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 $\alpha = 0.01$?
   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 $\mu$.
   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) 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.
   A) 90% of all CEOs in the electronics industry have salaries that fall between $99,943 and $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.

4) Suppose a 95% confidence interval for $\mu$ 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?
   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.

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

5) 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 $s^2 = 16$.

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 95% confidence interval.

3. Interpret the confidence interval.
6) 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.

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.

7) A survey of 280 homeless persons showed that 63 were veterans.

1. Find the point estimate for estimating the proportion of homeless persons who are veterans.

2. Estimate the true proportion of homeless persons who are veterans using a 99% confidence interval.

3. Interpret the confidence interval.

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

Provide an appropriate response.

8) 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 95% confident that the true mean is within 3 ounces of the sample mean? The standard deviation of the birth weights is known to be 6 ounces.

A) 3  B) 4  C) 15  D) 16

9) A manufacturer of golf equipment wishes to estimate the number of left-handed golfers. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 4%? A previous study indicates that the proportion of left-handed golfers is 9%.

A) 217  B) 139  C) 197  D) 19

10) A pollster wishes to estimate the proportion of United States voters who favor capital punishment. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 3%?

A) 20  B) 1509  C) 3017  D) 1068
Answer Key
Testname: PRACTICE-CH7(A)

1) B
2) C
3) C
4) D
5) 15.4 ± 1.288
6) 132 ± 11.457
7) .5625 ± .0202
8) D
9) C
10) B