

Name _____

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

Solve the problem.

1) What is $z_{\alpha/2}$ when $\alpha = 0.01$? 1) _____

A) 1.645 B) 2.575 C) 1.96 D) 2.33

2) Explain what the phrase 95% confident means when we interpret a 95% confidence interval for μ . 2) _____

A) The probability that the sample mean falls in the calculated interval is 0.95.
B) 95% of the observations in the population fall within the bounds of the calculated interval.
C) In repeated sampling, 95% of similarly constructed intervals contain the value of the population mean.
D) 95% of similarly constructed intervals would contain the value of the sampled mean.

3) What is the confidence coefficient in a 95% confidence interval for μ ? 3) _____

A) .025 B) .95 C) .475 D) .05

4) A 90% confidence interval for the average salary of all CEOs in the electronics industry was constructed using the results of a random survey of 45 CEOs. The interval was (\$99,943, \$113,695). Give a practical interpretation of the interval. 4) _____

A) 90% of all CEOs in the electronics industry have salaries that fall between \$99,943 to \$113,695.
B) We are 90% confident that the mean salary of the sampled CEOs falls in the interval \$99,943 to \$113,695.
C) We are 90% confident that the mean salary of all CEOs in the electronics industry falls in the interval \$99,943 to \$113,695.
D) 90% of the sampled CEOs have salaries that fell in the interval \$99,943 to \$113,695.

5) Suppose a 95% confidence interval for μ turns out to be (140, 260). To make more useful inferences from the data, it is desired to reduce the width of the confidence interval. What will result in a reduced interval width? 5) _____

A) Increase the sample size and decrease the confidence level.
B) Decrease the confidence level.
C) Increase the sample size.
D) All of the choices will result in a reduced interval width.

6) Let t_0 be a specific value of t . Find t_0 such that the following statement is true: 6) _____

$P(t \leq t_0) = .025$ where $df = 20$

A) -2.086 B) -2.093 C) 2.093 D) 2.086

7) A marketing research company needs to estimate the average total compensation of CEOs in the service industry. Data were randomly collected from 18 CEOs and the 98% confidence interval was calculated to be $(\$2,181,260, \$5,836,180)$. Explain what the phrase "98% confident" means. 7) _____

- A) 98% of the population values will fall in the interval.
- B) The probability that the population mean falls in any confidence interval constructed is .98.
- C) In repeated sampling, 98% of the intervals constructed would contain μ .
- D) 98% of the similarly constructed intervals would contain the value of the sample mean.

8) As an aid in the establishment of personnel requirements, the director of a hospital wishes to estimate the mean number of people who are admitted to the emergency room during a 24-hour period. The director randomly selects 64 different 24-hour periods and determines the number of admissions for each. For this sample, $\bar{x} = 15.4$ and $s^2 = 16$. 8) _____

1. Give a point estimate of the mean number of admissions per 24-hour period.

2. Estimate the mean number of admissions per 24-hour period with a 99% confidence interval.

3. Interpret the confidence interval.

- A) $15.4 \pm .495$
- B) $15.4 \pm .161$
- C) 15.4 ± 1.288
- D) 15.4 ± 5.150

9) The increasing cost of health care is an important issue today. Suppose that a random sample of 23 small companies that offer paid health insurance as a benefit was selected. The mean health insurance cost per worker per month was \$132, and the standard deviation was \$32. 9) _____

1. Give a point estimate of the mean health cost per worker per month for all small companies.

2. Calculate a 90% confidence interval for the mean health cost per worker per month for all small companies.

3. Interpret the confidence interval.

- A) 132 ± 11.437
- B) 132 ± 10.976
- C) 132 ± 11.457
- D) 132 ± 8.814

10) Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A random sample of 4,000 citizens yielded 2,250 who are in favor of gun control legislation. 10) _____

1. find the point estiamte for estimating the proportion of all Americans who are in favor of gun control legislation.
2. Estimate the true proportion of all Americans who are in favor of gun control legislation using a 99% confidence interval.
3. Interpret the confidence interval.

A) $.5625 \pm .6337$ B) $.5625 \pm .0202$ C) $.4375 \pm .0202$ D) $.4375 \pm .6337$

11) Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A random sample of 4,000 citizens yielded 2290 who are in favor of gun control legislation. Find the point estimate for estimating the proportion of all Americans who are in favor of gun control legislation. 11) _____

A) .4275 B) .5725 C) 4000 D) 2290

Answer Key

Testname: PRACTICE-CH7(A)

- 1) B
- 2) C
- 3) B
- 4) C
- 5) D
- 6) A
- 7) C
- 8) C
- 9) C
- 10) B
- 11) B