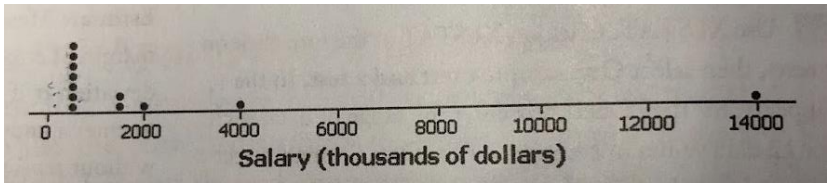
Name: _____ Date: _____

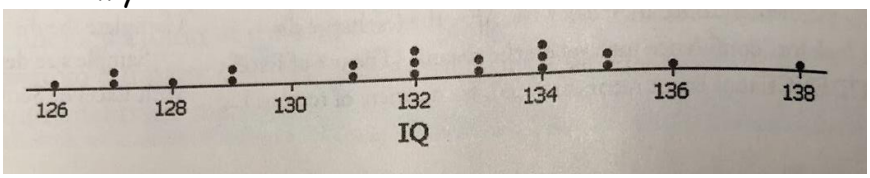
Elementary Statistics HW 7.3 Part 2

For questions 1-3, assume you want to construct a confidence interval for the population mean using the given sample data. Do one of the following as appropriate: (a) Find the critical value $t_{\alpha/2}$, (b) find the critical value $Z_{\alpha/2}$, (c) state that neither the normal distribution nor the t distribution applies.

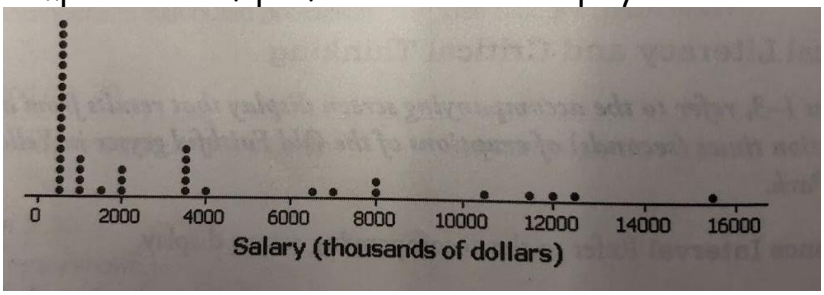
1. Confidence level is 95%, is known to be \$4,385,000, and the dotplot of a sample of Red Sox baseball player salaries is as shown below.



2. Confidence level is 90%, is not known, and the dotplot of IQ scores of 20 randomly selected statistics instructors is as shown below.



3. Confidence level is 99%, is known to be \$4,385,000, and the dotplot of 40 sample values of professional baseball players is as shown.



4. A sample of 50 earthquake depths are measured. Those 50 depths have a mean of 9.808 km and **is known** to be 5.013 km. You are trying to estimate the mean of all earthquake depths using a 98% confidence level.

a. Use the sample data to find the following:

n =

$\bar{x}$ =

s =

b. Identify the value of the margin of error, E

c. Construct the 98% confidence interval for the mean depth of all earthquakes.

d. Write a statement that correctly interprets the confidence interval in context of the question.

5. In a test of weight loss programs, 40 adults used the Atkins weight loss program. After 12 months, their mean weight loss was found to be 2.1 lb, with a standard deviation of 4.8 lb. You are trying to estimate the mean weight loss for all such subjects using a 90% confidence level.

a. Use the sample data to find the following:

   n =

   $\bar{x}$ =

   s =

b. Identify the value of the margin of error, E

c. Construct the 90% confidence interval for the mean weight lost by all adults using the Atkins weight loss program.

d. Write a statement that correctly interprets the confidence interval in context of the question.

e. Does the Atkins program appear to be effective? Does it appear to be practical?