

Average :

Measure of central tendency: mean , median, mode.

- 1) positional average: median, mode
- 2) mathematical average: arithmetic mean, geometric mean, harmonic mean.

Data: individual, discrete, grouped data(interval)

	individual	discrete	grouped(continuous)
mean(A.M)	$\bar{x} = \frac{\sum x}{n}$	$\bar{x} = \frac{\sum fx}{n}$	$\bar{x} = \frac{\sum fm}{n}$
median	md = $\frac{n+1}{2}$ -th item	md = $\frac{n+1}{2}$ -th item	md.class lies in = $\frac{n}{2}$ -th item, $md = l + \frac{\frac{n}{2} - c.f}{f} \times i$
mode	must repeated value	highest frequency	mode = 3median - 2mean OR $Mo = lo + \frac{fo - f - 1}{2fo - f - 1 - f + 1} \times i$

- $G.M = \sqrt{A.M \times H.M}$
- Geometric mean is the nth root of the product of given number. $G.M = \sqrt[n]{x_1 \times x_2 \times \dots \times x_n}$ for any two number a and b
- A.M. = $\frac{a+b}{2}$ b. G.M = \sqrt{ab} c. H.M = $\frac{2ab}{a+b}$
- If $x_1, x_2, x_3, \dots, x_k$ are the values having weights $w_1, w_2, w_3, \dots, w_k$, respectively then the weighted average is $\bar{x} = \frac{x_1w_1 + x_2w_2 + x_3w_3 + \dots + x_kw_k}{w_1 + w_2 + w_3 + \dots + w_k}$
- if $\bar{x}_1, \bar{x}_2, \dots, \bar{x}_n$ are the mean of n_1, n_2, \dots, n_k observation then the combined mean is $= \frac{n_1\bar{x}_1 + n_2\bar{x}_2 + \dots + n_k\bar{x}_k}{n_1 + n_2 + \dots + n_k}$

1. if the mean of the given data is 20 find the value of p?

x	5	10	20	30	40
f	3	8	15	p	4

2. if the mean of the given data is 36 find the value of p?

x	10-20	20-30	30-40	40-50	50-60
f	3	8	15	p	4

3. find the median of the given data :

weights	10-20	20-30	30-40	40-50	50-60
no .of students	5	2	3	2	1

4. find the median of the given data:

x	0-20(less than 20)	0-30	0-40	0-50	0-60
f	5	7	9	12	14

5. find the median of the given data:

x	greater than 10	greater than 20	greater than 30	greater than 40	greater than 50
f	15	10	9	8	4

6. find the median of the given data:

x	0-9	10-19	20-29	30-39	40-49
f	15	10	9	8	4

7. find the median of the given data:

x	0-4	4-10	10-20	20-30	30-40
f	4	12	4	9	5

8. if the median of the given data is 24 then find the value of m?

x	0-10	10-20	20-30	30-40	40-50
f	4	12	m	9	5

1. the mean marks of 100 students were found to be 50. later on it, it was found that 63 was misread as 36. find the corrected mean?
2. A man goes from his house to school at the speed of 20km/hr and returns from his school to house at the speed of 30km/hr. find the mean speed?
3. the average age of 10 boys is 20 years and the average age of 15 girls is 18 years. find the combined average age?
4. if 12 students of a class scores 40 marks, 14 students scores 50 marks and remaining 10 students scores 45 marks then find the average marks of a class?
5. the average age of 10 boys is 20 years and the average age of 15 girls is 18 years. find the combined average age?
6. The average age of a class of 29 students is 20 years. If the age of teacher is included, then the average increases by 2 years. Find the age of the teacher.
7. The average of 11 numbers is 30. If the average of first six numbers is 20 and that of last six is 40, then what is the sixth number?
8. the average age of 10 boys is 20 years and the average age of 15 girls is 18 years. find the combined average age?

