EXERCISE 15.1 - Question No. 1

Find the mean deviation about the mean for the data :

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

EXERCISE 15.1 - Question No. 2

Find the mean deviation about the mean for the data :

38, 70, 48, 40, 42, 55, 63, 46, 54, 44

Find the mean deviation about the median for the data :

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

Find the mean deviation about the median for the data :

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

Find the mean deviation about the mean for the data : x_i 5 10 15 20

25 f_i 7 4 6 3 5

EXERCISE 15.1 - Question No. 6

Find the mean deviation about the mean for the data : x_i 10 30 50

70 90 f_i 4 24 28 16 8

EXERCISE 15.1 - Question No. 7

Find the mean deviation about the median for the data : x_i 5 7 9 10

12 15 f_i 8 6 2 2 2 6

Find the mean deviation about the median for the data : x_i 15 21 27

30 35 f_i 3 5 6 7 8

Find the mean deviation about the mean for the data : Income 0-100

100-200 200-300 300-400 400-500 500-600 600-700 700-800 per

day Number 4 8 9 10 7 5 4 3 of persons

EXERCISE 15.1 - Question No. 10

Find the mean deviation about the mean for the data : Height 95-

105 105-115 115-125 125-135 135-145 145-155 in cms Number of

9 13 26 30 12 10 Boys

EXERCISE 15.1 - Question No. 11

Find the mean deviation about median for the following data :

Marks 0-10 10-20 20-30 30-40 40-50 50-60 Number of 6 8 14 16 4

2 Girls

EXERCISE 15.1 - Question No. 12

Calculate the mean deviation about median age for the age

distribution of 100 persons given below: 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

EXERCISE 15.2 - Question No. 1

Find the mean and variance for each of the data :

6, 7, 10, 12, 13, 4, 8, 12

EXERCISE 15.2 - Question No. 2

Find the mean and variance for each of the data : First n natural

numbers

EXERCISE 15.2 - Question No. 3

Find the mean and variance for each of the data : First 10 multiples

of 3.

EXERCISE 15.2 - Question No. 4

Find the mean and variance for each of the data :

EXERCISE 15.2 - Question No. 5

Find the mean and variance for each of the data :

EXERCISE 15.2 - Question No. 6

Find the mean and standard deviation using short-cut method.

EXERCISE 15.2 - Question No. 7

Find the mean and variance for the following frequency

distributions :

EXERCISE 15.2 - Question No. 8

Find the mean and variance for the following frequency

distributions :

EXERCISE 15.2 - Question No. 9

Find the mean, variance and standard deviation using short-cut

method

EXERCISE 15.2 - Question No. 10

The diameters of circle (in mm) drawn in a design are given below:

EXERCISE 15.3 - Question No. 1

For the data given below state which group is more variable, A or

B?

EXERCISE 15.3 - Question No. 2

From the prices of shares X and Y below, find out which is more

stable in value

EXERCISE 15.3 - Question No. 3

An analysis of monthly wages paid to workers in two firms A and B, belonging to the same industry, gives the following result No. of wage earners Firm A Firm B Mean of monthly wages Rs 5253 Rs 5253 Variance of the distribution 100 121 of wages (i) Which firm A or B pays larger amount as monthly wages? (ii) Which firm, A or B, show greater variability in individual wages?

EXERCISE 15.3 - Question No. 4

The following is ht record of goals scored by team A in a football session For the team b, mean number of goals scored per match was

2 with a standard deviation 1.25 goals. Find which team may be

considered more consistent?

EXERCISE 15.3 - Question No. 5

The sum and sum of squares corresponding to length x (in cm) and

weight y (in gm) of 50 plant products are given below

$$\sum_{i=1}^{50} x_i = 212, \ \sum_{i=1}^{50} \xi 2 = 902.\,8, \ \sum_{i=1}^{50} y_1 = 261, \ \sum_{i=1}^{50} yi2 = 1457.\,6$$

Which is more varyi

MISCELLANEOUS EXERCISE - Question No. 1

The mean and variance of eight observations are 9 and 9.25, respectively. If six of the observations are 6, 7, 10, 12, 12 and 13, find the remaining two observations.

MISCELLANEOUS EXERCISE - Question No. 2

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.

MISCELLANEOUS EXERCISE - Question No. 3

The mean and standard deviation of six observations are 8 and 4, respectively. If each observation is multiplied by 3, find the new mean and new standard deviation of the resulting observations.

Given that $\bar{x}$ is the mean and σ^2 is the variance of n observations $x_1 x_2$, ..., x_n . Prove that the mean and variance of the observations ax_1, ax_2 , $ax_3,$ $\vdots$ ax_n are $a\bar{x}$ and $a^2 \sigma^2$,

The mean and standard deviation of 20 observations are found to be 10 and 2, respectively. One rechecking, it was found that an observation 8 was incorrect. Calculate the correct mean and standard deviation in each of the following cases. (i) If wrong item is omitted (ii) If it is replaced by 12.

MISCELLANEOUS EXERCISE - Question No. 6

The mean and standard deviation of marks obtained by 50 students of a class in three subject, Mathematics, Physics and Chemistry are given below: Subject and nbsp; and nbsp; and nbsp; and nbsp;

Mathematics and nbsp; and nbsp; and nbsp; and nbsp; and nbsp;

and nbsp; and nbsp; and nbsp; Physics and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp;

and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and

nbsp;Chemistry and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and

nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and

nbsp; Mean and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; 42 and nbsp; and

nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp;

and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and

nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp;

and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and

nbsp; 32 and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and

nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp;

and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and

nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp;

40.9 Standard and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; 12

and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and

nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp;

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nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp;

and nbsp; 15 and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and

nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp;

and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and

nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp; and nbsp;

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

MISCELLANEOUS EXERCISE - Question No. 7

The mean and standard deviation of a group of 100 observations were found to be 20 and 3, respectively. Later on it was found that three observations were incorrect, which are recorded as 21, 21 and 18. Find the mean and standard deviation if the incorrect observations are omitted.

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

6, 7, 10, 12, 13, 4, 8, 12

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

3, 9, 5, 3, 12, 10, 18, 4, 7, 19, 21 .

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Find 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

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

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

Calculate the mean deviation about median for the following data :

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Find the Variance of the following data:

6, 8, 10, 12, 14, 16, 18, 20, 22, 24

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Find the variance and standard deviation for the following data:

Calculate the mean, variance and standard deviation for the following distribution: Class 30-40 40-50 50-60 60-70 70-80 80-90 90-100 Frequency 3 7 12 15 8 3 2

Find the standard deviation for the following data :

Calculate mean, Variance and Standard Deviation for the following distribution.

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Two plants A and B of a factory show following results about the number of workers and the wages paid to them. A B No. of workers 5000 6000 Average monthly wages Rs 2500 Rs 2500 Variance of distribution 81 100 of wages In which plant, A or B is there greater variability in individual wages?

SOLVED EXAMPLES - Question No. 14

Coefficient of variation of two distributions are 60 and 70, and their standard deviations are 21 and 16, respectively. What are their arithmetic means.

SOLVED EXAMPLES - Question No. 15

The following values are calculated in respect of heights and weights of the students of a section of Class XI: Height Weight

Mean 162.6 cm 52.36 kg Variance 127.69 cm^2 23.1361kg^2 Can we

say that the weights show greater variation than the

SOLVED EXAMPLES - Question No. 16

The variance of 20 observations is 5. If each observation is

multiplied by 2, find the new variance of the resulting observations.

SOLVED EXAMPLES - Question No. 17

The mean of 5 observations is 4.4 and their variance is 8.24. If three

of the observations are 1, 2 and 6, find the other two observations.

SOLVED EXAMPLES - Question No. 18

If each of the observation $x_1, x_2, \vdots \; x_n$ is increased by a where a is a negative or positive number, show that the variance remains unchanged.
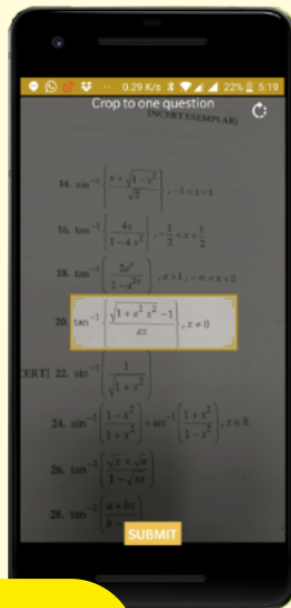
SOLVED EXAMPLES - Question No. 19

The mean and standard deviation of 100 observations were calculated as 40 and 5.1, respectively by a student who took by
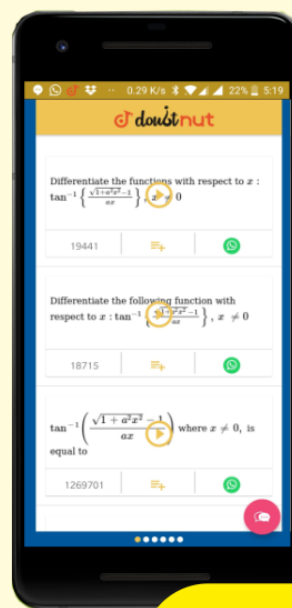
mistake 50 instead of 40 for one observation. What are the correct mean and standard deviation?