

# STATISTIKA BISNIS I

1. Table Distribusi Kelompok

25	20	34	11	18	16	23	27	18	19
15	24	25	30	17	21	28	19	13	14
22	28	27	32	30	16	18	22	19	28

Ditanya :

a. Buat Distribusi Kelas Interval

b. Gambar Histrogram, Poligon dan Ogive

11	13	14	15	16	16	17	18	18	18
19	19	19	20	21	22	22	23	24	25
25	27	27	28	28	28	30	30	32	34

Jawab :

$$K = 1 + 3,322 \log 30 = 5,9 = 6$$

$$C = \frac{NB - NK}{K}$$

$$= \frac{34 - 11}{6} = 3,833 = 4$$

Kelas	fi	Frekuensi Komulatif			
		<	Fi	≥	Fi
11 – 14	3	<11	0	≥11	30
15 – 18	7	<15	3	≥15	27
19 – 22	7	<19	10	≥19	20
23 – 26	4	<23	17	≥23	13
27 – 30	7	<27	21	≥27	9
31 – 34	2	<31	28	≥31	2
		≤34	30	≥34	0
Σ	30	-	-	-	-

fi = Frekwensi Biasa

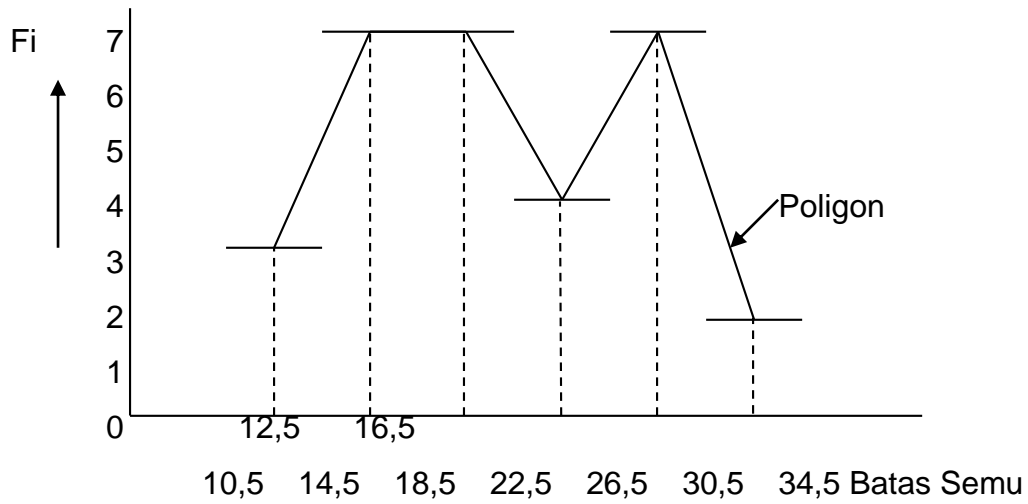
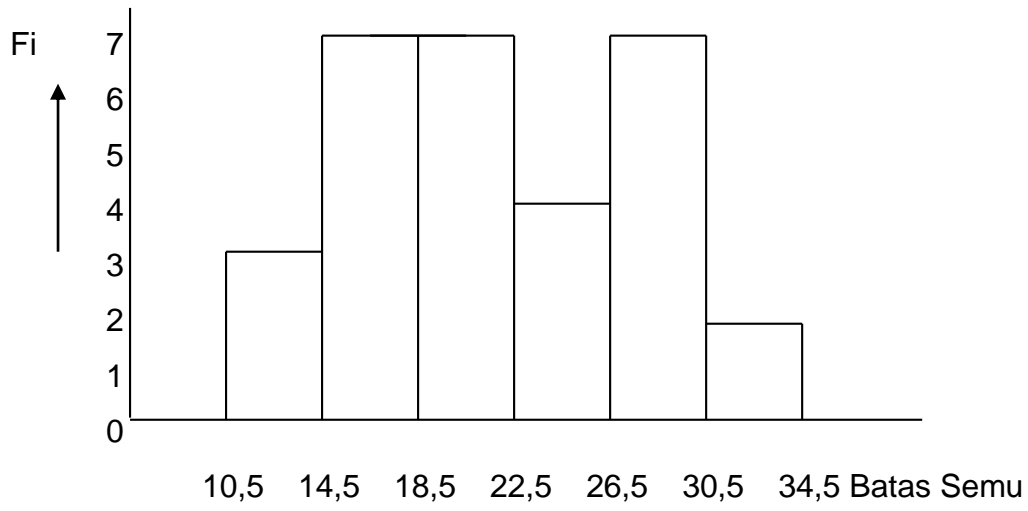
Fi = Frekwensi Komulatif

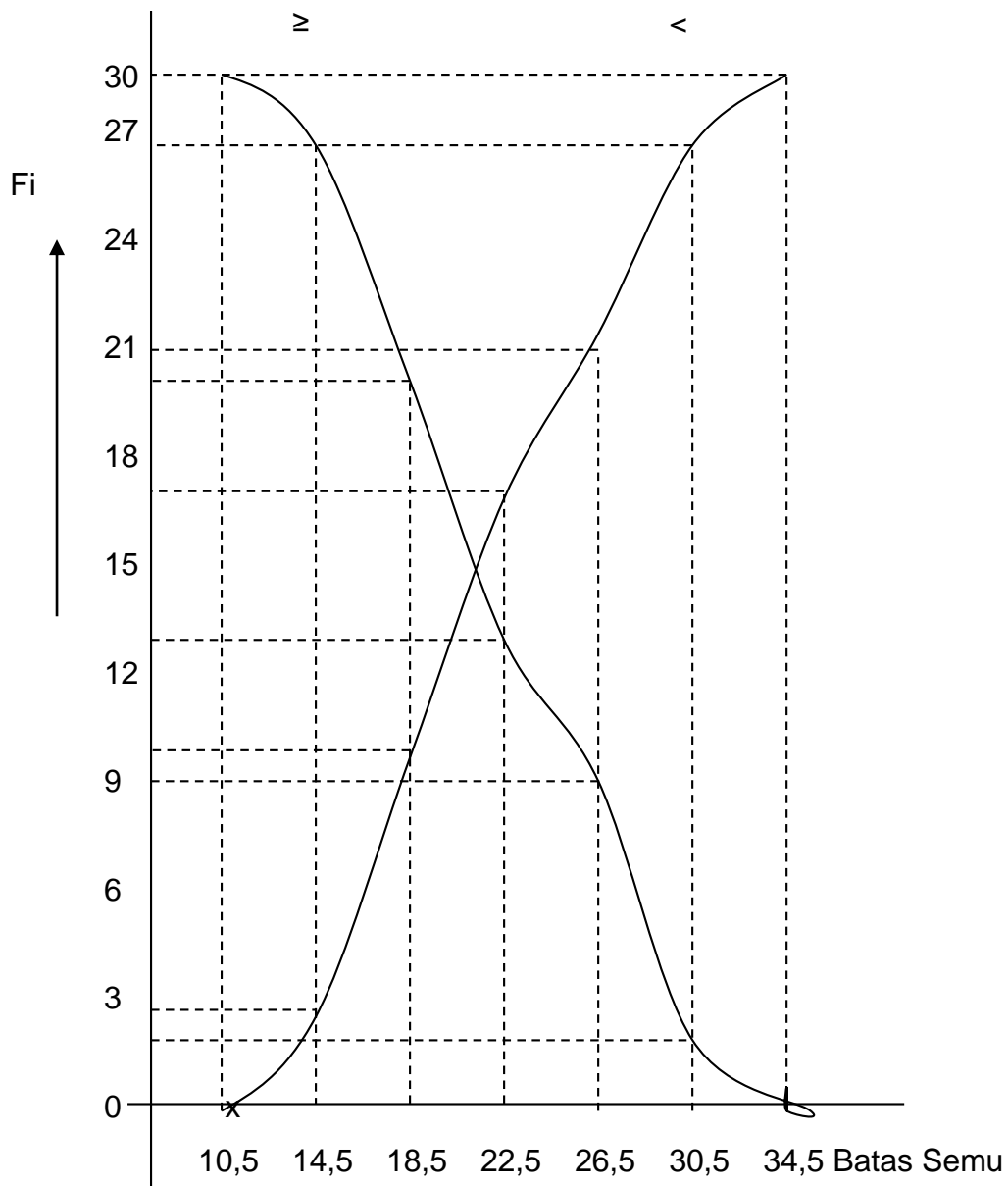
Note :

Satuan terkecil dari suatu angka yang bulat = 1 → 1/2(1)=0,5

Satuan terkecil dari suatu angka yang tidak bulat = 0,1 → 1/2(0,1) = 0,05

Gambar Histogram dan Poligon





2. Diketahui data sebagai berikut 5 3 8 6 10 4 6 12 11 7 Maka nilai  $\bar{x} = \dots?$

No	$x_i$
1	5
2	3
3	8
4	6
5	10
6	4
7	6
8	12
9	11
10	7
	72

Jawab :

$$\bar{x} = \frac{\sum x_i}{n} = \frac{72}{10} = 7,2$$

3. Pada group data yang tertera dibawah ini, tentukan nilai  $\bar{x}$ ;  $M_d$ ;  $M_o$

Kelas	$f_i$	$m_i$	$f_i m_i$	$U_i$	$f_i U_i$	Freq. Kumulatif	
						$\leq$	$f_i$
2 – 6	4	4	16	-2	-8	6	4
7 – 11	9	9	81	-1	-9	11	13
12 – 16	15	14	210	0	0	16	28
17 – 21	10	19	190	1	10	21	38
22 – 26	8	24	192	2	16	26	46
27 – 31	8	29	232	3	24	31	54
32 – 36	6	34	204	4	24	36	60
$\Sigma$	60	-	1125	-	57		

Jawab :

$$\begin{aligned} \bar{x} &= \frac{\sum f_i m_i}{n} \\ &= \frac{1125}{60} = 18,75 \end{aligned}$$

$$\begin{aligned} \text{atau } \bar{x} &= M_k + C \frac{\sum f_i U_i}{n} \\ \bar{x} &= 14 + \frac{5(57)}{60} = 18,75 \end{aligned}$$

$$M_d = B + \frac{c \left( \frac{n}{2} - f_{-1} \right)}{f_o}$$

$$M_o = B + \frac{c(f_o - f_{-1})}{(f_o - f_{-1}) + (f_o - f_1)}$$

$$M_d = 16,5 + \frac{5 \left( \frac{60}{2} - 28 \right)}{10}$$

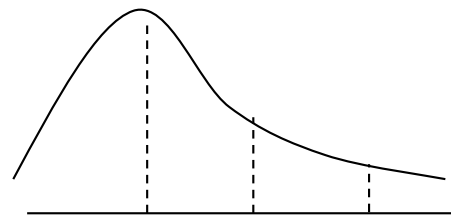
$$= 11,5 + \frac{5(15-9)}{(15-9) + (15-10)}$$

$$M_d = 17,5$$

$$M_o = 14,23$$

Klas interval yang condong kekanan

$$\left. \begin{aligned} \bar{x} &= 18,75 \\ M_d &= 17,50 \\ M_o &= 14,23 \end{aligned} \right\} \bar{x} > M_d > M_o$$



4. Pada group data yang tertera dibawah ini, tentukan nilai

- a.  $\bar{x}$ , Md & Mo
- b. Q<sub>1</sub>, Q<sub>2</sub>, Q<sub>3</sub>, D<sub>1</sub>, D<sub>3</sub>, D<sub>5</sub> dan D<sub>8</sub>
- c. P<sub>1</sub>, P<sub>5</sub>, P<sub>50</sub>, P<sub>85</sub>

Kelas	f <sub>i</sub>	m <sub>i</sub>	f <sub>i</sub> m <sub>i</sub>	U <sub>i</sub>	f <sub>i</sub> U <sub>i</sub>	Frekwensi Kumulatif	
						≤	f <sub>i</sub>
5 – 9	4	7	28	-3	-12	9	4
10 – 14	9	12	108	-2	-18	14	13
15 – 19	13	17	221	-1	-13	19	26
20 – 24	20	22	440	0	0	24	46
25 – 29	18	27	486	1	18	29	64
30 – 34	15	32	480	2	30	34	79
35 – 39	12	37	444	3	36	39	91
40 – 44	9	42	378	4	36	44	100
	100		2.585		77		

Jawab :  $\bar{x} = \frac{\sum f_i m_i}{n}$

$$\bar{x} = \frac{2585}{100} = 25,85$$

atau :  $\bar{x} = M_k + \frac{c \sum f_i U_i}{n}$

$$\bar{x} = 22 + \frac{5(77)}{100} = 25,85$$

$$M_d = B \frac{c(\frac{n}{2} - f_{-1})}{f_o}$$

$$\left. \begin{aligned} B &= \frac{24+25}{2} = 24,5 \\ n/2 &= 100/2 = 50 \\ f_{-1} &= 46 (4+9+13+20) \end{aligned} \right\}$$

$$M_d = 24,5 + \frac{5(50-46)}{18}$$

$$M_d = 25,61$$

C = 5

f<sub>o</sub> = 18

$$M_o = B + \frac{c(f_o - f_{-1})}{(f_o - f_{-1} + f_o - f_{-1})}$$

$$\left. \begin{aligned} B &= \frac{19+20}{2} = 19,5 \\ F_o &= 20 \\ F_{-1} &= 13 \\ F_1 &= 18 \\ C &= 5 \end{aligned} \right\}$$

$$M_o = 19,5 + \frac{5(30-13)}{(20-13)+(20-18)}$$

$$M_o = 23,39$$

$$\begin{array}{l}
 \text{b. } Q_i = B + \frac{c(in/4 - F_{-1})}{f_o} \\
 1(100)/4 = 25 \\
 F_{-1} = 13 = (4 + 9) \\
 f_o = 13 \\
 B = \frac{14+15}{2} = 14,5
 \end{array}
 \left. \vphantom{\begin{array}{l} \\ \\ \\ \\ \\ \end{array}} \right\}
 \begin{array}{l}
 F_{-1} \leq in/4 \\
 Q_1 = 14,5 + \frac{5(25-13)}{13} \\
 Q_1 = 19,1
 \end{array}$$

Analog seperti diatas

$$Q_2 = 24,5 + 5 \frac{(2(100)/4)^{-46}}{18} = 25,61$$

$$Q_3 = 29,5 + 5 \frac{(3(100)/4)^{-64}}{15} = 33,17$$

$$D_i = B + C \frac{(in/10)^{-F_{-1}}}{f_o} \quad F_{-1} \leq in/10$$

$$D_1 = 95 + \frac{5(1.100/10)^{-4}}{9} = 12,83$$

$$D_3 = 19,5 + \frac{5(3.100/10)^{-26}}{20} = 20,5$$

$$D_5 = 24,5 + \frac{5(5.100/10)^{-46}}{18} = 25,61$$

$$D_8 = 34,5 + \frac{5(8.100/10)^{-79}}{12} = 34,92$$

$$P_i = B + \frac{c(in/100 - F_{-1})}{f_o}$$

$$P_1 = 4,5 + \frac{5(1.100/100)^{-0}}{4} = 5,75$$

$$P_5 = 9,5 + \frac{5(5.100/100)^{-4}}{9} = 10,06$$

$$P_{50} = 24,5 + \frac{5(50.100/100)^{-46}}{18} = 25,61$$

$$P_{85} = 34,5 + \frac{5(85.100/100-79)}{12} = 37,0$$

5. Pada group data yang tertera dibawah ini, tentukan nilai U & H

Jawab :

Kelas	$f_i$	$m_i$	$f_i \log m_i$	$\frac{f_i}{m_i}$
20 – 29	2	24,5	2,7783	0,0816
30 – 39	5	34,5	7,6891	0,1449
40 – 49	12	44,5	19,7803	0,2697
50 – 59	6	54,5	10,4184	0,1101
60 – 69	3	64,5	5,4287	0,0465
70 – 79	2	74,5	3,7443	0,0268
$\Sigma$	30		49,5268	0,6909

$$\log U = \frac{\Sigma f_i \log m_i}{n}$$

$$H = \frac{n}{\Sigma \frac{f_i}{m_i}}$$

$$\log U = \frac{49,5268}{30}$$

$$H = \frac{30}{0,6909}$$

$$= 1,6509$$

$$U = 44,7610$$

$$H = 43,4216$$