3.2 review

Name_____

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

1) Which formula do we use to find a 95% CI using the Margin of error (ME)? 1) _____

A) Statistic ±ME B) Statistic ±SE C) Statistic ±2×SE D) Statistic ±2×ME

2) Which formula do we use to find a 95% CI using the standard error (SE)? 2) _____

A) Statistic ±SE B) Statistic ±2×ME C) Statistic ±ME D) Statistic ±2×SE

A random sample of n=755 US cell phone users age 18 and older in May 2011 found that the average number of text messages sent or received per day is 41.5 messages. They also report that at 95% confidence level, the "margin of sampling error is 12.2" Answer the following questions

3) What is the population of interest? 3) _____

A) all US cell phone users age 18 and over

B) received 41.5 messages per day

C) 755 randomly selected US cell phone users age 18 and over

4) What is the sample being used? 4) _____

A) all US cell phone users age 18 and over

B) received 41.5 messages per day

C) 755 randomly selected US cell phone users age 18 and over

5) What is the population parameter of interest, and what is the correct notation for this parameter? 5) _____

A) P = proportion of text messages sent or received per day for all US cell phone users age 18 and over

B) μ = the average number of text messages sent or received per day for all US cell phone users age 18 and over

C) $\bar{x}$ = the average number of text messages sent or received per day of 755 randomly selected U.S. adults

D) $\hat{p}$ = proportion of text messages sent or received per day of 755 randomly selected U.S. adults

6) What is the sample statistic? 6) _____

A) μ = the average number of text messages sent or received per day for all US cell phone users age 18 and over

B) $\bar{x}$ = the average number of text messages sent or received per day of 755 randomly selected U.S. adults

C) $\hat{p}$ = proportion of text messages sent or received per day of 755 randomly selected U.S. adults

D) P = proportion of text messages sent or received per day for all US cell phone users age 18 and over

7) Give appropriate notation and the value of the sample statistic. 7) _____

A) $\hat{p}$ = 12.2 B) μ = 41.5 C) $\bar{x}$ = 41.5 D) P = 0.95

8) Find 95% confidence interval estimate for the parameter of interest 8) _____

A) 29.3 to 53.7 B) 17.1 to 65.9 C) 0.49 to 0.56 D) 0.45 to 0.61

9) Interpret the confidence interval. 9) _____

A) We are 95% confident that the average number of text messages sent or received per day in this sample is between 29.3 and 53.7 .

B) We are 95% confident that the average number of text messages sent or received per day for all US cell phone users age 18 and over is between 29.3 and 53.7 .

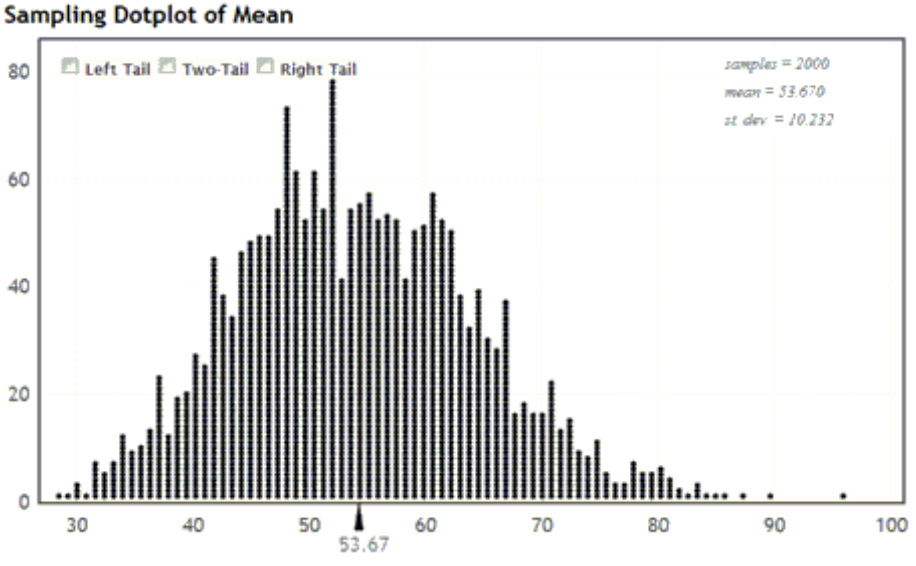
C) 95% of US cell phone users age 18 and over sent or received text messages per day is between 17.1 and 65.9

D) We are 95% confident that a US cell phone users age 18 and over will sent or received text messages per day is between 17.1 and 65.9.

10) A random sample of n=755 US cell phone users age 18 and older in May 2011 found that the average number of text messages sent or received per day is 41.5 messages, with standard error about 6.1. Find 95% confidence interval estimate for the parameter of interest 10) _____

A) 17.1 to 65.9 B) 0.45 to 0.61 C) 0.49 to 0.56 D) 29.3 to 53.7

A sampling distribution is shown for the budgets (in millions of dollars) of all movies to come out of Hollywood in 2011, using samples of size 20. We see that the standard error is about 10.23. For each of the sample means listed, use the standard error of 10.23 to find a 95% confidence interval and state whether or not the interval captures the true population mean of 53.48 million dollars.



11) $\bar{x} = 45$ 11) _____

A) 95% confidence interval for μ: (24.54 , 65.46) The interval captures the population mean of 53.48 (million dollars).

B) 95% confidence interval for μ: (34.77 , 55.23) The interval captures the population mean of 53.48 (million dollars).

12) $\bar{x}$ = 82 12) _____

A) 95% confidence interval for μ: (71.77 , 92.23) The interval does not capture the population mean of 53.48 (million dollars).

B) 95% confidence interval for μ: (61.54 , 102.46) The interval does not capture the population mean of 53.48 (million dollars).

A random sample of 500 students shows that 40% of students use the Student learning Center at some point during their time on campus, with a margin of error of 5%. Based on this information, identify each of the following as plausible or not for the percent of the entire student body that use the Student learning Center at some point during their time on campus. Use the information above to answer the next two questions.

13) 38% 13) _____

A) Plausible B) Not Plausible

14) 52% 14) _____

A) Not Plausible B) Plausible

In a survey conducted by the Gallup organization September 6-9, 2012, 1,017 adults were asked "In general, how much trust and confidence do you have in the mass media - such as newspapers, TV, and radio - when it comes to reporting the news fully, accurately, and fairly?" 81 said that they had a "great deal" of confidence, 325 said they had a "fair amount" of confidence, 397 said they had "not very much" confidence, and 214 said they had "no confidence at all". **Suppose we are intrested in the proportion of U.S. adults who have "no confidence at all" in the media.** The estimate of the standard error is 0.013 Answer the following six questions

15) What is the population of interest? 15) _____

A) 1,017 randomly selected U.S. adults

B) 214 said they had "no confidence at all"

C) All U.S. adults

16) What is the sample being used? 16) _____

A) All U.S. adults

B) 1,017 randomly selected U.S. adults

C) 214 said they had "no confidence at all"

17) What is the population parameter of interest, and what is the correct notation for this parameter? 17) _____

A) μ = mean of U.S. adults who have "no confidence at all" in the media.

B) $\bar{x}$ = mean of the sample of the sample of 1,017 randomly selected U.S. adult who have "no confidence at all" in the media.

C) P = proportion of U.S. adults who have "no confidence at all" in the media.

D) $\hat{p}$ = proportion of the sample of 1,017 randomly selected U.S. adult who have "no confidence at all" in the media.

18) What is the sample statistic? 18) _____

A) $\bar{x}$ = mean of the sample of the sample of 1,017 randomly selected U.S. adult who have "no confidence at all" in the media.

B) μ = mean of U.S. adults who have "no confidence at all" in the media.

C) P = proportion of U.S. adults who have "no confidence at all" in the media.

D) $\hat{p}$ =proportion of the sample of 1,017 randomly selected U.S. adult who have "no confidence at all" in the media.

19) Suppose the parameter of interest is the proportion of U.S. adults who have "no confidence at all" in the media. give appropriate notation and the value of the sample statistic. 19) _____

A) μ = 1017 B) $\bar{x}$ = 214 C) $\hat{p}$ =0.21 D) P = 0.21

20) construct a 95% confidence interval for the proportion of U.S. adults who have no confidence in the media 20) _____

A) 0.45 to 0.61 B) 0.171 to 0.249 C) 0.197 to 0.223 D) 0.184 to 0.236

21) Is the following statement an appropriate interpretation of this interval? We are 95% sure that the proportion of U.S. adults who have no confidence in the media is between *** and ***(The numbers are the answer from the question above) 21) _____

A) Incorrect B) Correct

Interpret the confidence interval.

22) Suppose that a student is working on a statistics project using data on pulse rates collected from a random sample of 100 students from her college. She finds a 95% confidence interval for mean pulse rate to be (65.5, 71.8). Interpretation this interval. 22) _____

A) I am 95% sure that all students will have pulse rates between 65.5 and 71.8 beats per minute.

B) I am 95% sure that the mean pulse rate for this sample of students will fall between 65.5 and 71.8 beats per minute.

C) I am 95% sure that the mean pulse rate for all students will fall between 65.5 and 71.8 beats per minute.

D) I am sure that 95% of all students at this college will have pulse rates between 65.5 and 71.8 beats per minute.

23) Suppose a 95% CI for mean commute time of workers in Atlanta is 27.2 to 31.0. Which of the following is the correct interpretation of this confidence interval? 23) _____

A) We are 95% sure that the mean commute time for the sample of Atlanta workers is between 27.2 and 31.0 minutes.

B) We are 95% sure that the commute times for all Atlanta workers is between 27.2 and 31.0 minutes.

C) We are 95% sure that the mean is between 27.2 and 31.0.

D) We are 95% sure that the mean commute time for all Atlanta workers is between 27.2 and 31.0 minutes.

24) Data collected by child development scientists produced the following 90% confidence interval for the average age (in months) at which children say their first word: $10.4 < \mu < 13.8$. 24) _____

A) We are 90% confident that the average age at which children in this sample said their first word was between 10.4 and 13.8 months.
B) We are 90% confident that a child will say his first word when he is between 10.4 and 13.8 months old.
C) We are 90% confident that a child will say his first word when he is older than 10.4 months.
D) We are 90% confident that the mean age at which children say their first word is between 10.4 and 13.8 months.
E) 90% of the children in this sample said their first word when they were between 10.4 and 13.8 months old.

Identify if each of the following statements is a proper interpretation of a 95% confidence interval.

25) I am 95% sure that this interval will contain the population parameter. 25) _____

A) Correct B) Incorrect

26) I am 95% sure that this interval will contain the sample statistic. 26) _____

A) Incorrect B) Correct

27) The probability that the population parameter is in this interval is 0.95. 27) _____

A) Correct B) Incorrect

28) 95% of the population values will fall within this interval. 28) _____

A) Correct B) Incorrect