Solving Algebraic Inequalities Using Multiplication and Division

Clear Learning Target

You will be able to solve algebraic inequalities using multiplication and division properties.

Example #1:

Solve the inequality. **$8p \leq 56$**

$\frac{8p}{8} \quad \frac{56}{8}$

$p \leq 7$

You Try!

Solve the inequality: **$12k \geq 60$**

$\frac{12k}{12} \quad \frac{60}{12}$

$k \geq 5$

Example #2:

Solve the inequality. $\frac{n}{6} \leq 8$

$6 \cdot \frac{n}{6} \leq 8 \cdot 6$

$n \leq 48$

You Try!

Solve the inequality: $\frac{m}{5} > -3$

$\frac{m}{5} > -3$

$\times 5 \qquad \times 5$

$m > -15$

Example #3:

Solve the inequality. **-7d ≤ 147**

$\frac{-7d}{-7} \leq \frac{147}{-7}$

$d \geq -21$

IMPORTANT: When we multiply/divide both sides by a negative number, we must flip the inequality symbol!

You Try!

Solve the inequality: **42 ≥ -6r**

$\frac{42}{-6} \geq \frac{-6r}{-6}$

$r \leq -7$

$\frac{42}{6} \geq \frac{6R}{6}$

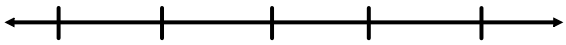
$-7 \leq R$

$R \geq -7$

Exit Ticket

Solve and graph the following inequality for the variable.

1. $-2y < 4$



2. Taro and Jamie are solving **$6d \geq -84$**. Who made the mistake, and what was it?

Taro

$$6d \geq -84$$
$$\frac{6d}{6} \geq \frac{-84}{6}$$
$$d \geq -14$$

Jamie

$$6d \geq -84$$
$$\frac{6d}{6} \leq \frac{-84}{6}$$
$$d \leq -14$$