



Name _____ Date _____

Measures of Variation (Pages 163–166)

The spread of data is called the **variation**. One way to measure it is with the **range**, the difference between the greatest and least numbers in the set. With large sets of data, it is often helpful to separate the data into four equal parts called **quartiles**.

EXAMPLE

Find the range, median, upper and lower quartiles, and interquartile range for this set of data.

12, 12, 16, 14, 13, 13, 11, 15, 13, 15

Arrange the data in order and divide it into halves.

11, 12, 12, 13, 13, 13, 14, 15, 15, 16

The range is the difference between the greatest and least values.

$$16 - 11 = 5$$

The range is 5.

There are 2 middle numbers, 13 and 13, so the median is 13.

The median of the upper half of the data is 15, so 15 is the upper quartile.

The median of the lower half of the data is 12, so 12 is the lower quartile.

To find the interquartile range, subtract the lower quartile from the upper quartile. The difference is $15 - 12$, or 3. The interquartile range is 3.

Try These Together

- Find the range, median, and upper and lower quartiles for this set of data.
0, 5, 3, 3, 2, 5, 6, 4, 6, 9, 6
HINT: First arrange the data in order.
- Find the interquartile range for the set of data in Exercise 1.
HINT: Subtract the quartiles.

PRACTICE

Find the range, median, upper and lower quartiles, and interquartile range for each set of data.

- 9, 2, 3, 8, 6, 1, 4, 6
- 41, 45, 42, 42, 45, 46, 41, 43, 43
- 75, 85, 75, 75, 85, 95, 96, 130, 78
- 32, 16, 12, 21, 29, 19, 30, 25, 25, 26



7. **Standardized Test Practice** What is the interquartile range for a set of data whose upper quartile is 5.5 and whose lower quartile is 1.8?

A 7.3 **B** 9.9 **C** 3.7 **D** 1.9

Answers: 1. 9; 5; 6; 3 2. 3 3. 8; 5; 7; 2.5; 4.5 4. 5; 43; 45; 41.5; 3.5 5. 55; 85; 95.5; 75; 20.5 6. 20; 25; 29; 19; 10 7. C