ICM- Statistics Unit Name_____

Margin of Error & Confidence Intervals Homework **KEY**

1. A sociologist found that in a sample of 49 retired men, the average number of jobs they had during their lifetimes was 7.2. The standard deviation of the sample was 2.1. Find the 90% confidence interval of the mean for the number of jobs a man had during his lifetime.

6.705<m<7.695

2. A researcher found that female shoppers spend an average of 18.6 minutes per visit at a grocery store, with a sample standard deviation of 5 minutes. Find the 90% confidence interval of the mean time a female spends grocery shopping.

17.421<m<19.779

3. An insurance company is trying to estimate the average number of sick days that full-time food service workers use per year. A pilot study found the standard deviation to be 2.5 days. How large of a sample must be selected if the company wants to be 95% sure of getting an interval that contains the true mean with a maximum error of 1 day?

25

4. A health care professional wishes to estimate the birth weights of infants. How large a sample must she select if she desires to be 90% confident that the true mean is within 6 ounces of the sample mean? The standard deviation of the birth weights is known to be 8 ounces.

5

5. A study of 50 adults from a certain population showed the mean diastolic blood pressure to be 72 millimeters of mercury (mmHg) and the population standard deviation to be 11.6. Find the 90% confidence interval of the true mean of the population.

69.293<m<74.707

6. The average weight of 60 randomly selected compact automobiles was 2627 pounds. The sample standard deviation was 400 pounds. Find the 99% confidence interval of the true mean weight of the automobiles.

2493.769<m<2760.231

7. How large a sample is necessary to be 95% sure that the estimate of the mean income of draftsmen is within $200 of the true mean? The standard deviation of income is $800.

62