

## 32

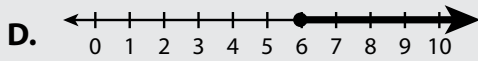
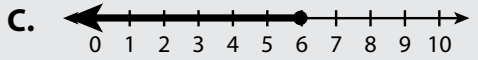
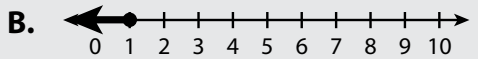
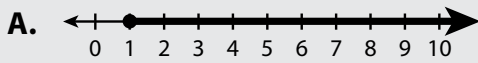
## Inequalities

P.6.C P.6.D P.6.H P.6.K P.9.C P.9.D P.9.H

## Example

Which number line shows the solution set to this inequality?

$$2x - 5 \geq 7$$



## Thinking It Through

**Solve** Solve inequalities the same way you would solve an equation. First, isolate the variable:

$$\begin{aligned} 2x - 5 + 5 &\geq 7 + 5 \\ 2x &\geq 12 \end{aligned}$$

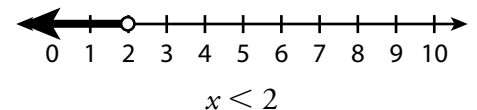
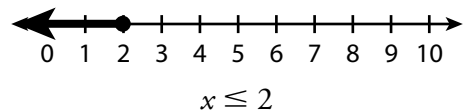
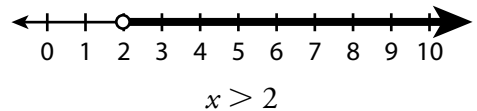
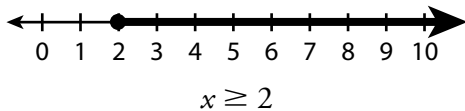
Next, divide by the coefficient:

$$\begin{aligned} 2x \div 2 &\geq 12 \div 2 \\ x &\geq 6 \end{aligned}$$

The solution set is  $x \geq 6$ . Now graph it on a number line. Since 6 is part of the solution set, use a closed dot at 6. Represent it further by placing a ray showing *all* the numbers greater than 6. So the correct number line is *answer D*.

## Review

- An **inequality** is a statement in which two quantities are not equal. Inequalities are represented by the symbols  $>$  (**is greater than**),  $<$  (**is less than**),  $\geq$  (**is greater than or equal to**), or  $\leq$  (**is less than or equal to**).
- Solve inequalities as you would equations. The difference is that *inequalities have more than one solution*, which is known as a **solution set**.
- Inequalities can be graphed on a number line. The number you get when you solve the inequality is drawn with a circle. If the number is part of the solution (if using the symbols  $\geq$  or  $\leq$ ), fill in the circle. If the number is not part of the solution set (if using the symbols  $>$  or  $<$ ), do not fill in the circle.

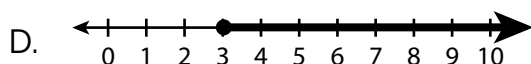
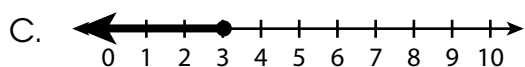
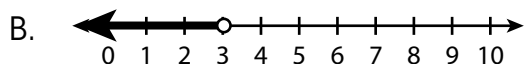
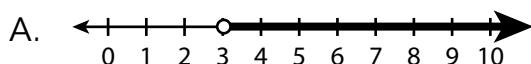


# Inequalities

Directions: Carefully read each question. Circle the letter of the correct answer.

1. Which graph shows the solution set to this inequality?

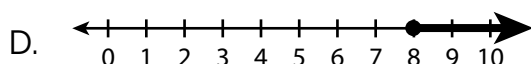
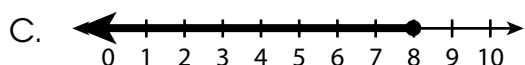
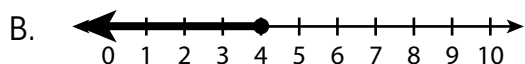
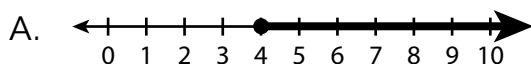
$$n + 3 < 6$$



Solve an inequality as you would an equation.

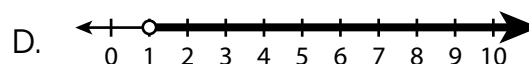
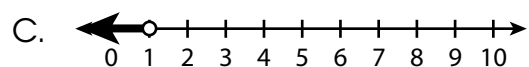
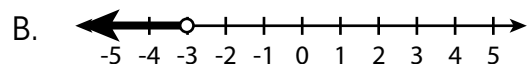
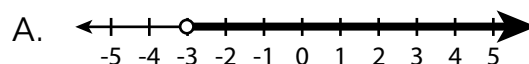
2. Which graph shows the solution set to this inequality?

$$2r + 4 \geq 12$$



3. Which graph shows the solution set to this inequality?

$$3p - 6 > -3$$



4. Which graph shows the solution set to this inequality?

$$5s + 10 \leq -35$$

