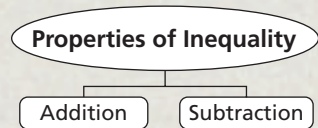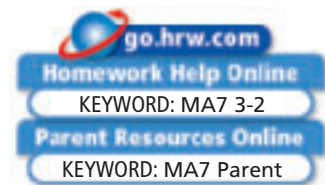## THINK AND DISCUSS

1. Show how to check your solution to Example 1B.

2. Explain how the Addition and Subtraction Properties of Inequality are like the Addition and Subtraction Properties of Equality.

3. **GET ORGANIZED** Copy and complete the graphic organizer. In each box, write an inequality that you must use the specified property to solve. Then solve and graph the inequality.

Properties of Inequality
— Addition   — Subtraction

3-2 Exercises

GUIDED PRACTICE

SEE EXAMPLE 1
p. 174

Solve each inequality and graph the solutions.

1. $12 < p + 6$　　　**2.** $w + 3 \geq 4$　　　**3.** $-5 + x \leq -20$　　　**4.** $z - 2 > -11$

SEE EXAMPLE 2
p. 175

5. Health For adults, the maximum safe water temperature in a spa is 104°F. The water temperature in Bill's spa is 102°F. The temperature is increased by t°F. Write, solve, and graph an inequality to show the values of t for which the water temperature is still safe.

SEE EXAMPLE 3
p. 176

6. Consumer Economics A local restaurant will deliver food to your house if the purchase amount of your order is at least $25.00. The total for part of your order is $17.95. Write and solve an inequality to determine how much more you must spend for the restaurant to deliver your order.

PRACTICE AND PROBLEM SOLVING

Independent Practice

For Exercises	See Example
7–10	1
11	2
12	3

Extra Practice
Skills Practice p. S8
Application Practice p. S30

Solve each inequality and graph the solutions.

7. $a - 3 \geq 2$　　　**8.** $2.5 > q - 0.8$　　　**9.** $-45 + x < -30$　　　**10.** $r + \dfrac{1}{4} \leq \dfrac{3}{4}$

11. Engineering The maximum load for a certain elevator is 2000 pounds. The total weight of the passengers on the elevator is 1400 pounds. A delivery man who weighs 243 pounds enters the elevator with a crate of weight w. Write, solve, and graph an inequality to show the values of w that will not exceed the weight limit of the elevator.

12. Transportation The gas tank in Mindy's car holds at most 15 gallons. She has already filled the tank with 7 gallons of gas. She will continue to fill the tank with g gallons more. Write and solve an inequality that shows all values of g that Mindy can add to the car's tank.

Write an inequality to represent each statement. Solve the inequality and graph the solutions.

13. Ten less than a number x is greater than 32.

14. A number n increased by 6 is less than or equal to 4.

15. A number r decreased by 13 is at most 15.

Solve each inequality and graph the solutions.

16. $x + 4 \le 2$ **17.** $-12 + q > 39$ **18.** $x + \dfrac{3}{5} < 7$ **19.** $4.8 \ge p + 4$

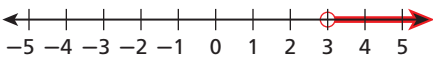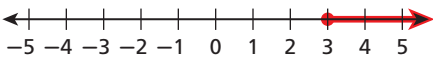**20.** $-12 \le x - 12$ **21.** $4 < 206 + c$ **22.** $y - \dfrac{1}{3} > \dfrac{2}{3}$ **23.** $x + 1.4 \ge 1.4$
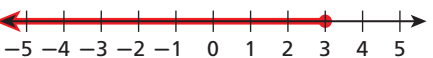
24. Use the inequality $s + 12 \ge 20$ to fill in the missing numbers.

    a. $s \ge \blacksquare$ **b.** $s + \blacksquare \ge 30$ **c.** $s - 8 \ge \blacksquare$

25. **Health** A particular type of contact lens can be worn up to 30 days in a row. Alex has been wearing these contact lenses for 21 days. Write, solve, and graph an inequality to show how many more days Alex could wear his contact lenses.

Solve each inequality and match the solution to the correct graph.

26. $1 \le x - 2$ **A.**

27. $8 > x - (-5)$ **B.**

28. $x + 6 > 9$ **C.**

29. $-4 \ge x - 7$ **D.**

30. **Estimation** Is $x < 10$ a reasonable estimate for the solutions to the inequality $11.879 + x < 21.709$? Explain your answer.

31. **Sports** At the Seattle Mariners baseball team's home games, there are 45,611 seats in the four areas listed in the table. Suppose all the suite level and club level seats during a game are filled. Write and solve an inequality to determine how many people p could be sitting in the other types of seats.

Mariners Home Game Seating	
Type of Seat	**Number of Seats**
Main bowl	24,399
Upper bowl	16,022
Club level	4,254
Suite level	936

32. **Critical Thinking** Recall that in Chapter 2 a balance scale was used to model solving equations. Describe how a balance scale could model solving inequalities.

33. **Critical Thinking** Explain why $x + 4 \ge 6$ and $x - 4 \ge -2$ have the same solutions.

34. **Write About It** How do the solutions of $x + 2 \ge 3$ differ from the solutions of $x + 2 > 3$? How do the graphs of the solutions differ?

MULTI-STEP TEST PREP

35. This problem will prepare you for the Multi-Step Test Prep on page 186.

    a. Daryl finds that the distance from Columbus, Ohio, to Washington, D.C, is 411 miles. What is the round-trip distance?

    b. Daryl can afford to drive a total of 1000 miles. Write an inequality to show the number of miles m he can drive while in Washington, D.C.

    c. Solve the inequality and graph the solutions on a number line. Show that your answer is reasonable.