In-Class
Sections: 8.1-8.2

Name_____

1) Find the critical value $z_{\alpha/2}$ needed to construct a(n) 80% confidence interval.

2) Find the critical value $z_{\alpha/2}$ needed to construct a(n) 99.5% confidence interval.

3) A sample of size $n = 50$ is drawn from a population whose standard deviation is $\sigma = 14.5$. Find the margin of error for a 90% confidence interval for μ.

4) A sample of size $n = 15$ is drawn from an approximately normal population whose standard deviation is $\sigma = 5.5$. The sample mean is $\bar{x} = 40.8$. Construct a 90% confidence interval for μ.

5) A population has a standard deviation $\sigma = 20.2$. How large a sample must be drawn so that a 98% confidence interval for μ will have a margin of error equal to 4.2?

6) A college admissions officer takes a simple random sample of 120 entering freshmen and computes their mean mathematics SAT score to be 448. Assume the population standard deviation is $\sigma = 116$.

Based on a 98% confidence interval for the mean mathematics SAT score, is it likely that the mean mathematics SAT score for entering freshmen class is greater than 464? (Hint: you should first construct the 98% confidence interval for the mean mathematics SAT score.)

7) Find the critical value $t_{\alpha/2}$ needed to construct a confidence interval of the given level with the given sample size.

Level 95%, sample size 11

8) A random sample of 9 TI-89 Titanium calculators being sold over the internet had the following prices, in dollars.

135	163	152	153	138
164	160	149	157	

Assume the population standard deviation is $\sigma = 28$ and that the population is approximately normal. Construct a 95% confidence interval for the mean price for all the TI-89's being sold over the internet.

9) A simple random sample of kitchen toasters is to be taken to determine the mean operational lifetime in hours. Assume that the lifetimes are normally distributed with population standard deviation $\sigma = 28$ hours.

Find the sample size needed so that a 95% confidence interval for the mean lifetime will have a margin of error of 4.

10) A sample of size $n = 22$ is drawn from a normal population. Find the critical value $t_{\alpha/2}$ needed to construct a 98% confidence interval.

11) Boxes of raisins are labeled as containing 22 ounces. Following are the weights, in ounces, of a sample of 12 boxes. It is reasonable to assume that the population is approximately normal.

21.88	21.76	22.14	21.63	21.81	22.12
21.97	21.57	21.75	21.96	22.20	21.80

Construct a 99% confidence interval for the mean weight.

12) Six measurements were made of the magnesium ion concentration (in parts per million, or ppm) in a city's municipal water supply, with the following results. It is reasonable to assume that the populatio is approximately normal.

202	164	157	177	113	213

Based on a 98% confidence interval for the mean magnesium ion concentration, is it reasonable to believe that the mean magnesium ion concentration may be greater than 195? (Hint: you should first calculate the 98% confidence interval for the mean magnesium ion concentration.)

Answer Key
Testname: UNTITLED1

1) 1.28
2) 2.81
3) 3.37
4) 38.46, 43.14
5) 126
6) Yes
7) 2.228
8) (134.0, 170.6)
9) 189
10) 2.518
11) (21.702, 22.063)
12) Yes