

11.3 Solving Inequalities by Multiplying or Dividing p. 480

* Keep work neat and organized

$$\frac{7}{7}y > \frac{-42}{7}$$

$$y > -6$$

$$2 < 4 \quad \text{true}$$

$$6 < 12 \quad \text{true}$$

$$20 < 40 \quad \text{true}$$

$$-2 < -4 \quad \text{false}$$

$$-2 > -4 \quad \text{true}$$

$$(3) 5 \geq \frac{x}{3} (3)$$

$$15 \geq x$$

When you multiply or divide **BOTH** sides of an inequality, you **MUST FLIP/REVERSE** the inequality symbol

$$\textcircled{1} \quad \frac{-10b}{-10} \leq \frac{80}{-10}$$

$$b \geq -8$$

$$\textcircled{2} \quad \frac{10b}{10} \leq \frac{-80}{10}$$

$$b \leq -8$$

if the number w/ the variable is negative, you will flip the inequality symbol

Flip or no flip? (don't solve)

a) $3x > -15 \rightarrow$ no

b) $24 \leq \frac{x}{-2} \rightarrow$ yes

c) $-20 \geq 5y \rightarrow$ no

d) $\frac{k}{7} \leq -20 \rightarrow$ no

examples

$$1) \frac{8a}{3} \geq \frac{-45}{3}$$
$$\boxed{a \geq -15}$$

$$2) \cancel{(-4)}n \leq -16 \cancel{(-4)}$$
$$\boxed{n > 64}$$

$$3) \frac{1}{1} - \frac{1}{2}x \leq 8 - \frac{3}{1}$$
$$\boxed{x \geq -24}$$

*if the coefficient is a fraction, multiply by the reciprocal

$$4) \cancel{\frac{1}{1}} \cdot \frac{5}{3} \geq \cancel{\frac{1}{1}} \cdot \frac{1}{2}p$$

$$\boxed{\frac{5}{3} \leq p}$$

$$\boxed{p \geq \frac{5}{3}}$$

$$5) \frac{5}{4} - \frac{2}{3} \leq \frac{4}{5}x$$

$$\boxed{-\frac{5}{6} \leq x}$$

$$\boxed{x \geq -\frac{5}{6}}$$

$$6) \frac{-81}{9} \leq \frac{9z}{9}$$
$$\boxed{-9 \leq z} \quad z \geq -9$$

$$7) \cancel{(10)} - 0.5 \leq \frac{m}{\cancel{10}} \cancel{(10)}$$
$$\boxed{-5 \leq m} \quad m \geq -5$$

$$8) \cancel{(-25)} - 2.4 \geq \frac{b}{\cancel{2.5}} \cancel{(-25)}$$
$$\boxed{6 < b} \quad b > 6$$