

## Lesson 5-9

## Example 1

Solve  $r - 5 \geq -9$  and graph the solution.

## Solution

$$\begin{aligned} r - 5 &\geq -9 \\ r - 5 + 5 &\geq -9 + 5 && \text{Undo the subtraction.} \\ r &\geq -4 && \text{Simplify.} \end{aligned}$$

Draw the graph.



The solution is all real numbers greater than or equal to  $-4$ .

## Example 2

Solve  $-5x + 4 > -6$  and graph the solution.

## Solution

$$\begin{aligned} -5x + 4 &> -6 \\ -5x + 4 - 4 &> -6 - 4 && \text{Undo the addition.} \\ -5x &> -10 \\ \frac{-5x}{-5} &< \frac{-10}{-5} && \text{Reverse the direction of the inequality since you are dividing by } -5. \\ x &< 2 \end{aligned}$$

Draw the graph.



The open circle shows that 2 is not a solution.  
Choose a point to check your answer.

The solution is all real numbers less than 2.

**Example 3**

**RETAIL** Trevor wants to buy a home theater system that costs \$850. He has already put aside \$370. If he is able to save \$30 a month for this purchase, how many months will it take until he has at least enough money to buy the system?

**Solution**

Write and solve an inequality that represents the situation.

Let  $m$  = the number of months it will take until Trevor has at least enough money to buy the system.

$$\begin{aligned}30x + 370 &\geq 850 \\30x + 370 - 370 &\geq 850 - 370 \\30x &\geq 480 \\x &\geq 16\end{aligned}$$

It will take Trevor at least 16 months to be able to buy the system.