Classwork 3 STA 2023

Name_____

Instructions: Watch the videos on section 6.1 & 6.2 posted on the CANVAS and then try to solve the followings.

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

Provide an appropriate response.

1) Find the critical value z_c that corresponds to a 94% confidence level. 1) _____

A) ±1.96 B) ±2.33 C) ±1.88 D) ±1.645

2) Find the margin of error for the given values of c, σ, and n. 2) _____

c = 0.95, σ = 677, n = 40

A) $7 B) $2891 C) $77 D) $210

3) In a random sample of 28 families, the average weekly food expense was $95.60 with a standard deviation of $22.50. Determine whether a normal distribution or a t–distribution should be used or whether neither of these can be used to construct a confidence interval. Assume the distribution of weekly food expenses is normally shaped. 3) _____

A) Cannot use normal distribution or t–distribution.

B) Use the t–distribution.

C) Use normal distribution.

4) A random sample of 40 students has a test score with $\bar{x}$ = 81.5. Assume the population standard deviation is 10.2. Construct the confidence interval for the population mean, μ if c = 0.90. 4) _____

A) (66.3, 89.1) B) (51.8, 92.3) C) (71.8, 93.5) D) (78.8, 84.2)

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

5) In a sample of 10 randomly selected women, it was found that their mean height was 63.4 inches. From previous studies, it is assumed that the standard deviation, σ, is 2.4 inches and that the population of height measurements is normally distributed. 5) _____

a) Construct the 99% confidence interval for the population mean height of women.

b) If the sample size was doubled to 20 women, what will be the effect on the confidence interval?

6) The numbers of advertisements seen or heard in one week for 30 randomly selected people in the United States are listed below. Construct a 95% confidence interval for the true mean number of advertisements. Assume that σ is 159.5. 6) _____

598	494	441	595	728	690	684	486	735	808
481	298	135	846	764	317	649	732	582	677
734	588	590	540	673	727	545	486	702	703

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

7) A nurse at a local hospital is interested in estimating the birth weight of infants. How large a sample must she select if she desires to be 90% confident that the true mean is within 2 ounces of the sample mean? The standard deviation of the birth weights is known to be 7 ounces. 7) _____

A) 6 B) 34 C) 33 D) 5

8) A random sample of 15 statistics textbooks has a mean price of $105 with a standard deviation of $30.25. Determine whether a normal distribution or a t–distribution should be used or whether neither of these can be used to construct a confidence interval. Assume the distribution of statistics textbook prices is not normally distributed. 8) _____

A) Cannot use normal distribution or t–distribution.
B) Use the t–distribution.
C) Use normal distribution.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

9) Construct a 98% confidence interval for the population mean, μ. Assume the population has a normal distribution. A random sample of 20 college students has mean annual earnings of $3,270 with a standard deviation of $653. 9) _____

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

10) The grade point averages for 10 randomly selected high school students are listed below. Assume the grade point averages are normally distributed. 10) _____

2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8

Find a 98% confidence interval for the true mean.

A) (3.11, 4.35) B) (0.67, 1.81) C) (2.12, 3.14) D) (1.55, 3.53)

Answer Key
Testname: UNTITLED1

1) C
2) D
3) B
4) D
5) a) (61.4, 65.4)
   b) An increase in the sample size will decrease the width of the confidence interval.
6) (543.8, 658.0)
7) B
8) A
9) ($2,899, $3,641)
10) D