MATHS

BOOKS - A N EXCEL PUBLICATION

STATISTICS

Question Bank

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

4,7,8,9,10,12,13,17.

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

38,70,48,40,42,55,63,46,54,77

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

13,17,16,14,11,13,10,16,11,18,12,17.

4. Find the mean deviation about the median

for the following data:

36,72,46,42,60,45,53,46,51,49

5. Find the mean deviation about the mean for

the following data:

x_i	5	10	15	20	25
f_i	7	4	6	3	5

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

x_i	10	30	50	70	90
f_i	4	24	28	16	8

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

x_i	5	7	9	10	12	15
f_i	8	6	2	2	2	6

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

x_i	15	21	27	30	35
f_i	3	5	6	7	8

9. Find the mean deviation about the mean for the following data

Income per day:	0-100	100-200	200-300	300-400	400-500	500-600	600-700	700-800
Number of persons:	4	8	9	10	7	5	4	3

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

Height	95-105	105-115	115-125	125-135	135-145	145-155
Number of Boys	9	13	26	30	12	10

11. 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	6	8	14	16	4	2

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

Age	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55
Number	5	6	12	14	26	12	16	9

13. Prove that the standard deviation from two values x_1 and x_2 of a variable x is equal to half their differences

14. Calculate S.D. Of the following numbers

9,7,5,11,1,5,7,3

15. A student obtained the mean and standard deviation of 100 observations as 40 and 5.1 respectively . It was later found that one observation was wrongly copied as 50, the correct figure being 40. Find the correct mean and S.D.

16. Find the standard deviation for the following distribution :

x	4.5	14.5	24.5	34.5	44.5	54.5	64.5
f	1	5	12	22	17	9	4

17. Find the standard deviation from the following frequency distribution:

Weight (kg)	44–46	46–48	48–50	50–52	52–54
No. of persons	3	24	27	21	5

18. Find the mean and variance for the following data 6,7,10,12,13,4,8,12

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19. Find the mean and variance of first n natural numbers.

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20. Find the mean and variance of the first 10 multiples of 3.

21. Find the mean and variance of following data :

x_i	6	10	14	18	24	28	30
f_i	2	4	7	12	8	4	3

22. Find the mean and variance of following data :

x_i	92	93	97	98	102	104	109
f_i	3	2	3	2	6	3	3

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23. Find the mean and variance of following data :

Classes:	0-30	30-60	60-90	90-120	120-150	150-180	180-210
Freequencies:	2	3	5	10	3	5	2

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24. Find the mean and variance of following data :

Classes:	0-10	10-20	20-30	30-40	40-50
Frequencies:	5	8	15	16	6

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25. From the data given below which group is more variable A or B?

Marks	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Group A	9	17	32	33	40	10	9
Group B	10	20	30	25	43	15	7

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26. From the prices of shares x and y below find out which is more stable in value:

x	35	54	52	53	56	58	52	50	51	49
y	108	107	105	105	106	107	104	103	104	101

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27. An analysis of monthly wages paid to workers in two firms A and B belonging to same industry gives the following results :

	Firm A	Firm B
No.of wage earners:	586	648
Mean monthly wages:	Rs. 5253	Rs.5253
Variance of the distribution of wages:	100	121

which firm A or B, pays larger amount as monthly wages.

28. An analysis of monthly wages paid to workers in two firm A and B belonging to same industry gives the following results :

	Firm A	Firm B
No.of wage earners:	586	648
Mean monthly wages:	Rs. 5253	Rs.5253
Variance of the distribution of wages:	100	121

which firm A or B shows greater variability in individual wages?

29. The following is the record of goals scored by team A in a football session

No.of goals scored:	0	1	2	3	4
No.of matches:	1	9	7	5	3

For the team B, mean number of goals scored per match was 2 with a standard deviation of 1.25 goals. Find which team may be considered more consistent?

30. The sum and sum of squares corresponding to length x(incm) and weight y (in gm) of 50 plant products are given below :

$$\sum_{i=1}^{50} xi = 212, \qquad \sum_{i=1}^{50} xi^2 = 902.8$$

$$\sum_{i=1}^{50} yi = 261, \qquad \sum_{i=1}^{50} yi^2 = 1457.6$$

Which is more varying the length or weight?

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31. The scores of a batsman in 10 matches are as follows 38,70,48,34,42,55,63,46,54,44 Find the arithmetic mean of the scores

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32. The scores of a batsman in 10 matches are as follows 38,70,48,34,42,55,63,46,54,44 Calculate the variance.

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33. The scores of a batsman in 10 matches are as follows 38,70,48,34,42,55,63,46,54,44 . find standard deviation.

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34. The mean and variance of 8 observations are 9 and 9.25 respectively. Suppose 6,7,10,12,12,and 13 are the first 6 observations. Let a and b be the remaining two observations. Find the value of a+b.

35. The mean and variance of 8 observations are 9 and 9.25 respectively. Suppose 6,7,10,12,12,and 13 are the first 6 observations.

Let a and b be the remaining two observations

Find the value of $a^2 + b^2$

36. The mean and variance of 8 observations are 9 and 9.25 respectively. Suppose 6,7,10,12,12,and 13 are the first 6 observations. Let a and b be the remaining two observations. Find the remaining two observations.

37. Suppose that mean and standard deviation of 6 observations are 8 and 4 respectively . Let each observation be multiplied by 3. Find the new mean of the resulting observations

38. Suppose that mean and standard deviation of 6 observations are 8 and 4 respectively . Let each observation be multiplied by 3 Find the

standard deviation of the resulting observations.

39. Find the A.M. of the numbers 31,35,29,63,55,72,37,

40. Determine the median of the following data

Value :	10	11	12	13	14
Frequency :	3	12	18	12	3

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41. Consider the following data

Class :	0–5	5–10	10–15	15–20	20–25	25–30
Frequency :	8	6	12	13	11	10

calculate the mean of the above data

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42. The scores of batsman A are 40 ,70,52,34,42,55,63,46,54,44 find their mean.

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43. The scores of batsman A are 40 ,70,52,34,42,55,63,46,54,44 find their median,

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44. The scores of batsman A are 40 ,70,52,34,42,55,63,46,54,44 Find their variance.

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45. The scores of batsman A are 40 ,70,52,34,42,55,63,46,54,44 find the standard deviation.

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46. Given the following data

x : 6	10	14	18	24	28	30
f : 2	4	7	12	8	4	3

find the mean of the given data.

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47. Given the following data

x : 6	10	14	18	24	28	30
f : 2	4	7	12	8	4	3

find the standard deviation of the given

frequency distribution.

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48. Consider the following grouped frequency distribution

Class :	0–10	10–20	20–30	30–40	40–50
Frequency :	19	24	31	15	11

find the mean of the given data

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49. Consider the following grouped frequency distribution

Class :	0–10	10–20	20–30	30–40	40–50
Frequency :	19	24	31	15	11

find the variance of the given data.

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50. Consider the following grouped frequency distribution

Class :	0–10	10–20	20–30	30–40	40–50
Frequency :	19	24	31	15	11

find the standard deviation of the given data.

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51. Consider the following grouped frequency distribution

Class :	0–10	10–20	20–30	30–40	40–50
Frequency :	19	24	31	15	11

find the C.V. of the given data.

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52. If k is a negative constant , what is the relation between σ_u and σ_x

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53. The mean and variance of 8 observations are 9 and 9.25 respectively. Suppose 6,7,10,12,12,and 13 are the first 6 observations. Let a and b be the remaining two observations. Find the remaining two observations.

54. The mean and variance of 7 observations are 8 and 16 respectively . If five of the

observations are 2,4,10,12,14 find the remaining two observations.

55. Suppose that mean and standard deviation of 6 observations are 8 and 4 respectively . Let each observation be multiplied by 3 Find the standard deviation of the resulting observations.

56. Given that $\bar{x}$ Is the mean and σ^2 is the variance of n observations $x_1, x_2, x_3, \ldots\ldots\ldots\ldots x_n$ prove that the mean and variance of the observations $ax_1, ax_2, ax_3, \ldots\ldots\ldots.ax_n$ are $a\bar{x}$ and $a^2\sigma^2$ respectively. $(a \neq 0)$

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57. The mean and S.D. of 20 observations are found to be 10 and 2 respectively . On rechecking it was found that an observation 8

was incorrect. Calculate the correct mean and standard deviation in each of the following cases. If wrong item is omitted.

58. The mean and S.D. of 20 observations are found to be 10 and 2 respectively . On rechecking it was found that an observation 8 was incorrect. Calculate the correct mean and standard deviation in each of the following cases.if it is replaced by 12.

59. The mean and S.D. of marks obtained by 50 students of a class in three subjects mathematics , physics and chemistry are given below?

Subjects	Mathematics	Physics	Chemistry
Mean	42	32	40.9
S.D	12	15	20

which of the three subjects the highest variability in marks and which shows the lowest?

60. The mean and S.D. of a group of 100 observations were found to be 20 and 3 respectively. Later on its was found that three observations were incorrect which were recorded as 21,21 and 18 find the mean S.D. if the incorrect observations were omitted.

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