

Warm-Up: Find  $m$

$$\frac{5}{3} \cdot \frac{3}{5}(5m + 15) = -\overset{4}{12} \cdot \frac{5}{3}$$

$$5m + 15 = -20$$
$$\quad -15 \quad -15$$

$$\frac{5m}{5} = \frac{-35}{5}$$

$$m = -7$$

# Homework review 3.3:

(42) a square = 10 ft x 10 ft

$$74.50 \times x \left\{ \begin{array}{l} 27.50 \times x \\ 17 \times x \\ 30 \times x \end{array} \right.$$

$$\frac{\$17}{sq} \cdot x sq$$

materials = \$27.50/sq

labor = \$17/sq

overhead = \$30/sq

exp = \$750

y = cost estimate

x = # of sq

y = 2314.50 (for one estimate)

y = \$750 + money for each square

$$y = \$750 + \begin{array}{l} 27.5x + 17x + 30x \\ \$74.50x \end{array}$$

$$2314.5 = 750 + 74.5x$$

$$\begin{array}{r} -750 \quad -750 \\ 1564.5 = 74.5x \\ \hline 74.5 \quad 74.5 \end{array}$$

$$x = 21$$

With an equation, the sides are equal:

$$5x + 2 = -31$$

There's only one value of  $x$  that makes it true

An inequality says that there may be lots of values of  $x$  that make it true:

$$7x < 21$$

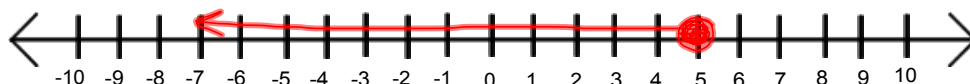
$$x = 1$$

$$x = 0$$

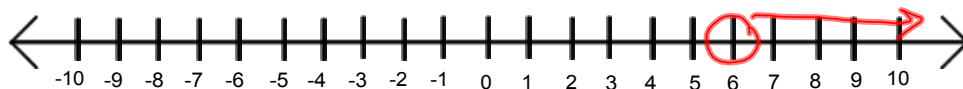
$$x = -21.6275418 \dots$$

SO: Our answers will be ranges of numbers

$$\begin{array}{rcl} x + 2 & \leq & 7 \\ -2 & -2 & \\ \hline x & \leq & 5 \end{array}$$

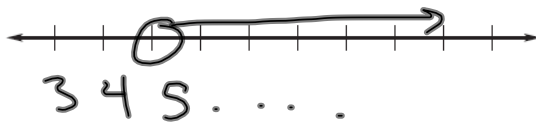


$$\begin{array}{rcl} x - 15 & > & -9 \\ +15 & +15 & \\ \hline x & > & 6 \end{array}$$



**Solve the inequality. Graph your solution.**

23.  $a + 3 > 8$   
 $-3 -3$   $a > 5$



24.  $x - 1 \leq 4$   
 $+1 +1$   $x \leq 5$



- 32. Sunflowers** The tallest sunflower you ever grew was 73 inches tall. Suppose that you are growing a sunflower this summer that has grown to 45 inches tall so far. What are the possible numbers of inches that the sunflower needs to grow so that this summer's sunflower is the tallest you've ever grown?

tallest ever = 73 in.  
so far: 45 in.  
needs to grow:  $x$

$$\begin{array}{r} x + 45 > 73 \\ -45 \quad -45 \end{array}$$

$$x = 28 \text{ in}$$

When you multiply or divide both sides of an inequality by a negative number, reverse the direction of the inequality.

$$\begin{array}{r} 6y < 36 \\ \hline 6 & 6 \\ y < 36 \end{array}$$

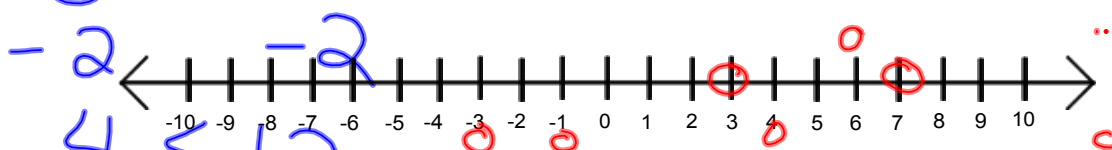
$$\begin{array}{r} -6y < 36 \\ \hline -6 & -6 \\ y > -6 \end{array}$$

$$\begin{array}{r} -\frac{5}{1} \cdot -\frac{1}{5}x \geq 4 \cdot -\frac{5}{1} \\ x \leq -20 \end{array}$$

Why?

$$2 \cdot 3 < 7 \cdot 2$$

$$6 < 14$$



$$\begin{array}{r} 4 < 12 \\ \hline -4 & -4 \end{array}$$

$$-1 > -3$$



**Solve the inequality. Graph your solution.**

**12.**  $4x \geq 24$



**13.**  $3b < -21$



**14.**  $-2m > 20$



**15.**  $\frac{p}{3} \leq 5$



- 27. Road Trip** You and three of your friends plan to rent a car for a road trip. The group budget is \$350. The group decides to split the cost of the rental equally.
- Write and solve an inequality that gives the cost  $c$  in dollars that each person will pay.
  - What is the greatest amount of money that each of you can spend?

4 people  
budget is \$350  
 $C$  = cost for each person

# Homework:

p. 359, 5-25 by 5, 32, 38

p. 366, 5-30 by 5, 39, 44-52 even