OUTLIERS A value that is widely separated from the rest of the data in a data set is called an **outlier**. Typically, a data value is considered to be an outlier if it is greater than the upper quartile by more than 1.5 times the interquartile range or if it is less than the lower quartile by more than 1.5 times the interquartile range.

EXAMPLE 3 TAKS PRACTICE: Multiple Choice

The normal monthly amounts of precipitation (in inches) in Dallas are: 1.9, 2.4, 3.1, 3.2, 5.2, 3.2, 2.1, 2.0, 2.4, 4.1, 2.6, 2.6. These data were used to create the box-and-whisker plot in Example 2. Which value, if any, is an outlier?

Ⓐ 1.9 Ⓑ 5.2 Ⓒ 1.9 and 5.2 Ⓓ No outlier

Solution

From Example 2, you know the interquartile range of the data is 0.9 inch. Find 1.5 times the interquartile range: $1.5(0.9) = 1.35$.

From Example 2, you also know that the lower quartile is 2.3 and the upper quartile is 3.2. A value less than $2.3 - 1.35 = 0.95$ is an outlier. A value greater than $3.2 + 1.35 = 4.55$, is an outlier. Notice that $5.2 > 4.55$.

▶ The correct answer is B. Ⓐ Ⓑ Ⓒ Ⓓ

GUIDED PRACTICE for Example 3

3. Which value, if any, is an outlier in the data set?

3.7, 3.0, 3.4, 3.6, 5.2, 5.4, 3.2, 3.8, 4.3, 4.5, 4.2, 3.7

Ⓐ 3.0 Ⓑ 5.4 Ⓒ 3.0 and 5.4 Ⓓ No outlier

13.8 EXERCISES

HOMEWORK KEY

○ = **WORKED-OUT SOLUTIONS** on p. WS1 for Exs. 3 and 17

= **TAKS PRACTICE AND REASONING** Exs. 8, 9, 18, 19, 21, and 22

SKILL PRACTICE

1. VOCABULARY What is the interquartile range of a data set?

2. WRITING *Explain* how you can identify an outlier in a data set.

EXAMPLE 1 on p. 887 for Exs. 3–7

BOX-AND-WHISKER PLOTS **Make a box-and-whisker plot of the data.**

3. 1, 7, 0, 7, 2, 6, 3, 6, 0, 7, 8

4. 10, 1, 7, 5, 1, 8, 5, 4, 6, 5, 9, 12

5. 52, 20, 24, 45, 35, 32, 39, 42, 23, 64

6. 0.8, 0.4, 0.3, 0.6, 0.7, 0.2, 0.7, 0.9