Stat 171 - Worksheet for Section 6.1

Name: _____

1. An economics researcher is collecting data about grocery store employees in a county. The data listed below represents a random sample of the number of hours worked by 30 employees from several grocery stores in the county. Find a point estimate of the population mean.

Number of hours					
26	25	32	31	28	28
28	22	28	25	21	40
32	22	25	22	26	24
46	20	35	22	32	48
32	36	38	32	22	19

2. Use the data in Problem 1 and a 95% confidence interval to find the margin of error for the mean number of hours worked by grocery store employees. Assume the population standard deviation is 7.9 hours.

   (a) identify z_c, n, and σ.

   (b) Find E using z_c, n, and σ.

   (c) Interpret the results.

3. Use the data in Problem 1 to construct a 95% confidence interval for the mean number of hours worked by grocery store employees.

   (a) Find $\bar{x}$ from Problem 1 and E from Problem 2.

   (b) Find the left and right endpoints of the confidence interval.

4. A college admissions director wishes to estimate the mean age of all students currently enrolled. In a random sample of 30 students, the mean age is found to be 22.9 years. From past studies, the standard deviation is known to be 1.5 years, and the population is normally distributed. Construct a 90% confidence interval of the population mean age. What if the sample consists of 50 students?

5. The economics researcher in Problem 1 wants to estimate the mean number of hours worked by all grocery store employees in the county. How many employees must be included in the sample to be 95% confident that the sample mean is within 2 hours of the population mean? How about within 3 hours?

   (a) Identify z_c, E and σ.

   (b) Use z_c, E and σ to find the minimum sample size n.