Math 160 Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Use the confidence level and sample data to find a confidence interval for estimating the population μ. Round your answer to the same number of decimal places as the sample mean.

1) A random sample of 94 light bulbs had a mean life of $\bar{x}$ = 435 hours with a standard deviation of σ = 25 hours. Construct a 90% confidence interval for the mean life, μ, of all light bulbs of this type. 1) _____

A) 429 hr < μ < 441 hr
B) 428 hr < μ < 442 hr
C) 430 hr < μ < 440 hr
D) 431 hr < μ < 439 hr

2) A random sample of 112 full-grown lobsters had a mean weight of 22 ounces and a standard deviation of 3.8 ounces. Construct a 98% confidence interval for the population mean μ. 2) _____

A) 22 oz < μ < 24 oz
B) 20 oz < μ < 22 oz
C) 21 oz < μ < 24 oz
D) 21 oz < μ < 23 oz

Use the given information to find the minimum sample size required to estimate an unknown population mean μ.

3) How many women must be randomly selected to estimate the mean weight of women in one age group. We want 90% confidence that the sample mean is within 2.7 lb of the population mean, and the population standard deviation is known to be 22 lb. 3) _____

A) 180 B) 256 C) 178 D) 181

4) How many business students must be randomly selected to estimate the mean monthly earnings of business students at one college? We want 95% confidence that the sample mean is within $138 of the population mean, and the population standard deviation is known to be $ 564. 4) _____

A) 65 B) 45 C) 91 D) 57

Use the given degree of confidence and sample data to construct a confidence interval for the population mean μ. Assume that the population has a normal distribution.

5) n = 10, $\bar{x}$ = 14.4, s = 4.3, 95% confidence 5) _____

A) 11.34 < μ < 17.46
B) 11.37 < μ < 17.43
C) 11.91 < μ < 16.89
D) 11.32 < μ < 17.48

6) Thirty randomly selected students took the calculus final. If the sample mean was 76 and the standard deviation was 11.2, construct a 99% confidence interval for the mean score of all students. 6) _____

A) 72.53 < μ < 79.47
B) 70.97 < μ < 81.03
C) 70.36 < μ < 81.64
D) 70.38 < μ < 81.62

7) A savings and loan association needs information concerning the checking account balances of its local customers. A random sample of 14 accounts was checked and yielded a mean balance of $664.14 and a standard deviation of $297.29. Find a 98% confidence interval for the true mean checking account balance for local customers. 7) _____

A) $493.71 < μ < $834.57
B) $492.52 < μ < $835.76
C) $453.59 < μ < $874.69
D) $455.65 < μ < $872.63