

4.3 Solving Inequalities by Multiplying or Dividing p. 140

* keep work neat and organized

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

$$y > -6$$

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

$$15 \geq x$$

- * $2 < 4$ true
- $6 < 12$ true
- $20 < 40$ true
- $-2 < -4$ false
- $-2 > -4$ true

when you multiply or divide BOTH sides of an inequality, you must flip/reverse the inequality symbol

$$\textcircled{1} \frac{-10b}{-10} \leq \frac{80}{-10}$$
$$b \geq -8$$

$$\textcircled{2} \frac{10b}{10} \leq \frac{-80}{10}$$
$$b \leq -8$$

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

Flip or no flip

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

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

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

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

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

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

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

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

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

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

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

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

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

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