8.R.2 Exercises

Concept Check

True/False. Determine whether each statement is true or false. If a statement is false, explain how it can be changed so the statement will be true. (**Note:** There may be more than one acceptable change.)

1. If the solution is a union, there are two statements or inequalities, both of which must be true.

2. If the solution to a compound inequality is $-4 < x < 6$, then the solution is a union.

3. For a number to have absolute value greater than 2, its distance from 0 must be less than 2.

4. The inequality $|2x + 9| < -2$ has no solution.

Practice

Solve each of the absolute value inequalities and graph the solution sets. Write each solution using interval notation.

5. $|x| \geq -2$

6. $|x - 3| > 2$

7. $|x + 2| \leq -4$

8. $|3x+4|-1<0$

9. $4 \le |3x+1|-6$

10. $3|4x+5|-5>10$

In the following questions a set of real numbers is described. **a.** Sketch a graph of the set on a real number line. **b.** Represent each set using absolute value notation. **c.** Represent each set using interval notation. If the set is one interval, state what type of interval it is.

11. The set of real numbers between -10 and 10, inclusive

12. The set of real numbers within 7 units of 4

Applications

A confidence interval is described. **a.** Sketch a graph of the interval on a real number line. **b.** Represent the confidence interval using interval notation.

13. ***Confidence Interval:*** A confidence interval around a mean of 45 with a margin of error equal to 4.

14. ***Confidence Interval:*** A confidence interval where the endpoints of the interval are within 10.2 units of the mean, 302.7.

15. ***Find the Mean Given a Confidence Interval:*** If a confidence interval for the mean is given as (14.8, 16.6), what is the mean?