

Warm Up

$$1. 3(x - 5) = 21$$

$$3x - 15 = 21$$

$$+15 \quad +15$$

$$\frac{3x}{3} = \frac{36}{3}$$

$$x = 12$$

$$2. x + 9 = 4x - 6$$

$$-x \quad -x$$

$$9 = 3x - 6$$

$$+6 \quad +6$$

$$\frac{15}{3} = \frac{3x}{3}$$

$$5 = x$$

$$3. -6 + 2x = 9 - 3x$$

$$+3x \quad +3x$$

$$-6 + 5x = 9$$

$$+6 \quad +6$$

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

$$x = 3$$

$$4. -6x + 9 = -4x - 3$$

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

$$-2x + 9 = -3$$

$$-9 \quad -9$$

$$\frac{-2x}{-2} = \frac{-12}{-2}$$

$$x = 6$$

Homework Questions?

$$16 \quad \frac{1}{5}(10a - 15) = 3 - 2a$$

$$\frac{10}{5}a - \frac{15}{5} = 3 - 2a$$

$$2a - 3 = 3 - 2a$$

$$+2a \quad +2a$$

$$4a - 3 = 3$$

$$\begin{aligned} \underline{17)} \quad & 5(y-2) = -2(12-9) + y \\ & 5y - 10 = -24 + 18 + y \\ & 5y - 10 = -6 + y \\ & \begin{array}{r} -y \\ 4y - 10 = -6 \end{array} \quad \begin{array}{r} -y \\ 4y - 10 = -6 \end{array} \\ & \begin{array}{r} +10 \\ 4y = 4 \end{array} \quad \begin{array}{r} +10 \\ 4y = 4 \end{array} \end{aligned}$$

$$\begin{aligned} \underline{18)} \quad & 4x + 27 = 3x \\ & \begin{array}{r} -4x \\ 27 = -x \end{array} \quad \begin{array}{r} -4x \\ 27 = -x \end{array} \\ & \frac{27}{-1} = \frac{-x}{-1} \\ & x = -27 \end{aligned}$$

$$\begin{aligned} \underline{29)} \quad & -7 + 11g = 9 - 5g \\ & +7 \qquad \qquad +7 \\ & 11g = 16 - 5g \\ & +5g \qquad \qquad +5g \\ & \frac{16g}{16} = \frac{16}{16} \\ & \quad \quad \quad \textcircled{g=1} \end{aligned}$$

$$\begin{aligned} \underline{33)} \quad & -4(x-3) = -x \\ & -4x + 12 = -x \\ & +4x \qquad \qquad +4x \\ & 12 = 3x \\ & \frac{12}{3} = \frac{3x}{3} \\ & \quad \quad \quad \textcircled{x=4} \end{aligned}$$

$$\underline{35)} \quad 8a + -4(-5a - 2) = 12a$$

$$8a + 20a + 8 = 12a$$

$$28a + 8 = 12a$$

$$\begin{array}{r} -12a \quad -12a \\ 16a + 8 = 0 \end{array}$$

$$16a + 8 = 0$$

$$\begin{array}{r} -8 \quad -8 \\ 16a = -8 \end{array}$$

$$16a = -8$$

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

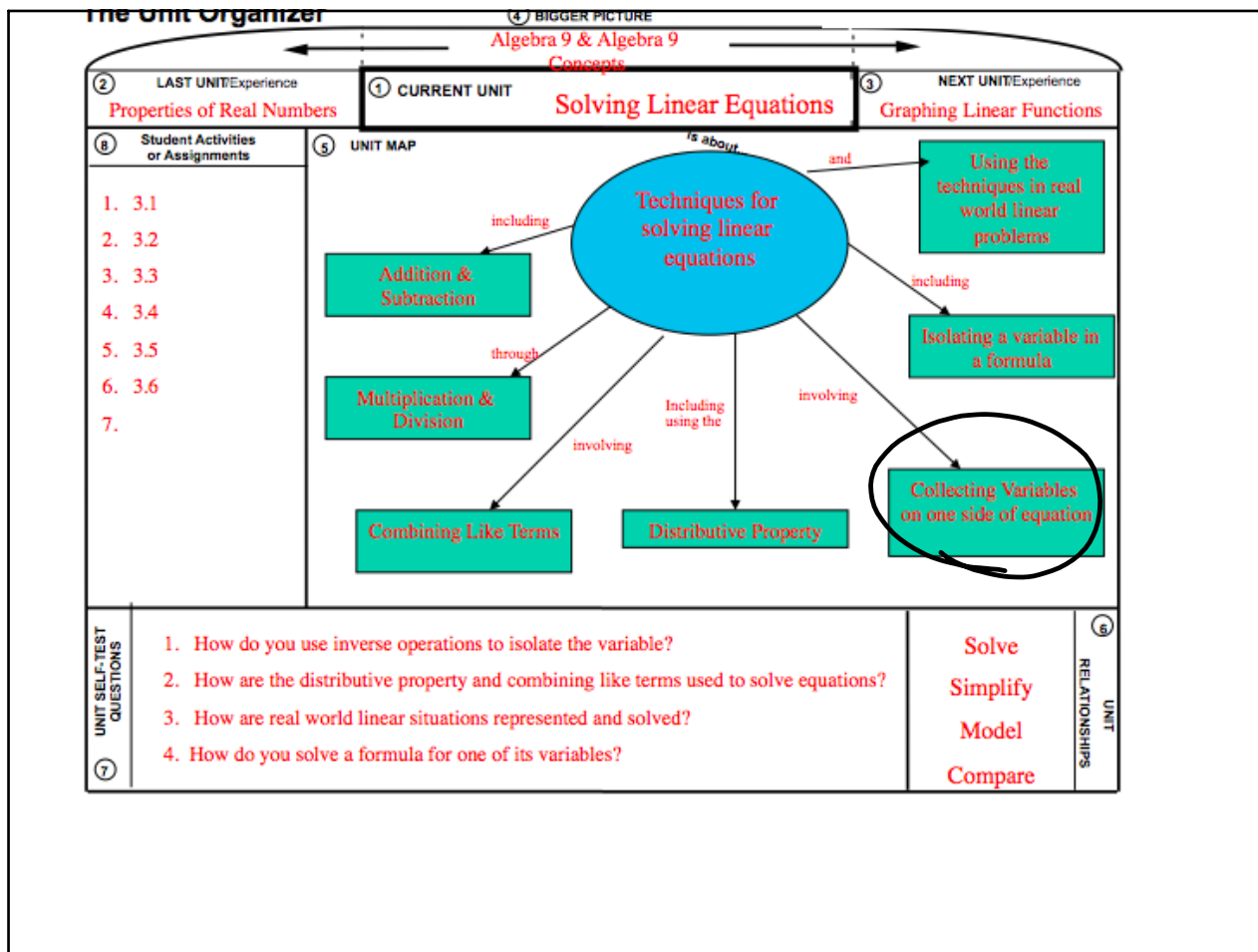
Rating of 0-2 is a warning signal to me that you need help

3.4 Solving Equations with Variables on Both Sides

Goal: • Solve equations that have variables on both sides

EQ: What are the three types of solutions linear equations can have? Give an example of each.

(put the Day 2 EQ on p.14 of your packet)



Identify Number of Solutions

Solve the equation if possible. Determine whether it has one solution, no solution, or is an identity?

one solution: simplifies to $x = \#$

(one soln.)

ex: $x = 2$

no solution: variables cancel and get false statement

(no soln.)

ex: $3 \neq 1$

identity: variables cancel and get true statement

↑
Solution is All Real Numbers
 \mathbb{R}

ex: $2 = 2$

Solve the equation if possible. Determine whether it has *one solution*, *no solution*, or is an *identity*?

$$2(x + 4) = 2x + 8$$

$$\begin{array}{r} 2x + 8 = 2x + 8 \\ -2x \quad -2x \\ \hline \end{array}$$

$$8 = 8 \quad \text{True}$$

Identity

OR

\mathbb{R}

$$2(x + 4) = 2x - 8$$

$$\begin{array}{r} 2x + 8 = 2x - 8 \\ -2x \quad -2x \\ \hline \end{array}$$

$$8 \neq -8 \quad \text{False}$$

No Soln.

$$2(x + 4) = x - 8$$

$$\begin{array}{r} 2x + 8 = x - 8 \\ -2x \quad -2x \\ \hline \end{array}$$

$$8 = -x - 8$$

$$\begin{array}{r} 16 = -x \\ +8 \quad +8 \\ \hline \end{array}$$

$$-16 = x$$

One Soln.

Try It Solve the equation if possible. Determine whether it has *one solution*, *no solution*, or is an *identity*?

$$6x + 22 = -3x + 31$$

$$\begin{array}{r} +3x \quad +3x \\ \hline \end{array}$$

$$\begin{array}{r} 9x + 22 = 31 \\ -22 \quad -22 \\ \hline \end{array}$$

$$\frac{9x}{9} = \frac{8}{9}$$

$$x = \frac{8}{9}$$

One soln

$$4(x - 5) = 4x - 20$$

$$\begin{array}{r} 4x - 20 = 4x - 20 \\ -4x \quad -4x \\ \hline \end{array}$$

$$-20 = -20 \quad \text{True}$$

Identity

\mathbb{R}

$$\begin{array}{r} x + 2 = x + 4 \\ -x \quad -x \\ \hline \end{array}$$

$$2 = 4 \quad \text{False}$$

No Soln.

More Equations

$$3(2 - x) + 2x = -5(x + 2)$$

$$6 - 3x + 2x = -5x - 10$$

$$6 - x = -5x - 10$$

$$6 + 4x = -10$$

$$\frac{4x}{4} = \frac{-16}{4}$$

$$x = -4$$

$$\frac{1}{4}(12 - 16q) = 5(q + 6)$$

$$3 - 4q = 5q + 30$$

$$3 = 9q + 30$$

$$\frac{-27}{9} = \frac{9q}{9} \quad (q = -3)$$

Summary

EQ: What are the three types of solutions linear equations can have? Give an example of each.

No Soln

One Soln

Identity
(IR)

Reminder

- Ch.2 Retest is Due FRIDAY
- Requiz for 3.1-3.3 Due Friday
 - > If Below 28, I highly recommend you retake it

Talk to me during work time or after class if you need to schedule a retest time

3.4 Day 2 Homework

- Partner Problems
 - > Staple together and hand in when done
- 3.4 Day 2
 - > p.157 #22-24, 31, 32, 37-41, 44*
- ~~Star Coloring Activity wkst~~