Section Overview

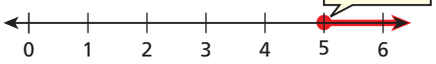
Professional Development

Graphing and Writing Inequalities — Lesson 3-1

Why? Inequalities can be used to represent speed limits and height restrictions. The solutions to most inequalities are too numerous to list, so they are graphed.

Celine can buy **no more than 10** tickets.	Darnell must have a GPA of **at least 3.5** to make the honor roll.	Only children **under 12** years of age are allowed.
$c \leq 10$	$d \geq 3.5$	$a < 12$

$x \geq 5$ (solid circle)



The solutions are 5 and all numbers greater than 5.

$x < -3$ (open circle)

The solutions are all numbers less than −3, not including −3.

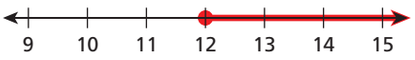
Solving One-Step Inequalities — Lessons 3-2, 3-3

Why? Solving one-step inequalities prepares students for solving multi-step inequalities.

Use inverse operations to solve inequalities.

Addition

$$n - 7 \geq 5$$
$$+7 \quad +7$$
$$n \geq 12$$



Subtraction

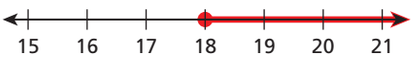
$$14 + s < 20$$
$$-14 \quad -14$$
$$s < 6$$

Division

$$5x < 4$$
$$\frac{5x}{5} < \frac{4}{5}$$
$$x < \frac{4}{5}$$

Multiplication

$$\frac{x}{-2} \leq -9$$
$$-2 \cdot \frac{x}{-2} \geq -2 \cdot (-9)$$
$$x \geq 18$$



Multiplication or division by a negative number reverses the inequality symbol.