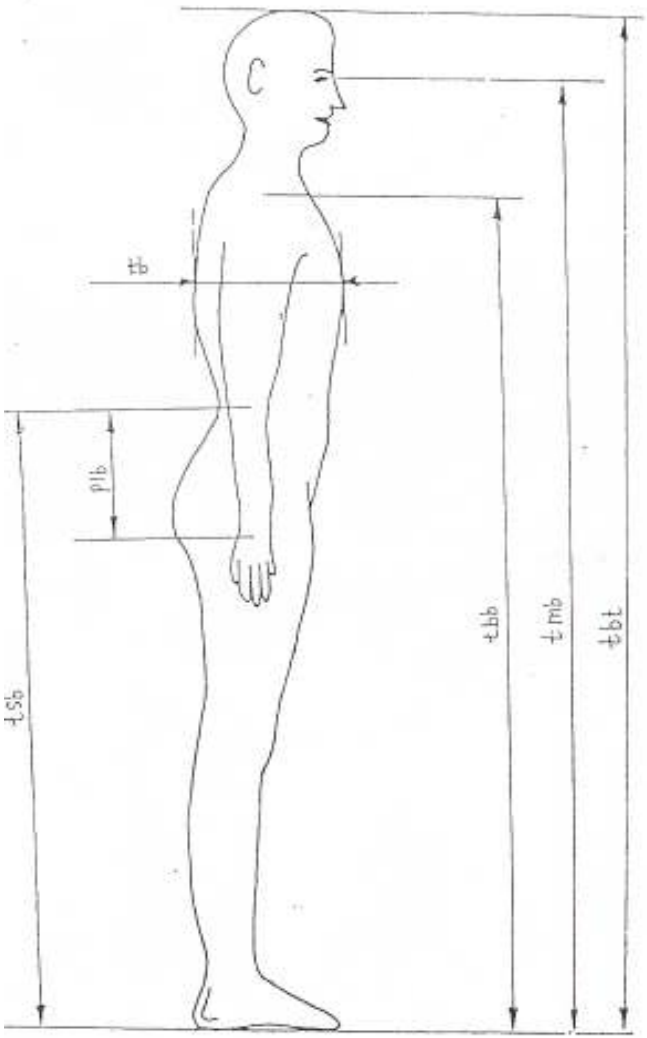
P 95% = (8.2*0.95) + 8.8 = 16.59

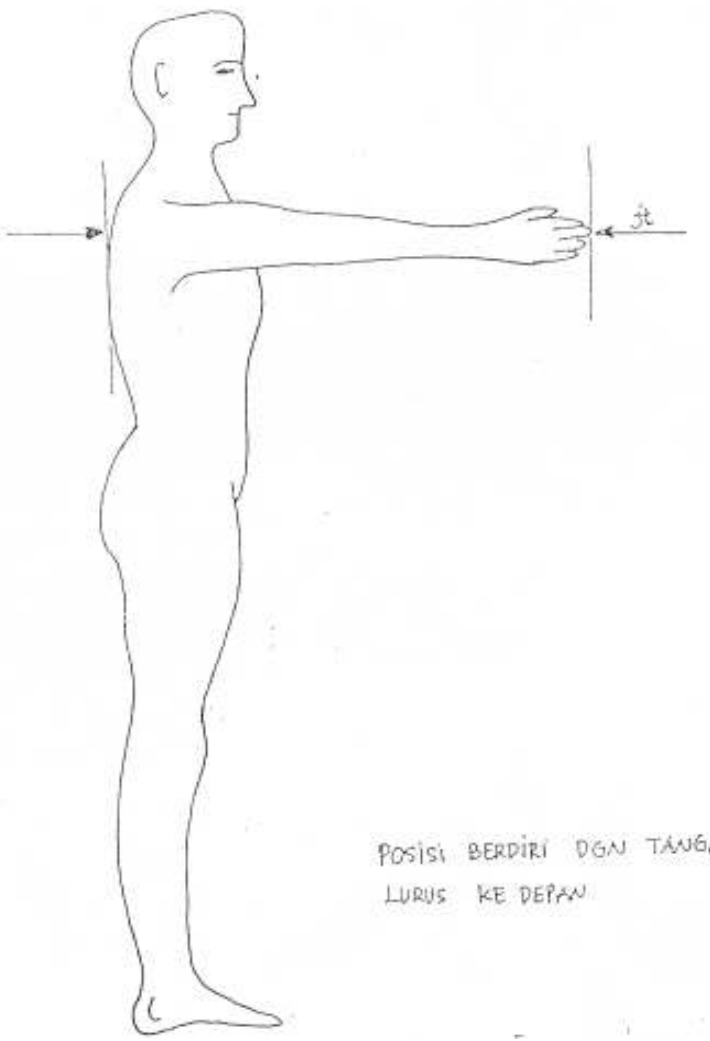
Lampiran 2

- **Gambar Anthropometri Tubuh Manusia**

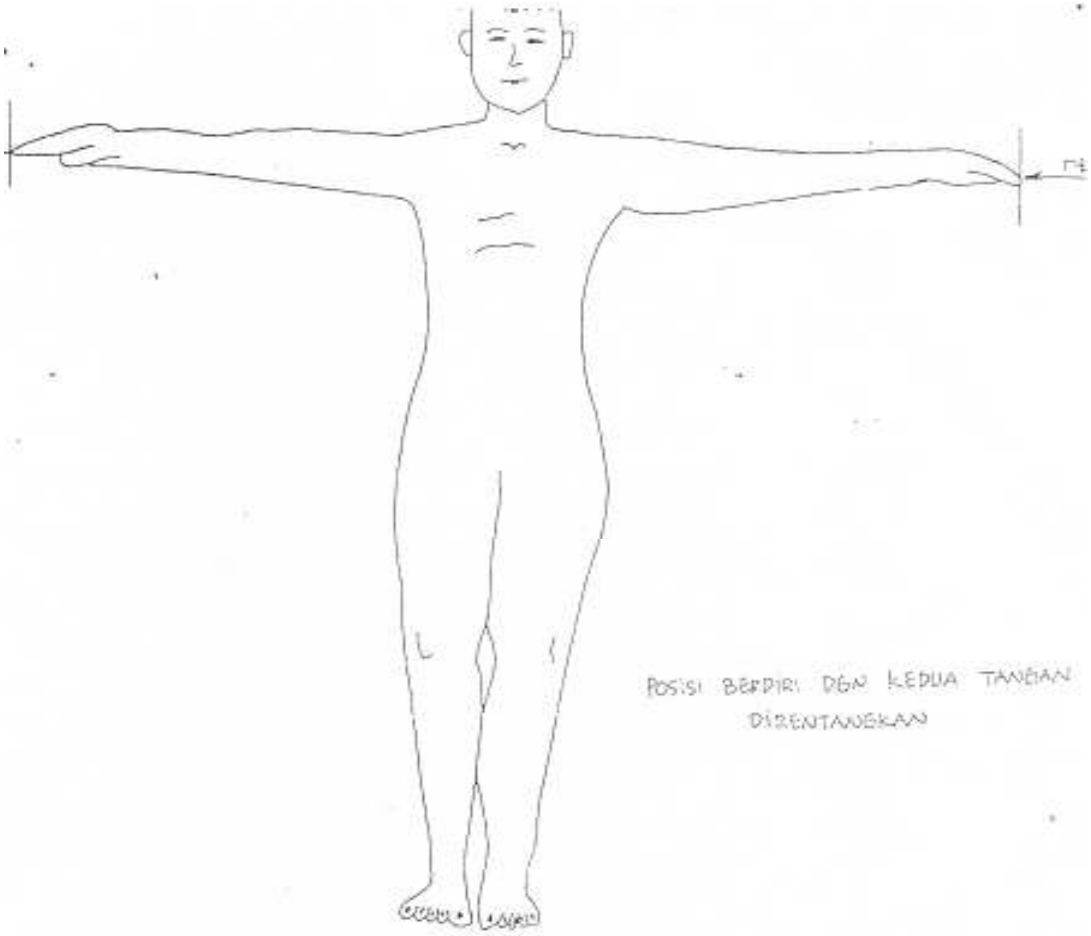
- **Gambar Antropometri Tubuh Manusia**



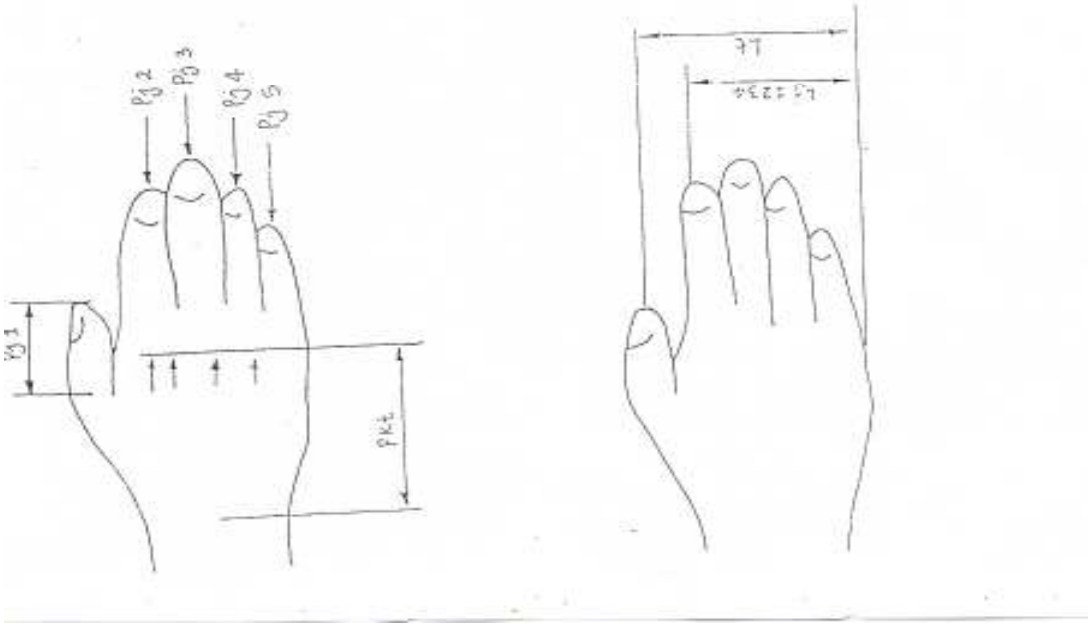




POSISI BERDIRI DGN TANGA
LURUS KE DEPAN



POSISI BERDIRI DGN KEDUA TANGAN DIRENTANGKAN



Lampiran 3

- **Tabel Penentuan Jumlah Sampel**
- **Tabel Khi-Kuadrat**

- **Tabel Penentuan Jumlah Sampel**

PENENTUAN JUMLAH SAMPEL DARI POPULASI TERTENTU DENGAN TARAF KESALAHAN 1%, 5%, DAN 10%

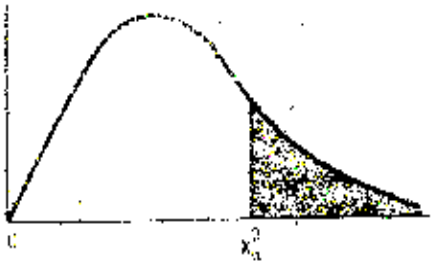
N	s			N	s			N	s		
	1%	5%	10%		1%	5%	10 %		1%	5%	10%
10	10	10	10	280	197	155	138	2800	537	310	247
15	15	14	14	290	202	158	140	3000	543	312	248
20	19	19	19	300	207	161	143	3500	558	317	251
25	24	23	23	320	216	167	147	4000	569	320	254
30	29	28	27	340	225	172	151	4500	578	323	255
35	33	32	31	360	234	177	155	5000	586	326	257
40	38	36	35	380	242	182	158	6000	598	329	259
45	42	40	39	400	250	186	162	7000	606	332	261
50	47	44	42	420	257	191	165	8000	613	334	263
55	51	48	46	440	265	195	168	9000	618	335	263
60	55	51	49	460	272	198	171	10000	622	336	263
65	59	55	53	480	279	202	173	15000	635	340	266
70	63	58	56	500	285	205	176	20000	642	342	267
75	67	62	59	550	301	213	182	30000	649	344	268
80	71	65	62	600	315	221	187	40000	563	345	269
85	75	68	65	650	329	227	191	50000	655	346	269
90	79	72	68	700	341	233	195	75000	658	346	270
95	83	75	71	750	352	238	199	100000	659	347	270
100	87	78	73	800	363	243	202	150000	661	347	270
110	94	84	78	850	373	247	205	200000	661	347	270
120	102	89	83	900	382	251	208	250000	662	348	270
130	109	95	88	950	391	255	211	300000	662	348	270
140	116	100	92	1000	399	258	213	350000	662	348	270
150	122	105	97	1100	414	265	217	400000	662	348	270
160	129	110	101	1200	427	270	221	450000	663	348	270
170	135	114	105	1300	440	275	224	500000	663	348	270
180	142	119	108	1400	450	279	227	550000	663	348	270
190	148	123	112	1500	460	283	229	600000	663	348	270
200	154	127	115	1600	469	286	232	650000	663	348	270
210	160	131	118	1700	477	289	234	700000	663	348	270
220	165	135	122	1800	485	292	235	750000	663	348	270
230	171	139	125	1900	492	294	237	800000	663	348	271
240	176	142	127	2000	498	297	238	850000	663	348	271
250	182	146	130	2200	510	301	241	900000	663	348	271
260	187	149	133	2400	520	304	243	950000	663	348	271
270	192	152	135	2600	529	307	245	1000000	663	348	271
								∞	664	349	272

Sumber : Metode Penelitian dan Bisnis (Pengarang Sugiyono)

- **Tabel Khi-Kuadrat**

TABEL A.6*

Nilai Kritik Sebaran Khi-Kuadrat

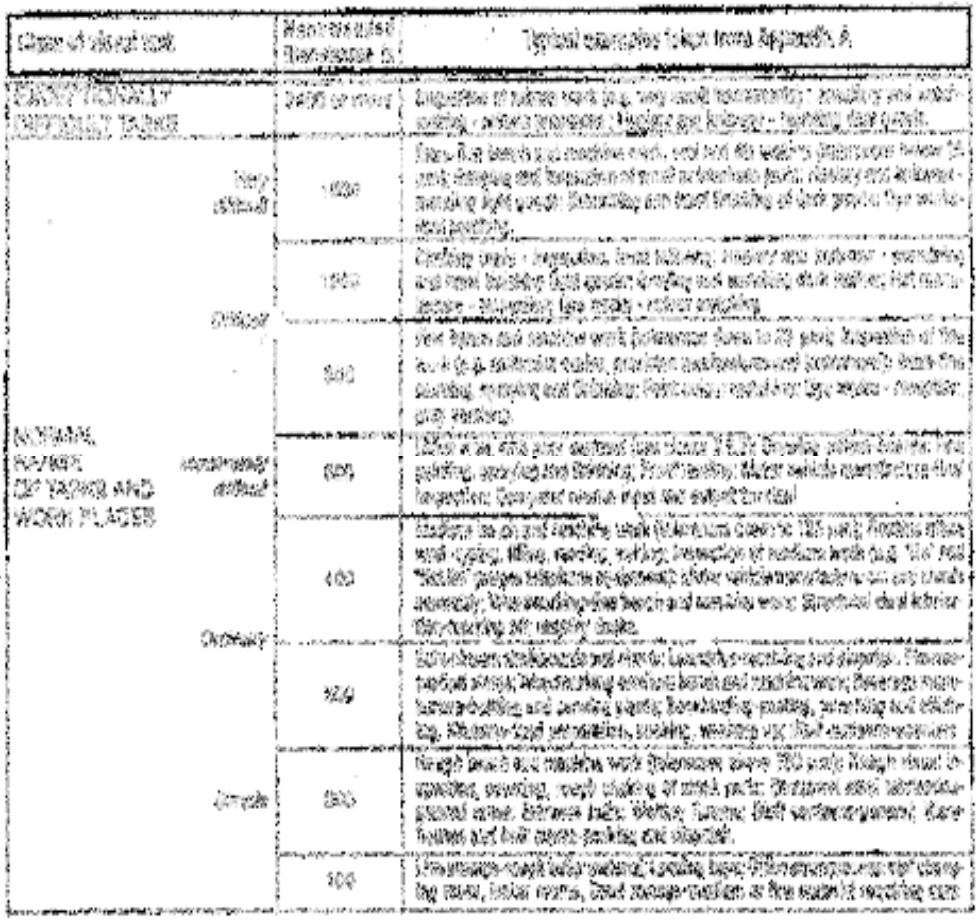


ν	0.995	0.99	0.975	0.95	0.05	0.025	0.01	0.005
1	0.0^4393	0.0^3157	0.0^3982	0.0^2393	3.841	5.024	6.635	7.879
2	0.0100	0.0201	0.0506	0.103	5.991	7.378	9.210	10.597
3	0.0717	0.115	0.216	0.352	7.815	9.348	11.345	12.838
4	0.207	0.297	0.484	0.711	9.488	11.143	13.277	14.860
5	0.412	0.554	0.831	1.145	11.070	12.832	15.086	16.750
6	0.676	0.872	1.237	1.635	12.592	14.449	16.812	18.548
7	0.989	1.239	1.690	2.167	14.067	16.013	18.475	20.278
8	1.344	1.646	2.180	2.733	15.507	17.535	20.090	21.955
9	1.735	2.088	2.700	3.325	16.919	19.023	21.666	23.589
10	2.156	2.558	3.247	3.940	18.307	20.483	23.209	25.188
11	2.603	3.053	3.816	4.575	19.675	21.920	24.725	26.757
12	3.074	3.571	4.404	5.226	21.026	23.337	26.217	28.300
13	3.565	4.107	5.009	5.892	22.362	24.736	27.685	29.819
14	4.075	4.660	5.629	6.571	23.685	26.119	29.141	31.319
15	4.601	5.229	6.262	7.261	24.996	27.488	30.578	32.801
16	5.142	5.812	6.908	7.962	26.296	28.845	32.000	34.267
17	5.697	6.408	7.564	8.672	27.587	30.191	33.409	35.718
18	6.265	7.015	8.231	9.390	28.869	31.526	34.805	37.156
19	6.844	7.633	8.907	10.117	30.144	32.852	36.191	38.582
20	7.434	8.260	9.591	10.851	31.410	34.170	37.566	39.997
21	8.034	8.897	10.283	11.591	32.671	35.479	38.932	41.401
22	8.643	9.542	10.982	12.338	33.924	36.781	40.289	42.796
23	9.260	10.196	11.689	13.091	35.172	38.076	41.638	44.181
24	9.886	10.856	12.401	13.848	36.415	39.364	42.980	45.558
25	10.520	11.524	13.120	14.611	37.652	40.646	44.314	46.928
26	11.160	12.198	13.844	15.379	38.885	41.923	45.642	48.290
27	11.808	12.879	14.573	16.151	40.113	43.194	46.963	49.645
28	12.461	13.565	15.308	16.928	41.337	44.461	48.278	50.993
29	13.121	14.256	16.047	17.708	42.557	45.722	49.588	52.336
30	13.787	14.953	16.791	18.493	43.773	46.979	50.892	53.672

Lampiran 4

- **Tabel Rekomendasi *Illuminasi* Pelayanan untuk Berbagai Macam Pekerjaan**
- **Tabel Refleksitas untuk Warna Tembok, Langit-langit, dan Lantai**

- **Tabel Rekomendasi Illuminasi Pelayanan untuk Berbagai Macam Pekerjaan**



- **Tabel Refleksitas untuk Warna Tembok, Langit-langit, dan Lantai**