

## 2.3 Solving Inequalities Using Multiplication or Division with work

### 2.3 Solving Inequalities Using Multiplication and Division

**WARM-UP: Review**

$$6x = 18$$

$$x = 3$$

$$\frac{2}{5}x = 9$$

$$x = \frac{45}{2}$$

$$\frac{1}{3}x = 9$$

$$x = 27$$

What happens to the signs?

$$\begin{array}{r} 10 > -15 \\ +2 & +2 \\ \hline 12 > -13 \end{array}$$

✓

$$\begin{array}{r} 10 > -15 \\ -5 & -5 \\ \hline 5 > -20 \end{array}$$

✓

$$\begin{array}{r} 2(10) > (-15)2 \\ 20 > -30 \end{array}$$

✓

$$\begin{array}{r} -2(10) > (-15)(-2) \\ -20 > 30 \end{array}$$

✗

Dec 4-9:26 AM

★ **Whenever you multiply or divide both sides of an inequality by a negative #, then the inequality sign needs to be flipped.**

Examples:

What are we multiplying both sides by?

$$1. \frac{x}{3} \geq -8 \cdot 3$$

$$x \geq -24$$

What are we multiplying both sides by?

$$2. \frac{x}{-2} \leq 4 \cdot -2$$

$$x \geq -8$$

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## 2.3 Solving Inequalities Using Multiplication or Division with work

$$3. \quad \cancel{3}x < \frac{-15}{\cancel{3}}$$

$$x < -5$$

$$4. \quad \cancel{2} \cdot \frac{2}{\cancel{2}}x > -6 \cdot 3$$

$$\cancel{2}x > -18$$

$$x > -9$$

$$5. \quad -6 \geq -\frac{4}{5}x \cdot \cancel{5}$$

$$2 \cdot \frac{30}{\cancel{4}} \geq \frac{-4x}{\cancel{-4}}$$

$$\frac{15}{2} \leq x$$

$$x \geq \frac{15}{2}$$

6. Four-fifths of a number is at most twenty. Write an inequality and solve it.

$$\cancel{5} \cdot \frac{4}{\cancel{5}}x \leq 20 \cdot \cancel{5}$$

$$\cancel{4}x \leq \frac{100}{\cancel{4}}$$

$$x \leq 25$$

7. You earn \$9.50 per hour at your summer job. Write and solve an inequality that represents the numbers of hours you need to work to buy a digital camera that costs \$247.

$$\cancel{9.5}h \geq \frac{247}{\cancel{9.5}}$$

$$h \geq 26 \text{ hours}$$

247/9.5

26

Dec 4-9:30 AM

## 2.3 Assignment

HW: pg. 71

A: 8, 10, 16 - 30 (e), 34, 38, 40 - 47 (e)

B: 1 - 10, 12, 16, 20, 28, 30, 34, 38, 40 - 47

C: 1, 3, 7, 9, 12, 16, 20, 28, 30, 34, 42, 45