Chapter 7: Introduction to Sampling Distributions

Multiple Choice

This activity contains 10 questions.

1. [Hint] ***The difference between a value computed from a sample (a statistic) and the corresponding value computed from the population (a parameter) is called***

- *distribution error.*
- *margin of error.*
- *random error.*
- *sampling error.*

2. [Hint] ***Determine the standard deviation of the sample means when the population standard deviation is equal to 16 for a sample size of 20.***

- *16*
- *4.47*
- *3.58*
- *6.98*

3. [Hint] ***A very large population has a mean of 90.3 and a standard deviation of 11.6. From the population, a sample of 32 was selected with a sample mean of 94.0. What is the z value of the sample mean?***

- *1.69*
- *1.77*
- *1.80*
- *1.88*

4. [Hint] ***The 27 employees at a certain plant have a mean height of 67.1 inches with a standard deviation of 2.7 inches. (Their height distribution is assumed to be normal.) From these employees a sample of 4 was selected whose mean height was only 63.8 inches. What is the z-value of the sample mean rounded to two decimal places?***

- *-2.51*
- *-2.56*
- *-2.60*
- *-2.65*

5. [Hint] ***Historically, the average customer satisfaction score for a certain hotel follows a normal distribution with a mean of 8.4 and a standard deviation of 0.8. Six customers provided the following satisfaction scores: 9, 8, 10, 8, 10, and 9. What is the probability that the customer satisfaction scores have improved over historical levels?***

- *0.1265*
- *0.9664*
- *0.50*
- *0.7547*

6. [Hint] ***A college claims that the average SAT score for students that have been accepted for admission historically has been 1100 with a standard deviation of 210. A faculty member randomly sampled 40 students and found their SAT scores to average 1060. If the college's claim is correct, what is the probability of obtaining a sample average of 1060 or less?***

- *0.1151*
- *0.2569*
- *0.4561*
- *0.8955*

7. [Hint] ***Of the 28 families in a certain neighborhood, 22 have joined the neighborhood watch organization. If 10 families are selected for a sample, what is the lowest possible sampling error rounded to 2 decimal places?***

- *-0.39*
- *-0.44*

- -0.56
- -0.65

8. [Hint] ***In a certain population, 80% are in favor of a tax decrease. What is the standard error of the sampling distribution of samples of 44 individuals rounded to 2 decimal places?***

- 0.05
- 0.06
- 0.07
- 0.08

9. [Hint] ***In a certain city 5% of homes were broken into in a recent year. When one neighborhood of 124 homes had 10 break-ins in a year, insurance rates went up. The owners claimed their rate was similar to the city rate and that they were being discriminated against. What is the probability of 10 or more break-ins from 124 homes rounded to two decimal places? Do not round intermediate answers.***

- 0.04
- 0.06
- 0.07
- 0.08

10. [Hint] ***A senator believes the proportion of citizens in his state in favor of a certain amendment is 0.60 or higher. To test that he surveyed 250 citizens and found that 142 were in favor of the amendment. What is the probability that the actual proportion is 0.60 or more? Round your final answer to 2 decimal places.***

- 0.15
- 0.18
- 0.20
- 0.22