

11-7 Standardized Test Prep

Standard Deviation

Multiple Choice

For Exercises 1–4, choose the correct letter.

1. Of the 25 students who take a standardized test, the minimum score is 98 and the maximum score is 472. The mean score is 216, and the standard deviation is 52. What is the number of standard deviations that includes all the data values? **B**

(A) 3 (B) 5 (C) 8 (D) 9

2. What is the standard deviation of the data set below? **F**

87 21 90 43 54 23 123 110 90 44 50

(F) 33.1 (G) 47.0 (H) 66.8 (I) 89.0

3. A data set has a mean of 255 and a standard deviation of 12. All the data values are within two standard deviations of the mean. Which could be the maximum value of the data? **C**

(A) 232 (B) 244 (C) 268 (D) 280

4. The scores on a math test are:

67 69 71 75 78 78 83 85 85 85 85 86 87 89 92 95 98 98 98 100.

Within how many standard deviations of the mean is a score of 100? **F**

(F) 2 (G) 3 (H) 10 (I) 15

Short Response

5. The ages of students in a club are:

13 17 18 15 16 14 15 18 17 16 15 16 13.

Calculate the mean and standard deviation. What is the number of standard deviations that includes all the data values? Show your work.

$$[2] \bar{x} = \frac{13 + 17 + 18 + 15 + 16 + 14 + 15 + 18 + 17 + 16 + 15 + 16 + 13}{13} \approx 15.6$$

$$\sigma = \sqrt{\frac{\sum_{i=1}^{13} (X_i - 15.6)^2}{13}} = \sqrt{\frac{33.08}{13}} \approx 1.6$$

All values are within two standard deviations of the mean.

[1] incorrect or incomplete work shown

[0] incorrect answers and no work shown OR no answers given