Provide an appropriate response.

1) Interpret the following 95% confidence interval for mean weekly salaries of shift managers at Guiseppe's Pizza and Pasta.
$325.80 < \mu < 472.30$

2) What is the best point estimate for the population proportion? Explain why that point estimate is best.

3) A paper published the results of a poll. It stated that, based on a sample of 1000 married men, 51% of married men say that they would marry the same woman again. The margin of error was given as ±3 percentage points and the confidence level was given as 95%. What does it mean that the margin of error was ±3 percentage points?

Find the indicated critical z value.

4) Find the critical value $z_{\alpha/2}$ that corresponds to a 91% confidence level. 4) _____
A) 1.645 B) 1.70 C) 1.34 D) 1.75

5) Find the critical value $z_{\alpha/2}$ that corresponds to a 94% confidence level. 5) _____
A) 1.555 B) 1.96 C) 2.75 D) 1.88

Express the confidence interval using the indicated format.

6) Express the confidence interval $0.047 < p < 0.507$ in the form of $\hat{p} \pm E$. 6) _____
A) 0.277 ± 0.5 B) 0.277 - 0.23 C) 0.277 ± 0.23 D) 0.23 ± 0.5

Assume that a sample is used to estimate a population proportion p. Find the margin of error E that corresponds to the given statistics and confidence level. Round the margin of error to four decimal places.

7) 95% confidence; n = 320, x = 60 7) _____
A) 0.0385 B) 0.0428 C) 0.0449 D) 0.0514

8) 90% confidence; the sample size is 1580, of which 40% are successes 8) _____
A) 0.0203 B) 0.0253 C) 0.0158 D) 0.0242

Use the given degree of confidence and sample data to construct a confidence interval for the population proportion p.

9) n = 125, x = 72; 90% confidence 9) _____
A) $0.503 < p < 0.649$ B) $0.502 < p < 0.650$
C) $0.506 < p < 0.646$ D) $0.507 < p < 0.645$

10) n = 164, x = 122; 95% confidence 10) _____
A) $0.676 < p < 0.812$ B) $0.677 < p < 0.811$
C) $0.690 < p < 0.798$ D) $0.691 < p < 0.797$

Use the given data to find the minimum sample size required to estimate the population proportion.

11) Margin of error: 0.004; confidence level: 95%; $\hat{p}$ and $\hat{q}$ unknown 11) _____
A) 60,025 B) 60,148 C) 60,018 D) 50,024

12) Margin of error: 0.01; confidence level: 95%; from a prior study, $\hat{p}$ is estimated by the decimal equivalent of 52%. 12) _____

A) 16,551 B) 8630 C) 19,976 D) 9589

Use the given degree of confidence and sample data to construct a confidence interval for the population proportion p.

13) A survey of 865 voters in one state reveals that 408 favor approval of an issue before the legislature. Construct the 95% confidence interval for the true proportion of all voters in the state who favor approval. 13) _____

A) $0.435 < p < 0.508$ B) $0.471 < p < 0.472$

C) $0.438 < p < 0.505$ D) $0.444 < p < 0.500$

14) Of 346 items tested, 12 are found to be defective. Construct the 98% confidence interval for the proportion of all such items that are defective. 14) _____

A) $0.0118 < p < 0.0576$ B) $0.0345 < p < 0.0349$

C) $0.0154 < p < 0.0540$ D) $0.0110 < p < 0.0584$

15) A survey of 300 union members in New York State reveals that 112 favor the Republican candidate for governor. Construct the 98% confidence interval for the true population proportion of all New York State union members who favor the Republican candidate. 15) _____

A) $0.316 < p < 0.430$ B) $0.301 < p < 0.445$

C) $0.308 < p < 0.438$ D) $0.304 < p < 0.442$

16) Of 101 randomly selected adults, 35 were found to have high blood pressure. Construct a 95% confidence interval for the true percentage of all adults that have high blood pressure. 16) _____

A) $26.8\% < p < 42.5\%$ B) $22.4\% < p < 46.9\%$

C) $23.6\% < p < 45.7\%$ D) $25.4\% < p < 43.9\%$

17) A study involves 669 randomly selected deaths, with 31 of them caused by accidents. Construct a 98% confidence interval for the true percentage of all deaths that are caused by accidents. 17) _____

A) $2.74\% < p < 6.53\%$ B) $3.29\% < p < 5.97\%$

C) $2.54\% < p < 6.73\%$ D) $3.04\% < p < 6.23\%$

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.

18) Test scores: $n = 92$, $\bar{x} = 90.6$, $\sigma = 8.9$; 99% confidence 18) _____

A) $89.1 < \mu < 92.1$ B) $88.8 < \mu < 92.4$ C) $88.4 < \mu < 92.8$ D) $88.2 < \mu < 93.0$

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

19) Margin of error: \$120, confidence level: 95%, σ = \$593 19) _____

A) 94 B) 133 C) 83 D) 66

20) Margin of error: \$137, confidence level: 99%, σ = \$591 20) _____

A) 63 B) 50 C) 71 D) 124

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.

21) $n = 10$, $\bar{x} = 8.7$, $s = 3.3$, 95% confidence 21) _____

A) $6.35 < \mu < 11.05$ B) $6.34 < \mu < 11.06$ C) $6.79 < \mu < 10.61$ D) $6.37 < \mu < 11.03$

22) A laboratory tested twelve chicken eggs and found that the mean amount of cholesterol was 225 milligrams with s = 15.7 milligrams. Construct a 95% confidence interval for the true mean cholesterol content of all such eggs. 22) _____

A) 215.1 mg < μ < 234.9 mg
B) 216.9 mg < μ < 233.1 mg
C) 214.9 mg < μ < 235.1 mg
D) 215.0 mg < μ < 235.0 mg

23) A sociologist develops a test to measure attitudes towards public transportation, and 27 randomly selected subjects are given the test. Their mean score is 76.2 and their standard deviation is 21.4. Construct the 95% confidence interval for the mean score of all such subjects. 23) _____

A) 64.2 < μ < 88.2 B) 67.7 < μ < 84.7 C) 74.6 < μ < 77.8 D) 69.2 < μ < 83.2

24) The principal randomly selected six students to take an aptitude test. Their scores were: 24) _____

76.5 85.2 77.9 83.6 71.9 88.6

Determine a 90% confidence interval for the mean score for all students.

A) 75.39 < μ < 85.84
B) 85.84 < μ < 75.39
C) 75.49 < μ < 85.74
D) 85.74 < μ < 75.49

25) The amounts (in ounces) of juice in eight randomly selected juice bottles are: 25) _____

15.2 15.5 15.9 15.5
15.0 15.7 15.0 15.7

Construct a 98% confidence interval for the mean amount of juice in all such bottles.

A) 15.00 oz < μ < 15.87 oz
B) 15.77 oz < μ < 15.10 oz
C) 15.87 oz < μ < 15.00 oz
D) 15.10 oz < μ < 15.77 oz

26) The football coach randomly selected ten players and timed how long each player took to perform a certain drill. The times (in minutes) were: 26) _____

7.2 10.5 9.9 8.2 11.0
7.3 6.7 11.0 10.8 12.4

Determine a 95% confidence interval for the mean time for all players.

A) 10.85 min < μ < 8.15 min
B) 8.05 min < μ < 10.95 min
C) 8.15 min < μ < 10.85 min
D) 10.95 min < μ < 8.05 min

1) We are 95% sure that the interval contains the true population value for mean weekly salaries of shift managers at Guiseppe's Pizza and Pasta.
2) The sample proportion $\hat{p}$.
   1) $\hat{p}$ is unbiased (does not consistently overestimate or underestimate p).
   2) $\hat{p}$ is most consistent (has the least variation of all the measures of central tendency).
3) If 51% is used as an estimate of the percentage of all married men who would marry the same woman again, we would be 95% confident that the maximum likely difference between 51% and the true population percentage is 3 percentage points. So the true percentage is likely (with 95% confidence) to lie between 48% and 54%.
4) B
5) D
6) C
7) B
8) A
9) A
10) B
11) A
12) D
13) C
14) A
15) C
16) D
17) A
18) D
19) A
20) D
21) B
22) D
23) B
24) C
25) D
26) C