

CHAPTER 1 FORM B TEST

Name _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

- 1) A radio show host asks listeners whether they believe that human activity is altering the global climate. Of those calling in, only 20% responded by saying yes. Is it safe to infer that only 20% of the general population believes that human activity is altering the global climate? 1) _____
- 2) Define the terms population and sample. 2) _____
- 3) Last year, 25% of students at a certain college smoked regularly. A researcher wants to determine whether an anti-smoking campaign was effective in reducing smoking at the college. If the proportion of students smoking regularly were still 25%, would it be surprising to find that only 15% of students smoked in a sample of size 20? in a sample of size 200? In either case would it be reasonable to assume that there had been a decrease in the proportion of students smoking regularly? 3) _____

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

- 4) In a survey of students at a certain college, 677 students were asked whether they believed in life after death and whether they believed in reincarnation. The results are summarized in the table below. 4) _____

Response	Frequency Distribution	
	Reincarnation (Column Percent, Number of cases)	Life After Death (Column Percent, Number of cases)
Yes, Definitely	9.5%, 64	37.7%, 255
Yes, Probably	19.9%, 135	31.0%, 210
No, Probably Not	43.0%, 291	19.2%, 130
No, Definitely Not	27.6%, 187	12.1%, 82
Column Total	100.0%, 677	100.0%, 677

How does the percentage of "yes, definitely" responses for life after death compare with the percentage of "yes, definitely" responses for reincarnation?

- A) The percentage who responded "yes, definitely" when asked whether they believed in life after death (37.7%) was slightly higher than the percentage who responded "yes, definitely" when asked whether they believed in reincarnation (31.0%).
- B) The percentage who responded "yes, definitely" when asked whether they believed in life after death (37.7%) was roughly four times the percentage who responded "yes, definitely" when asked whether they believed in reincarnation (9.5%).
- C) The percentage who responded "yes, definitely" when asked whether they believed in life after death (19.9%) was roughly twice the percentage who responded "yes, definitely" when asked whether they believed in reincarnation (9.5%).
- D) The percentage who responded "yes, definitely" when asked whether they believed in life after death (255%) was roughly four times the percentage who responded "yes, definitely" when asked whether they believed in reincarnation (64%).

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

- 5) What is statistics? 5) _____
- 6) A recent poll asked 1,245 registered voters nationwide, "Which party do you think can do a better job of handling immigration issues?" 31% of the respondents answered "Republicans." With a margin of error of $\pm 3\%$, it is estimated that between 28 and 34 percent of registered voters nationwide feel that the Republican party can do a better job of handling immigration issues. Identify which part of this example is inferential. 6) _____

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

Select the most appropriate answer.

- 7) A study attempted to estimate the proportion of Florida residents who were willing to spend more tax dollars on protecting the Florida beaches from environmental disasters. Twenty-four hundred Florida residents were surveyed. Which of the following is the population of interest in the study? 7) _____
- A) all residents of the United States
 - B) all Florida residents who were willing to spend more tax dollars on protecting the beaches from environmental disasters.
 - C) the 2400 Florida residents surveyed
 - D) all Florida residents who lived along the beaches
 - E) all Florida residents

Provide an appropriate response.

- 8) The average salary of all automotive workers is \$42,000. Is this value a parameter or a statistic? 8) _____
- A) statistic
 - B) parameter

Select the most appropriate answer.

- 9) In a survey, 71% of 1052 adults polled answered "Yes" to the question "Do you believe the theory that increased carbon dioxide and other gases released into the atmosphere will, if unchecked, lead to global warming and an increase in average temperatures?" The 71% responding "Yes" to the question is an example of 9) _____

- A) a statistic
- B) a parameter
- C) the sample
- D) the population
- E) random sampling

- 10) In a survey, 71% of 1052 adults polled answered "Yes" to the question "Do you believe the theory that increased carbon dioxide and other gases released into the atmosphere will, if unchecked, lead to global warming and an increase in average temperatures?" The sample consists of 10) _____
- A) all American adults
 - B) the proportion of adults polled who responded "Yes" to the question
 - C) the proportion of American adults who are predicted to respond "Yes" to the question
 - D) the 1052 polled adults
 - E) 71% of American adults

- 11) Making decisions and predictions based on the data refers to which aspect of statistics? 11) _____
- A) Design
 - B) Sampling
 - C) None of these
 - D) Inference
 - E) Description

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Fill in the blank.

- 18) A _____ is a numerical summary of the population; 18) _____
while a _____ is a numerical summary of the sample.

19) The basis of _____ is that each subject in the 19) _____
population has the same chance of being in the sample.

20) _____ is the art and science of learning from data. 20) _____

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

Answer true or false.

The owners of a coffee shop conducted a taste test to determine whether its customers preferred a new coffee brand to the current one sold by the shop. Customers who were willing to participate were given small samples of each of the two brands in random order and were asked to select which one they preferred without knowing the brand. Of the 100 participating customers, 90% chose the new brand. Based on these results, the owners determined that a majority of their customers preferred the new brand and therefore switched their coffee supplier.

25) Predicting the preference of all of the coffee shop customers based on the taste test 25) _____
results refers to which aspect of statistics?

- A) Design
- B) Description
- C) Investigation
- D) Inference
- E) None of these

Answer Key

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- 1) No. Those who respond to this question are unlikely to be representative of the general population for two reasons. First, listeners to the show are unlikely to be representative of the general population, as they are likely to share the views of the radio show host, and may not represent a wide spectrum of views. Second, those listeners who respond voluntarily to the question are likely to be those who feel the most strongly about the issue. Their views are unlikely to be representative of all listeners to the show let alone of the general population.
- 2) The population is the total set of subjects in which we are interested. A sample is the subset of the population for whom we have data.
- 3) No, it would not be surprising to find that only 15% of students smoked in a sample of size 20. When the sample size is small, there is a lot of variability in the sample proportions and a sample proportion can easily lie far from the population proportion. In this case, it would not be reasonable to assume that there had been a decrease in the proportion of students smoking regularly.
Yes, it would be surprising to find that only 15% of students smoked in a sample of size 200. When the sample size is large, the sample proportions tend to lie closer to the population proportion. If the proportion of students smoking regularly were still 25%, it would be surprising to find that only 15% of students smoked in a sample of size 200. In this case, it would be reasonable to assume that there had been a decrease in the proportion of students smoking regularly.
- 4) B
- 5) Statistics is the art and science of learning from data.
- 6) It is estimated that between 28 and 34 percent of registered voters nationwide feel that the Republican party can do a better job of handling immigration issues.
- 7) E
- 8) B
- 9) A
- 10) A
- 11) D
- 12) C
- 13) A
- 14) D
- 15) C
- 16) D
- 17) B
- 18) parameter; statistic
- 19) random sampling
- 20) Statistics
- 21) A
- 22) A
- 23) A
- 24) B
- 25) D