

XI. STATISTICS

Example problems

1. Find the range and the coefficient of range of 43, 24, 38, 56, 22, 39, 45
2. The weights (in kg) of 13 students in a class are 42.5, 47.5, 48.6, 50.5, 49, 46.2, 49.8, 45.8, 43.2, 48, 44.7, 46.9, and 42.4. Find the range and coefficient of range.
3. The largest value in a collection of data is 7.44. If the range is 2.26, then find the smallest value in the collection.
4. The numbers of books read by 8 students during a month are 2, 5, 8, 11, 14, 6, 12, 10. Calculate the standard deviation of the data.
5. A test in General Knowledge was conducted for a class. The marks out of 40, obtained by 6 students were 20, 14, 16, 30, 21 and 25. Find the standard deviation of the data.
6. Find the standard deviation of the numbers 62, 58, 53, 50, 63, 52, 55.
7. The marks obtained by 10 students in a test in Mathematics are: 80, 70, 40, 50, 90, 60, 100, 60, 30, and 80. Find the standard deviation.
8. Find the standard deviation of the data 3, 5, 6, 7. Then add 4 to each item and find the standard deviation of the new data.
9. Find the standard deviation of 40, 42 and 48. If each value is multiplied by 3, find the standard deviation of the new data.
10. Prove that the standard deviation of the first n natural numbers is $\sigma = \sqrt{\frac{n^2-1}{12}}$
11. Find the standard deviation of the first 10 natural numbers
12. The following table shows the marks obtained by 48 students in a Quiz competition in Mathematics. Calculate the standard deviation.

data x	6	7	8	9	10	11	12
frequency f	3	6	9	13	8	5	4

13. Find the Standard deviation of the following distribution

x	70	74	78	82	86	90
f	1	3	5	7	8	12

14. Find the variance of the following distribution.

Class interval	3.5-4.5	4.5-5.5	5.5-6.5	6.5-7.5	7.5-8.5
Frequency	9	14	22	11	17

15. The following table gives the number of goals scored by 71 leading players in International Football matches. Find the standard deviation of the data.

Class Interval	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	8	12	17	14	9	7	4

16. Lengths of 40 bits of wire, correct to the nearest centimetre are given below. Calculate the variance.

Length cm	1-10	11-20	21-30	31-40	41-50	51-60	61-70
No. of bits	2	3	8	12	9	5	1

17. Find the coefficient of variation of the following data. 18, 20, 15, 12, 25.

18. Following are the runs scored by two batsmen in 5 cricket matches. Who are more consistent in scoring runs.

Batsman A	38	47	34	18	33
Batsman B	37	35	41	27	35

19. The mean of 30 items is 18 and their standard deviation is 3. Find the sum of all the items and also the sum of the squares of all the items.

20. The mean and the standard deviation of a group of 20 items were found to be 40 and 15 respectively. While checking it was found that an item 43 was wrongly written as 53. Calculate the correct mean and standard deviation.

21. For a collection of data, if $\sum x=35$, $n=5$, $\sum(x-9)^2=82$, then find $\sum x^2$ and $\sum(x-\bar{x})^2$

22. The coefficients of variations of two series are 58 and 69. Their standard deviations are 21.2 and 15.6. What are their arithmetic means