# Math 45 – Quiz #2 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Partner \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)

(Points for each problem in parentheses.)

1. (3 each) One of the items on the student survey for an introductory statistics course was “Rate your aptitude to succeed in this class on a scale of 1 to 10” where 1 = Lowest Aptitude and 10 = Highest Aptitude. The instructor examined the data for men and women separately. Below is the distribution of this variable for the 30 women in the class. How should the instructor interpret the women’s perceptions regarding their success in the class?

|  |  |
| --- | --- |
|  | a. Find the median rating for the women’s perception regarding their success in the class.  Answer: \_\_\_\_\_\_  b. Find the mean rating for the women’s perception regarding their  success in the class.  Answer: \_\_\_\_\_\_ |

2. (3) Describe the shape of the graph in question #1.

3. (3) State Farm Insurance Company collects various information on each of its policyholders. The data is used in many different ways. The actuarial department uses the data to calculate your car and homeowners insurance rates, while the marketing department uses the data to calculate different percents, means, and medians. Given the variables: Home Value, Zip Code, Age of House, and Square Footage of House, for which of those variables could you NOT calculate a mean or a median?

Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. (3) The dotplot below shows the distribution of chest diameter measurements for 507 adults who attend a local gym. Estimate the median. Round your answer to one decimal place.



Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. (3) If most of the measurements in a large data set are of approximately the same magnitude except for a few measurements that are quite a bit larger, which would be larger, the mean or the median? What shape would a histogram of the data set have?
2. (3) In measuring the center of the data from a skewed distribution, briefly explain why the median would be preferred over the mean for most purposes.
3. (4 each) A sample of 100 distances has a mean of 24 feet and a median of 24.5 feet. Unfortunately, it has just been discovered that an observation which was erroneously recorded as “30” actually had a value of “50”. If we make this correction to the data, then:
4. The mean will probably increase, decrease, or stay the same? Why?

b. The median will probably increase, decrease, or stay the same? Why?

1. (3) The dotplot shows the distribution of car speed (miles per hour) for 60 cars measured on Interstate Highway 1. What is the median car speed for the cars in this distribution?



Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. (3) The distribution of the home prices (for single family homes excluding condos and town-homes) in San Francisco is strongly skewed to the right. In 2009, the two measures of center for the San Francisco home prices were $751,000 and $858,000. Which number represents the mean home price and which number represents the median home price? Why?
2. (4) A college statistics class conducted a survey. They gathered data from a large random sample of students who estimated how much money they typically spent each week in different categories (e.g., food, entertainment, etc). A distribution of the survey results is presented below. One student claims the distribution of food costs basically looks bell-shaped, with one outlier. Do you agree or disagree? Explain briefly.



1. (2) Use the graph in Question 10, to determine which interval contains the median amount of money students typically spent each week on food.

a). 10-20 b). 20-30 c). 30-40 d). 40-50 e). 50-60

1. (3) Use the graph in Question 10, to estimate the mean amount of money students typically spent each week on food. Show all work. I want to see what you used to calculate your answer or you will get 0 points.