Name: Score: _____ / 31

Stat 370: Chapter 12A Written Homework

Due Tuesday November 11th

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1. The housing market recovered slowly from the economic crisis of 2008. Recently, in one large community, realtors randomly sampled 36 bids from potential buyers to estimate the average loss in home value. The sample showed the average loss from the peak in 2008 was \$9560 with a standard deviation \$1500.

   (a) (10 points) Find a 95% confidence interval for the mean loss in value per home.

   (b) (3 points) Interpret this interval and explain what 95% confidence means in this context.

 Points: _____ out of 13.

2. The speed limit posted at WSU is 20 miles per hour. We believe drivers go significantly faster than the posted limit. We record 12 cars and find their average speed to be 35 miles per hour with standard deviation 7 miles per hour.

   (a) (10 points) Find a 90% confidence interval for the average speed of a driver at WSU

   (b) (3 points) Interpret this interval and explain what 90% confidence means in this context.

   (c) (1 point) Can we conclude that drivers aren't following the traffic laws, when it comes to following the speed limit?

Multiple Choice: Indicate the answer choice that best completes the statement or answer the question.

3. (1 point) The spread of the sampling distribution of $\bar{x}$ increases when:
   a. The population mean increases
   b. The sample size increase
   c. The sample size decreases
   d. The population mean decreases

4. (1 point) The population of voting citizens in a particular small town who favor candidate A has a mean of 180 and a standard deviation of 12. If you created a sampling distribution using sample size 52, what would the mean of your sampling distribution be?
   a. Cannot tell from the information given
   b. 180
   c. 12
   d. 52

5. (1 point) If you know that the population standard deviation of a particular population is 18 and the sample size is 81, what is the margin of error for estimating the population mean? Assume 95% confidence.
   a. 3.98
   b. 3.92
   c. 4.00
   d. 2.00

6. (1 point) Suppose you would like to estimate the number of airline passengers who transit a given large airport every day wearing masks to protect against disease transmission. Records from the local health authorities state that the daily number of mask-wearing passengers ranges from 500 to 1200. What is the minimum number of passengers you must sample in order for your margin of error to be 35 passengers? Assume 95% confidence.
   a. 18
   b. 96
   c. 32
   d. 343

 Points: _____ out of 4.