Class 11 Mathematics · Chapter 13: Statistics

Worksheet · 20 marks · about 40 minutes · based on NCERT

Name _____ Class and section _____ Date _____

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1. The variance of a set of observations is 16. If each observation is halved, the standard deviation of the new observations is [1]

(a) 4 (b) 2
(c) 8 (d) 1

2. A data set has mean 12 and variance 9. If 7 is added to each observation, the new mean and the new variance are [1]

(a) 19 and 16 (b) 12 and 9
(c) 19 and 9 (d) 19 and 81

3. The sum of the deviations of the observations 3, 8, 10 and 15 from their mean is [1]

(a) 0 (b) 9
(c) 36 (d) 4

4. The mean deviation about the median of the six observations 11, 3, 8, 15, 6, 20 is (correct to two decimal places) [1]

(a) 4.83 (b) 5.80
(c) 9.50 (d) 29

5. The variance of a data set is 6.25. Its standard deviation is [1]

(a) 6.25 (b) 3.125
(c) 39.0625 (d) 2.5

6. Verify that the sum of the deviations of 5, 9, 12, 14 from their mean is zero, and explain why the mean of these deviations cannot serve as a measure of dispersion. [2]

7. For 3, 7, 9, 13, 18, show that the mean deviation about the median is less than the mean deviation about the mean. [2]

8. Find the range of 18, 25, 9, 31, 14, 22, and state one thing about the data that the range does not tell. [2]

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9. Set P is 18, 30, 42. Set Q is the $2m + 1$ consecutive integers $30 - m, 30 - m + 1, \ldots, 30 + m$; both sets have mean 30. (i) Find the least m for which $\Sigma (x_i - 30)^2$ for Q exceeds that for P. (ii) For this m, find the variance of each set, and say what the two results show about $\Sigma (x_i - \bar{x})^2$ as a measure of dispersion. [3]

10. Find the standard deviation of x_i: 2, 4, 6, 8, 10 with f_i: 1, 4, 6, 4, 1. What would the standard deviation be if every frequency were doubled? [3]

11. For the distribution x_i: 10, 20, 30, 40, 50 with frequencies f_i: 4, 7, 12, 9, k, the median is 30 and the mean deviation about the median is 10. Find k. [3]

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