

# SAT Evaluating Statistical Claims Worksheet

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Circle one answer for each question. Use the blank space for calculations. A calculator is allowed.

- 1. A researcher randomly assigns 100 volunteers to two groups. One group drinks green tea every day for a month, and the other group drinks water. The researcher then compares the groups' blood pressure. What type of study is this?**

  - A. An observational study, because the volunteers were observed
  - B. A sample survey, because the volunteers were asked questions
  - C. An observational study, because the volunteers chose to take part
  - D. A randomized experiment, because the researcher assigned the drinks at random
  
- 2. A study of 500 adults found that dog owners walked more each day, on average, than people without dogs. The adults chose for themselves whether to own a dog. Which conclusion is best supported?**

  - A. Owning a dog causes people to walk more.
  - B. Walking more causes people to buy dogs.
  - C. Among these adults, owning a dog is associated with walking more.
  - D. All adults would walk more if they owned a dog.
  
- 3. A radio host asked listeners to call in and say whether they supported a new stadium. Of the 400 callers, 78% opposed it. Why is this result not a reliable estimate for all residents of the city?**

  - A. The callers chose to respond, so they may not represent the city's residents.
  - B. A sample of 400 callers is too small to estimate anything about a city.
  - C. Radio listeners are more likely to oppose stadiums than other residents are.
  - D. The host did not report the percent of callers who supported the stadium.

4. **To estimate the mean number of hours that students at a high school spend on homework each week, a teacher surveys the 28 students in her advanced calculus class. Why might this estimate be biased?**
- A. The sample has fewer than 30 students.
  - B. The teacher surveyed every student in the class instead of choosing some at random.
  - C. The survey asked about a whole week instead of a single day.
  - D. Students in an advanced class may not spend the same amount of time on homework as other students at the school.
5. **Across 50 towns, the number of public libraries is positively associated with the number of car thefts. Which is the most likely explanation?**
- A. Libraries cause car thefts.
  - B. Towns with more people tend to have both more libraries and more car thefts.
  - C. Car thefts cause towns to build more libraries.
  - D. The association must be due to a mistake in the data.
6. **Researchers surveyed a random sample of 1,000 adults in a state. Adults who reported sleeping more hours reported lower stress levels, on average. Which conclusion is best supported?**
- A. Among adults in the state, more sleep is associated with lower reported stress.
  - B. More sleep causes lower stress for adults in the state.
  - C. More sleep causes lower stress for all adults in the country.
  - D. No conclusion can be drawn about adults in the state, because the study was not an experiment.

7. A gym asked its members for volunteers and randomly assigned 60 volunteers to either a new workout plan or the standard plan. After 8 weeks, the new-plan group had a greater mean increase in strength. Which conclusion is best supported?
- A. The new plan causes a greater increase in strength for all adults.
  - B. The new plan causes a greater increase in strength for all members of the gym.
  - C. The new plan caused a greater increase in strength for the volunteers in the study.
  - D. No conclusion about cause can be drawn, because the participants were volunteers.
8. A company wants to find out whether a new feature in its app increases the time users spend in the app. Which study design would best allow the company to conclude that the feature causes a change?
- A. Compare users who choose to turn the feature on with users who don't.
  - B. Randomly assign users to a version of the app with the feature or a version without it, then compare their time in the app.
  - C. Ask users in a survey whether the feature makes them use the app more.
  - D. Compare users' time in the app in the month after the feature launched with the month before.

9.

| Group         | Number of plants | Mean yield (kilograms) |
|---------------|------------------|------------------------|
| Fertilizer X  | 60               | 4.8                    |
| No fertilizer | 60               | 3.9                    |

A researcher randomly assigned 120 tomato plants in a greenhouse to two groups of 60. One group received fertilizer X, and the other received no fertilizer. The table shows the results. Which conclusion is best supported?

- A. Fertilizer X increases the yield of every tomato plant by 0.9 kilogram.
- B. Fertilizer X is associated with a greater yield, but it can't be said to cause one.
- C. Fertilizer X will increase the yield of any crop grown in any greenhouse.
- D. Fertilizer X caused a greater mean yield for plants like those in the study.

- 10. A researcher selected 200 students at random from a university. Half were randomly assigned to study with flashcards and half to reread their notes. The flashcard group had a higher mean score on a vocabulary test. Which conclusion is best supported?**
- A. For students at the university, studying with flashcards causes higher mean vocabulary scores than rereading notes.
  - B. For all college students, studying with flashcards causes higher mean vocabulary scores than rereading notes.
  - C. Studying with flashcards is associated with higher scores, but no cause can be shown.
  - D. Every student at the university would score higher by studying with flashcards.
- 11. A school district mailed a survey to 1,000 randomly selected parents. Only 150 parents returned it, and 90% of them approved of a new school schedule. What is the main problem with using this result to estimate the percent of all parents in the district who approve?**
- A. The district should have selected the parents by grade level.
  - B. The survey was mailed instead of emailed.
  - C. The parents who returned the survey may differ from those who didn't.
  - D. A sample of 1,000 parents is too large.
- 12. A random sample of 400 juniors at a large high school was studied. The juniors who chose to take a test-prep course had a higher mean score on the state math test than the juniors who didn't. Which conclusion is best supported?**
- A. Taking the course causes higher scores for juniors at the school.
  - B. Among juniors at the school, taking the course is associated with higher scores.
  - C. Taking the course causes higher scores for all high school juniors.
  - D. No conclusion can be drawn, because the sample was random.