1) RAW DATA (NO TABLE)

(X) Ages: 7, 4, 3, 6, 6, 5

x	x^2
7	49
4	16
3	9
6	36
6	36
5	25
$\Sigma x = 31$	$\Sigma x^2 = 171$

$$\text{MEAN} = \frac{\Sigma x}{n} = \frac{31}{6} = 5.167$$

$$\text{STANDARD DEVIATION} = \sqrt{\frac{\Sigma x^2}{n} - \left(\frac{\Sigma x}{n}\right)^2}$$

$$= \sqrt{\frac{171}{6} - \left(\frac{31}{6}\right)^2} = \boxed{1.3437}$$

$$\text{VARIANCE} = (SD)^2 = (1.3437)^2$$

$$= \boxed{1.8055}$$

2) FREQUENCY DISTRIBUTION TABLE (SINGLE VALUE TABLE)

Nama3 Break till 5:40

x^2	0	1	4	9	
x/mark	0	1	2	3	
f	10	5	25	60	$\Sigma f = 100$
fx	0	5	50	180	$\Sigma fx = 235$
fx^2	0	5	100	540	$\Sigma fx^2 = 645$

$$\text{MEAN} = \frac{\Sigma fx}{\Sigma f} = \frac{235}{100} = 2.35$$

$$\text{STANDARD DEVIATION} = \sqrt{\frac{\Sigma fx^2}{\Sigma f} - \left(\frac{\Sigma fx}{\Sigma f}\right)^2} = \sqrt{\frac{645}{100} - \left(\frac{235}{100}\right)^2}$$

$= 0.9630$

VARIANCE $= (SD)^2 = (0.9630)^2 = 0.9275.$

3) FREQUENCY DISTRIBUTION TABLE (RANGE TABLE)

x^2	25	625	2025	
Mid(x)	5	25	45	
x/marks	$0<x\leq 10$	$10<x\leq 40$	$40<x\leq 50$	
f	40	30	10	$\Sigma f = 80$
fx	200	750	450	$\Sigma fx = 1400$
fx^2	1000	18750	20250	$\Sigma fx^2 = 40000$

$$\text{MEAN} = \frac{\Sigma fx}{\Sigma f} = \frac{1400}{80} = 17.5$$

$$\text{STANDARD DEVIATION} = \sqrt{\frac{\Sigma fx^2}{\Sigma f} - \left(\frac{\Sigma fx}{\Sigma f}\right)^2} = \sqrt{\frac{40000}{80} - \left(\frac{1400}{80}\right)^2}$$

$= 13.9194$

VARIANCE $= (SD)^2 = (13.9194)^2 = 193.75$

$$\Sigma fx^2 \neq (\Sigma fx)^2$$

PROBABILITY DISTRIBUTION

X^2	1	4	9	16	
X	1	2	3	4	
$P(x)$	0.2	$P = 0.4$	0.1	0.3	$\leq P(x) = 1$
$x \cdot P(x)$	0.2	0.8	0.3	1.2	$E(X) = 2.5$
$x^2 \cdot P(x)$	0.2	1.6	0.9	4.8	$E(X^2) = 7.5$

1) $0.2 + p + 0.1 + 0.3 = 1$

$p = 0.4$

2) EXPECTED VALUE OF X = MEAN = $E(X)$

$E(X) = \leq [x \cdot P(x)] = 2.5$

3) EXPECTED VALUE OF $X^2 = E(X^2) = \leq [x^2 \cdot P(x)] = 7.5$

4) STANDARD DEVIATION $= \sqrt{E(x^2) - [E(x)]^2}$

$= \sqrt{7.5 - (2.5)^2}$

$= 1.1180$

5) VARIANCE $= (SD)^2 = (1.1180)^2 = 1.25$

STANDARD DEVIATION

RAW DATA

$$SD = \sqrt{\frac{\Sigma x^2}{n} - \left(\frac{\Sigma x}{n}\right)^2}$$

Mean

FREQUENCY TABLE

$$SD = \sqrt{\frac{\Sigma f x^2}{\Sigma f} - \left(\frac{\Sigma f x}{\Sigma f}\right)^2}$$

Mean

PROBABILITY TABLES

$$SD = \sqrt{E(x^2) - [E(x)]^2}$$

Mean