

A.S.3: Analysis of Data: Determine when collected data or display of data may be biased

- 1 A school wants to add a coed soccer program. To determine student interest in the program, a survey will be taken. In order to get an unbiased sample, which group should the school survey?
 - 1) every third student entering the building
 - 2) every member of the varsity football team
 - 3) every member in Ms. Zimmer's drama classes
 - 4) every student having a second-period French class
- 2 A survey is being conducted to determine if a cable company should add another sports channel to their schedule. Which random survey would be the least biased?
 - 1) surveying 30 men at a gym
 - 2) surveying 45 people at a mall
 - 3) surveying 50 fans at a football game
 - 4) surveying 20 members of a high school soccer team
- 3 A school newspaper will survey students about the quality of the school's lunch program. Which method will create the *least* biased results?
 - 1) Twenty-five vegetarians are randomly surveyed.
 - 2) Twenty-five students are randomly chosen from each grade level.
 - 3) Students who dislike the school's lunch program are chosen to complete the survey.
 - 4) A booth is set up in the cafeteria for the students to voluntarily complete the survey.
- 4 Which method of collecting data would most likely result in an unbiased random sample?
 - 1) selecting every third teenager leaving a movie theater to answer a survey about entertainment
 - 2) placing a survey in a local newspaper to determine how people voted in the 2004 presidential election
 - 3) selecting students by the last digit of their school ID number to participate in a survey about cafeteria food
 - 4) surveying honor students taking Mathematics B to determine the average amount of time students in a school spend doing homework each night
- 5 A survey is being conducted to determine which types of television programs people watch. Which survey and location combination would likely contain the most bias?
 - 1) surveying 10 people who work in a sporting goods store
 - 2) surveying the first 25 people who enter a grocery store
 - 3) randomly surveying 50 people during the day in a mall
 - 4) randomly surveying 75 people during the day in a clothing store

- 6 Erica is conducting a survey about the proposed increase in the sports budget in the Hometown School District. Which survey method would likely contain the most bias?
- 1) Erica asks every third person entering the Hometown Grocery Store.
 - 2) Erica asks every third person leaving the Hometown Shopping Mall this weekend.
 - 3) Erica asks every fifth student entering Hometown High School on Monday morning.
 - 4) Erica asks every fifth person leaving Saturday's Hometown High School football game.

- 7 A survey is being conducted to determine which school board candidate would best serve the Yonkers community. Which group, when randomly surveyed, would likely produce the most bias?
- 1) 15 employees of the Yonkers school district
 - 2) 25 people driving past Yonkers High School
 - 3) 75 people who enter a Yonkers grocery store
 - 4) 100 people who visit the local Yonkers shopping mall

- 8 A local government is planning to increase the fee for use of a campsite. If a survey were taken, which group would be most biased in their *opposition* to the increase?
- 1) teachers
 - 2) soccer players
 - 3) postal workers
 - 4) campers

- 9 Which statement regarding biased sampling is *false*?
- 1) Online sampling is biased because only the people who happen to visit the web site will take the survey.
 - 2) A radio call-in survey is biased because only people who feel strongly about the topic will respond.
 - 3) A survey handed to every third person leaving a library is biased because everyone leaving the library was not asked to participate.
 - 4) Asking for experts to take a survey is biased because they may have particular knowledge of the topic.
- 10 Four hundred licensed drivers participated in the math club's survey on driving habits. The table below shows the number of drivers surveyed in each age group.

Ages of People in Survey on Driving Habits

Age Group	Number of Drivers
16–25	150
26–35	129
36–45	33
46–55	57
56–65	31

Which statement best describes a conclusion based on the data in the table?

- 1) It may be biased because no one younger than 16 was surveyed.
- 2) It would be fair because many different age groups were surveyed.
- 3) It would be fair because the survey was conducted by the math club students.
- 4) It may be biased because the majority of drivers surveyed were in the younger age intervals.

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Answer Section

1 ANS: 1

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

REF: 060803ia

2 ANS: 2

People at a gym or football game and members of a soccer team are more biased towards sports.

REF: 061202ia

3 ANS: 2

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

REF: 011313ia

4 ANS: 3

(1) would result in a survey about entertainment in general skewed with too many movie-goers. (2) would result in a survey about an election skewed with too many newspaper-readers. (4) would result in a survey about study habits skewed with too many upperclassmen.

REF: 010815b

5 ANS: 1

Everyone eats, can shop in malls and wear clothes. People who work in a sporting goods store probably watch more sports television than most.

REF: 010923ia

6 ANS: 4

Surveying persons leaving a football game about a sports budget contains the most bias.

REF: 080910ia

7 ANS: 1

Asking school district employees about a school board candidate produces the most bias.

REF: 061107ia

8 ANS: 4

REF: 061407ia

9 ANS: 3

REF: 011404ia

10 ANS: 4

REF: 061022ia