

Statistics सां०:

- 1.) Mean (माध्य)
- 2.) Median (माध्यिका)
- 3.) Mode (बहुलक)
- 4.) Standard deviation (मानक विचलन)
- 5.) Variance (विचरण)
- 6.) Variance Coefficient (विचरण गुणांक)

★

10, 17, 8, 2, 9, 7, 8, 2, 8, 9 ^{arr} (2, 2, 7, 8, 8, 8, 9, 9, 10, 17)

Find Mean
माध्य

$$\text{Mean} = \frac{10 + 17 + 8 + 2 + 9 + 7 + 8 + 2 + 8 + 9}{10}$$
$$= \frac{80}{10} = \boxed{8} \text{ Ans.}$$

Median = $\frac{5^{\text{th}} + 6^{\text{th}}}{2} = \frac{8 + 8}{2} = \boxed{8} \text{ Ans.}$

~~$\frac{10}{2} = 5.5$~~ का 5^{वाँ} 5^{वाँ}

★ 3, 7, 5, 8, 9

Find median
माध्यक = ?

⇒ 3, 5, 7, 8, 9

median = 7 Ans.

5 terms → odd

$$\frac{5+1}{2} = 3^{\text{rd}} \text{ terms}$$



10, 17, 8, 2, 9, 7, 8, 2, 8, 9

Find MODE = ?

\Rightarrow 2, 2, 7, 8, 8, 8, 9, 9, 10, 17

Mode = 8 Ans



mean	x	f	fx
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$$\text{mean} = \frac{\sum fx}{\sum f}$$

★
x
marks
17
12
18
15
20

f
No. of students
6
2
7
5
6

$F \times x$

102

24

126

60

120

$\Sigma f = 25$

$\Sigma Fx = 432$

find mean = ?

$$\text{Mean} = \frac{\Sigma Fx}{\Sigma f}$$

$$\text{Mean} = \frac{432}{25} = 17.28$$

ANS.

MODE \rightarrow 18 Ans



C.I.
10-20
20-30
30-40
40-50
50-60

f
7
12
16
8
7
$\Sigma f = 50$

x	Fx
15	105
25	300
35	560
45	360
55	385
$\Sigma Fx = 1710$	

$$\text{Mean} = \frac{\Sigma Fx}{\Sigma F}$$

$$\begin{aligned} \text{Mean} &= \frac{1710 + 2}{50 \times 2} \\ &= \frac{3420}{100} \\ &= 34.2 \text{ Ans.} \end{aligned}$$

Standard deviation = $\sqrt{\frac{\sum (x - \bar{x})^2}{N}}$
मानक विचलन

★ 10, 10, 9, 10, 10, 11, 10, 11, 9 Find S.D. = ?

$$\bar{x} = \frac{10 + 10 + 9 + 10 + 10 + 11 + 10 + 11 + 9}{9} = \frac{90}{9} = 10$$

$$\sum (x - \bar{x})^2 = 4$$

$$N = 9$$

$$S.D. = \sqrt{\frac{\sum (x - \bar{x})^2}{N}}$$

$$S.D. = \sqrt{\frac{4}{9}}$$

$\frac{2}{3}$ Ans

$$x$$

10
10
9
10
10
11
10
11
9

$$x - \bar{x}$$

0
0
-1
0
0
1
0
1
-1

$$(x - \bar{x})^2$$

0
0
1
0
0
1
0
1
1

$$\sum (x - \bar{x})^2 = 4$$

★ Variance = (S.D.)²

Ex. S.D. = 4.5

Variance = (4.5)² = 20.25
Ans

★ Variance = 169 Find S.D. = ?

Variance = (S.D.)²

169 = (S.D.)²

S.D. = 13
Ans

Variance coefficient = $\frac{S.D.}{\text{mean}} \times 100$
विचरता गुणांक

★

mean = 20 . S.D. = 5

Find v.c. (variance coeff.)

v.c. = $\frac{5}{20} \times 100 = 25\%$
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