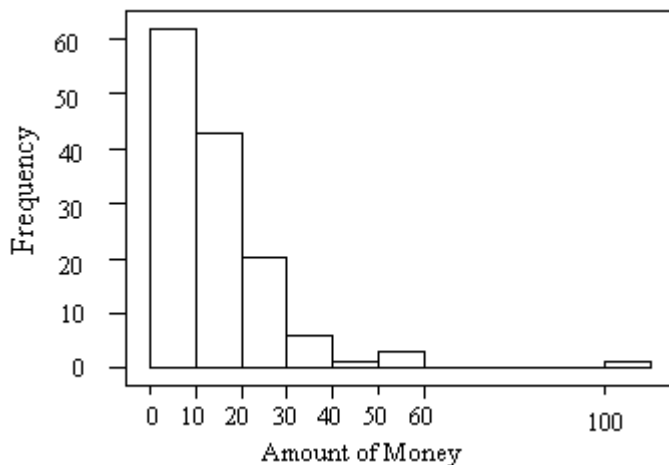


Name: _____ Date: _____

1. The fraction of the variation in the values of a response y that is explained by the least-squares regression of y on x is
 - A) the correlation coefficient.
 - B) the slope of the least-squares regression line.
 - C) the square of the correlation coefficient.
 - D) the intercept of the least-squares regression line.

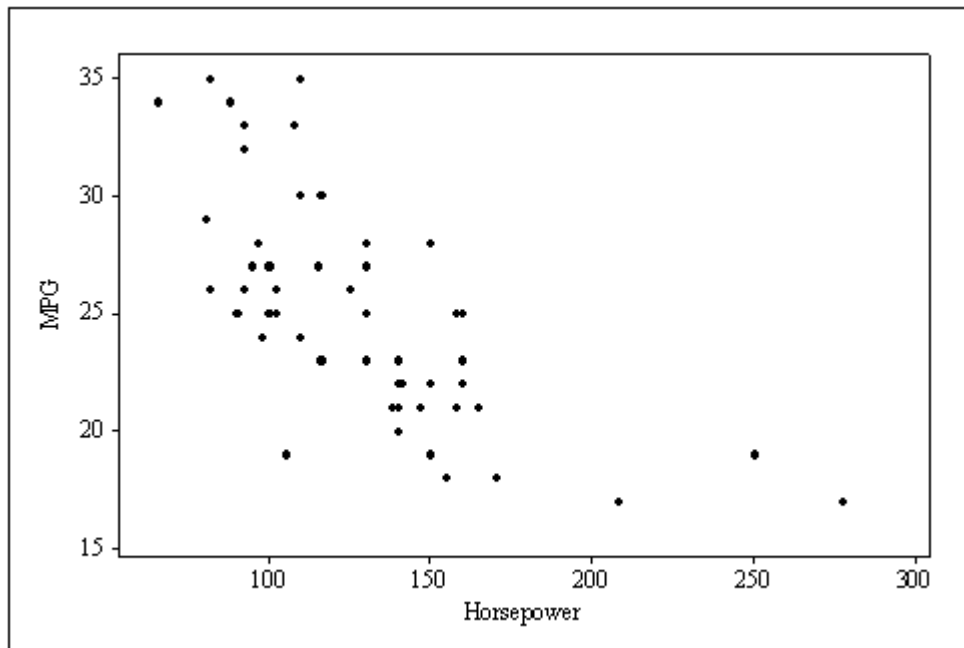
Use the following to answer questions 2-4:

In a Business Statistics class with 136 students, the professor records how much money each student has in his or her possession during the first class of the semester. The following histogram is of the data collected.



2. From the histogram, which of the following is true?
 - A) The mean is much larger than the median.
 - B) The mean is much smaller than the median.
 - C) The mean and median are approximately equal.
 - D) It is impossible to compare the mean and median for these data.
3. From the histogram, the median must be
 - A) in the interval \$0 – \$10.
 - B) in the interval \$10 – \$20.
 - C) in the interval \$30 – \$40.
 - D) \$63.5.

4. From the histogram, the first quartile must be
- A) in the interval \$0 – \$10.
 - B) in the interval \$10 – \$20.
 - C) in the interval \$30 – \$40.
 - D) \$34.
5. Consider the following scatterplot of the horsepower of several models of cars vs. gas mileage (mpg).



The correlation between X and Y

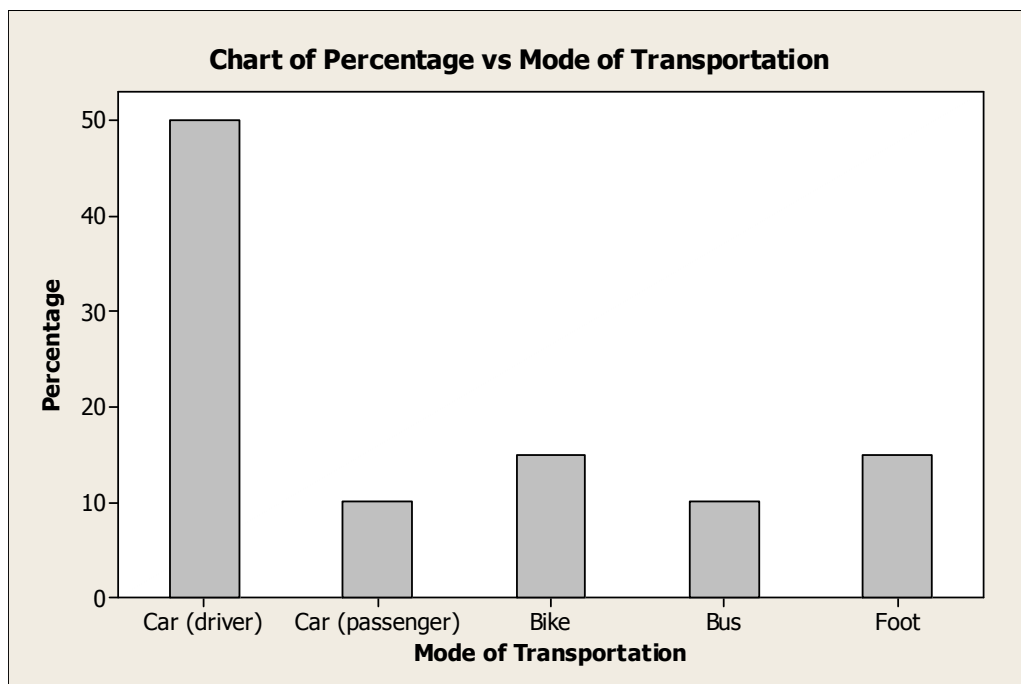
- A) is approximately 0.8.
 - B) is approximately -0.7 .
 - C) is approximately 0.0.
 - D) cannot be computed because the trend is curved.
6. The five-number summary of a set of data
- A) is the mean, standard deviation, first quartile, median, and third quartile.
 - B) is the mean, median, mode, variance, and standard deviation.
 - C) is the maximum, the third quartile, the median, the first quartile and the minimum..
 - D) is the minimum, the interquartile range, the mean, the median, and the maximum.

7. A survey is conducted on students taking a statistics class. Several variables are measured in the survey. Which of these variables listed below is not quantitative?
 - A) the number of credit hours taken during the quarter
 - B) the gender
 - C) the parents annual income
 - D) the High School GPA

8. The Columbus Zoo conducts a study to determine whether a household's income can be used to predict the amount of money the household will give to the zoo's annual fund drive. The response variable in this study is
 - A) the Columbus Zoo.
 - B) a household's income.
 - C) the amount of money a household gives to the zoo's annual fund drive.
 - D) all households in Columbus.

Use the following to answer question 9:

A Study was conducted at a small college in Northern California to investigate the mode of transportation used by people entering the campus. From 7 AM to 10 PM, monitors were posted at every entrance to the college on a randomly chosen day. The monitors recorded the mode of transportation used by each person as he or she entered the campus. The following bar chart was constructed based on this information.



9. Approximately what percentage of people entering campus on this particular day arrived by car?

Use the following to answer question 10:

Chocolate bars produced by a certain machine are labeled as 8.0 oz. The distribution of the actual weights of these chocolate bars is normal with a mean of 8.1 oz. and a standard deviation of 0.1 oz. A chocolate bar is considered underweight if it weighs less than 8.0 oz.

10. a) What is the proportion of chocolate bars weighing less than 8.0 oz.?

b) What is the proportion that weighs between 8.2 and 8.3 oz?

c) How should the chocolate bar wrappers be labeled so that only 1% of the bars produced are underweight?

Use the following to answer question 11:

The Insurance Institute for Highway Safety publishes data on the total damage caused by compact automobiles in a series of controlled, low-speed collisions. The following costs are for a sample of 9 cars, in hundreds of dollars.

10 6 8 10 4 3.5 7.5 8 9

11. What is the mean and standard deviation of the total damage suffered for this sample of cars?

After examining the data you conclude that they are skewed. What are the median and IQR? Please determine these by hand (JMP provides percentiles, NOT the quantiles needed here!)

12. Scores on a University exam are normally distributed with a mean of 68 and a standard deviation of 9. Using the 68-95-99.7 rule, what percentage of students score above 77?

13. Babies typically learn to crawl approximately six months after birth. However, it may take longer for babies to learn to crawl in the winter when they are often bundled in clothes that restrict their movement. Thus, there may be an association between a baby's crawling age and the average temperature during the month they first try to crawl. Below are the average ages (in weeks) at which babies began to crawl for a sample of babies born in each of the twelve months of the year. In addition, the average temperature (in ° F) for the month which is six months after the birth month is also listed

<u>Birth month</u>	<u>Average crawling age</u>	<u>Average temperature</u>
January	29.84	66
February	30.52	73
March	29.70	72
April	31.84	63
May	28.58	52
June	31.44	39
July	33.64	33
August	32.82	30
September	33.83	33
October	33.35	37
November	33.38	48
December	32.32	57

We want to investigate if the average age at which infants begin to crawl (y) can be predicted from the average outdoor temperature (x) six months after birth when they are likely to begin crawling. We decide to fit a least-squares regression line to the data with x as the explanatory variable and y as the response variable.

- a) Find the equation of the regression line that fits the data
- b) The average temperature in Panama City, Panama is 88° F all year. What does the model predict for children born there?
- c) Is the result in part b reliable? Please give SPECIFIC reasons supporting your answer!