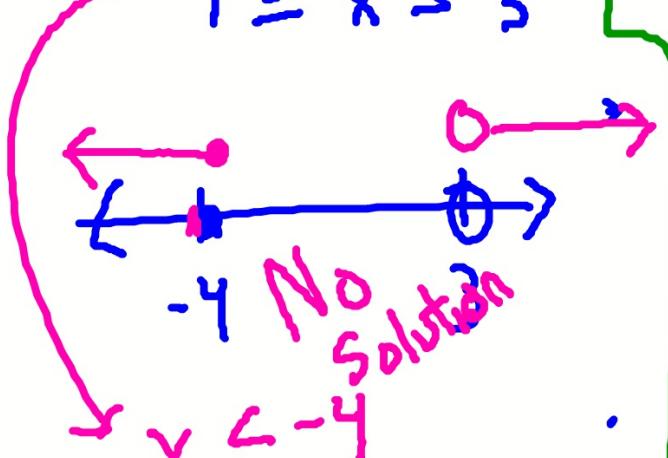


## Warm-Up: Solve and Graph

$$\square 1. \frac{16 \leq -4x < -12}{-4} \quad | \quad \begin{array}{r} \cancel{-4} \\ \cancel{-4} \\ \hline -4 \end{array}$$

$$-4 \geq x > 3$$



$$\square 2. \frac{-1 > x - 4 \text{ or } 3x - 2 > 7}{+4} \quad | \quad \begin{array}{r} \cancel{+4} \\ \cancel{+4} \\ \hline 3 \end{array} \quad \begin{array}{r} \cancel{+2} \\ \cancel{+2} \\ \hline 1 \end{array}$$

$$\begin{array}{l} 3 > x \\ x < 3 \end{array}$$

$$\begin{array}{l} 3x > 9 \\ \cancel{3} \cancel{3} \\ x > 3 \end{array}$$



## CHAPTER 6 SECTION 4

Solving Absolute-Value Equations and Inequalities

## Absolute Value Review

- Absolute Value equations have two answers

Absolute Value is the distance a # is from  
Examples: zero.

$$|5| = 5 \quad |9| = 9 \quad |1| = 1$$

$$|-5| = 5 \quad |-9| = 9 \quad |-1| = 1$$

# Solving Absolute Value Equations

## □ Steps:

- Isolate the Absolute Value
- Set equation equal to positive and negative
- Solve for the Variable
- CHECK YOUR WORK!

### ■ Example:

$$|x + 2| - 4 = 6 \rightarrow |x + 2| = 10 \rightarrow \begin{array}{l} x + 2 = 10 \\ x + 2 = -10 \end{array}$$

$$x = 8$$

$$x = -12$$

## Examples:

□ 1.  $|x| = 6$

$$x = 6 \quad | \quad x = -6$$

□ 2.  $|x| = 14$

$$x = 14 \quad | \quad x = -14$$

## Examples:

$$\square 3. |x + 1| = 12$$

$$\begin{array}{l} x+1=12 \\ \cancel{x} \quad -1 \\ x=11 \end{array} \quad \left| \quad \begin{array}{l} x+1=-12 \\ \cancel{x} \quad -1 \\ x=-13 \end{array} \right.$$

$$\square 4. \quad |x - 7| = 3$$

$$\begin{array}{l} x-7=3 \\ \cancel{x} \quad +7 \\ x=10 \end{array} \quad \left| \quad \begin{array}{l} x-7=-3 \\ \cancel{x} \quad +7 \\ x=4 \end{array} \right.$$

## Examples:

$$\square 5. |x - 4| = 11$$

$$\begin{array}{l} x - 4 = 11 \\ +4 \quad +4 \\ x = 15 \end{array} \quad \left| \begin{array}{l} x - 4 = -11 \\ +4 \quad +4 \\ x = -7 \end{array} \right.$$

$$\square 6. |2x + 7| = 6$$

$$\begin{array}{l} 2x + 7 = 6 \\ -7 \quad -7 \\ 2x = -1 \\ \frac{2x}{2} = \frac{-1}{2} \\ x = -\frac{1}{2} \end{array} \quad \left| \begin{array}{l} 2x + 7 = -6 \\ -7 \quad -7 \\ 2x = -13 \\ \frac{2x}{2} = \frac{-13}{2} \\ x = -\frac{13}{2} \end{array} \right.$$

## Examples:

$$\square 7. |5x - 4| = 8$$

$$\begin{array}{l|l} 5x - 4 = 8 & 5x - 4 = -8 \\ +4 +4 & +4 +4 \\ \hline 5x = 12 & 5x = -4 \\ \hline x = \frac{12}{5} & x = -\frac{4}{5} \end{array}$$

$$\square 8. |x + 5| - 7 = 10$$

$$\begin{array}{l|l} |x + 5| = 17 & |x + 5| = -17 \\ \hline x + 5 = 17 & x + 5 = -17 \\ -5 -5 & -5 -5 \\ \hline x = 12 & x = -22 \end{array}$$

## Examples:

$$\square 9. |x - 4| + \cancel{6} = 22$$

$$|x - 4| = 16$$

$$\begin{array}{l} x - 4 = 16 \\ \cancel{+4} \quad \cancel{+4} \\ x = 20 \end{array}$$

$$\begin{array}{l} x - 4 = -16 \\ \cancel{+4} \quad \cancel{+4} \\ x = -12 \end{array}$$

$$\square 10. |2x + 5| - \cancel{4} = 12$$

$$|2x + 5| = 16$$

$$\begin{array}{l} 2x + 5 = 16 \\ \cancel{-5} \quad \cancel{-5} \\ 2x = 11 \end{array}$$

$$\begin{array}{l} 2x = -16 \\ \cancel{-5} \quad \cancel{-5} \\ 2x = -21 \end{array}$$

$$\begin{array}{l} 2x + 5 = -16 \\ \cancel{-5} \quad \cancel{-5} \\ 2x = -21 \end{array}$$

$$\begin{array}{l} 2x = -21 \\ \cancel{2} \quad \cancel{2} \\ x = -21/2 \end{array}$$

## Class Work

□ Page 356 #6-11

## Homework

□ Page 356 #19-27

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