

Question ID c7a13932

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Inference from sample statistics and margin of error	Medium

ID: c7a13932

Based on a random sample from a population, a researcher estimated that the mean value of a certain variable for the population is **20.5**, with an associated margin of error of **1**. Which of the following is the most appropriate conclusion?

- A. It is plausible that the actual mean value of the variable for the population is between **19.5** and **21.5**.
- B. It is not possible that the mean value of the variable for the population is less than **19.5** or greater than **21.5**.
- C. Every value of the variable in the population is between **19.5** and **21.5**.
- D. The mean value of the variable for the population is **20.5**.

Question ID a22f737f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Inference from sample statistics and margin of error	Medium

ID: a22f737f

A company that produces socks wants to estimate the percent of the socks produced in a typical week that are defective. A random sample of **310** socks produced in a certain week were inspected. Based on the sample, it is estimated that **12%** of all socks produced by the company in this week are defective, with an associated margin of error of **3.62%**. Based on the estimate and associated margin of error, which of the following is the most appropriate conclusion about all socks produced by the company during this week?

- A. **3.62%** of the socks are defective.
- B. It is plausible that between **8.38%** and **15.62%** of the socks are defective.
- C. **12%** of the socks are defective.
- D. It is plausible that more than **15.62%** of the socks are defective.

Question ID 1e7832f1

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Inference from sample statistics and margin of error	Medium

ID: 1e7832f1

A sample consisting of **720** adults who own televisions was selected at random for a study. Based on the sample, it is estimated that **32%** of all adults who own televisions use their televisions to watch nature shows, with an associated margin of error of **3.41%**. Which of the following is the most plausible conclusion about all adults who own televisions?

- A. More than **35.41%** of all adults who own televisions use their televisions to watch nature shows.
- B. Between **28.59%** and **35.41%** of all adults who own televisions use their televisions to watch nature shows.
- C. Since the sample included adults who own televisions and not just those who use their televisions to watch nature shows, no conclusion can be made.
- D. Since the sample did not include all the people who watch nature shows, no conclusion can be made.

Question ID 2c3af914

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Inference from sample statistics and margin of error	Medium

ID: 2c3af914

From a population of **50,000** people, **1,000** were chosen at random and surveyed about a proposed piece of legislation. Based on the survey, it is estimated that **35%** of people in the population support the legislation, with an associated margin of error of **3%**. Based on these results, which of the following is a plausible value for the total number of people in the population who support the proposed legislation?

- A. **350**
- B. **650**
- C. **16,750**
- D. **31,750**

Question ID 7a234b15

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Inference from sample statistics and margin of error	Medium

ID: 7a234b15

A company fills boxes with approximately **23** pounds of oranges. To test the accuracy of the filling process, **344** boxes of oranges were selected at random and weighed. Based on the sample, it is estimated that the average weight of all boxes of oranges filled by the company in an **8**-hour period is **23.1** pounds, with an associated margin of error of **0.19** pounds. Which of the following is the best interpretation of this estimate?

- A. Plausible values for the average weight of all boxes of oranges filled by the company are between **22.91** pounds and **23.29** pounds.
- B. Plausible values for the average weight of all boxes of oranges filled by the company are less than **22.91** pounds or greater than **23.29** pounds.
- C. The average weight of all boxes of oranges filled by the company is less than **23.01** pounds.
- D. The average weight of all boxes of oranges filled by the company is greater than **23.01** pounds.

Question ID 591db6cf

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Inference from sample statistics and margin of error	Medium

ID: 591db6cf

To estimate the proportion of a population that has a certain characteristic, a random sample was selected from the population. Based on the sample, it is estimated that the proportion of the population that has the characteristic is **0.49**, with an associated margin of error of **0.04**. Based on this estimate and margin of error, which of the following is the most appropriate conclusion about the proportion of the population that has the characteristic?

- A. It is plausible that the proportion is between **0.45** and **0.53**.
- B. It is plausible that the proportion is less than **0.45**.
- C. The proportion is exactly **0.49**.
- D. It is plausible that the proportion is greater than **0.53**.