

# 9.2 Describing "Average"

- ▶ Use mean, median, and mode to describe the average value of a data set.
- ▶ Read and understand box-and-whisker plots and histograms.
- ▶ Understand the effect of outliers on averages.

## Mean, Median, and Mode

Some data sets have typical values that are representative of the entire set. For instance, a typical adult thumb is about 1 inch wide. (Historically, this is how inches were measured.) In such data sets, there are three basic ways to describe the "average" of the data set. These measures are called *measures of central tendency*. This is part of a field called *descriptive statistics*.

**Study Tip**

Here is an example of mean, median, and mode.

Data: 1, 2, 2, 2, 3, 4, 6, 7, 9

Mean:  $\frac{36}{9} = 4$

Median:  
middle number = 3

Mode: most frequent = 2

### Mean, Median, and Mode

To find the **mean**, add all the values in the data set and divide by the number of values in the set.

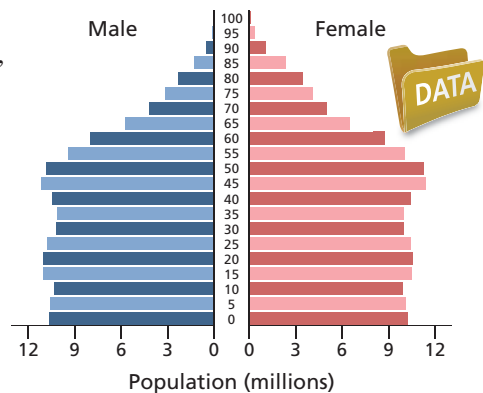
To find the **median**, arrange the values in order. The number in the middle or the mean of the two middle values is the median.

To find the **mode**, look for the value that occurs most often in the data set.

### EXAMPLE 1 Estimating the Mean, Median, and Mode

The population pyramid shows the age distributions of males and females in the United States. Estimate the mean, median, and mode for males and females.

**Age Distribution of U.S. (2010)**



### SOLUTION

You can use a spreadsheet and the actual data to determine the mean, median, and mode.

**Mean:** The mean age for males is about 36, and the mean age for females is about 39.

**Median:** The median age for both males and females is between 35 and 39.

**Mode:** The mode age for both males and females is between 45 and 49.

### ✓ Checkpoint

Help at [Math.andYOU.com](http://Math.andYOU.com)

How does the population pyramid of the United States differ from the population pyramid of Brazil? Explain your reasoning.

**Age Distribution of Brazil (2010)**

