Review for Unit 4 Test-Statistics

1. Which of the following best measures the average distance that a data value lies away from the mean?

    (1) mean   (2) standard deviation   (3) median   (4) range

2. Which measure of central tendency is **not** affected by outliers?

    (1) mean   (2) range   (3) median   (4) mode

3. Which statistic can *not* be determined from a box plot representing the scores on a math test in Ms. Cronin algebra class?

1) the lowest score   2) the median score   3) the highest score   4) the score that occurs most frequently

4. The high temperatures in March in Dutchess County, New York, are shown in the box plot shown below. Which of the following is the median high temperature?

    (1) 28   (2) 36   (3) 40   (4) 48
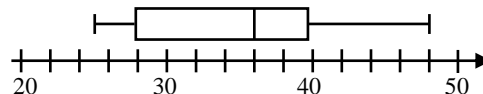
5. Given data set: -3, 5, 10, 12, 14, 18, 24, 26, 49, 60. Which of the following statements is true regarding this data?

(1) -3 is the only outlier.   (2) 60 is the only outlier.   (3) No outliers exist.   (4) Multiple outliers exist.

6. Which statement is true about the data set 4, 5, 6, 6, 7, 9, 12?

(1) mean = mode   (2) mode = median   (3) mean < median   (4) mode > mean

7. The box-and-whisker plot below represents the results of tests scores in a math class.   What do the scores 65, 85, and 100 represent?

(1) Q_1, median, Q_3
(2) Q_1, Q_3, maximum
(3) Q_1, median, maximum
(4) minimum, median, maximum
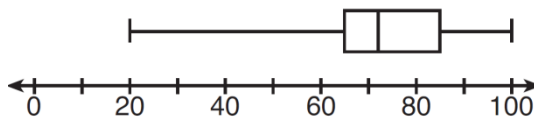
8. Which of the following data sets would have the largest standard deviation?

    (1) $\{3, 3, 4, 5, 5\}$ (2) $\{72, 73, 74, 75, 76\}$ (3) $\{2, 8, 18, 26, 35\}$ (4) $\{8, 10, 12, 14, 16\}$

9. Which set of data of temperatures has the largest dispersion as measured by its interquartile range?

    (1) 15, 17, 19, 21, 21, 22, 28   (3) 10, 19, 22, 23, 23, 29, 44

    (2) 21, 23, 36, 37, 44, 48, 50   (4) 42, 47, 49, 50, 52, 59, 60

10. Carlos recorded his friends' scores while playing the video game "Golden Eye Commander". Most of his friends' scores were between 9 and 12. One score, however, was 28, and Carlos identified it as an outlier. What should Carlos do with the score of 28 when recording this data?

    1) Ignore the outlier since it is so far from the average scores.

    2) Ignore the outlier because he may have recorded the score incorrectly.

    3) Eliminate the outlier and ask that friend to play again to obtain a new score.

    4) Keep the outlier as it may help to explain a new strategy for playing the game.

11. Maria and Ramon are competing in a downhill ski competition. Maria notices that the mean of her time scores is identical to that of Ramon. She also notices that the standard deviation of Ramon's time scores is 12.3 seconds, while her standard deviation is 2.6 seconds. Which statement must be true?

    1) The median for Maria's scores must be lower than the median for Ramon's scores.

    2) Maria's scores are more consistent than Ramon's scores.

    3) Ramon's scores are more consistent than Maria's scores.

    4) The median for Ramon's scores must be lower than the median for Maria's scores.

12. Which of the following data sets would have a standard deviation (population) closest to zero?
Do this without your calculator.

(1) $\{-5, -2, -1, 0, 1, 2, 5\}$ (2) $\{5, 8, 10, 16, 20\}$ (3) $\{11, 11, 12, 13, 13\}$ (4) $\{3, 7, 11, 11, 11, 18\}$

Explain how you arrived at your answer:_____

_____

13. Two game players have been recording their best scores each day during a one-week video tournament. Based on the box plots shown below, determine if the following statements are true or false.

a) The median score of Player A is greater than the median score of Player B.   T or F

b) The highest score was obtained by Player B.   T or F

c) The interquartile range of the scores of Player B is less than the interquartile range of the scores of Player A.   T or F
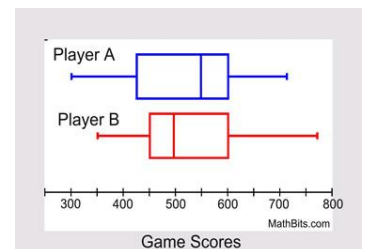
14. The box-and-whisker plot below represents the results of tests scores in a math class.

a) What percent of the data do the test scores from 20 to 72 represent?

b) What percent of the data do the test scores from 65 to 85 represent?

c) What percent of the data do the test scores from 65 to 100 represent?
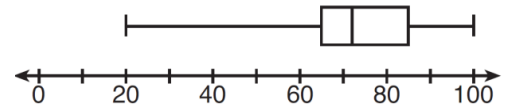
15. On a Friday morning, a total of fifteen people spend money on $5 lottery tickets at a local gas station. The dot plot shows the amount spent by each customer on the tickets.

   a) What is the median of the dollars spent?

   b) What is the mean (average) of the dollars spent?

   c) What monetary value represents the first quartile of this data?

   d) What is the interquartile range?

   e) What is the sample standard deviation for this data (to the *nearest hundredth*)?
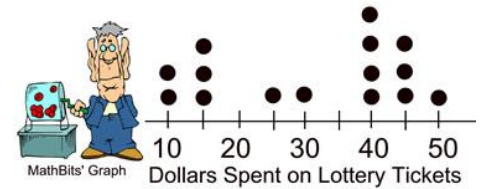
16. Victoria has grades of 84, 65, and 76 on three social studies tests. What grade must she obtain on the next test to have an average of exactly 80 for the four tests? Show how you arrived at your answer algebraically.

(b) Victoria's teacher raised all her scores on a recent test by four points. How were the mean, mode and range of the scores affected?

17. For each of the following graphs:
    a) Describe the distribution as symmetrical, skewed right or skewed left.
    b) State whether you would use the mean or median to represent a typical value of data.
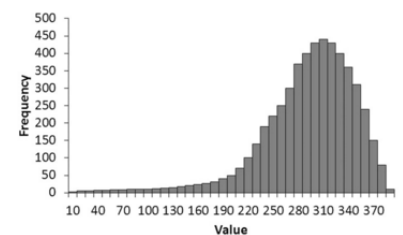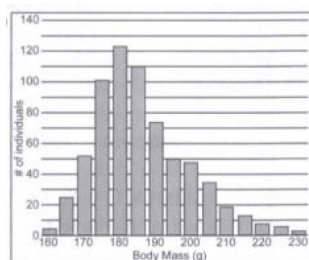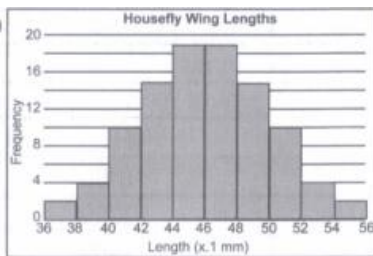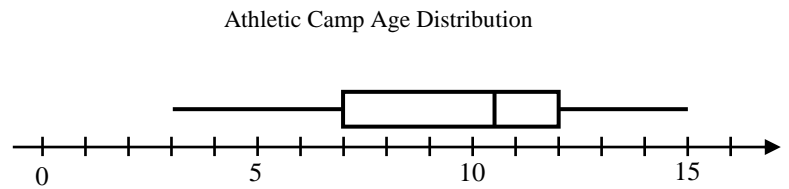
a)_____   a)_____   a)_____
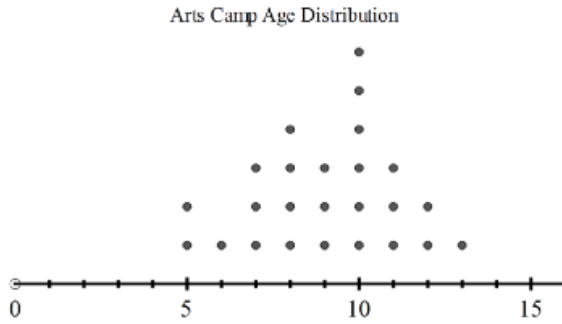

b)_____   b)_____   b)_____

18. The images below depict the distribution of camper ages for an arts camp and an athletics camp. Which of the two camps has the greater range of ages? Support your answer.

Arts Camp Age Distribution

Athletic Camp Age Distribution

19. In Australia, a study of all farms with 30 or fewer sheep produced the following data.
   a. What is the mean for the number of sheep per farm?

    b. Find the standard deviation to the nearest tenth.

Number of Sheep per Farm	Number of Farms
15	6
20	3
22	5
25	4
30	2

20. The following data is the set of quiz scores from Mrs. Biscardi's algebra class. Construct a box plot using the data below.

56, 82, 78, 90, 99, 73, 85, 95, 76, 88, 100

21. The scores of three quizzes are shown in the following data plot for a class of 10 students.
    Each quiz has a maximum possible score of 10. Possible dot plots of the data are shown below.
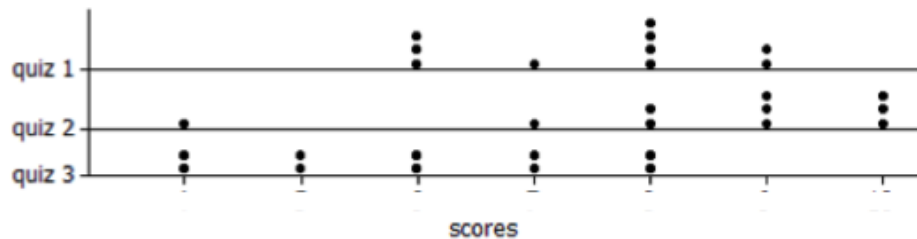
a) Without performing any calculations, which quiz has the lowest standard deviation in the students' scores? __Justify your response.__

b) If you were to calculate a measure of central tendency for Quiz 1, would you recommend using the mean or median? Explain your choice.