

Determine $\mu_{\bar{x}}$ and $\sigma_{\bar{x}}$ from the given parameters of the population and the sample size. Round the answer to the nearest thousandth where appropriate.

$\mu = 47, \sigma = 9, n = 17$

- ☐ A. $\mu_{\bar{x}} = 47, \sigma_{\bar{x}} = 9$
- ☐ B. $\mu_{\bar{x}} = 47, \sigma_{\bar{x}} = 2.183$
- ☐ C. $\mu_{\bar{x}} = 27.135, \sigma_{\bar{x}} = 2.183$
- ☐ D. $\mu_{\bar{x}} = 47, \sigma_{\bar{x}} = 0.529$

#1

Suppose a population has a mean of 7 for some characteristic of interest and a standard deviation of 9.6. A sample is drawn from this population of size 64. What is the standard error of the mean?

☐ A. 1.2

☐ B. 0.15

☐ C. 0.7

☐ D. 3.3

#3

The average score of all golfers for a particular course has a mean of 74 and a standard deviation of 3. Suppose 36 golfers played the course today. Find the probability that the average score of the 36 golfers exceeded 75. Round to four decimal places.

- ☐ A. 0.0228
☐ B. 0.4772
☐ C. 0.3707
☐ D. 0.1293

#4

The average score of all golfers for a particular course has a mean of 74 and a standard deviation of 3. Suppose 36 golfers played the course today. Find the probability that the average score of the 36 golfers exceeded 75. Round to four decimal places.

- ☐ A. 0.0228
☐ B. 0.4772
☐ C. 0.3707
☐ D. 0.1293

#5

According to a survey in a country, 16% of adults do not have any credit cards. Suppose a simple random sample of 400 adults is obtained.

(a) Describe the sampling distribution of $\hat{p}$, the sample proportion of adults who do not have a credit card. Choose the phrase that best describes the shape of the sampling distribution of $\hat{p}$ below.

- ☐ A. Approximately normal because $n \leq 0.05N$ and $np(1-p) < 10$.
☐ B. Not normal because $n \leq 0.05N$ and $np(1-p) \geq 10$.
☐ C. Not normal because $n \leq 0.05N$ and $np(1-p) < 10$.
☐ D. Approximately normal because $n \leq 0.05N$ and $np(1-p) \geq 10$.

Determine the mean of the sampling distribution of $\hat{p}$.

$\mu_{\hat{p}} = \square$ (Round to two decimal places as needed.)

Determine the standard deviation of the sampling distribution of $\hat{p}$.

$\sigma_{\hat{p}} = \square$ (Round to three decimal places as needed.)

(b) In a random sample of 400 adults, what is the probability that less than 14% have no credit cards?

The probability is $\square$. (Round to four decimal places as needed.)

(c) Would it be unusual if a random sample of 400 adults results in 84 or more having no credit cards?

- ☐ A. The result is unusual because the probability that $\hat{p}$ is greater than or equal to this sample proportion is greater than 5%.
☐ B. The result is unusual because the probability that $\hat{p}$ is greater than or equal to this sample proportion is less than 5%.
☐ C. The result is not unusual because the probability that $\hat{p}$ is greater than or equal to this sample proportion is greater than 5%.
☐ D. The result is not unusual because the probability that $\hat{p}$ is greater than or equal to this sample proportion is less than 5%.

#6

Suppose a geyser has a mean time between eruptions of 93 minutes. Let the interval of time between the eruptions be normally distributed with standard deviation 19 minutes. Complete parts (a) through (e) below.

(a) What is the probability that a randomly selected time interval between eruptions is longer than 101 minutes?

The probability that a randomly selected time interval is longer than 101 minutes is approximately .
(Round to four decimal places as needed.)

(b) What is the probability that a random sample of 16 time intervals between eruptions has a mean longer than 101 minutes?

The probability that the mean of a random sample of 16 time intervals is more than 101 minutes is approximately .
(Round to four decimal places as needed.)

(c) What is the probability that a random sample of 29 time intervals between eruptions has a mean longer than 101 minutes?

The probability that the mean of a random sample of 29 time intervals is more than 101 minutes is approximately .
(Round to four decimal places as needed.)

(d) What effect does increasing the sample size have on the probability? Provide an explanation for this result. Fill in the blanks below.

If the population mean is less than 101 minutes, then the probability that the sample mean of the time between eruptions is greater than 101 minutes because the variability in the sample mean as the sample size .

(e) What might you conclude if a random sample of 29 time intervals between eruptions has a mean longer than 101 minutes? Select all that apply.

- ☐ A. The population mean is 93, and this is just a rare sampling.
- ☐ B. The population mean is 93, and this is an example of a typical sampling result.
- ☐ C. The population mean may be less than 93.
- ☐ D. The population mean cannot be 93, since the probability is so low.
- ☐ E. The population mean must be more than 93, since the probability is so low.
- ☐ F. The population mean must be less than 93, since the probability is so low.
- ☐ G. The population mean may be greater than 93.

#?

Describe the sampling distribution of $\hat{p}$. Round to three decimal places when necessary.

$N = 8,000$, $n = 300$, $p = 0.7$

- ☐ A. Approximately normal; $\mu_{\hat{p}} = 0.7$, $\sigma_{\hat{p}} = 0.026$
- ☐ B. Binomial; $\mu_{\hat{p}} = 210$, $\sigma_{\hat{p}} = 7.937$
- ☐ C. Approximately normal; $\mu_{\hat{p}} = 0.7$, $\sigma_{\hat{p}} = 0.162$
- ☐ D. Exactly normal; $\mu_{\hat{p}} = 0.7$, $\sigma_{\hat{p}} = 0.026$

#8



To assess attitudes towards issues that affect the residents of a village, the village randomly chose 800 families to participate in a survey of life attitudes. The village received 628 completed surveys. What is the sample proportion of completed surveys?

- ☐ A. 0.628
- ☐ B. 0.886
- ☐ C. 0.785
- ☐ D. 1.274

#9

A national caterer determined that 87% of the people who sampled their food said that it was delicious. A random sample of 144 people is obtained from a population of 5000. The 144 people are asked to sample the caterer's food. If $\hat{p}$ is the sample proportion saying that the food is delicious, what is the mean of the sampling distribution of $\hat{p}$?

- ☐ A. 0.19
- ☐ B. 1.25
- ☐ C. 0.87
- ☐ D. 0.42

#18

According to a study conducted in one city, 36% of adults in the city have credit card debts of more than \$2000. A simple random sample of $n = 150$ adults is obtained from the city. Describe the sampling distribution of $\hat{p}$, the sample proportion of adults who have credit card debts of more than \$2000. Round to three decimal places when necessary.

- ☐ A Binomial; $\mu_p = 54$, $\sigma_p = 5.879$
- ☐ B Approximately normal; $\mu_p = 0.36$, $\sigma_p = 0.039$
- ☐ C Exactly normal; $\mu_p = 0.36$, $\sigma_p = 0.039$
- ☐ D Approximately normal; $\mu_p = 0.36$, $\sigma_p = 0.002$

#11

A group of realtors estimates that 23% of all homes purchased last year were considered investment properties. If a sample of 800 homes sold last year is obtained, what is the probability that at most 200 homes are going to be used as investment property? Round to four decimal places.

☐ A. 0.5935

☐ B. 0.4066

☐ C. 0.9099

☐ D. 0.0901

#12

A group of realtors estimates that 23% of all homes purchased last year were considered investment properties. If a sample of 800 homes sold last year is obtained, what is the probability that at least 175 homes are going to be used as investment property? Round to four decimal places.

- ☐ A. 0.4821
☐ B. 0.5189
☐ C. 0.7764
☐ D. 0.2236

#13

A group of realtors estimates that 23% of all homes purchased last year were considered investment properties. If a sample of 800 homes sold last year is obtained, what is the probability that between 175 and 200 homes are going to be used as investment property? Round to four decimal places.

- ☐ A. 0.9099
- ☐ B. 0.1335
- ☐ C. 0.6863
- ☐ D. 0.2236

#14

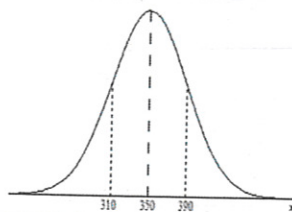
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☐ D. $\mu_{\bar{x}} = 47, \sigma_{\bar{x}} = 0.529$

#1

What are the values of $\mu_{\bar{x}}$ and $\sigma_{\bar{x}}$ for the sampling distribution of the sample mean shown?



- ☐ A. $\mu_{\bar{x}} = 350, \sigma_{\bar{x}} = 80$
- ☐ B. $\mu_{\bar{x}} = 350, \sigma_{\bar{x}} = 40$
- ☐ C. $\mu_{\bar{x}} = 40, \sigma_{\bar{x}} = 350$
- ☐ D. $\mu_{\bar{x}} = 350, \sigma_{\bar{x}} = 120$

#2

Suppose a population has a mean of 7 for some characteristic of interest and a standard deviation of 9.6. A sample is drawn from this population of size 64. What is the standard error of the mean?

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- ☐ B. 0.15
- ☐ C. 0.7
- ☐ D. 3.3

#3