

### S.IC.B.6: Analysis of Data 2

- 1 Cheap and Fast gas station is conducting a consumer satisfaction survey. Which method of collecting data would most likely lead to a biased sample?
  - 1) interviewing every 5th customer to come into the station
  - 2) interviewing customers chosen at random by a computer at the checkout
  - 3) interviewing customers who call an 800 number posted on the customers' receipts
  - 4) interviewing every customer who comes into the station on a day of the week chosen at random out of a hat
  
- 2 The operator of the local mall wants to find out how many of the mall's employees make purchases in the food court when they are working. She hopes to use these data to increase the rent and attract new food vendors. In total, there are 1023 employees who work at the mall. The best method to obtain a random sample of the employees would be to survey
  - 1) all 170 employees at each of the larger stores
  - 2) 50% of the 90 employees of the food court
  - 3) every employee
  - 4) every 30th employee entering each mall entrance for one week
  
- 3 A random sample of 100 people that would best estimate the proportion of all registered voters in a district who support improvements to the high school football field should be drawn from registered voters in the district at a
  - 1) football game
  - 2) supermarket
  - 3) school fund-raiser
  - 4) high school band concert
  
- 4 Mrs. Favata's statistics class wants to conduct a survey to see how students feel about changing the school mascot's name. Which plan is the best process for gathering an appropriate sample?
  - 1) Survey students in a random sample of senior homerooms.
  - 2) Survey every tenth student entering art classes in the school.
  - 3) Survey every fourth student entering the cafeteria during each lunch period.
  - 4) Survey all members of the school's varsity sports teams.

- 5 A group of high school students wanted to collect information on how many times per week students exercised. If they want the *least* biased results they should survey every fifth student at the school who is
- |                        |                          |
|------------------------|--------------------------|
| 1) entering the gym    | 3) entering the library  |
| 2) in the junior class | 4) entering the building |
- 6 Which statement(s) about statistical studies is true?
- I. A survey of all English classes in a high school would be a good sample to determine the number of hours students throughout the school spend studying.
- II. A survey of all ninth graders in a high school would be a good sample to determine the number of student parking spaces needed at that high school.
- III. A survey of all students in one lunch period in a high school would be a good sample to determine the number of hours adults spend on social media websites.
- IV. A survey of all Calculus students in a high school would be a good sample to determine the number of students throughout the school who don't like math.
- |             |               |
|-------------|---------------|
| 1) I, only  | 3) I and III  |
| 2) II, only | 4) III and IV |
- 7 Chuck's Trucking Company has decided to initiate an Employee of the Month program. To determine the recipient, they put the following sign on the back of each truck.



- The driver who receives the highest number of positive comments will win the recognition. Explain *one* statistical bias in this data collection method.
- 8 In an attempt to get the student body's opinion of a new dress code, members of the statistics class surveyed the-students of the first period computer science class. Explain a statistical bias in the method of data collection.
- 9 The business office of a local college wishes to determine the methods of payment that will be used by students when buying books at the beginning of a semester. Explain how the office can gather an appropriate sample that minimizes bias.

**S.IC.B.6: Analysis of Data 2**  
**Answer Section**

1 ANS: 3

Self selection causes bias.

REF: 061703aii

2 ANS: 4 REF: 011801aii

3 ANS: 2 REF: 011910aii

4 ANS: 3

To determine student opinion, survey the widest range of students.

REF: 062202aii

5 ANS: 4 REF: 082301aii

6 ANS: 1

II. Ninth graders drive to school less often; III. Students know little about adults; IV. Calculus students love math!

REF: 081602aii

7 ANS:

Self selection is a cause of bias because people with more free time are more likely to respond.

REF: 061828aii

8 ANS:

The opinion sought is that of the entire student body, but the first period computer science class may not be representative of the entire student body.

REF: 062427aii

9 ANS:

Pick random names from a list of all students and ask each one his method.

REF: 062325aii