

⊛ See moodle for ideas of how to study! Name KEY

Quiz #2 (2.8 - 2.13) Review

Algebra 1

2.8: Which Variable to Solve for (Part 1)

- Given an equation, I can solve for a particular variable (like height, time, or length) when the equation would be more useful in that form. → get "want to know" variable by itself
- I know the meaning of the phrase "to solve for a variable."

2.9: Which Variable to Solve for? (Part 2)

- I can write an equation to describe a situation that involves multiple quantities whose values are not known, and then solve the equation for a particular variable.

(DM: Single Step Literal Equations) → find value of variable that makes equation true
(DM: Standard to slope intercept form)

$$\textcircled{1} \quad \begin{array}{r} B + c = g \\ -c \quad -c \\ \hline \end{array} \quad \text{Solve for } B$$
$$\boxed{B = g - c}$$

$$\textcircled{2} \quad \begin{array}{r} 3x - 4y = 6 \\ -3x \quad -3x \\ \hline \end{array} \quad \text{Solve for } y$$
$$\frac{-4y}{-4} = \frac{-3x + 6}{-4}$$
$$y = \frac{3}{4}x - \frac{3}{2}$$

or

$$y = 0.75x - 1.5$$

$$\textcircled{3} \quad \begin{array}{r} 3.6w + 2.8s = 10.8 \\ -2.8s \quad -2.8s \\ \hline \end{array} \quad \text{Solve for } w$$
$$\frac{3.6w}{3.6} = \frac{-2.8s + 10.8}{3.6}$$
$$\boxed{w = -0.7s + 3}$$

$y = mx + b$
 slope \rightarrow m \rightarrow b - intercept

2.10: Connecting Equations to Graphs (Part 1)

- I can describe the connections between an equation of the form, the features of its graph, and the rate of change in the situation.
- I can graph a linear equation of the form $y = mx + b$.

2.11: Connecting Equations to Graphs (Part 2)

- I can find the slope and vertical intercept of a line with equation $ax + by = c$. \rightarrow change to "y=" form
- I can take an equation of the form $ax + by = c$ and rearrange it into the equivalent form $y = mx + b$.
- I can use a variety of strategies to find the slope and vertical intercept of the graph of a linear equation given in different forms.

(DM: x and y intercepts)

(DM: graphing $Ax + By = C$ from intercepts)

(DM: find the slope graphically)

(DM: graphing lines from equations)

④ Find the x + y intercepts

for $-5x + 2y = 10$

$$-5(0) + 2y = 10$$

$$2y = 10$$

$$y = 5 \quad (0, 5)$$

$$-5x + 2(0) = 10$$

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

$$x = -2 \quad (-2, 0)$$

⑤ Find the slope and the y-intercept

for $5x - 4y = 20$

$$-5x \quad -5x$$

$$\frac{-4y}{-4} = \frac{-5x + 20}{-4}$$

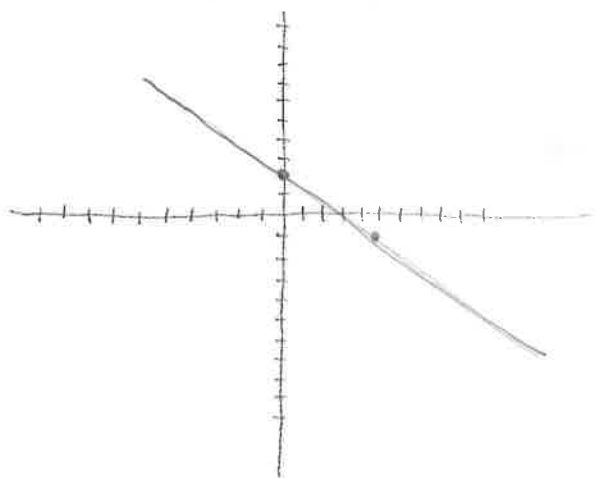
$$y = \left(\frac{5}{4}\right)x - 5$$

slope = $\frac{5}{4}$

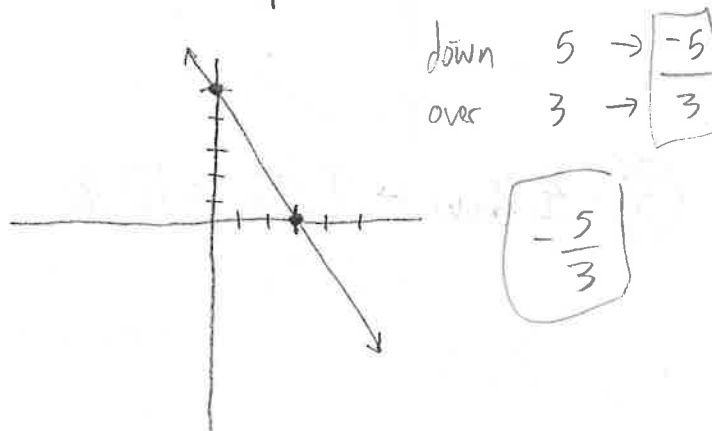
y-intercept = -5

⑥ Graph

$$y = -\frac{3}{5}x + 2$$



⑦ Find the slope of the line



2.12: Writing and Graphing Systems of Linear Equations

- I can explain what we mean by "the solution to a system of linear equations" and can explain how the solution is represented graphically.
- I can explain what we mean when we refer to two equations as a system of equations.
- I can use tables and graphs to solve systems of equations.

(DM: solve linear systems graphically)

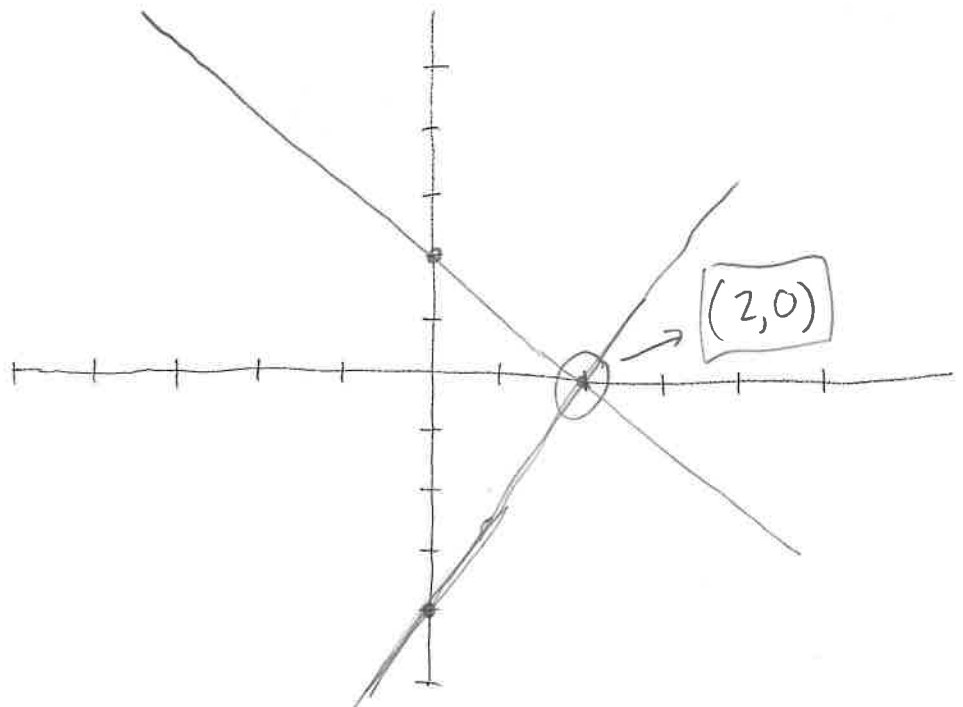
- what makes both equations true \rightarrow intersection

- tables \rightarrow x, y pair in both tables

- graph \rightarrow graph both equations \rightarrow find intersection

⑧ Solve using graphing: (manually, or with calculator)

$$\begin{aligned} y &= -x + 2 \\ y &= 2x - 4 \end{aligned}$$



2.13: Solving Systems by Substitution

- I can solve systems of equations by substituting a variable or an expression.
- I know more than one way to perform substitution and can decide which way or what to substitute based on how the given equations are written.

(DM: substitution)

⊛ "x=" or "y=" tool

⊛ Get other equation to have only one type of variable

⊛ Then solve for remaining variable

⊛ Then use solution to find other variable

Solve the following systems using substitution:

⑨
$$\begin{cases} y = 8x \rightarrow \text{subst tool} \\ y = 4x + 8 \end{cases}$$

$$\begin{array}{r} (8x) = 4x + 8 \\ -4x \quad -4x \\ \hline 4x = 8 \end{array}$$

$$\frac{4x}{4} = \frac{8}{4}$$

$$\boxed{x = 2}$$

$$\begin{aligned} y &= 8x \\ y &= 8(2) \end{aligned}$$

$$\boxed{y = 16}$$

⑩
$$\begin{cases} -6y = x \rightarrow \text{tool} \\ x + y = -30 \end{cases}$$

$$(-6y) + y = -30$$

$$\begin{array}{r} -5y = -30 \\ \hline -5 \quad \quad -5 \end{array}$$

$$\boxed{y = 6}$$

$$-6y = x$$

$$-6(6) = x$$

$$\boxed{-36 = x}$$

⑪
$$\begin{cases} x = -1y - 5 \rightarrow \text{tool} \\ -3x + 7y = -45 \end{cases}$$

$$-3(-1y - 5) + 7y = -45$$

$$3y + 15 + 7y = -45$$

$$\begin{array}{r} 10y + 15 = -45 \\ \hline -15 \quad \quad -15 \end{array}$$

$$\frac{10y}{10} = \frac{-60}{10}$$

$$\boxed{y = -6}$$

$$x = -1y - 5$$

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

$$x = 6 - 5$$

$$\boxed{x = 1}$$