

Holidays Assignment (2019-20)

Class – XI

Mathematics

Chapter – 15(Statistics)

Formulae of the chapter:

(For ungrouped Data)

1. Mean Deviation about mean = $\frac{\sum|x_i - \bar{x}|}{n}$, where \bar{x} is the mean
2. Mean Deviation about median = $\frac{\sum|x_i - M|}{n}$, where M is the mean
3. Variance(σ^2) = $\frac{\sum(x_i - \bar{x})^2}{n}$
4. Standard Deviation (σ) = $\sqrt{Var(X)}$

(For grouped Data: Discrete and Continuous Frequency Distribution)

5. Mean Deviation about mean = $\frac{\sum f_i |x_i - \bar{x}|}{\sum f_i}$, where \bar{x} is the mean
6. Mean Deviation about median = $\frac{\sum f_i |x_i - M|}{\sum f_i}$, where M is the mean
7. Variance(σ^2) = $\frac{\sum f_i (x_i - \bar{x})^2}{\sum f_i}$
8. Standard Deviation (σ) = $\sqrt{Var(X)}$
9. Standard Deviation (σ) = $\frac{1}{n} \sqrt{n \sum f_i x_i^2 - (f_i x_i)^2}$, where $n = \sum f_i$
Or S. D (by **short cut method**) = $\frac{h}{n} \sqrt{n \sum f_i y_i^2 - (f_i y_i)^2}$, where $y_i = \frac{x_i - a}{h}$, a is assumed mean, h is class size

Using the above formulae, solve the following questions (on A4 size sheets):

1. Find the mean deviation about the mean as well as about the median for the following series:

12, 3, 18, 17, 4, 9, 17, 19, 20, 15, 8, 17, 2, 3, 16, 11, 3, 1, 0, 5

2. Find the mean deviation about the mean for the following data:

x_i	2	5	6	8	10	12
f_i	2	8	10	7	8	5

3. Find the mean deviation about the median for the following data:

x_i	3	6	9	12	13	15	21	22
f_i	3	4	5	2	4	5	4	3

4. Find the mean deviation about the mean for the following data:

Class Intervals	4 - 8	8 - 12	12 - 16	16 - 20
Frequency	3	6	4	7

5. Find the mean deviation about the median for the following data:

Marks	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60
Number of girls	8	10	10	16	4	2

6. Find the variance and standard deviation for the following data:

57, 64, 43, 67, 49, 59, 44, 47, 61, 59

7. Calculate the mean and standard deviation for the following data:

Size of the item	6	7	8	9	10	11	12
Frequency	3	6	9	13	8	5	4

8. Calculate the mean and standard deviation for the following data:

Class Intervals	25-35	35 - 45	45 - 55	55 - 65	65 - 75
Frequency	21	20	16	25	18

9. Two plants A and B of a factory show the following results about the number of workers and the wages paid to them:

	A	B
No. of workers	5000	6000
Average monthly wages(in Rs.)	2500	2500
Variance of distribution of wages	81	100

Which plant of the factory, A or B, is more consistent in individual wages?