Algebra 1 5.2 Solve inequalities

Solve inequalities by multiplication and division Write and solve inequalities

opposite trichotomy

activity: triangle puzzles

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These examples demonstrate the Multiplication Property of Inequalities.

Words	Symbols	Examples
both sides of an inequality nat is true are multiplied by a ositive number, the resulting nequality is also true.	For any real numbers $a$ and $b$ and any positive real number $c$ , if $a > b$ , then $ac > bc$ .  And, if $a < b$ , then $ac < bc$ .	6 > 3.5 $6(2) > 3.5(2)$ $12 > 7$ and $2.1 < 5$ $2.1(0.5) < 5(0.5)$ $1.05 < 2.5$
f both sides of an inequality hat is true are multiplied by a negative number, the direction of the inequality sign is reversed to make the resulting inequality also true.	For any real numbers $a$ and $b$ and any negative real number $c$ , if $a > b$ , then $ac < bc$ .  And, if $a < b$ , then $ac > bc$ .	7 > 4.5 $7(-3) < 4.5(-3)$ $-21 < -13.5$ and $3.1 < 5.2$ $3.1(-4) > 5.2(-4)$ $-12.4 > -20.8$

The DIGITS get bigger as you move away from zero in either direction. **BUT**:

Move to the right, the values increase. Move to the left, the values decrease.

## **Example 2** Solve by Multiplying

Solve  $\frac{-3}{7}r < 21$ . Graph the solution on a number line.



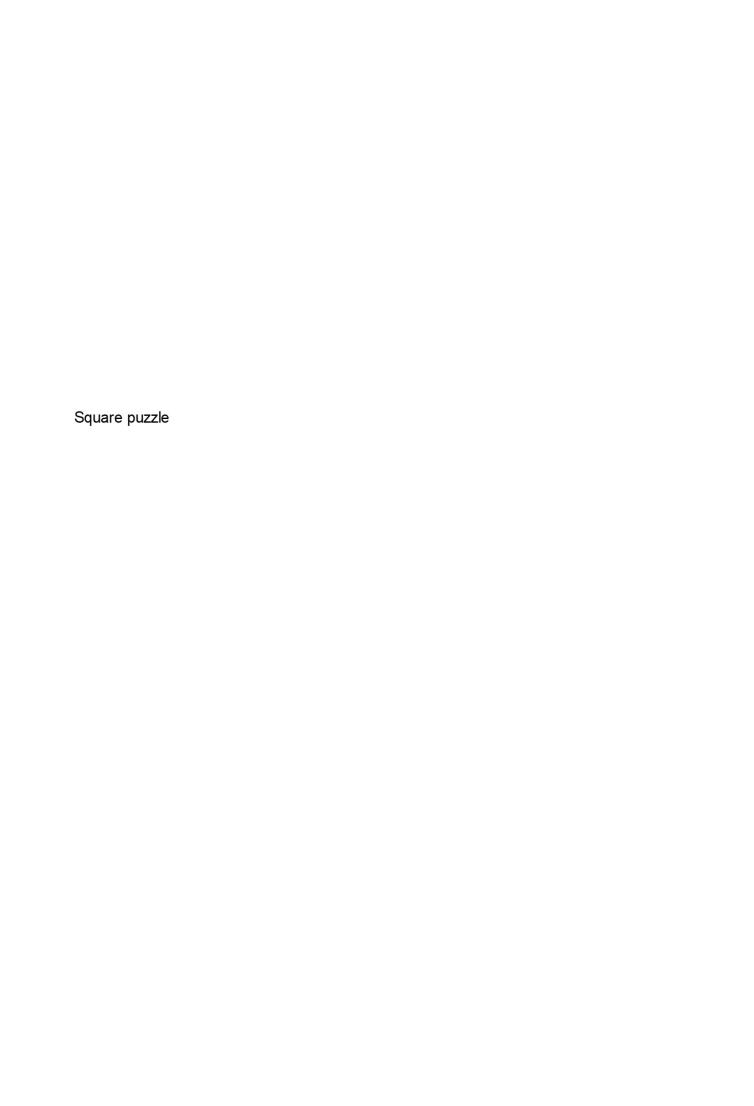
## **Example 3** Divide to Solve an Inequality

Solve each inequality. Graph the solution on a number line.

**a.** 
$$60t > 8$$

$$\mathbf{b.} \quad \frac{-7d \le 147}{-7}$$

$$\alpha \geq -21$$



Three options:

Word problems: "at most" "at least"

"not more than"
"no less than"



