

REVIEW: Properties of Inequality

Name _____

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 $\frac{a}{c} > \frac{b}{c}$.

Inequalities



Skill Examples

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

$$\frac{x}{4} + 2 > 12 \quad \text{Write the equation.}$$

$$\underline{-2} \quad \underline{-2} \quad \text{Subtraction Property of Inequality}$$

$$\frac{x}{4} > 10 \quad \text{Simplify.}$$

$$\frac{x}{4} \cdot 4 > 10 \cdot 4 \quad \text{Multiplication Property of Inequality}$$

$$x > 40 \quad \text{Simplify.}$$

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

$$-7v - 21 \leq 28 \quad \text{Write the equation.}$$

$$\underline{+21} \quad \underline{+21} \quad \text{Addition Property of Inequality}$$

$$-7v \leq 49 \quad \text{Simplify.}$$

$$\frac{-7v}{-7} \geq \frac{49}{-7} \quad \text{Division Property of Inequality when } c < 0$$

$$v \geq -7 \quad \text{Simplify.}$$



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Check your answers at BigIdeasMath.com.

Solve the equation. Identify the properties used.

3. $3x - 5 \geq 4$

$$3x \geq 9 \quad \text{Add. Prop. of Ineq.}$$

$$x \geq 3 \quad \text{Div. Prop. of Ineq.}$$

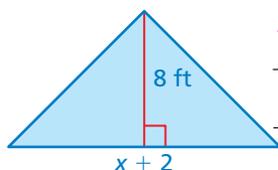
4. $1 - \frac{m}{2} < 3$

$$-\frac{m}{2} < 2 \quad \text{Subt. Prop. of Ineq.}$$

$$m > -4 \quad \text{Mult. Prop. of Ineq.}$$

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

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



$$\frac{1}{2}(x + 2)(8) > 44$$

$$x > 9 \text{ feet}$$

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



$$16(5 - x) \leq 64$$

$$x \geq 1 \text{ meter}$$