Week 5 Homework

Name: ANSWER KEY

Block: B | D

1. Gerelt-od and Nathaly start reading books at the same time. Gerelt-od has already read 3 books and begins to read 5 books each week. Nathaly starts with 6 books already read and reads 4 books each week.

   a. Write a system of linear equations to represent the number of books read by Gerelt-Od and Nathaly

   w = # of week(s)

   - Gerelt-Od:

     $y = 3 + 5w$

   - Nathaly:

     $y = 6 + 4w$

2. Kayla and Arsema start their exercise routines at the same time. Kayla starts with 10 push-ups already done and does 20 push-ups each day. Arsema has 15 push-ups already done and does 15 push-ups each day.

   a. Write a system of linear equations to represent the number of push-ups Kayla and Arsema are doing:

   d = # of days

   - Kayla:

     $y = 10 + 20d$

   - Arsema:

     $y = 15 + 15d$

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3. Create a table that represents the two following equations in the system of linear equations below:

$$\begin{cases} y = 0.5x + 12 \\ y = 2x + 27 \end{cases}$$

* your table & ANSWERS will vary depending on values!!

My solution:

$y = 0.5x + 12$		$y = 2x + 27$	
x	y	x	y
0	12	0	27
1	12.5	1	29
2	13	2	31
3	13.5	3	33
10	17	10	47

0: 0.5(0) + 12 = 12
1: 0.5(1) + 12 = 12.5
2: 0.5(2) + 12 = 13
3: 0.5(3) + 12 = 13.5
⋮
10: 0.5(10) + 12 = 17

0: 2(0) + 27 = 27
1: 2(1) + 27 = 29
2: 2(2) + 27 = 31
3: 2(3) + 27 = 33
⋮
10: 2(10) + 27 = 47

4. Create a table that represents the two following equations in the system of linear equations below:

$$\begin{cases} y = 4x - 3 \\ y = -2x + 9 \end{cases}$$

* your solutions and table work will vary depending on your table values! ☺

Sample:

$y = 4x - 3$		$y = -2x + 9$	
x	y	x	y
0	-3	0	9
2	5	2	5
4	13	4	1
6	21	6	-3
8	29	8	7

0: 4(0) - 3 = 0 - 3 = -3
2: 4(2) - 3 = 8 - 3 = 5
4: 4(4) - 3 = 16 - 3 = 13
6: 4(6) - 3 = 24 - 3 = 21
8: 4(8) - 3 = 32 - 3 = 29

0: -2(0) + 9 = 0 + 9 = 9
2: -2(2) + 9 = -4 + 9 = 5
4: -2(4) + 9 = -8 + 9 = 1
6: -2(6) + 9 = -12 + 9 = -3
8: -2(8) + 9 = -16 + 9 = 7

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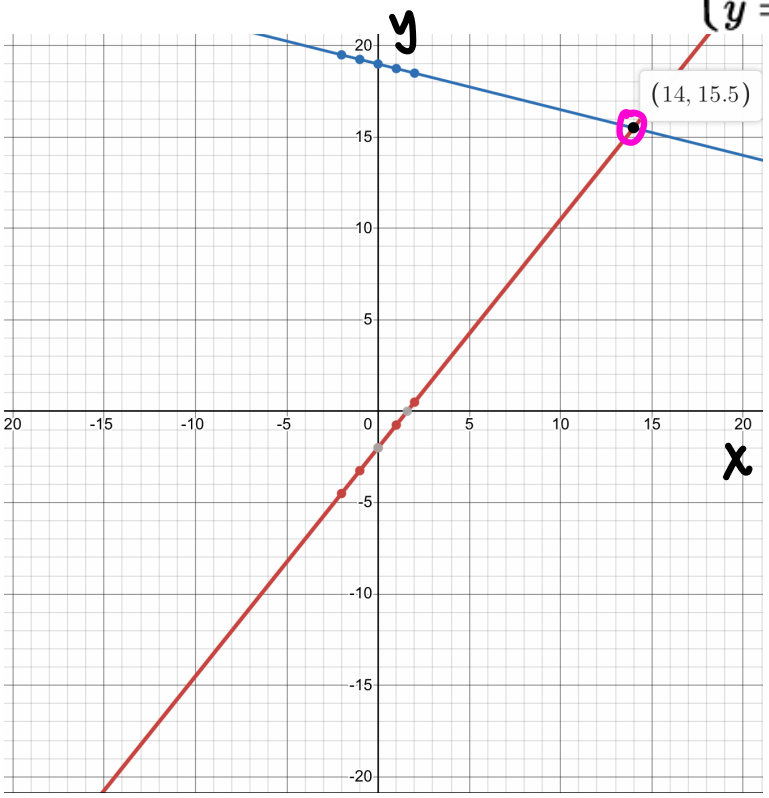
x	$y=\frac{5}{4}x-2$
−2	−4.5
−1	−3.25
0	−2
1	−0.75
2	0.5

5. Solve the system of equations using a graph: $\begin{cases} y=\frac{5}{4}x-2 \\ y=\frac{-1}{4}x+19 \end{cases}$



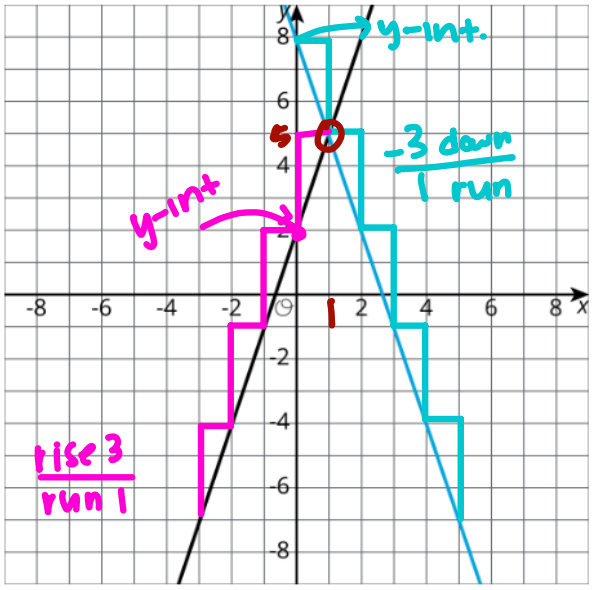
Label:

- Coordinate plane axis
- Point of intersection

The solution to this system of equations is: (14 , 15.5)

x	$y=-\frac{1}{4}x+1$
−2	19.5
−1	19.25
0	19
1	18.75
2	18.5

6. Write Equations to represent each line for the system of equations on the graph in y = mx + b form:



BLUE LINE:

$y=-3x+8$

BLACK LINE:

$y=3x+2$

a. Describe how to find the solution to this system of equations by looking at the **graph**

look for the point of intersection

b. Explain what the graph tells you about the relationship of this system of equations:

the two systems of equations are equal at the point (1,5).

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7. Consider the two following equations:

a. $4y - 8x(2) + 7 - (-15) = 12$

b. $2y - \frac{5}{2}x + 7 - (-\frac{4}{3}) = -6$

a. Rewrite the two linear equations into ***slope intercept form***.

(m) a. $y = 4x - 2.5$

(m) b. $y = \frac{5}{4}x - \frac{43}{6}$

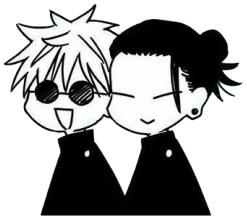
b. Find the slopes of your **new** equations **(show your work)**.

a. $y = 4x - 2.5$

slope: 4

b. $y = \frac{5}{4}x - \frac{43}{6}$

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



c. Are there intercept(s)? If so, write your solution(s) in coordinate form for both equations.

a. $y = 4x - 2.5$

a y-int. = $(0, -2.5)$

c x-int. = $(0.625, 0)$ $0 = 4x - 2.5$

b. $y = \frac{5}{4}x - \frac{43}{6}$

b y-int. = $(0, -\frac{43}{6})$

d x-int. = $(\frac{86}{15}, 0)$ $0 = \frac{5}{4}x - \frac{43}{6}$

d. Graph both of the following equations, label your lines, and highlight any intercept. **(Create tables if you need help graphing the values)**