**Ch 8 Confidence Interval Lab (#6)**

**Part 1: Complete a confidence interval, write the confidence statement for each of the following.**

1. The growing seasons for a random sample of 44 U.S. cities were recorded, yielding a sample mean of 193.7 days and the population standard deviation of 54.4 days. Estimate the true population mean of the growing season with 99% confidence.

$$\overbar{x}= σ= n= confidence level=$$

Step 1 Calculate the margin of error

Step 2 Calculate the interval

Step 3 Make the confidence statement:

1. A recent survey of 9 social networking sites has a mean of 13.01 million visitors for a specific month. The population standard deviation was 4.3 million. Find the 90% confidence interval of the true mean. Assume the variable is normally distributed.

$$\overbar{x}= σ= n= confidence level=$$

Step 1 Calculate the margin of error

Step 2 Calculate the interval

Step 3 Make the confidence statement:

1. A CBS News/New York Times poll found the 30 out of 990 Americans said they think the most important problem facing the U.S. is health care. Estimate the true proportion with a 95% confidence of Americans who think that this is the most important problem.

$$ n= z= p-hat= confidence level=$$

Step 1 Calculate the margin of error

Step 2 Calculate the interval

Step 3 Make the confidence statement:

**Part 2: Problem identification problems.**

1. Confidence interval for a true mean when population standard deviation is known.
2. Confidence interval for a true proportion

Label the following scenarios with the correct letter representing the procedures listed above and explain what key pieces of information helped you to make that determination.

1. A random sample of 50 four-year-olds attending day care centers provided a yearly tuition average of $3987 and the population standard deviation of $630. Find the 90% confidence interval of the true mean. If a day care center were starting up and wanted to keep tuition low, what would be a reasonable amount to charge?

Procedure (choose from A –B ): \_\_\_\_\_\_\_\_\_

Key information that you used to determine the procedure to be used:

1. A random sample of 205 college students were asked if they believed that places could be haunted, and 65 responded yes. Estimate the true proportion of college students who believe in the possibility of haunted places with 99% confidence. According to *Time* magazine, 37% of Americans believe that places can be haunted.

Procedure (choose from A – B): \_\_\_\_\_\_\_\_\_

Key information that you used to determine the procedure to be used:

1. The growing seasons for a random sample of 200 U.S. cities were recorded, yielding a sample mean of 190.7 days and the $σ=$54.2 days. Estimate the true mean population of the growing season with 95% confidence.

Procedure (choose from A – B): \_\_\_\_\_\_\_\_\_

Key information that you used to determine the procedure to be used:

1. A randomly selected sample of 350 students in an actuarial degree program were given a survey regarding their scores on the seven exams that they have to pass to earn their degree and certification in the actuarial field. The survey finds that only 21% of those that take the exams pass the first time. According to the Actuarial Science Association, only 17% of actuarial science students pass the seven tests on the first try. Estimate the true proportion of actuarial science students that will pass their tests on the first try at a 95% confidence interval.

Procedure (choose from A – B): \_\_\_\_\_\_\_\_

Key information that you used to determine the procedure to be used:

1. A random sample of the number of farms (in thousands) in various states follows. Estimate the mean number of farms per state with 90% confidence. Assume *σ* = 31.



Procedure (choose from A – B): \_\_\_\_\_\_\_\_\_\_

Key information that you used to determine the procedure to be used: