

Key Concept and Vocabulary

Addition Properties of Inequality:

If $a > b$, then $a + c > b + c$.

If $a < b$, then $a + c < b + c$.

Multiplication and Division

Properties of Inequality when $c > 0$:

If $a > b$, then $a \cdot c > b \cdot c$.

If $a < b$, then $a \cdot c < b \cdot c$.

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

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

Subtraction Properties of Inequality:

If $a > b$, then $a - c > b - c$.

If $a < b$, then $a - c < b - c$.

Multiplication and Division

Properties of Inequality when $c < 0$:

If $a > b$, then $a \cdot c < b \cdot c$.

If $a < b$, then $a \cdot c > b \cdot c$.

If $a > b$, then $\frac{a}{c} < \frac{b}{c}$.

If $a < b$, then $\frac{a}{c} > \frac{b}{c}$.



Skill Examples

1. Solve $\frac{x}{4} + 2 > 12$.

$\frac{x}{4} + 2 > 12$

Write the equation.

$\frac{x}{4} - 2 - 2 > 12 - 2 - 2$

Subtraction Property of Inequality

$\frac{x}{4} > 10$

Simplify.

$\frac{x}{4} \cdot 4 > 10 \cdot 4$

Multiplication Property of Inequality

$x > 40$

Simplify.

2. Solve $-7v - 21 \leq 28$.

$-7v - 21 \leq 28$

Write the equation.

$-7v + 21 + 21 \leq 28 + 21 + 21$

Addition Property of Inequality

$-7v \leq 49$

Simplify.

$\frac{-7v}{-7} \geq \frac{49}{-7}$

Division Property of Inequality
Reverse the inequality symbol.

$v \geq -7$

Simplify.



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Check your answers at BigIdeasMath.com.

Solve the inequality. Identify the properties used.

3. $3x - 5 \geq 4$

$3x$ _____

x _____

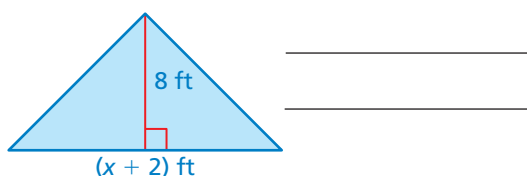
4. $1 - \frac{m}{2} < 3$

$-\frac{m}{2}$ _____

m _____

Write and solve an inequality that represents the value of x .

5. Area $> 44 \text{ ft}^2$



6. Area $\leq 64 \text{ m}^2$

