Name:_____ Math 130 Day 15 Lecture Worksheet

Date: Section 9.3: Confidence Intervals for a Population Standard Deviation

Ex 1 (Sec. 9.3 Hw #15 pg. 460): **Peanuts** A jar of peanuts is supposed to have 16 ounces of peanuts. The filling machine inevitably experiences fluctuations in filling, so a quality control manager randomly samples 12 jars of peanuts from the storage facility and measured their contents in order to estimate the standard deviation of the number of ounces of peanuts in all jars filled by this machine. She obtains the following data:

Ounces of Peanuts							
15.94	15.74	16.21	15.36	15.84	15.84	n =	
15.52	16.16	15.78	15.51	16.28	16.53	xbar =	
						s =	

a) What is the population?
b) What is the sample?
c) What is the population parameter (symbol and description)?
d) What is your sample statistic (symbol, description, and value)?
e) What is your best point estimate for the population parameter?
f) Find your 90% confidence interval for the population parameter
g) What does the 90% in a 90% confidence interval mean?
h) The quality control manager wants the machine to have a population standard deviation below 0.20 ounce. Does the confidence interval validate this desire?

Ex 2 (Sec. 9.3 Hw #16 pg. 460): **Investment Risk** Investors not only desire a high return on their money, but they would also like the rate of return to be stable from year to year. An investment manager invests with the goal of reducing volatility (year-to-year fluctuations in the rate of return). The following data represent the rate of return (in percent) for his mutual fund for the past 12 years. The investor wants to estimate the standard deviation of the return rates for his mutual fund for all years.

Mutual Fund Rate of Return							
13.8	15.9	10	12.4	11.3	6.6	n =	12
9.6	12.4	10.3	8.7	14.9	6.7	xbar =	11.05
						s =	2.97917

a) What is the population?
b) What is the sample?
c) What is the population parameter (symbol and description)?
d) What is your sample statistic (symbol, description, and value)?
e) What is your best point estimate for the population parameter?
f) Find your 95% confidence interval for the population parameter
g) What does the 95% in a 95% confidence interval mean?
h) The investment manager wants to have a population standard deviation for the rate of return below 6%. Does the confidence interval validate this desire?