REPRESENTATION OF DATA

Frequency distribution table:

x	1	2	3	4	5
f	4	7	2	9	4

Mean: $\bar{x} = \frac{\Sigma fx}{\Sigma f} = \frac{(4\times1) + (7\times2) + (2\times3) + (9\times4) + (4\times5)}{26} = 3.08$

Median: Make the cumulative frequency table

x	1	2	3	4	5
f	4	7	2	9	4
cf	4	11	13	22	26

Median $= \frac{1}{2}(n+1) = \frac{1}{2}(26+1) = \frac{27}{2} = 13.5^{th}$ observation

$= 3.5$

Mode: Most frequently occurring value

$= 4$

Variance: $\frac{\Sigma fx^2}{\Sigma f} - (\bar{x})^2$ or $\frac{\Sigma (x-\bar{x})^2}{n}$ or $\frac{\Sigma x^2}{n} - (\bar{x})^2$

$\sigma^2 = \frac{(4\times1) + (7\times4) + (2\times9) + (9\times16) + (4\times25)}{26} = 1.82$

Standard Deviation $= \sigma = \sqrt{\sigma^2}$

$= \sqrt{1.82}$

$\sigma = 1.35$

CONTINUOUS TABLE (FREQUENCY DISTRIBUTION TABLE)

time (t mins)	$0 < t \leq 15$	$15 < t \leq 30$	$30 < t \leq 60$	$60 < t \leq 90$	$90 < t \leq 120$
no. of meetings	4	7	24	38	7
midpoints	7.5	22.5	45	75	105

Mean : $\bar{x} = \frac{\Sigma fx}{\Sigma f} = \frac{(4 \times 7.5) + (7 \times 22.5) + (24 \times 45) + (38 \times 75) + (7 \times 105)}{80}$

$= 60.7$

Variance : $\frac{\Sigma fx^2}{\Sigma f} - (\bar{x})^2 = \sigma^2$

Standard Deviation : $\sqrt{\sigma^2}$

Mode : Highest frequency density $\rightarrow$ $\frac{\text{frequency}}{\text{class width}}$, ie $\frac{4}{15}$ for the first class

↳ the class with the highest frequency density is the modal class

Median : Lower class boundary + $\left(\frac{\frac{n}{2} + \text{Cumulative frequency}}{\text{Frequency}}\right) \times$ class width