

Statistical Claims

CollegeBoard Question Bank

Abstract

This exercise sheet contains

- an **Easy** category with 2 questions;
- a **Medium** category with 3 questions;
- a **Hard** category with 4 questions

for you to attempt. A digital copy of this sheet is available for you on [moodle](#). Feel free to utilize [the Question Space on Teams](#) to ask for guidance.

Best,
Omar :)

Statistical Claims

Easy

(1) **9bf4c545** MULTIPLE CHOICE One answer only

The members of a city council wanted to assess the opinions of all city residents about converting an open field into a dog park. The council surveyed a sample of 500 city residents who own dogs. The survey showed that the majority of those sampled were in favor of the dog park. Which of the following is true about the city council's survey?

- a. The survey sample should have consisted entirely of residents who do not own dogs.
- b. The survey sample should have included more residents who are dog owners.
- c. The survey sample is biased because it is not representative of all city residents.
- d. It shows that the majority of city residents are in favor of the dog park.

(2) **82dfb646** MULTIPLE CHOICE One answer only

A market researcher selected 200 people at random from a group of people who indicated that they liked a certain book. The 200 people were shown a movie based on the book and then asked whether they liked or disliked the movie. Of those surveyed, 95% said they disliked the movie. Which of the following inferences can appropriately be drawn from this survey result?

- a. Most people who dislike this book will like this movie.
- b. At least 95% of people who go see movies will dislike this movie.
- c. Most people who like this book will dislike this movie.
- d. At least 95% of people who read books will dislike this movie.

Medium

(1) **37930b2a** MULTIPLE CHOICE One answer only

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. II only
- b. Neither
- c. I only
- d. I and II

(2) **b4f5a7ca**

MULTIPLE CHOICE

One answer only

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 history professors at all California State Universities
- b. All professors at all California State Universities
- c. All professors in the United States
- d. All history professors in the United States

(3) **642519d7**

MULTIPLE CHOICE

One answer only

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?

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

II) 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.

III) 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. I and II only
- b. None
- c. II only
- d. I and III only

Hard

(1) 85939da5

MULTIPLE CHOICE

One answer only

Texting behavior	Talks on cell phone daily	Does not talk on cell phone daily	Total
Light	110	146	256
Medium	139	164	303
Heavy	166	74	240
Total	415	384	799

In a study of cell phone use, 799 randomly selected US teens were asked how often they talked on a cell phone and about their texting behavior. The data are summarized in the table above. Based on the data from the study, an estimate of the percent of US teens who are heavy texters is 30% and the associated margin of error is 3%. Which of the following is a correct statement based on the given margin of error?

- It is doubtful that the percent of all US teens who are heavy texters is 35%.
- The percent of all US teens who are heavy texters is 33%.
- Approximately 3% of the teens in the study who are classified as heavy texters are not really heavy texters.
- It is not possible that the percent of all US teens who are heavy texters is less than 27%.

(2) **c7e73ece** SHORT ANSWER Case-Insensitive

Views on Nuclear Energy Use	
Response	Frequency
Somewhat favor	214
Somewhat oppose	104
Strongly oppose	37

A researcher interviewed 411 randomly selected US residents and asked about their views on the use of nuclear energy. The table above summarizes the responses of the interviewees. If the population of the United States was 300 million when the survey was given, based on the sample data for the 411 US residents, what is the best estimate, in millions, of the difference between the number of US residents who somewhat favor or strongly favor the use of nuclear energy and the number of those who somewhat oppose or strongly oppose it? (Round your answer to the nearest whole number.)

(3) 308084c5

MULTIPLE CHOICE

One answer only

Sample	Percent in favor	Margin of error
A	52%	4.2%
B	48%	1.6%

The results of two random samples of votes for a proposition are shown above. The samples were selected from the same population, and the margins of error were calculated using the same method. Which of the following is the most appropriate reason that the margin of error for sample A is greater than the margin of error for sample B?

- a. Sample A had a smaller sample size.
- b. Sample A had a larger sample size.
- c. Sample A had a higher percent of favorable responses.
- d. Sample A had a smaller number of votes that could not be recorded.

- (4) **9ba3e283** MULTIPLE CHOICE One answer only

In State X, Mr. Camp's eighth-grade class consisting of 26 students was surveyed and 34.6 percent of the students reported that they had at least two siblings. The average eighth-grade class size in the state is 26 . If the students in Mr. Camp's class are representative of students in the state's eighth-grade classes and there are 1,800 eighth-grade classes in the state, which of the following best estimates the number of eighth-grade students in the state who have fewer than two siblings?

- a. 23,400
- b. 30,600
- c. 16,200
- d. 46,800

Total of marks: 9