DO NOW

Tanner and Robbie discovered that the means of their grades for the first semester in Mrs. Merrell's mathematics class are identical. They also noticed that the standard deviation of Tanner's scores is 20.7, while the standard deviation of Robbie's scores is 2.7. Which statement must be true?

1) In general, Robbie's grades are lower than Tanner's grades.

2) Robbie's grades are more consistent than Tanner's grades.

3) Robbie had more failing grades during the semester than Tanner had.

4) The median for Robbie's grades is lower than the median for Tanner's grades.

May 14-7:20 AM

HW Answers

1.a $\sigma_x = 7.3$
    IQR = 13.5

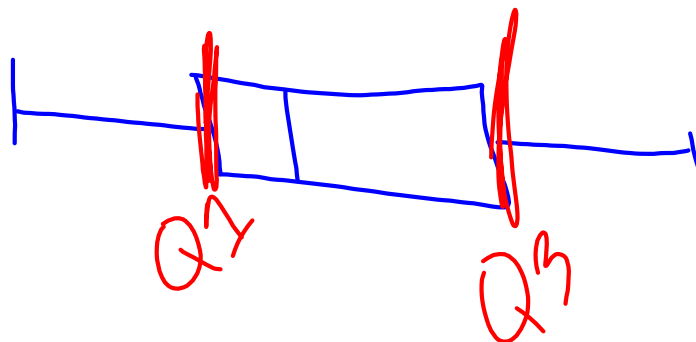b. $\sigma_x = 1.6$
    IQR = 3

2. 12

3. 2

4. 3

5. a   Survey A   Survey B
       $s_x = 2.3$ $s_x = 3.3$

b. Survey B has a larger Standard Deviation which would indicate a greater variation

May 18-11:13 AM

Exercise #4: A marketing company is trying to determine how much diversity there is in the age of people who drink different soft drinks. They take a sample of people and ask them which soda they prefer. For the two sodas, the age of those people who preferred them is given below.

Soda A: 18, 16, 22, 16, 28, 18, 21, 38, 22, 29, 25, 44, 36, 27, 40

Soda B: 25, 22, 18, 30, 27, 19, 22, 28, 25, 19, 23, 29, 26, 18, 20

(a) Explain why standard deviation is a better measure of the diversity in age than the mean.

Soda A
$\bar{x} = 26.6$
$\sigma_x = 8.78$

SD → shows variation

Soda B
$\bar{x} = 23.4$
$\sigma_x = 3.9$

Mean → average outliers can affect

(b) Which soda appears to have a greater diversity in the age of people who prefer it? How did you decide on this?

Soda A has a greater diversity as the SD is larger

(c) Use your calculator to determine the **sample standard deviation**, normally given as s_x, for both data sets. Round your answers to the nearest tenth. Did this answer reinforce your pick from (b)? How?

Soda A
$S_x = 9.09$
9.1

Soda B
$S_x = 4.08$
4.1

May 8-12:44 PM