

13.5 Analyze Surveys and Samples

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EXAMPLE

You want to determine what type of music is the favorite of students in your grade. You survey every third student from an alphabetical list of students in your grade. You ask each surveyed student, “What is your favorite type of music, classical or country?”

Identify the population and classify the sampling method. Tell whether the question is potentially biased. Explain your answer. If the question is potentially biased, rewrite it so that it is not.

The population is all students in your grade. Because you use the rule “survey every third student,” the sample is a systematic sample.

The question is biased, because it does not allow students to choose a type of music other than classical or country. An unbiased question is “What is your favorite type of music?”

EXERCISES

- 22. SURVEY** In the example above, suppose you create a questionnaire and distribute one to every student in your grade. There is a box in the cafeteria where students can drop off completed questionnaires during lunch. Identify the sampling method.

EXAMPLE 1

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13.6 Use Measures of Central Tendency and Dispersion

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EXAMPLE

The amounts of snowfall (in inches) in one town for 8 months of the year are listed below. Find the mean, median, and mode(s) of the data. Which measure of central tendency best represents the data?

0.5, 0.5, 1.5, 2.0, 3.5, 4.5, 16.5, 30.5

$$\bar{x} = \frac{0.5 + 0.5 + 1.5 + 2.0 + 3.5 + 4.5 + 16.5 + 30.5}{8} = \frac{59.5}{8} = 7.4375 \text{ inches}$$

The median is the mean of the two middle values, 2.0 and 3.5, or 2.75 inches.

The mode is 0.5 inch.

The median best represents the data. The mean is greater than most of the data values. The mode is less than most of the data values.

EXERCISES

- 23. BASEBALL STATISTICS** The numbers of home runs hit by baseball player Manny Ramirez against several different opposing teams over 3 seasons are 5, 1, 10, 5, 5, 4, 1, 0, 7, 2, 1, 1, 1, 9, 6, 1, 2, 6, 2, 19, 6, and 17.
- Find the mean, median, and mode(s) of the data.
 - Which measure of central tendency best represents the data? *Explain.*

EXAMPLES 1 and 2

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