EXAMPLES TO PRACTICE

1. The following are the weights of 10 students in a certain class.

Weights : 25, 24, 30, 25, 26, 24, 32, 24, 26, 30

Find the range and coefficient of range.

(**Ans.** Range = 8, Coefficient of range = 0.143.)

2. Find the range for the following distribution.

x	20	21	22	23	24	25	26
f	2	3	8	10	7	6	4

Also find coefficient of range.

(**Ans.** Range = 6, Coefficient of range = 0.13.)

3. Find the range and coefficient of range for the following frequency distribution.

Monthly income	200-400	400-600	600-800	800-1000	1000-1200
No. of families	30	25	21	16	8

Ans. Range = 800, Coefficient of range = 0.57.

4. Ten measurements (in feet) were made with the following result. Find the standard deviation.

Length : 77, 73, 75, 70, 72, 76, 75, 72, 74, 76.

5. Following figures give the marks of 10 students in a class test. Find the mean and standard deviation.

12, 8, 17, 13, 15, 9, 18, 11, 6, 1.

6. Calculate the standard deviation for the following data.

Daily wages (Rs.)	10	15	20	25	30	35
No. of workers	4	8	10	8	6	4

7. Calculate the standard deviation for the following data.

Age group	5-10	10-15	15-20	20-25	25-30	30-35
No. of persons	2	9	29	44	11	5

8. Calculate standard deviation from the following observations :

240.12, 240.13, 240.15, 240.12, 240.17
240.15, 240.17, 240.16, 240.22, 240.21

(**Ans.** 0.033.)

9. The monthly expenditures of 80 students of a university or morning breakfast are given in the following table.

Expenditure (Rs.)	No. of students	Expenditure (Rs.)	No. of students.
78-82	2	53-57	13
73-77	6	48-52	9
68-72	7	43-47	7
63-67	12	38-42	4
58-62	18	33-37	2

Calculate arithmetic mean, standard deviation and coefficient of variation of the above data.

(**Ans.** 58.375, 10.36, 17.75%.)

10. A consignment of 180 articles is classified according to the size of the article as under. Find the standard deviation and its coefficient.

Measurement	No. of articles	Measurement	No. of articles
More than 80	5	More than 30	150
More than 70	14	More than 20	170
More than 60	34	More than 10	176
More than 50	65	More than 0	180
More than 40	110	More than 90	0

(**Ans.** $\sigma = 16.83$, Coefficient of S. D. $= \frac{\sigma}{\bar{x}} = 0.372$.)

11. A survey conducted to determine the distance travelled (in km) per litre of petrol by newly introduced moped yielded the following distribution.

Distance	40-45	45-50	50-55	55-60	60-65
Mopeds	13	12	25	35	50

Find the variance.

(Ans. 39.06.)

12. Find the variance for the data given in the above problems (8), (9) and (10).

(Ans. 0.0011, 107.33, 283.25.)

13. The mean of 80 observations is 30 and their S.D. is 5. Find the new mean and standard deviation if each observation is doubled.

(Ans. Mean = 60, S.D. = 10)

14. The range, A.M. and S.D. of a group of 10 items is 20, 62 and 10 respectively. If each observation is increased by 5, what will be the range and coefficient of variation ?

(Ans. Range = 20, C.V. = 16.13.)

15. For a group of 200 candidates, the mean and standard deviation of scores were found to be 40 and 15 respectively. Later on it was discovered that the scores 43 and 35 were misread as 34 and 53 respectively. Find the corrected mean and standard deviation corresponding to the corrected figures.

(Ans. Mean = 39.96, S. D. 14.97)

16. The arithmetic mean and variance of a set of 10 observations are known to be 17 and 33 respectively . Of the 10 observations, one observation (i.e. 26) was subsequently found to be inaccurate and was weeded out. What is the resulting (i) arithmetic mean and (ii) standard deviation ?

(Ans. Mean = 14.4, S.D. 22.91).

17. The mean and S. D. of one sample are 54.4 an 8 respectively. The mean and S.D. of another sample are 50.3 and 7 respectively. The size of the first sample is 50 and that of the second sample is 100. Find the mean and standard deviation of the composite sample (size 150) combining the aforesaid two samples.

(Ans. Mean = 51.67, S.D. = 7.6.)