Date Completed: _____
Mentor Initials: _____

Statistical Measures (Part Two)

Multiple Choice

1. Data Set A consists of the 10 numbers listed below. Data Set B consists of the 10 numbers in A and an 11th number, which is greater than 94. How will the mean and the median of B compare to the mean and the median of A?

$$64, 78, 78, 82, 86, 89, 92, 93, 95, 96$$

A) The mean and the median of B will each be greater than the mean and the median of A.
B) The mean and the median of B will each be less than the mean and median of A.
C) The mean of B will be less than the mean of A but the median will be greater.
D) The mean of B will be greater than the mean of A but the median will be lesser.

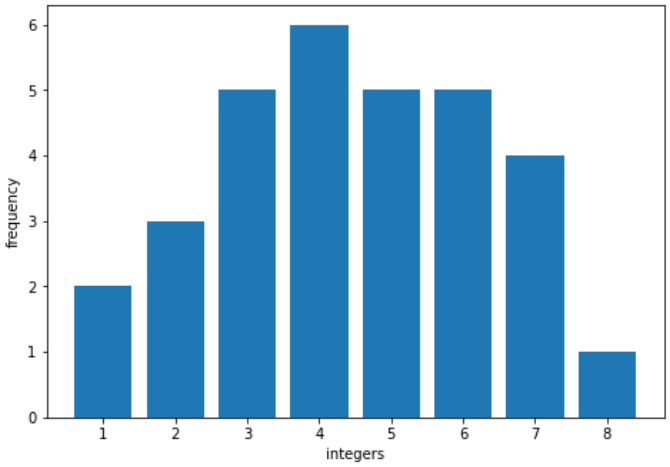
2. For 30 quiz scores in a typing class, the table below gives the frequency of the scores in each score interval. Which score interval contains the median of the scores?

Score Interval	Frequency
96 – 100	5
91 – 95	3
86 – 90	5
81 – 85	6
76 – 80	11

A) 96 – 100
B) 91 – 95
C) 86 – 90
D) 81 – 85

3. Which of the following data sets has the greatest standard deviation?
A) 2, 2, 2, 14, 14, 14
B) 2, 3, 4, 5, 6, 7
C) 2, 7, 7, 14, 14, 16
D) 7, 7, 7, 7, 7, 7

4. The graph below shows the distribution of a data set consisting of 31 positive integers. Which of the following statements about the mean, median, and mode of the data set is true?

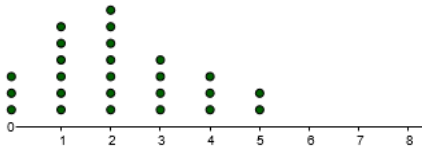


A) The mode is less than the median, and the median is less than the mean.
B) The mode is less than the mean, and the mean is equal to the median.
C) The mean is greater than the median, and the median is equal to the mode.
D) The mean is equal to the median, and the median is equal to the mode.

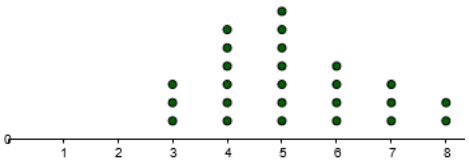
5. There are exactly 6 people in a bookstore at 11:30 a.m. Each person earns an annual income that is between $40,000 and $50,000. No one enters or leaves the bookstore until 12:00 p.m., when a professional athlete with an annual income of more than $800,000 enters the bookstore and joins the other 6 people. The mean, median, range, and standard deviation of the annual incomes of the 6 people in the bookstore at 11:30 a.m. are calculated and compared to the same 4 statistics of the annual incomes of the 7 people in the bookstore at 12:00 p.m. If it can be determined, which of the 4 statistics changed the least?

A) Mean
B) Median
C) Standard Deviation
D) Cannot be determined from the given information.

6. Daily Air Conditioner Sales



Number sold in a day
February



Number sold in a day
July

The dot plots shown summarize the daily sales of air conditioners at a store for the 25 days the store was open in February and July, respectively. Which of the following was (were) the same for daily sales in February and in July?

I. Mean
II. Standard Deviation

A) I only
B) II only
C) Both I and II
D) Neither I nor II

7. Set A and Set B each consist of 9 distinct numbers. The 2 sets contain identical numbers with the exception of the number with the least value in each set. The number with the least value in Set A is greater than the number with the least value in Set B. The value of which of the following measures *must* be greater for Set A than for Set B?

A) Mean only
B) Median only
C) Mean and median only
D) Neither the mean nor the median

8. Group A and Group B each consist of 30 people. All the people in each group were asked to rate a movie on a scale from 1 through 5. The results are summarized in the frequency table.

Rating	Frequency	
	Group A	Group B
1	8	11
2	5	5
3	4	9
4	6	4
5	7	1

Which statement correctly compares the Group A median rating to the Group B median rating?

A) The Group A median rating is equal to the Group B median rating.
B) The Group A median rating is greater than the Group B median rating.
C) The Group A median rating is less than Group B median rating.
D) There is not enough information to compare the median ratings.

9. At West High School, the 30 cast members of the spring musical sold tickets for the Friday night and Saturday night performances. The stem-and-leaf plot below shows the number of tickets sold by each of the 30 cast members.

Stem	Leaf
0	4 8
1	3 5 7 8 8
2	1 2 8 9 9
3	0 0 1 1 2 3 8 8 9
4	3 4 4 8
5	0 1 2 2 2

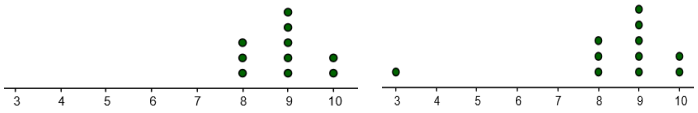
Key: 1 | 4 = 14

What is the median number of tickets sold?
A) 28
B) 29
C) 30
D) 31

10. For which of the following data sets is the difference between the mean and the median the greatest?

A) $\{20, 20, 20, 20\}$
B) $\{20, 20, 30, 40\}$
C) $\{20, 30, 30, 120\}$
D) $\{20, 40, 100, 120\}$

11.



Two dot plots are shown above. The dot plot on the right shows 11 data points. The outlier was removed to create the set with 10 data points shown in the dot plot on the left. Which of the following values is the same for both data sets?

I. Mean
II. Median

A) I only
B) II only
C) Both I and II
D) Neither I nor II

12.

Value	Frequency
1	d
2	$2d$
3	$3d$
4	$2d$
5	d

The frequency distribution above summarizes a set of data, where d is a positive integer. How much greater is the mean of the set of data than the median?

A) 0
B) 1
C) 2
D) 3

13. Data set A consist of the 37 integers from 1 to 37, inclusive, and data set B consists of the 37 integers from 6 to 42, inclusive. Which of the following are equal for the two data sets?

I. The medians
II. The standard deviations

A) I only
B) II only
D) Both I and II
E) Neither I nor II

14. The median of a set of data containing 11 items was found. Six data items were added to the set. Three of these items were greater than the original median and the other 3 items were less than the original median. Which of the following statements *must* be true about the median of the new data set?

A) It is less than the original median.
B) It is the same as the original median.
C) It is greater than the original median.
D) Cannot be determined from the given information.

15.

Hive	Number of bees
A	3
B	9
C	11
D	13
E	19

The table shows the number of bees, in hundreds, per beehive for 5 hives. The mean of the data shown in the table is x. If the data for Hive E is removed, the resulting mean is y. How does x compare to y ?

A) $x = y$
B) $x < y$
C) $x > y$
D) There is not enough information to compare x and y.