

MEASURES OF CENTER

1. The school committee of a small town wanted to determine the average number of children per household in their town. They divided the total number of children in the town by 50, the total number of households. Which of the following statements must be true if the average children per household is 2.2 children?

Half the households in the town have more than 2 children.

There are a total of 110 children in the town.

The most common number of children in a household is 2.2.

None of the above.

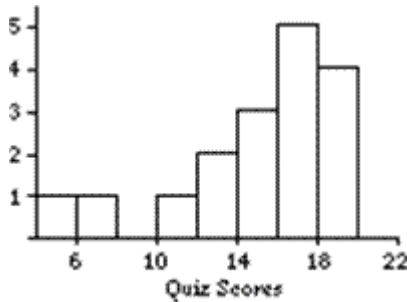
2. The distribution of the top 1% of individual incomes in the US is strongly skewed to the right. In 1997, the two measures of center for the top 1% of individual incomes were \$330,000 and \$675,000. Which number represents the mean income of the top 1% and which number represents the median income of the top 1%? Choose the best answer.

\$330,000 is the mean and \$675,000 is the median.

\$330,000 is the median and \$675,000 is the mean.

Not enough information to tell which is which.

3. For this graphical display of Quiz Scores, which estimates of the mean and median are most plausible?



median = 13.0 and mean = 12.0

median = 14.0 and mean = 15.0

median = 16.0 and mean = 14.3

median = 16.5 and mean = 16.2

4. You give a test to 100 students and determine the median score. After grading the test, you realize that the 10 students with the highest scores did exceptionally well. You decide to award these 10 students a bonus of 5 more points. The median of the new score distribution will be _____ that of the original score distribution.

lower than

equal to

higher than

depending on skewness, higher or lower than

Items 5 and 6 refer to the following situation:

A college statistics class conducted a survey of how students spend their money. They gathered data from a large random sample of college students who estimated how much money they typically spent each week in different categories (e.g., food, entertainment, etc.). The following statistics were calculated for money spent weekly on food: mean = \$31.52; median = \$30.00; interquartile range = \$34.00; standard deviation = \$21.60; range = \$132.50.

5. A student states that the median food cost tells you that a majority of students in this sample spend about \$30 each week on food. How do you respond?

Agree, the median is an average and that is what an average tells you.

Agree, \$30 is representative of the data.

Disagree, a majority of students spend more than \$30.

Disagree, the median tells you only that 5 of the sample spent less than \$30 and 5 of the sample spent more.

6. The class determined that a mistake had been made and a value entered as 138 should have been entered as 38. They recalculate all of the statistics. Which of the following would be true?

The value of the median decreases, the value of the mean stays the same.

The values of the median and mean both decrease.

The value of the median stays the same, the value of the mean decreases.

N = 0 (Number who gave a response to item 7)

7. The Sydney Morning Herald - February 8, 2004 reported that in 1961, the average number of children born to Australian women (3.55) was at its highest level since reliable records began in the 1920s. With only the fact of the mean being 3.55 children, can one make the claim that women were statistically more likely to have four children than any other number of children? Choose the best response.

Agree, 4 children is the most typical number of children.

Agree, 3.55 is closer to 4 than any other whole number.

Disagree, the most typical number of children is 3.

Disagree, it is impossible to tell which number of children is most likely.