LESSON 6.1

NAME _____ DATE _____

Reteaching with Practice

For use with pages 334–339

GOAL **Graph linear inequalities in one variable and solve one-step linear inequalities**

VOCABULARY

The **graph** of a linear inequality in one variable is the set of points on a number line that represent all solutions of the inequality.

Equivalent inequalities are inequalities that have the same solution(s).

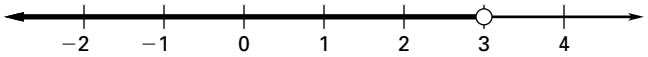
EXAMPLE 1 Graphing a Linear Inequality

a. Graph the inequality $3 > x$.

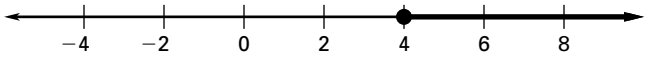
b. Graph the inequality $x \geq 4$.

SOLUTION

a. Use an open dot for the inequality symbol $<$ or $>$.



b. Use a closed dot for the inequality symbol $\leq$ or $\geq$.



Exercises for Example 1

Graph the inequality.

1. $x \leq -1$ **2.** $x \geq 0$ **3.** $x < 0$

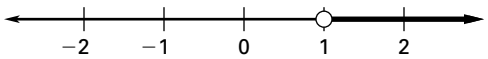
EXAMPLE 2 Using Addition or Subtraction to Solve an Inequality

Solve $x - 7 > -6$. Graph the solution.

SOLUTION

$x - 7 > -6$	Write original inequality.
$x - 7 + 7 > -6 + 7$	Add 7 to each side.
$x > 1$	Simplify.

The solution is all real numbers greater than 1. Check several numbers that are greater than 1 in the original inequality.



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Exercises for Example 2

Solve the inequality and graph its solution.

4. $1 > y - 1$ **5.** $x + 3 \leq 0$ **6.** $k - 4 > -6$

EXAMPLE 3 Using Multiplication or Division to Solve an Inequality

a. Solve $-3x \geq -12$. **b.** Solve $\frac{n}{-2} < 5$. **c.** Solve $4y \leq -8$.

SOLUTION

a. $-3x \geq -12$ Write original inequality.

$\frac{-3x}{-3} \leq \frac{-12}{-3}$ Divide each side by -3 and reverse inequality symbol.

$x \leq 4$ Simplify.

The solution is all real numbers less than or equal to 4. Check several numbers that are less than or equal to 4 in the original inequality.

b. $\frac{n}{-2} < 5$ Write original inequality.

$-2 \cdot \frac{n}{-2} > -2 \cdot 5$ Multiply each side by -2 and reverse inequality symbol.

$n > -10$ Simplify.

The solution is all real numbers greater than -10. Check several numbers that are greater than -10 in the original inequality.

c. $4y \leq -8$ Write original inequality.

$\frac{4y}{4} \leq \frac{-8}{4}$ Divide each side by positive 4.

$y \leq -2$ Simplify.

The solution is all real numbers less than or equal to -2. Check several numbers that are less than or equal to -2 in the original inequality.

Exercises for Example 3

Solve the inequality and graph its solution.

7. $\frac{x}{4} < -1$ **8.** $-2a \geq -6$ **9.** $\frac{t}{-2} > 3$

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