Name:_____ Test Chapter 8

1. Find the critical value z_c necessary to construct a confidence interval at the level of confidence, c. Round to the nearest 100th.

   a. c = 0.86

   b. c = 0.92

2. Find the margin of error for the values. Round to the nearest 1000th:

   c = 0.95 σ = 5.7 n = 40

3. Use the confidence interval to find the margin of error and the sample mean:

   (21.61, 30.15)

4. An admissions director wants to estimate the mean age of all students enrolled in a college. The estimate must be within .75 of a year of the population mean. Assume the population of ages is normally distributed.

   Determine the minimum sample size required to construct a 95% confidence interval for the population mean. Assume the population standard deviation is 1.5 years.

5. Find the critical value t_c necessary to construct a confidence interval at the level of confidence, c. and sample size n. Round to the nearest 1000th.

   c = 0.95, n=20

6. Find the margin of error for the values of c, s, and n. Round to the nearest 1000th:

   c = 0.90 s = 2.8 n=30

7. The weekly time (in hours) spent doing homework for 18 randomly selected high school students is listed below.

12.0	11.3	13.5	11.7	12.0	13.0	15.5	10.8	12.5
12.3	14.0	9.5	8.8	10.0	12.8	15.0	11.8	13.0

   a. Construct a 99% confidence interval for the population mean. (Assume the times are normally distributed). **Interpret you results.** (Round to the nearest 1000th)

   b. Find the sample mean and the sample standard deviation.

c. Repeat part a, now knowing that $\sigma = 1.8$ minutes.

8. In a survey of 800 US adults, 90 are making the minimum payment(s) on their credit card(s). Construct a 95% confidence interval for the population proportion p and interpret your results.

9. You wish to estimate, with 99% confidence, the population proportion of US adults who think they should be saving more money. Your estimate must be accurate within 3% of the population proportion.

   a. No preliminary estimate is available. Find the minimum sample size needed.

   b. Find the minimum sample size needed, using a prior study that found that 63% of US adults think they should be saving more money.