Name _____  Date _____

# Study Guide
*For use with the lesson "Use Measures of Central Tendency and Dispersion"*

**GOAL** **Compare measures of central tendency and dispersion.**

> ### Vocabulary
> A **measure of dispersion** describes the dispersion, or spread, of data.
>
> Two such measures are the **range,** which gives the length of the interval containing the data, and the **mean absolute deviation,** which gives the average variation of the data from the mean.

**EXAMPLE 1** ## Compare measures of central tendency

**The high temperatures (in °F) recorded each day for one week are listed below. Which measure of central tendency best represents the data?**

**70, 71, 71, 72, 81, 82, 85**

**Solution**

$$\bar{x} = \frac{70 + 71 + 71 + 72 + 81 + 82 + 85}{7} = \frac{532}{7} = 76$$

The median is the middle value, 72.

The mode is 71.

The mean best represents the data. The mode is at the lower end of the data, as is the median.

## Exercises for Example 1

**In Exercises 1-3, use the data: 5, 9, 11, 12, 13, 15, 15, 22, 60.**

**1.** Find the mean, median, and mode of the data.

**2.** Which measure of central tendency best represents the data?

**3.** Suppose you eliminate the greatest and least values, 5 and 60. Which measure of central tendency best represents the remaining data?

**LESSON**
**10.2**
# Study Guide *continued*
*For use with the lesson "Use Measures of Central Tendency and Dispersion"*

**EXAMPLE 2** ## Compare measures of dispersion

**Golf Tournament** In a golf tournament, the 18-hole totals for the top 6 golfers in the men's competition and the top 6 golfers in the women's competition are given. The men's scores are in set $A$, and the women's scores are in set $B$. Compare the spread of the data for the two sets of data using (a) the range and (b) the mean absolute deviation.

$A$: 67, 69, 69, 71, 74, 76

$B$: 68, 70, 72, 73, 74, 75

**Solution**

**a.** $A$: $76 - 67 = 9$          $B$: $75 - 68 = 7$

The range of set $A$ is greater than the range of set $B$. So, the data in $A$ cover a wider interval than the data in set $B$.

**b.** The mean of set $A$ is 71, so the mean absolute deviation is:

$$\frac{|67 - 71| + |69 - 71| + \cdots + |76 - 71|}{6} = \frac{16}{6} = 2.\overline{6}$$

The mean of set $B$ is 72, so the mean absolute deviation is:

$$\frac{|68 - 72| + |70 - 72| + \cdots + |75 - 72|}{6} = \frac{12}{6} = 2$$

The mean absolute deviation of $A$ is greater, so the average variation from the mean is greater for the data in set $A$ than for the data in set $B$.

## Exercise for Example 2

**4.** **Golf Tournament** In a golf tournament, the top 6 men's scores are 65, 68, 70, 72, 73, 75. The top women's scores are 69, 71, 73, 74, 77, 80. *Compare* the spread of the data for the two sets of scores using (a) the range and (b) the mean absolute deviation.

**LESSON 10.2**