

The slide features a light beige background with a blue grid pattern in the top-left and bottom-right corners. A dark blue rectangular area is positioned on the left side, containing the text. A vertical red bar is located on the far left edge of the slide.

Algebra 1

Chapter 3
Section 3-3

Comparing Values

Consider the inequality $4 > 1$. Copy and complete each statement at the right by replacing each \square with $<$ or $>$. What happens to the inequality symbol when you multiply each side by a positive number? What happens to the inequality symbol when you multiply each side by a negative number? Justify your reasoning.

$4 \cdot 3 \square 1 \cdot 3$

$4 \cdot 2 \square 1 \cdot 2$

$4 \cdot 1 \square 1 \cdot 1$

$4 \cdot -1 \square 1 \cdot -1$

$4 \cdot -2 \square 1 \cdot -2$

$4 \cdot -3 \square 1 \cdot -3$

Multiplying By Negative Numbers

$$3 > 1$$

$$-2(3) \blacksquare -2(1) \quad \text{Multiply by } -2.$$

$$-6 \blacksquare -2 \quad \text{Simplify.}$$

$$-6 < -2 \quad \text{Reverse the inequality symbol to make the inequality true.}$$

$$x/-3 > 2$$

$$x < -6$$

More Multiplying By Negative Numbers

$$x/-7 \geq -10$$

$$x/-5 < 0$$

$$y/-3 \leq 8$$

$$t/11 > -5$$

$$x \leq 70$$
$$y \geq -24$$

$$x > 0$$
$$t > -55$$

Multiplying By Negative Numbers

What are the solutions of $-9y \leq 63$? Graph the solutions.

$$-9y \leq 63$$

$$\frac{-9y}{-9} \leq \frac{63}{-9} \quad \text{Divide each side by } -9. \text{ Reverse the inequality symbol.}$$

$$y \geq -7 \quad \text{Simplify each side.}$$

$$-10x < 20$$

$$x > -2$$

Dividing By Negative Numbers

$$-4x \geq -12$$

$$-8x < 40$$

$$-3x \leq 3$$

$$3x > -15$$

$$x \leq 3$$
$$x \geq -1$$

$$x > -5$$
$$x > -5$$