* Show all work to get answers.

Confidence Interval Worksheet Name:

Show relevant work for each question:

1. A company that produces white bread is concerned about the distribution of the amount of sodium in its bread. The company takes a simple random sample of 100 slices of bread and computes the sample mean to be 103 milligrams of sodium per slice.

   Construct a 99% confidence interval for the unknown mean sodium level assuming that the population standard deviation is 10 milligrams.

   $100.42 < \mu < 105.58$

2. Fill in the blanks with on of the following: *increases, decreases,* or *stays the same* where $E = \frac{z^* \sigma}{\sqrt{n}}$.

   a) As the sample size (n) increases, the margin of error (E) _____.

   b) As the confidence level (C) increases, the margin of error (E) _____.

   c) As the standard deviation (σ) increases, the margin of error (E) _____.

3. You work for a consumer advocate agency and want to find the mean repair cost of a washing machine. In the past, the standard deviation of the cost of repairs for washing machines has been $17.50. As part of your study, you randomly select 40 repair costs and find the mean to be $100.00.

   Calculate a 90% confidence interval for the population mean.

   $95.46 < \mu < 104.54$

4. The actual time it takes to cook a ten pound turkey is a normally distributed. Suppose that a random sample of 19 ten pound turkeys is taken.
Given that an average of 2.9 hours and a standard deviation of .24 hours was found for a sample of 19 turkeys, calculate a 90% confidence interval for the average cooking time of a ten pound turkey.

$2.8 < \mu < 2.99$

5. The football coach randomly selected eight players and timed how long it took to perform a certain drill. The times in minutes were:

10	6	8	7
6	5	7	8

Assuming that the times follow a normal distribution, find a 95% confidence interval for the population mean $\sigma = 1.45$ minutes

$6.125 < \mu < 8.125$