

Name _____

Statistics

Ready, Set, Go



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Ready *Sample Answers*

Topic: Standard Deviations, Percentiles

1. Jordan scores a 53 on his math test. The class average is 57 with a standard deviation of 2 points. How many standard deviations below the mean did Jordan score? *2*

2. In Jordan's science class, he scored a 114. The class average was a 126 with a standard deviation of 6 points. How many standard deviations below the mean did Jordan score? In comparison to his peers, which test did Jordan perform better on? *2 standard deviations below mean*

Jordan performed the same on both tests compared to his peers.

3. Rank the data sets below in order of greatest standard deviation to smallest:

$$A = \{1, 2, 3, 4\} \quad B = \{2, 2, 2, 2\} \quad C = \{2, 4, 6, 8\} \quad D = \{4, 5, 6, 7\} \quad E = \{1, 1.5, 2, 2.5\}$$

$$\mu = 2.5, \sigma = 1.12 \quad \mu = 2, \sigma = 0 \quad \mu = 5, \sigma \approx 2.24 \quad \mu = 5.5, \sigma \approx 1.12 \quad \mu = 1.75, \sigma \approx 0.56$$

→ C, A, D, E, B

4. Robin made it to the swimming finals for her state championship meet. The times in the finals were as follows:

{2: 10.3, 2: 12.5, 2: 12.7, 2: 12.38, 2: 20.45, 2: 21.43}

** * **

If Robin's time was a 2:12.7, what percent of her competitors did she beat?

** she beat these, so $\frac{3}{6}$ or 50%*

5. Remember that in statistics, μ is the symbol for mean and σ is the symbol for standard deviation. Using technology, identify the mean and standard deviation for the data set below:

{1.23, 1.3, 1.1, 1.48, 1, 1.14, 5.21, 5.1, 4.63}

$$\mu = 2.466 \quad \sigma = 1.788$$

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6. For the data in number 5, what time would fall one standard deviation above the mean?

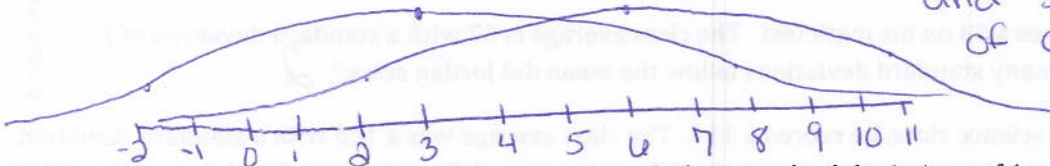
4.254

Three standard deviations below the mean?

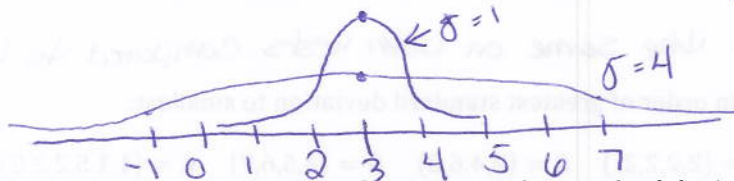
-2.898

7. If two Normal distributions have the same standard deviation of 4.9 but different means of 3 and 6, how will the two Normal curves look in relation to each other? Draw a sketch of each Normal curve below.

Peaks in different places (3 and 6) but same height and same shape of curve.



8. If two Normal distributions have the same mean of 3 but standard deviations of 1 and 4, how will they look in relation to each other? Draw a sketch of each Normal curve below.



Peak in same place, but curve with $\sigma = 1$ is higher at that peak, and is skinnier than the curve with $\sigma = 4$.

9. Several Normal curves are given below. Estimate the standard deviation of each one.

with $\sigma = 4$.

A. 20

B. 40

C. 60

