

**Warm Up**

Solve the equation.

1.  $6(x-5) = 6x - 20$

$$\begin{array}{r|l} 6x-30 & 6x-20 \\ \hline -6x & +6x \\ \hline \end{array}$$

$$\text{No soln. } -30 \neq -20$$

3.  $4x - 9 = 2(2x + 5)$

$$\begin{array}{r|l} 4x-9 & 4x+10 \\ \hline -4x & -4x \\ \hline \end{array}$$

$$\text{No soln. } -9 \neq 10$$

2.  $6x - 5 = -3x + 31$

$$\begin{array}{r|l} +3x & +3x \\ \hline 9x-5 & =31 \\ \hline -5 & +5 \\ \hline \end{array}$$

$$\begin{array}{r} 9x=36 \\ \hline x=4 \end{array}$$

4.  $3x - 9 + 7x = 3x + 12$

$$\begin{array}{r|l} 10x-9 & 3x+12 \\ \hline -3x & -3x \\ \hline \end{array}$$

$$7x-9=12$$

$$+9 \quad +9$$

$$\begin{array}{r} 7x=21 \\ \hline \end{array}$$

$$x=3$$

**Homework Questions?**

On the top of your paper (by your name) rate yourself for this section:

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

**3 - I can apply the concept to answer questions correctly**

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

**1 - I need help and know how to apply the concept**

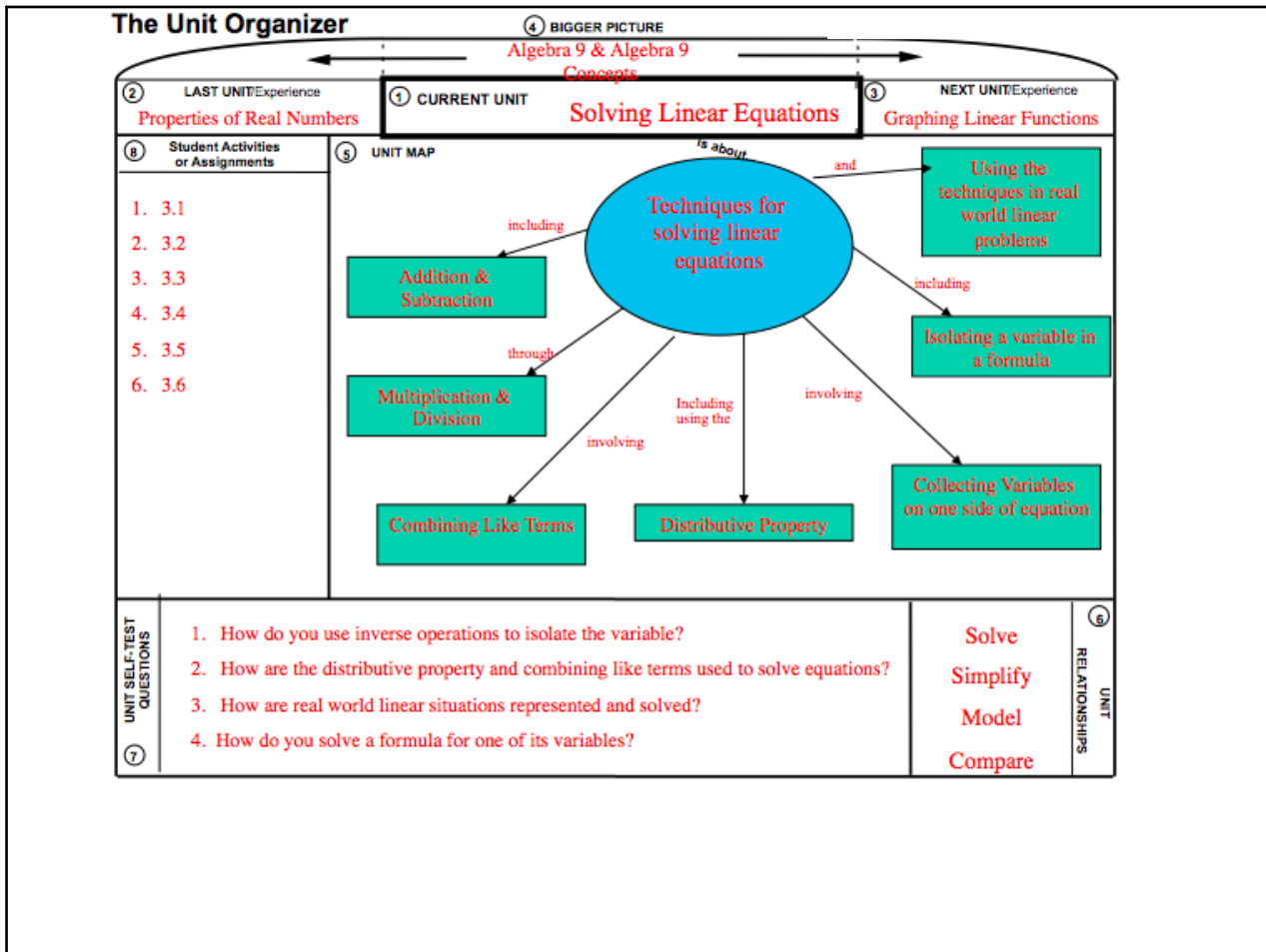
**0 - I can't apply the concept, even with help**

\*Rating of 0-2 is a warning signal to me that you need help\*

## 3.5 More on Linear Equations

**Goals:** • Solve more complicated equations that have variables on both sides.

**EQ:** Solve  $2(8 - 4x) = \frac{1}{3}(33 - 18x) + 3$



**STEPS FOR SOLVING LINEAR EQUATIONS**

- Simplify** each side by distributing and/or combining like terms.
- Collect** variable terms on the side where the coefficient is greater.
- Use** inverse operations to isolate the variable.
- Check** your solution in the *original* equation.

① ( ) Distribute

② Comb. Like Terms  
(Both Left / Right Side)

\* ③ + or - (get variable to one side then solve)

④ ÷ Number in front of variable  
(if fraction, mult. by Reciprocal)

**Example 1: Solve a More Complicated Equation**

$$\text{Solve } 3(2 - x) - x = -5(x + 1)$$

$$6 - 3x - x = -5x - 5$$

$$6 - 4x = -5x - 5$$

$$+5x \quad +5x$$


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$$6 + x = -5$$

$$-6 \quad -6$$


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$$x = -11$$

Note: You should simplify an equation before deciding whether to collect the variable terms on the right side or the left side.

**Example 2: Solve a More Complicated Equation**

$$\text{Solve } 2(5 - 4x) = 9(x + 10) - 7x$$

$$10 - 8x = 9x + 90 - 7x$$

$$10 - 8x = 2x + 90$$

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


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$$10 = 10x + 90$$

$$-90 \quad -90$$

$$\frac{-80}{10} = \frac{10x}{10}$$

$$x = -8$$

**Example 3: Solve a More Complicated Equation**

$$\text{Solve } \frac{1}{5}(15x + 20) = 6 - 2(x - 4)$$

$$3x + 4 = 6 - 2x + 8$$

$$\begin{array}{r} 3x + 4 = 14 - 2x \\ + 2x \qquad \qquad + 2x \end{array}$$

$$\begin{array}{r} 5x + 4 = 14 \\ -4 \qquad -4 \end{array}$$

$$\frac{5x}{5} = \frac{10}{5}$$

$$x = 2$$

**Try It**

Solve the equation. Check your solution in the original equation.

$$1. \quad -6(4 - x) = 12x - 24$$

$$\begin{array}{r} -24 + 6x = 12x - 24 \\ -6x \qquad -6x \end{array}$$

$$\begin{array}{r} -24 = 6x - 24 \\ +24 \qquad +24 \end{array}$$

$$\frac{0}{6} = \frac{6x}{6}$$

$$0 = x$$

$$2. \quad -\frac{1}{6}(30 - 12p) = 4 - 3(p - 2)$$

$$\begin{array}{r} -5 + 2p = 4 - 3p + 6 \\ -3p \qquad -3p \end{array}$$

$$\begin{array}{r} -5 + 2p = 10 - 3p \\ +3p \qquad +3p \end{array}$$

$$\begin{array}{r} -5 + 5p = 10 \\ +5 \qquad +5 \end{array}$$

$$\frac{5p}{5} = \frac{15}{5}$$

$$p = 3$$

**Example 4: Compare Payment Plans**

**Golf Course Fees** A private golf course charges \$1200 for membership and \$5 per round played to be a member. A guest of a member pays \$45 per round. Compare the costs of the members and guests.

**Try It**

3. You are looking to rent a banquet hall for a birthday party. Banquet hall A charges \$200 for set-up and rental plus \$15 per person. Banquet hall B charges \$275 for set-up and rental plus \$12 per person. Compare the costs of banquet halls A and B.

# Summary

**EQ:** Solve  $2(8 - 4x) = \frac{1}{3}(33 - 18x) + 3$

Due  
Tomorrow

① Finish Partner Wkst

② Coloring Activity



## 3.5 Homework

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