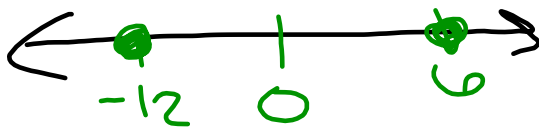


**Warm Up** Solve and check your answer.

$$1) |3 + x| = 9$$

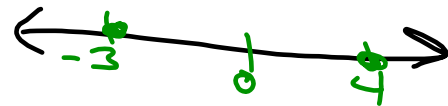
$$\begin{array}{l} \swarrow \quad \searrow \\ 3+x=9 \quad 3+x=-9 \\ -3 \quad -3 \quad -3 \quad -3 \\ \hline x=6 \quad \text{OR} \quad x=-12 \end{array}$$



$$2) |-2x + 1| = 7$$

$$\begin{array}{l} \swarrow \quad \searrow \\ -2x+1=7 \quad -2x+1=-7 \\ -1 \quad -1 \quad -1 \quad -1 \\ \hline -2x=6 \quad -2x=-8 \\ \frac{-2x}{-2} = \frac{6}{-2} \quad \frac{-2x}{-2} = \frac{-8}{-2} \end{array}$$

$$x = -3 \quad \text{OR} \quad x = 4$$



**Homework Questions?**

$$|n| = 5$$

12)

$$|3x + \frac{1}{2}| = 6$$

$\frac{11}{6}$   
 $1 \frac{5}{6}$   
 $1.8\overline{33}$

$3x + \frac{1}{2} = 6$   
 $-\frac{1}{2} \quad -\frac{1}{2}$   
 $\frac{3x = 5.5}{3}$

$3x + \frac{1}{2} = -6$   
 $-\frac{1}{2} \quad -\frac{1}{2}$   
 $\frac{3x = -6.5}{3}$   
 $x \approx -2.1\overline{66}$   
 $-2 \frac{1}{6}$   
 $-\frac{13}{6}$

## Self Scoring Scale

**4-** I can *summarize* the concepts and explain it to others.

**3-** I can *apply* the concepts to answer questions correctly.

**2-** I can *apply* the concepts but with some *mistakes*.

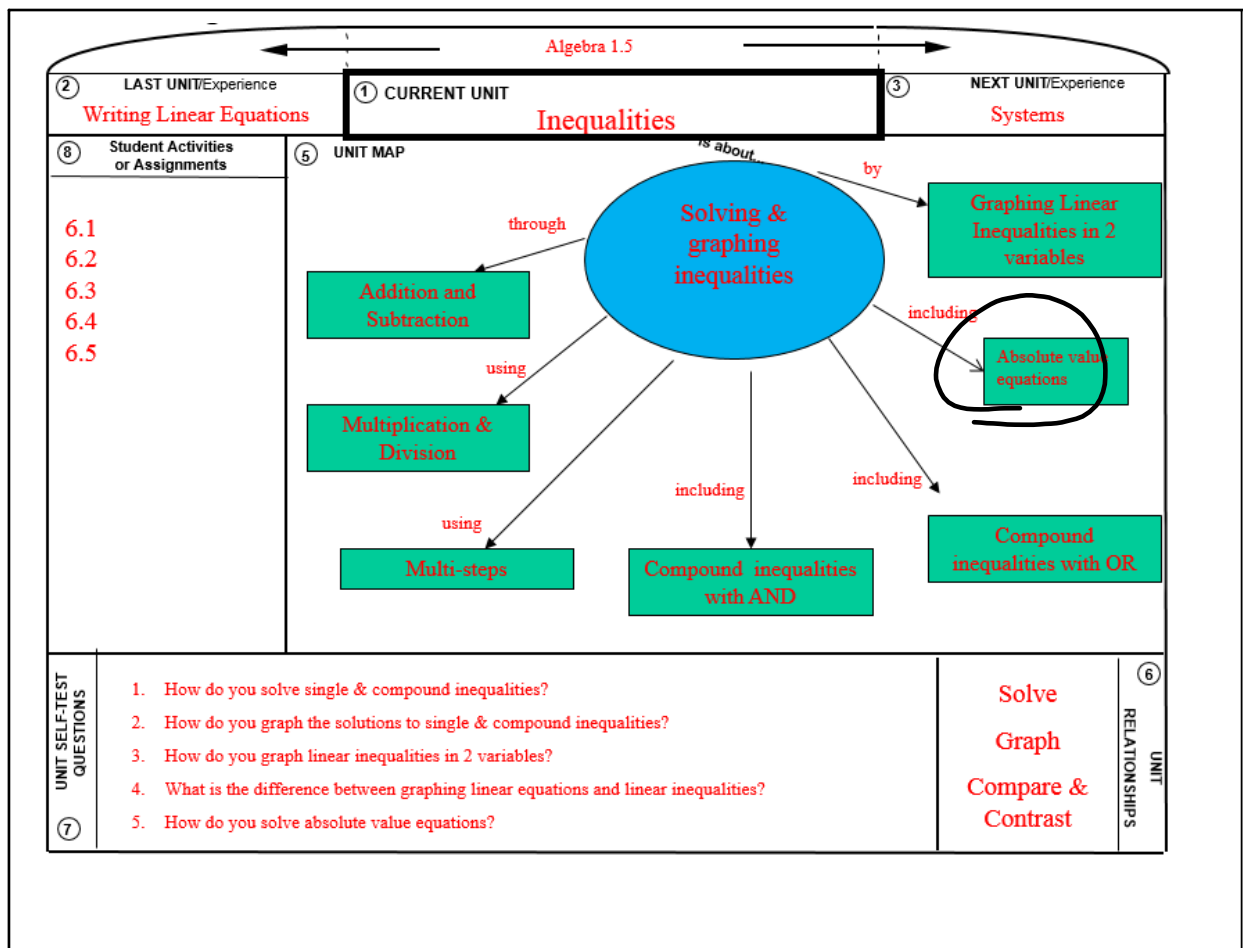
**1-** I *need help* to know how to apply the concepts.

**0-** I *can't* apply the concepts even with help.

# 6.4 Day 2: Solving Absolute-Value Equations and Inequalities

**Goals:** • Solve absolute-value equations and inequalities.

**EQ:** What happens if the absolute value is **not** alone on one side?



**\*\*Must get Absolute Value by itself  
before you can split**

Abs. Value

//

### Solving an Absolute-Value Equation

$$\text{a) } |3x - 7| + 5 = 9$$

$-5 \quad -5$

$$|3x - 7| = 4$$

$$\begin{array}{l} 3x - 7 = 4 \\ +7 \quad +7 \\ \hline 3x = 11 \\ \frac{3x}{3} = \frac{11}{3} \end{array} \qquad \begin{array}{l} 3x - 7 = -4 \\ +7 \quad +7 \\ \hline 3x = 3 \\ \frac{3x}{3} = \frac{3}{3} \end{array}$$

$$x = \frac{11}{3} \text{ OR } x = 1$$

$$\text{b) } |x - 11| + 2 = 8$$

$$\begin{array}{l} |x - 11| = 6 \\ \swarrow \quad \searrow \\ x - 11 = 6 \quad x - 11 = -6 \\ +11 \quad +11 \quad +11 \quad +11 \end{array}$$

$$x = 17 \text{ OR } x = 5$$

c)  $|x - 4| + 4 = 7$

$$-4 \quad -4$$

$$|x - 4| = 3$$

$$x - 4 = 3 \quad x - 4 = -3$$

$$+4 \quad +4 \quad +4 \quad +4$$

$$x = 7 \text{ or } x = 1$$

d)  $|2x - 8| - 3 = 5$

$$+3 \quad +3$$

$$|2x - 8| = 8$$

$$2x - 8 = 8 \quad 2x - 8 = -8$$

$$+8 \quad +8 \quad +8 \quad +8$$

$$\frac{2x}{2} = \frac{16}{2} \quad \frac{2x}{2} = \frac{0}{2}$$

$$x = 8 \text{ or } x = 0$$

### Solve the Equation

e)  $|2x - 5| - 3 = 6$

$$+3 \quad +3$$

$$|2x - 5| = 9$$

$$2x - 5 = 9$$

$$+5 \quad +5$$

$$\frac{2x}{2} = \frac{14}{2}$$

$$x = 7$$

$$2x - 5 = -9$$

$$+5 \quad +5$$

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

$$x = -2$$

$$x = 7 \text{ or } x = -2$$

f)  $|11 + 2x| + 4 = 9$

$$-4 \quad -4$$

$$|11 + 2x| = 5$$

$$11 + 2x = 5 \quad 11 + 2x = -5$$

$$-11 \quad -11 \quad -11 \quad -11$$

$$\frac{2x}{2} = \frac{-6}{2} \quad \frac{2x}{2} = \frac{-16}{2}$$

$$x = -3 \text{ or } x = -8$$

g)  $|10 - 4x| - 1 = 1$

h)  $|8x + 1| + 2 = 25$

## Summary

**EQ:** What happens if the absolute value is **not** alone on one side?

Get rid of extra #'s to get  
// by itself then split  
& solve

## 6.4 Day 2 Homework

6.4 Day 2 p. 356

#9-11, 34-39

& Abs. Value Eqns wkst #1-9