

Name : Ade Hiumat Pauji K
 NPM : 22552011130
 Class : TIF K 22K13
 UTS : Statistika

①.

Students	x	y	x ²	y ²	xy
A	2	6	4	36	12
B	3	7	9	49	21
C	1	4	1	16	4
D	3	8	9	64	24
E	4	8	16	64	32
F	3	7	9	49	21
G	4	9	16	81	36
H	1	5	1	25	5
I	1	4	1	16	4
J	2	6	4	36	12
Total	24	64	70	436	171
Σ	Σx	Σy	Σx ²	Σy ²	Σxy

$$\begin{aligned}
 r &= \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \times \sqrt{n \sum y^2 - (\sum y)^2}} \\
 &= \frac{10(171) - (24)(64)}{\sqrt{10(70) - (24)^2} \times \sqrt{10(436) - (64)^2}} \\
 &= \frac{1710 - 1536}{11,1 \times 16,2} \\
 &= \frac{174}{179,8} \\
 &= 0,96
 \end{aligned}$$

The Very Strong Positive Correlation (0,96) between study time and test scores indicates that more study time tends to increase test scores.

a.

Age	Frequency	Total
20	5	100
21	7	147
22	13	206
23	4	92
24	6	144
25	7	175
26	7	182
27	5	135
28	3	84
29	4	116
30	15	950
31	3	93
32	3	99
35	1	35
Total	83	2130

9. - Mean

$$\frac{\sum \text{frequency} / \sum \text{frequency}}{83}$$

$$= 25.759$$

- Median

$$\frac{\sum \text{frequency}}{2} + 1$$

$$= \frac{83}{2} + 1$$

$$= 42$$

- mode

$$= 30$$

b. Distribution of Frequency

$$\text{Range} = 35 - 20$$

$$= 15$$

$$\text{Classes} = 1 + 3.3 \log 83$$

$$= 7$$

$$\text{Class length} = \text{Range} / \text{Classes}$$

$$= 15 / 7$$

$$= 2.14$$

Age	Frequency
20-21	12
22-23	17
24-25	13
26-27	12
28-29	7
30-31	18
33-35	4
Total	86

C - Calculate Variance

Age	F	\bar{x}_i	$f_i \cdot \bar{x}_i$	$\bar{x}_i - \bar{x}$	$(\bar{x}_i - \bar{x})^2$	$f_i (\bar{x}_i - \bar{x})^2$
20-21	12	20,5	246	-5,259	27,657	331,889
22-23	17	22,5	382,5	-3,259	10,621	180,562
24-25	13	24,5	318,5	-1,259	1,585	20,607
26-27	12	26,5	318	0,74	0,549	6,588
28-29	7	28,5	199,5	2,74	7,512	52,59
30-31	10	30,5	549	4,74	22,476	404,58
33-35	4	34	136	8,24	67,913	271,653
total	83		2149,5			1260,473

$$S^2 = \frac{f_i (\bar{x}_i - \bar{x})^2}{n}$$

$$= \frac{1260,473}{83}$$

$$= 15,203$$

So the number of Variants is 15,203.