

Unit 1: One-Variable Statistics

ADVANCED

Name: _____ Date: _____

Show your work for each problem and give the exact answer (a number, a fraction, or yes/no). Assume "standard deviation" and "variance" are population values unless the problem says "sample."

1. Find the mean of the data set: 47, 52, 38, 61, 55, 43, 58, 46.

Answer: _____

2. Find the median of the data set: 12, 19, 7, 23, 15, 31, 9, 27.

Answer: _____

3. A data set of 6 numbers has a mean of 37.5. Five of the numbers are 42, 28, 51, 33, and 40. Find the sixth number.

Answer: _____

4. Find the interquartile range (IQR) of the data set: 4, 8, 15, 16, 23, 42, 5, 11, 30, 19.

Answer: _____

5. Find the interquartile range (IQR) of the data set: 22, 7, 14, 33, 9, 18, 27, 11, 40.

Answer: _____

6. Find the population standard deviation of the data set: 2, 4, 4, 4, 5, 5, 7, 9.

Answer: _____

7. Find the population variance of the data set: 14, 18, 20, 22, 26.

Answer: _____

8. Find the sample standard deviation of the data set: 5, 5, 10, 15, 15. (Divide the sum of squared deviations by $n - 1$.)

Answer: _____

9. Class A has 12 students with a mean test score of 78. Class B has 18 students with a mean test score of 88. Find the mean score of all 30 students combined.

Answer: _____

10. A data set of 8 values has a mean of 35. If the value 42 is removed from the set, find the mean of the remaining 7 values.

Answer: _____

11. In a data set, the value 3 occurs 4 times, 5 occurs 6 times, 8 occurs 5 times, and 10 occurs 3 times (18 values total). Find the median of the data set.

Answer: _____

12. For the data set 3, 7, 8, 12, 13, 14, 15, 18, 21, 45, use the $1.5 \times \text{IQR}$ rule (upper fence = $Q3 + 1.5 \times \text{IQR}$) to determine whether 45 is an outlier. Answer yes or no.

Answer: _____