

September 12, 2011

Warm-up:

Add up all of your quiz scores from:

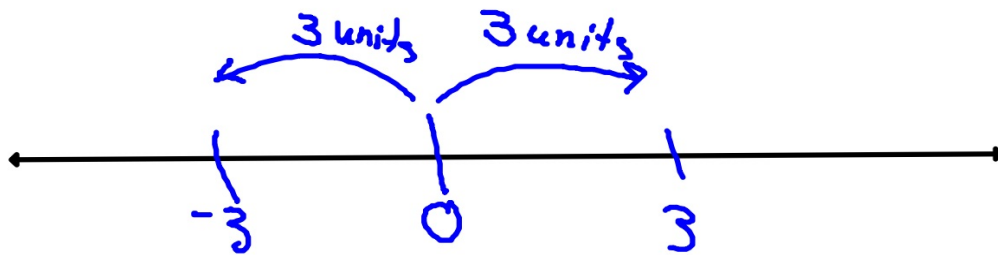
8/29	11
8/30	11
8/31	6
9/1	1
9/2	1
9/6	5
9/7	1
9/8	7

18

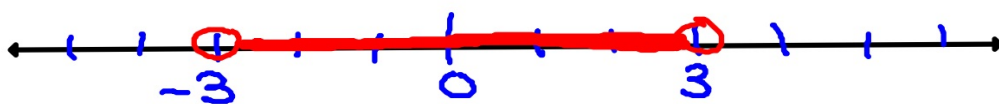
9/12 - Absolute Value Equations and Inequalities

Absolute Value means: distance from 0
(never negative)

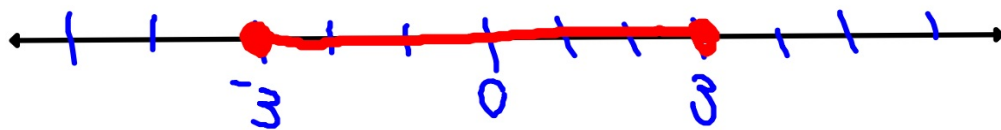
$$|x| = 3 \quad x = \pm 3$$



$$|x| < 3 \quad \text{conjunction}$$

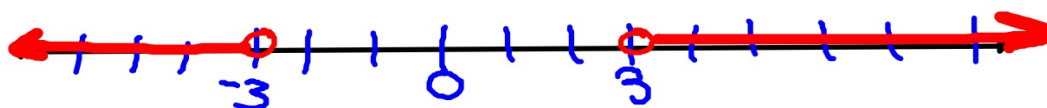


$$|x| \leq 3$$

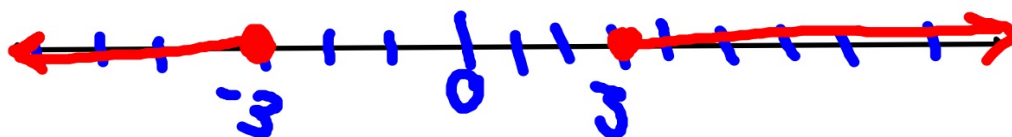


$$|x| > 3$$

disjunctions



$$|x| \geq 3$$



Solve for x.

$$|3x + 4| = 10$$

$$\begin{array}{l} 3x + 4 = 10 \quad \text{or} \quad 3x + 4 = -10 \\ \quad -4 \quad -4 \qquad \quad -4 \quad -4 \\ \hline 3x = 6 \qquad \qquad \quad 3x = -14 \\ \quad \frac{3}{3} = \frac{6}{3} \qquad \quad \quad \frac{3}{3} = \frac{-14}{3} \\ \quad x = 2 \qquad \qquad \quad x = -4\frac{2}{3} \end{array}$$



Solve for x.

$$|13 - 5x| = 2$$

$$\begin{array}{l} 13 - 5x = -2 \quad \text{or} \quad 13 - 5x = 2 \\ \underline{-13} \quad \quad \underline{-13} \quad \quad \underline{-13} \quad \quad \underline{-13} \\ -5x = -15 \quad \quad \quad -5x = -11 \\ \underline{-5} \quad \quad \underline{-5} \quad \quad \quad \underline{-5} \quad \quad \underline{-5} \\ x = 3 \quad \quad \quad \text{or} \quad \quad \quad x = 2\frac{1}{5} \end{array}$$

$$x = \left\{ 3, 2\frac{1}{5} \right\}$$

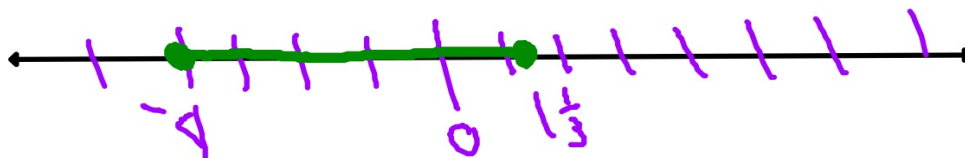
Solve for x then graph the answer on a numberline.

$$|3x + 4| \leq 8 \quad \text{conjunction}$$

$$-8 \leq 3x + 4 \leq 8$$

$$\frac{-12}{3} \leq \frac{3x}{3} \leq \frac{4}{3}$$

$$-4 \leq x \leq \frac{1}{3}$$



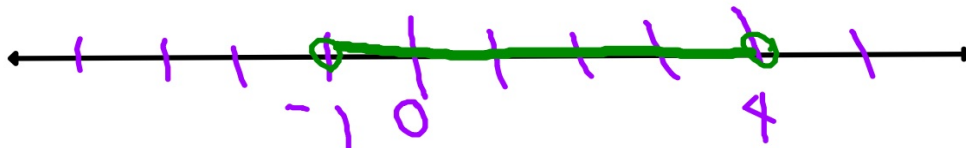
Solve for x then graph the answer on a numberline.

$$|2x - 3| < 5$$

$$\begin{array}{c} -5 < 2x - 3 < 5 \\ +3 \quad +3 \quad +3 \end{array}$$

$$-\frac{2}{2} < \frac{2x}{2} < \frac{8}{2}$$

$$-1 < x < 4$$



Solve for x then graph the answer on a numberline.

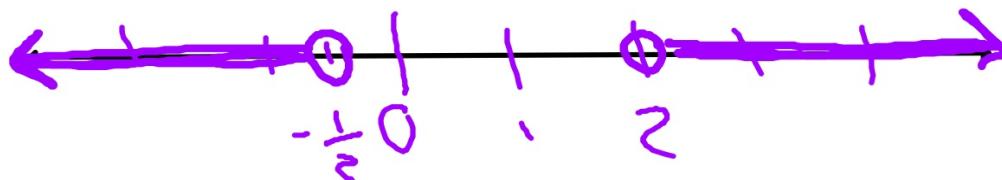
$$|4x - 3| > 5 \quad \text{disjunction}$$

$$4x - 3 < -5 \quad \text{or} \quad 4x - 3 > 5$$

$$\frac{4x}{4} < \frac{-2}{4}$$

$$\frac{4x}{4} > \frac{8}{4}$$

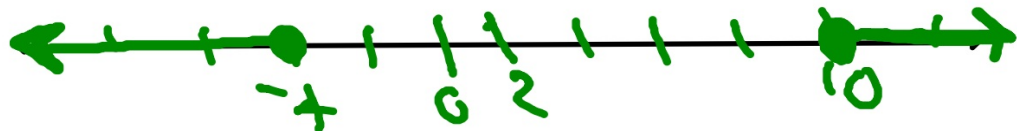
$$x < -\frac{1}{2} \quad \text{or} \quad x > 2$$



Solve for x then graph the answer on a numberline.

$$|6 - 2x| \geq 14$$

$$\begin{array}{l} 6 - 2x \leq -14 \quad \text{or} \quad 6 - 2x \geq 14 \\ \begin{array}{l} -6 \\ -2x \leq -20 \\ \hline -2 \end{array} \quad \begin{array}{l} -6 \\ -2x \geq 8 \\ \hline -2 \end{array} \\ x \geq 10 \quad \text{or} \quad x \leq -4 \end{array}$$



Homework:

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14-32E, 33

due Tuesday

TEST - when???