Question ID 7007be56

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

ID: 7007be56

Scott selected 20 employees at random from all 400 employees at a company. He found that 16 of the employees in this sample are enrolled in exactly three professional development courses this year. Based on Scott's findings, which of the following is the best estimate of the number of employees at the company who are enrolled in exactly three professional development courses this year?

A. 4

B. 320

C. 380

D. 384

ID: 7007be56 Answer

Correct Answer: B

Rationale

Choice B is correct. It's given that from the sample of 20 employees at the company, 16 of the employees are enrolled in exactly three professional development courses this year. Since $\left(\frac{16}{20}\right)$ is equal to 0.80, or $\frac{80}{100}$, it follows that 80% of the employees in the sample are enrolled in exactly three professional development courses this year. Therefore, the best estimate for the percentage of employees at the company who are enrolled in exactly three professional development courses this year is 80%. It's given that there are a total of 400 employees at the company. Therefore, the best estimate of the number of employees at the company who are enrolled in exactly three professional development courses this year is $\left(\frac{80}{100}\right)(400)$, or 320.

Choice A is incorrect. This is the number of employees from the sample who aren't enrolled in exactly three professional development courses this year.

Choice C is incorrect. This is the number of employees who weren't selected for the sample.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 37ff191d

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

ID: 37ff191d

An analyst collected data on the price of a carton of grape tomatoes at 30 locations selected at random in Utah. The mean price of a carton of grape tomatoes in Utah was estimated to be $\$4.23$, with an associated margin of error of $\$0.08$. Which of the following is a plausible statement about the mean price of a carton of grape tomatoes for all locations that sell this product in Utah?

A. It is between $\$4.15$ and $\$4.31$.

B. It is either less than $\$4.15$ or greater than $\$4.31$.

C. It is less than $\$4.15$.

D. It is greater than $\$4.31$.

ID: 37ff191d Answer

Correct Answer: A

Rationale

Choice A is correct. It's given that the mean price of a carton of grape tomatoes in Utah was estimated to be $\$4.23$, with an associated margin of error of $\$0.08$. It follows that plausible values for this mean price are between $\$4.23 - \$0.08$ and $\$4.23 + \$0.08$. Therefore, it's plausible that the mean price of a carton of grape tomatoes for all locations that sell this product in Utah is between $\$4.15$ and $\$4.31$.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 9cbbe96d

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

ID: 9cbbe96d

There are 55 students in Spanish club. A sample of the Spanish club students was selected at random and asked whether they intend to enroll in a new study program. Of those surveyed, 20% responded that they intend to enroll in the study program. Based on this survey, which of the following is the best estimate of the total number of Spanish club students who intend to enroll in the study program?

A. 11

B. 20

C. 44

D. 55

ID: 9cbbe96d Answer

Correct Answer: A

Rationale

Choice A is correct. It's given that 20% of the students surveyed responded that they intend to enroll in the study program. Therefore, the proportion of students in Spanish club who intend to enroll in the study program, based on the survey, is 0.20. Since there are 55 total students in Spanish club, the best estimate for the total number of these students who intend to enroll in the study program is $55(0.20)$, or 11.

Choice B is incorrect. This is the best estimate for the percentage, rather than the total number, of students in Spanish club who intend to enroll in the study program.

Choice C is incorrect. This is the best estimate for the total number of Spanish club students who do not intend to enroll in the study program.

Choice D is incorrect. This is the total number of students in Spanish club.

Question Difficulty: Easy