Visual Guided Practice

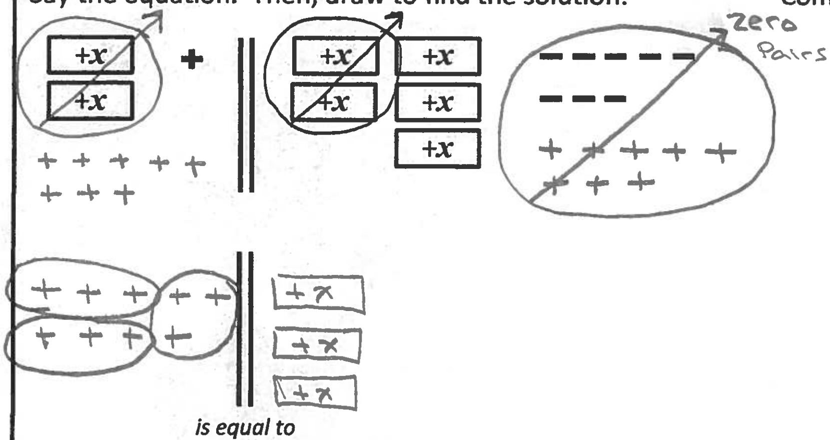
Name: Key

Learning Target: I will solve multi-step linear equations.

Form A

1. We Do Together

Say the equation. Then, draw to find the solution.



Complete the missing steps to solve the equation.

$2x + 1 = 5x - 8$

$2x + 1 = 5x + \boxed{-8}$

$- \boxed{2x} \quad - \boxed{2x}$

$1 = 3x + -8$

$+ \boxed{+8} \quad + \boxed{+8}$ ← Must use additive inverse w/ Zero Pairs

$9 = 3x$

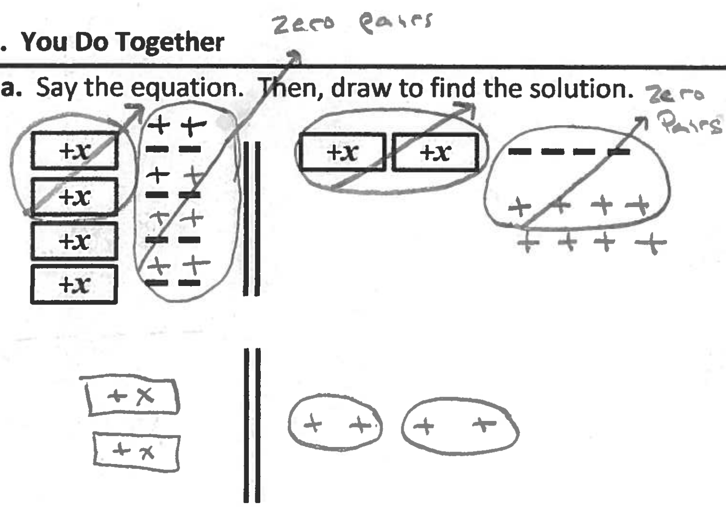
$\overline{\boxed{3}} \quad \overline{\boxed{3}}$

$\boxed{3} = x$

2. Reflect: What questions do you have about solving equations with more than one step?

3. You Do Together

a. Say the equation. Then, draw to find the solution.



Complete the missing steps to solve the equation.

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

$4 \bullet \boxed{x} + 4 \bullet \boxed{-2} = 2x + \boxed{-4}$

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

$- \boxed{2x} \quad - \boxed{2x}$ ← Not enough negative to take away

$2x + -8 = -4$

$+ \boxed{+8} \quad + \boxed{+8}$ Additive inverse is easier to visualize

$2x = 4$

$\overline{\boxed{2}} \quad \overline{\boxed{2}}$

$x = \boxed{2}$

b. Solve for x: $2(3x - 4) = x + 12$

$2(3x + -4) = x + 12$

$6x + -8 = x + 12$

$-x \quad -x$

$5x + -8 = 12$

$+8 \quad +8$

$\frac{5x}{5} = \frac{20}{5}$

$x = 4$

c. Solve for x: $3x - 6 = 5(x - 4)$

$3x + -6 = 5(x + -4)$

$3x + -6 = 5x + -20$

$-3x \quad -3x$

$-6 = 2x + -20$

$+20 \quad +20$

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

$7 = x$

DELTA MATH

Visual Guided Practice

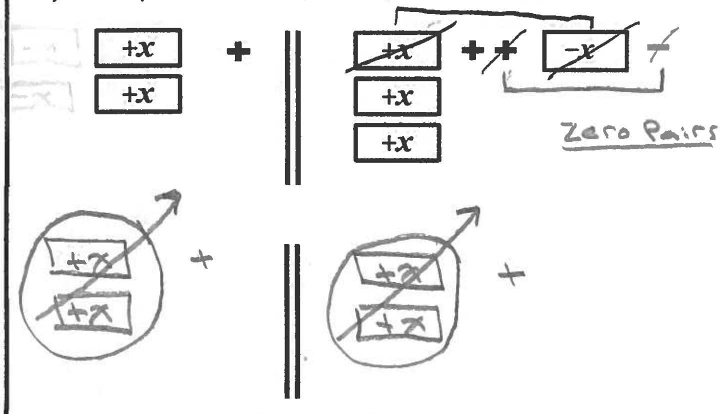
Name: Key

Form A

Learning Target: I will determine the number of solutions to linear equations in one variable.

1. We Do Together

Say the equation. Then, draw to find the solution.



Equal or Not Equal?

Complete the missing steps to solve the equation.

$$2x + 1 = 3x + 2 - x - 1$$

$$2x + 1 = 3x + 2 + \boxed{-x} + \boxed{-1}$$

$$2x + 1 = \boxed{2}x + \boxed{1}$$

$$-\boxed{2x} \qquad -\boxed{2x}$$

$$1 \boxed{=} 1$$

Equal or Not Equal?

Circle how many solutions make the equation true?

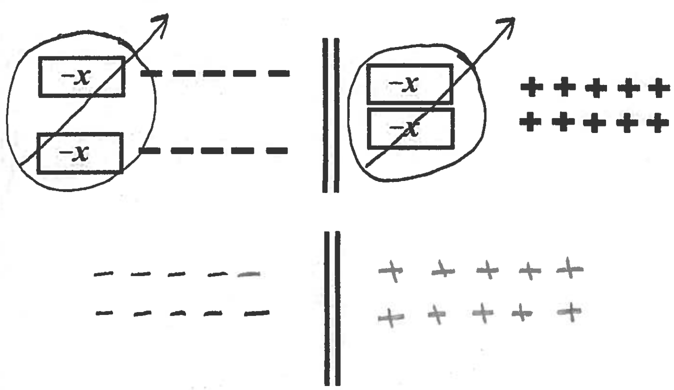
One None **Infinitely many**

It doesn't matter what x equals, 1 always = 1

2. Reflect: What questions do you have about finding the number of solutions to linear equations?

3. You Do Together

a. Say the equation. Then, draw to find the solution.



Equal or Not Equal?

Complete the missing steps to solve the equation

$$2(-x + -5) = -2x + 10$$

$$2 \cdot \boxed{-x} + 2 \cdot \boxed{-5} = -2x + 10$$

$$-2x + -10 = -2x + 10$$

$$-\boxed{2x} \qquad -\boxed{2x}$$

$$-10 \boxed{\neq} 10$$

Equal or Not Equal?

Circle how many solutions make the equation true?

One **None** Infinitely many

b. Solve to find the number of solutions.

$$2(2x + 1) = 6x - 4$$

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

$$-4x \qquad -4x$$

$$2 = 2x + -4$$

$$+4 \qquad +4$$

$$\frac{6}{2} = \frac{2x}{2}$$

$$3 = x$$

True only when x = 3

Circle the number of solutions to the equation.

One None Infinitely many

c. Solve to find the number of solutions.

$$2(x + 3) + 4 = 2x + 10$$

$$2x + 6 + 4 = 2x + 10$$

$$2x + 10 = 2x + 10$$

$$-2x \qquad -2x$$

$$10 = 10$$

Always True!

Circle how many solutions make the equation true?

One None **Infinitely many**

Visual Guided Practice Name: Key

Learning Target: I will find the equation of a line. **Form A**

1. We Do Together/Reflect

a. Calculate the slope (m) and y-intercept (b) of the line that contains the two points: **(-3, 2)** and **(6, 8)**

Slope $= \dfrac{y_2 - y_1}{x_2 - x_1}$

$= \dfrac{8 - \boxed{2}}{6 - \boxed{-3}}$

$= \dfrac{8 + \boxed{-2}}{6 + \boxed{3}}$

$= \dfrac{\boxed{6}}{\boxed{9}}$

$m = \boxed{\frac{2}{3}}$

Solve for the y-intercept

$y = m \bullet x + b$

$8 = \boxed{\frac{2}{3}} \bullet 6 + b$

$8 = \boxed{4} + b$

$\boxed{-4} \quad \boxed{-4}$

$\boxed{4} = b$

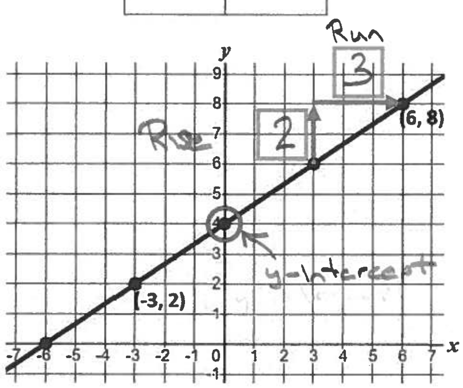
b. Verify the calculated slope and y-intercept using two points represented from the table and graph.

x	y
-6	0
-3	2
0	4
3	6
6	8

y-intercept → 0

Run $\boxed{3}$ $\boxed{2}$ Rise

$\frac{rise}{run} = \frac{2}{3}$



c. Complete the equation of the line.

$y = \boxed{\frac{2}{3}}x + \boxed{4}$

Slope y-intercept

2. You Do Together

a. Find the equation of the line that contains the two points: **(-6, -4)** and **(3, -1)**

Slope (m) $= \dfrac{y_2 - y_1}{x_2 - x_1}$

$= \dfrac{-1 - -4}{3 - -6}$

$= \dfrac{-1 + 4}{3 + 6}$

$= \dfrac{3}{9}$

$= \dfrac{1}{3}$

Solve for the y-intercept (b)

$y = m \bullet x + b$

$-4 = \frac{1}{3} \cdot -6 + b$

$-4 = \frac{-6}{3} + b$

$-4 = -2 + b$

$+2 \quad +2$

$-2 = b$

$y = \boxed{\frac{1}{3}}x + \boxed{-2}$

b. Find the equation of the line using the two points represented in the table.

x	y
-2	9
-1	7
0	5
1	3
2	1

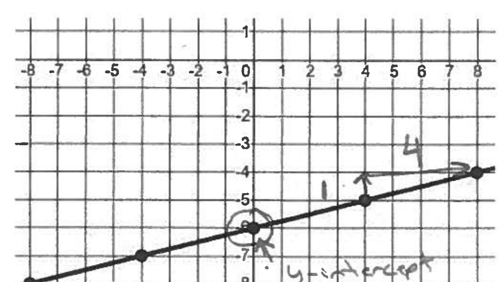
$\frac{rise}{run} = \frac{-2}{1} = -2$

y-intercept = 5

1 -2

$y = \boxed{-2}x + \boxed{5}$

c. Find the equation of the line using two of the points represented in the graph.



$\frac{rise}{run} = \frac{1}{4}$

$y = \boxed{\frac{1}{4}}x + \boxed{-6}$

Note: Slope can be referred to as **rate of change** and the y-intercept can be referred to as the **initial value**.

Visual Guided Practice

Name: Key

Learning Target: I will simplify numerical expressions with integer exponents. **Form A**

Directions: Apply the meaning and properties of exponents to simplify each expression.

1. We Do Together

a.	b.	c.
$6^7 \bullet 6^{-2}$	$\frac{5^3}{5^7}$	$(9^3)^2$
$\frac{6 \bullet 6 \bullet 6 \bullet 6 \bullet 6 \bullet \cancel{6} \bullet \cancel{6}}{\boxed{\cancel{6} \cdot \cancel{6}}}$	$\frac{\cancel{5} \bullet \cancel{5} \bullet \cancel{5}}{\boxed{\cancel{5} \cdot \cancel{5} \cdot \cancel{5} \cdot 5 \cdot 5 \cdot 5 \cdot 5}}$	$9^{\boxed{3}} \bullet 9^{\boxed{3}}$
$6^{\boxed{5}}$	$\frac{1}{\boxed{5 \cdot 5 \cdot 5 \cdot 5}}$	$\boxed{9 \cdot 9 \cdot 9} \bullet \boxed{9 \cdot 9 \cdot 9}$
	$\frac{1}{\boxed{5^4}}$ or $5^{\boxed{-4}}$	$9^{\boxed{6}}$
Multiplying Powers Property:	**Dividing Powers Property:**	**Power of a Power Property:**
$6^7 \bullet 6^{-2} = 6^{\boxed{7+-2}} = 6^{\boxed{5}}$	$\frac{5^3}{5^7} = 5^{\boxed{3-7}} = 5^{\boxed{-4}} = \frac{1}{\boxed{5^4}}$	$(9^3)^2 = 9^{\boxed{3 \cdot 2}} = 9^{\boxed{6}}$

Some programs prefer no negative exponents!

2. Reflect: What questions do you have about simplifying expressions with exponents?

3. You Do Together

a.	b.	c.
$4^{-8} \bullet 4^2$	$\frac{8^3}{8^7}$	$(3^2)^4$
$\frac{4^2}{4^8}$	$\frac{\cancel{8} \cdot \cancel{8} \cdot \cancel{8}}{\cancel{8} \cdot \cancel{8} \cdot \cancel{8} \cdot 8 \cdot 8 \cdot 8 \cdot 8}$	$3^2 \cdot 3^2 \cdot 3^2 \cdot 3^2$
$\frac{\cancel{4} \cdot \cancel{4}}{\cancel{4} \cdot \cancel{4} \cdot 4 \cdot 4 \cdot 4 \cdot 4 \cdot 4 \cdot 4}$	$\frac{1}{8 \cdot 8 \cdot 8 \cdot 8}$	$3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3$
$\frac{1}{4^6}$ or 4^{-6}	$\frac{1}{8^4}$ or 8^{-4}	3^8
Multiplying Powers Property:	**Dividing Powers Property:**	**Power of a Power Property:**
$4^{-8} \bullet 4^2 = 4^{\boxed{-8+2}} = 4^{\boxed{-6}} = \frac{1}{\boxed{4^6}}$	$\frac{8^3}{8^7} = 8^{\boxed{3-7}} = 8^{\boxed{-4}} = \frac{1}{\boxed{8^4}}$	$(3^2)^4 = 3^{\boxed{2 \cdot 4}} = 3^{\boxed{8}}$

Visual Guided Practice

Name: Key

Learning Target: I will solve non-linear equations.

Form A

Directions: Apply the meaning of exponents to solve each non-linear equation.

1. We Do Together

a.

$x^2 = 81$

$\sqrt{x^2} = \sqrt{81}$

Since $x^2 = x \cdot x$

$\sqrt{x \cdot x} = \sqrt{\boxed{9} \cdot \boxed{9}}$

or

or $\sqrt{\boxed{-9} \cdot \boxed{-9}}$

$x = \pm \boxed{9}$

b.

$x^3 = -64$

$\sqrt[3]{x^3} = \sqrt[3]{-64}$

$\sqrt{x \cdot x \cdot x} = \sqrt{\boxed{-4} \cdot \boxed{-4} \cdot \boxed{-4}}$

$x = \boxed{-4}$

c.

$x^2 = \frac{9}{25}$

$\sqrt{x^2} = \sqrt{\frac{\boxed{9}}{\boxed{25}}}$

$\sqrt{x \cdot x} = \sqrt{\frac{\boxed{3}}{\boxed{5}} \cdot \frac{\boxed{3}}{\boxed{5}}}$

or $\sqrt{-\frac{\boxed{3}}{\boxed{5}} \cdot -\frac{\boxed{3}}{\boxed{5}}}$

$x = \pm \frac{\boxed{3}}{\boxed{5}}$

2. Reflect: What questions do you have about solving each non-linear equations?

3. You Do Together

a.

$x^2 = 49$

$\sqrt{x^2} = \sqrt{49}$

$\sqrt{x \cdot x} = \sqrt{7 \cdot 7}$

or

$\sqrt{-7 \cdot -7}$

$x = \pm 7$

b.

$x^3 = 27$

$\sqrt[3]{x^3} = \sqrt[3]{27}$

$\sqrt[3]{x \cdot x \cdot x} = \sqrt[3]{3 \cdot 3 \cdot 3}$

$x = 3$

c.

$x^2 = \frac{4}{9}$

$\sqrt{x^2} = \sqrt{\frac{4}{9}}$

$\sqrt{x \cdot x} = \sqrt{\frac{2}{3} \cdot \frac{2}{3}}$

or $\sqrt{-\frac{2}{3} \cdot -\frac{2}{3}}$

$x = \pm \frac{2}{3}$