

**Answers to the Homework for Chapter 40:
Statistics and Survey Design**
From *Decoding the Digital SAT*

Homework includes questions from the following College Board tests:

Curvebreakers Practice Test #1, Section 2

Module 1: none

Module 2: 21

Curvebreakers Practice Test #2, Section 2

Module 1: 7

Module 2: none

Curvebreakers Practice Test #1, Section 2

Module 2: 21

21

The psychology department of a school conducted a study on 20 random students in a third grade class of 58 students. 20 of the students were then offered a supplement. The study found that 15 of these students did better in their end-term exams compared to those who did not take the supplements. Which of the following statements can best be concluded from the above study?

- A) Students who take supplements do better on exams.
- B) Students who do not take supplements do not do well on their exams.
- C) Supplements improve students' performance in their exams.
- D) No conclusion can be drawn about the cause-and-effect relationship between test taking and supplement taking.

21. **Level:** Easy | **Domain:** PROBLEM-SOLVING AND DATA ANALYSIS

Skill/Knowledge: Evaluating statistical claims: observational studies, and experiments |

Testing point: Observational experiments

Key Explanation: Choice D is correct. This statement is true because it is not certain that taking supplements would directly equate to an improvement in student performance. It is not known if all other variables were kept constant. Therefore, a direct cause-and-effect relationship cannot be determined. Also, the sample size is too small to generalize to a larger population.

Distractor Explanation: Choices A, B, and C are incorrect. These statements are false and imply that there is a relationship between student performance and taking supplements.

Curvebreakers Practice Test #2, Section 2
Module 1: 7

7

A researcher found the mean mass of all cheetahs in a park. He found that the mean mass of all cheetahs in the park is between 120 *lbs* and 182 *lbs*. What is the value of the margin of error for the mean mass of the cheetahs in the park?

7. **Level:** Medium | **Domain:** PROBLEM-SOLVING AND DATA ANALYSIS
Skill/Knowledge: Inference from sample statistics and margin of error | **Testing point:** Finding the margin of error

Key Explanation: To find the margin of error, first find the midpoint of the sample mean mass.

This yields $\frac{120+182}{2} = 151$. The margin of error

would be the difference between the midpoint and either of the sample mean masses. Subtracting 151 from 182 yields 31.