

9.3 Solving Multi-Step Inequalities

Ex 1: Solve Multi-Step Equations

$$a) \frac{x+3}{4} > 8$$

$$\frac{x+3}{4} > 5 \times 4$$

$$x > 20$$

$$b) -3x - 10 \leq 5x + 38$$

$$-10 \leq 8x + 38$$

$$\frac{-48}{8} \leq \frac{8x}{8}$$

$$-6 \leq x$$

$$c) -2(x+3) \leq 10x + 18$$

$$-2x - 6 \leq 10x + 18$$

$$-10x - 10x$$

$$-12x - 6 \leq 18$$

$$+6 +6$$

$$-12x \leq 24$$

$$\frac{-12x}{-12} \leq \frac{24}{-12}$$

$$x \geq -2$$

$$-2x - 6 \leq 10x + 18$$

$$+2x +2x$$

$$-6 \leq 12x + 18$$

$$-18 -18$$

$$-24 \leq 12x$$

$$\frac{-24}{12} \leq \frac{12x}{12}$$

$$-2 \leq x$$

54K:

$$a) 4x + 11 > 35$$

$$b) 5 - 2x > 10x + 29$$

$$c) 4(x-2) \geq 5x-12$$

Ex 2: Solve Problems Using Inequalities.

Sarah has two different job offers.

Store A will pay a flat rate of \$55/day plus 3% of sales. Store B will pay a flat rate of \$40/day plus 5% of sales.

What do Sarah's sales need to be for Store B to be a better deal?

Store A < Store B

$$55 + 0.03s < 40 + 0.05s$$

$$-0.02s \quad -0.02s$$

$$55 < 40 + 0.02s$$

$$-40 \quad -40$$

$$15 < 0.02s$$

$$\frac{15}{0.02} < \frac{0.02s}{0.02}$$

$$750 < s$$

$$77.5 = 77.5$$

$$79 < 80$$

54K:

Danny started a computer repair company. He offers two payment options. Option A has a base fee of \$40 plus \$8/hour. Option B has no base fee, but charges \$15/hour. How many hours does a repair job have to be for B to be more expensive?

