GO DIGITAL

KEY IDEA

Multiplication and Division Properties of Inequality (*c* is positive)

Words Multiplying or dividing each side of an inequality by the same *positive* number produces an equivalent inequality.

Numbers

$-6 < 8$

$2 \cdot (-6) < 2 \cdot 8$

$-12 < 16$

$6 > -8$

$\frac{6}{2} > \frac{-8}{2}$

$3 > -4$

Algebra

If $a > b$ and c is positive, then $ac > bc$.

If $a < b$ and c is positive, then $ac < bc$.

If $a > b$ and c is positive, then $\frac{a}{c} > \frac{b}{c}$.

If $a < b$ and c is positive, then $\frac{a}{c} < \frac{b}{c}$.

These properties are also true for $\leq$ and $\geq$.

Solve and graph the inequality.

$$\frac{x}{8} > -5$$

Solve and graph the inequality.

$$-27 \geq 6x$$

Solve and graph the inequality.

$$-6 \geq \frac{1}{5}w$$

KEY IDEA

Multiplication and Division Properties of Inequality (c is negative)

Words When multiplying or dividing each side of an inequality by the same *negative* number, the direction of the inequality symbol must be reversed to produce an equivalent inequality.

Numbers

$$-6 < 8 \qquad\qquad 6 > -8$$

$$-2 \cdot (-6) > -2 \cdot 8 \qquad\qquad \frac{6}{-2} < \frac{-8}{-2}$$

$$12 > -16 \qquad\qquad -3 < 4$$

Algebra

If $a > b$ and c is negative, then $ac < bc$. If $a > b$ and c is negative, then $\frac{a}{c} < \frac{b}{c}$.

If $a < b$ and c is negative, then $ac > bc$. If $a < b$ and c is negative, then $\frac{a}{c} > \frac{b}{c}$.

These properties are also true for $\leq$ and $\geq$.

Solve and graph the inequality.

$$2 < \frac{y}{-3}$$

Solve and graph the inequality.

$$-7y \leq -35$$

Solve and graph the inequality.

$$-1 \geq \frac{1}{10} z$$

Your friend saves $150 each month to buy a down suit needed for a high-altitude mountain-climbing trip. Describe the number of months your friend needs to save to buy the suit.

Mountainwear Down Suit $1249.95

Mountainwear Down Suit
$1249.95

You have at most $2.85 for a parking meter. Each 15-minute interval costs $0.25. Describe the amounts of time that you can park.