

Name _____ Date _____

Whose Scores Are Better?

Calculating and Interpreting Standard Deviation

Vocabulary

Define each term in your own words.

1. standard deviation

2. normal distribution

Problem Set

Calculate the mean and the standard deviation of each data set without the use of a calculator.

1. The data are 0, 3, 6, 7, and 9.

$$\begin{aligned}\bar{x} &= \frac{0 + 3 + 6 + 7 + 9}{5} \\ &= \frac{25}{5} \\ &= 5\end{aligned}$$

$$\begin{aligned}\sigma &= \sqrt{\frac{25 + 4 + 1 + 4 + 16}{5}} \\ &= \sqrt{\frac{50}{5}} \\ &= \sqrt{10} \\ &\approx 3.16\end{aligned}$$

$$(x_1 - \bar{x})^2 = (0 - 5)^2 = 25$$

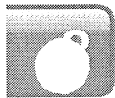
$$(x_2 - \bar{x})^2 = (3 - 5)^2 = 4$$

$$(x_3 - \bar{x})^2 = (6 - 5)^2 = 1$$

$$(x_4 - \bar{x})^2 = (7 - 5)^2 = 4$$

$$(x_5 - \bar{x})^2 = (9 - 5)^2 = 16$$

The mean is 5. The standard deviation is approximately 3.16.



LESSON 8.4 Skills Practice

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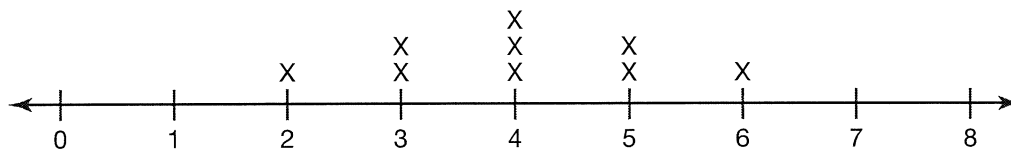
2. The data are 6, 8, 9, 10, 10, and 11.

3. The data are 1, 5, 10, 15, 16, 20, and 24.

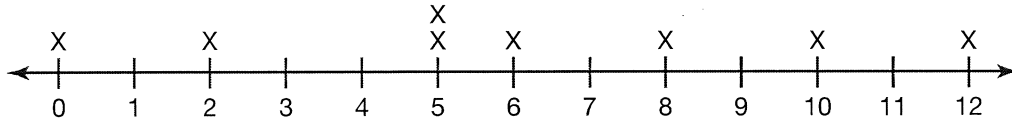
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4. The data are 13, 14, 15, 15, 16, 16, 17, and 18.

5. The data are represented by a dot plot.



6. The data are represented by a dot plot.

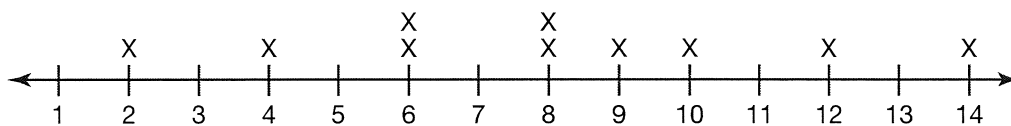


Calculate the mean and the standard deviation of each given data set using a graphing calculator.

7. The data are 1, 3, 4, 6, 6, 8, 9, 10, and 12.
The mean is approximately 6.56. The standard deviation is approximately 3.34.
8. The data are 18, 20, 24, 25, 26, 26, 28, 30, 32, and 35.
9. The data are 102, 103, 103, 104, 104, 104, 105, 105, 106, 106, and 107.
10. The data are 3.5, 4, 5.5, 6, 6, 7, 7.5, 8, 9.5, and 10.5.

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11. The data are represented by a dot plot.



12. The data are represented by a dot plot.

