

SOLVING INEQUALITIES

using Multiplication & Division

Multiplication & Division Property of Inequality

When you multiply or divide each side of an inequality by the same **POSITIVE** number, the inequality remains true.

Solve $0.5 < \frac{m}{2}$. \Rightarrow $0.5 < \frac{m}{2}$

$$(2)0.5 < \frac{m}{2}(2) \quad \text{Multiplication Property of Inequality.}$$

$$1 < m$$

When you multiply or divide each side of an inequality by the same **NEGATIVE** number, the direction of the inequality symbol must be reversed for the inequality to remain true.

Solve $-5z \geq -55$. \Rightarrow $-5z \geq -55$

$$\frac{-5z}{-5} \leq \frac{-55}{-5} \quad \begin{array}{l} \text{Division Property of Inequality.} \\ \text{Reverse the inequality symbol.} \end{array}$$

$$z \leq 11$$

PRACTICE Solve each inequality.

1. $-1.8 < 3w$

$$-0.6 < w$$

2. $-8t \geq -4$

$$t \leq 0.5$$

3. $-4 \leq \frac{r}{-3}$

$$12 \geq r$$

WORD PROBLEM

To pass a test, you need at least 39 points. Each question is worth 3 points. Write and solve an inequality that represents the number of questions you need to answer correctly to pass the test.

$$3x \geq 39$$

$$x \geq 13$$

at least 13 questions