Chapter 8 Review

Vocabulary Review

🔊 **biased question** (p. 283)
box plot (p. 297)
inference (p. 292)

interquartile range (p. 297)
mean absolute deviation (p. 298)
population (p. 282)

random sample (p. 282)
sample (p. 282)
variability (p. 297)

Number a piece of scratch paper 1 through 18. You can use your evernote notes and a calculator as we work through these review questions.

Choose the correct term to complete each sentence.

1. A (biased question, random sample) can influence the results of a survey. ▮▮▮▮

2. A (box plot, sample) is used to gather data about part of a population. ▮▮▮

3. The (population, variability) of a data set is a measure of how much the data are spread out. ▮▮

4. The (interquartile range, mean absolute deviation) of a data set is a measure of the average distance from the mean to the data values. ▮▮▮▮

5. A (population, random sample) is a whole group. ▮▮▮

Lesson 8-1

- To identify a random sample and to write a survey question

A **population** is a group of objects or people, and a **sample** is a part of a population. In a **random sample**, each member of the population has the same chance of being selected.

A **biased question** makes some answers appear better or worse than others.

Which sample is more likely to be random? Explain.

6. A clothing store manager wants to know the type of jeans customers most prefer.
   a. She asks every fifth customer entering the store one day.
   b. She asks all of the women trying on jeans in the store one day.

7. A team of biologists wants to know the heights of the trees in a forest.
   a. They measure the heights of 50 trees along a road in the forest.
   b. They divide the forest into equal squares and measure the heights of 2 trees in each square.

Is each question *biased* or *fair*? Explain.

8. What is your favorite activity after school?

9. Do you like the calm, soothing ocean?

Lesson 8-2

- To estimate population size using proportions

You can use the capture/recapture method to estimate population size. Use the following proportion to estimate an animal population.

$$\frac{\text{number of marked animals counted}}{\text{total number of animals counted}} = \frac{\text{total number of marked animals}}{\text{estimate of animal population}}$$

Use a proportion to estimate each animal population.

10. total eagles counted: 75
    tagged eagles counted: 10
    total tagged eagles: 60

11. total cheetahs counted: 21
    tagged cheetahs counted: 7
    total tagged cheetahs: 27

12. **Biology** Researchers know that there are 53 marked wolves in an area. On a flight over the area, they count 18 marked wolves and a total of 125 wolves. Estimate the total wolf population.

Lesson 8-3

- To use data from random samples to draw inferences about populations

Inferences are predictions or conclusions based on data or reasoning. You can use data from random samples of a population to draw inferences about the entire population.

Manufacturing A factory makes 10,000 cell phone batteries each day. On Monday, 3 inspectors test a random sample of 300 batteries each. The table shows the results.

Battery Test Results

Sample	Good	Defective
1	299	1
2	296	4
3	298	2

13. For each sample, estimate how many batteries made at the factory on Monday are defective.

14. Describe the variation in the estimates.

15. Draw an inference about the number of defective batteries made at the factory on Monday.

Lesson 8-4

- To compare data about two populations by using measures of center and measures of variability

A measure of **variability** indicates how much a data set is spread out. The **mean absolute deviation** (MAD) of a data set is the average distance between the mean and each data value.

Raisins per Package

Brand A		Brand B
	33	✗ ✗ ✗ ✗
	34	✗ ✗ ✗
✗	35	✗ ✗
✗ ✗	36	✗
✗ ✗ ✗ ✗	37	
✗ ✗	38	
✗	39	

Nutrition The line plot shows the number of raisins per package in random samples of two different brands of trail mix. Use the line plot for Exercises 16–18.

16. Calculate the mean of each data set.

17. Determine the MAD for each data set.

18. What multiple n of the MAD equals the difference between the means? What does this number tell you about the overlap of the data sets?