

# Algebra 2

## 9-03 Collecting Data

### Steps in a Statistical Study

1. Identify \_\_\_\_\_ of interest and \_\_\_\_\_
2. Choose \_\_\_\_\_ that represents the population
3. Collect \_\_\_\_\_
4. \_\_\_\_\_ and \_\_\_\_\_ the data using a statistic
5. \_\_\_\_\_ the data, make \_\_\_\_\_, draw \_\_\_\_\_ about the population

### Types of Samples

- Random
  - Each member \_\_\_\_\_ likely to be selected
- Self-Selected
  - Members \_\_\_\_\_
- Systematic
  - A \_\_\_\_\_ is used to choose members
- Stratified
  - Population divided into groups. Members \_\_\_\_\_ chosen from \_\_\_\_\_ group
- Cluster
  - Population divided into groups. Entire \_\_\_\_\_ are chosen randomly.
- Convenience
  - Members who are \_\_\_\_\_ to reach

You want to determine whether the people in your neighborhood like the new social media website that provides neighborhood updates. Identify the type of sample described.

**a.** You ask all the people who live on your block.

**b.** You randomly select a person from each block in the neighborhood.

**c.** You email questionnaires and use only the questionnaires that are returned.

**d.** You divide the people in your neighborhood according to even and odd house numbers, then select all the people with an even house number.

### Bias

- \_\_\_\_\_ that results from a sample that \_\_\_\_\_ the population
- Unbiased sample
  - Is \_\_\_\_\_ of the population
- Biased sample
  - \_\_\_\_\_ - or \_\_\_\_\_ -represents a part of the population

Identify the type of sample and explain why the sample is biased.

- a. The principal asks students at one lunch table about the quality of food served in the school's cafeteria.
- b. A sports announcer wants to know how often people in the town attend community sporting events. She asks every tenth person who enters the field to watch a local soccer game.

You are a member of your school's banquet committee. You want to poll the members of the senior class to find out where the banquet should be held. There are 75 students in the senior class. Describe a method for selecting a random sample of 40 seniors to poll.

### Methods of Data Collection

- Experiment
  - Imposes a \_\_\_\_\_ on a sample
- Observational Survey
  - \_\_\_\_\_ the sample
- Survey
  - \_\_\_\_\_ the sample some \_\_\_\_\_
- Simulation
  - Using a \_\_\_\_\_ to reproduce a situation

Identify the method of data collection described in each situation.

A teacher records how many students turn in their homework as they enter the classroom.

A manager uses a computer program to estimate the number of defective products that will be produced by a particular assembly line.

A town supervisor surveys residents of the town by asking, "Should the town build a playground and a dog area in the park on Main Street?" Explain why the question may be biased or otherwise introduce bias into the survey. Then describe a way to correct the flaw.

486 #1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 39, 41, 43, 49 = 20