

## Question ID 37930b2a

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Evaluating statistical claims: Observational studies and experiments	<div><div></div><div></div><div></div></div>

ID: 37930b2a

2.1

Residents of a town were surveyed to determine whether they are satisfied with the concession stand at the local park. A random sample of 200 residents was selected. All 200 responded, and 87% said they are satisfied. Based on this information, which of the following statements must be true?

- I. Of all the town residents, 87% would say they are satisfied with the concession stand at the local park.
  - II. If another random sample of 200 residents were surveyed, 87% would say they are satisfied.
- A. Neither
- B. I only
- C. II only
- D. I and II

ID: 37930b2a Answer

Correct Answer: A

Rationale

Choice A is correct. The purpose of surveying a random sample of residents is to approximate the percent of the town residents that are satisfied with the concession stand. The sample doesn't necessarily get the same result as surveying every resident of the town, nor would another sample necessarily have identical results. Therefore, although it's possible that either statement I or statement II could prove true by surveying every resident of the town, these statements cannot be proven true solely based on the results of the sample.

Choice B is incorrect because surveying a sample of the town residents may not have the same result as surveying all the town residents. Choices C and D are incorrect because surveying a different sample of residents could yield different results.

Question Difficulty: Medium

Question ID b4f5a7ca

Assessment	Test	Domain	Skill	Difficulty
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ID: b4f5a7ca

2.2

A survey was conducted using a sample of history professors selected at random from the California State Universities. The professors surveyed were asked to name the publishers of their current texts. What is the largest population to which the results of the survey can be generalized?

- A. All professors in the United States
- B. All history professors in the United States
- C. All history professors at all California State Universities
- D. All professors at all California State Universities

ID: b4f5a7ca Answer

Correct Answer: C

Rationale

Choice C is correct. Selecting a sample at random when conducting a survey allows the results to be generalized to the population from which the sample was selected, but not beyond this population. In this situation, the population that the sample was selected from is history professors from the California State Universities. Therefore, the largest population to which the results of the survey can be generalized is all history professors at all California State Universities.

Choices A, B, and D are incorrect. Since the sample was selected at random from history professors from the California State Universities, the results of the survey can't be generalized to all professors in the United States, all history professors in the United States, or all professors at all California State Universities. All three of these populations may use different texts and therefore may name different publishers.

Question Difficulty: Medium

# Question ID 642519d7

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Evaluating statistical claims: Observational studies and experiments	<div><div></div><div></div><div></div></div>

ID: 642519d7

2.3

A polling agency recently surveyed 1,000 adults who were selected at random from a large city and asked each of the adults, “Are you satisfied with the quality of air in the city?” Of those surveyed, 78 percent responded that they were satisfied with the quality of air in the city. Based on the results of the survey, which of the following statements must be true?

1. Of all adults in the city, 78 percent are satisfied with the quality of air in the city.

2. If another 1,000 adults selected at random from the city were surveyed, 78 percent of them would report they are satisfied with the quality of air in the city.

3. If 1,000 adults selected at random from a different city were surveyed, 78 percent of them would report they are satisfied with the quality of air in the city.
- A. None

B. II only

C. I and II only

D. I and III only

ID: 642519d7 Answer

Correct Answer: A

Rationale

Choice A is correct. Statement I need not be true. The fact that 78% of the 1,000 adults who were surveyed responded that they were satisfied with the air quality in the city does not mean that the exact same percentage of all adults in the city will be satisfied with the air quality in the city. Statement II need not be true because random samples, even when they are of the same size, are not necessarily identical with regard to percentages of people in them who have a certain opinion. Statement III need not be true for the same reason that statement II need not be true: results from different samples can vary. The variation may be even bigger for this sample since it would be selected from a different city. Therefore, none of the statements must be true.

Choices B, C, and D are incorrect because none of the statements must be true.

Question Difficulty: Medium