Name _____ Period _____ Date _____

INTRODUCTION TO LINEAR FUNCTIONS (FUN1)
Essentials Pre-Assessment Answer Key

1. Grace wants to save for a drone that costs $500. She has $250 in the bank as a starting amount, and she is going to save $25 each month. John also wants to save for the drone. He has $200 in the bank as a starting amount, and he is going to save $50 each month.

   a. Create tables on the grid below to record the savings for Grace and John.

   b. Graph data on the grid below for each person. Clearly label each graph.

   c. Write an equation that relates the total amount of money saved to the number of months for each person.

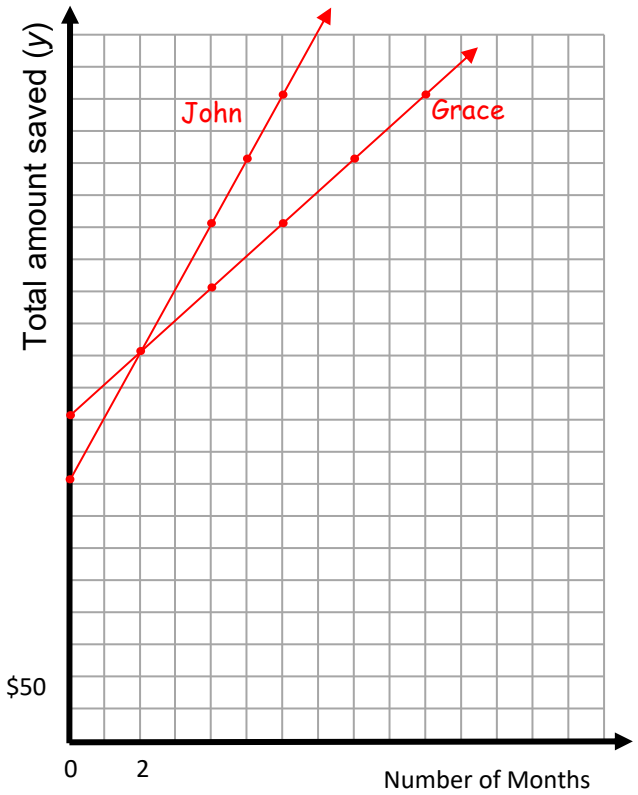
      Grace: $y =$ $25x + 250$

      John: $y =$ $50x + 200$

   d. Who saves enough for the drone first? Explain how you know.
      At month 6, John has $500, which is enough for the drone. Grace doesn't get to $500 until the 10th month. This conclusion is based on the circled entries in the table and by looking at where graphs cross the horizontal line at $500.

Grace	
x (# of months)	*y* (total amount saved in $)
0	250
1	275
2	300
3	325
4	350
5	375
6	400
7	425
8	450
9	475
10	500

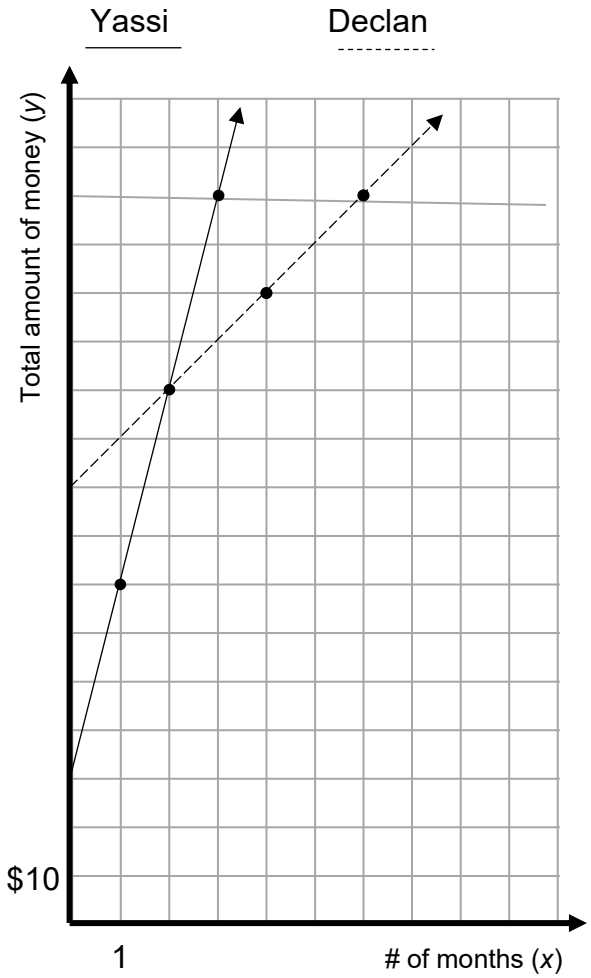
John	
x (# of months)	*y* (total amount saved in $)
0	200
1	250
2	300
3	350
4	400
5	450
6	500
7	550
8	600
9	650
10	700



Name _____ Period _____ Date _____

INTRODUCTION TO LINEAR FUNCTIONS (FUN1)
Essentials Pre-Assessment Continued Answer Key

2. Declan and Yassi are saving money to buy an Activity Tracker for $150. The graph represents the number of months they save and the total amount of money they have in their bank account.



a. Who starts out with more money and how do you know?
Declan, because he has a higher point on the y-axis called the y-intercept.

b. Who is saving at a faster rate and how do you know?
Yassi, because her line is steeper, which indicates that there is a greater increase in money saved per month.

c. At what month will they have saved the same amount of money and how do you know?
At the 2nd month, because the point of intersection represents the month that they have an equal amount of money.

d. At what month can Declan afford the Activity Tracker?
At the 6th month.

e. At what month can Yassi afford the Activity Tracker?
At the 3rd month.

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SLOPE AND SLOPE-INTERCEPT FORM OF A LINE (FUN2)
Essentials Pre-Assessment Answer Key

Use the table below for problems 6 – 9. which provides information about 5 **different** linear functions.

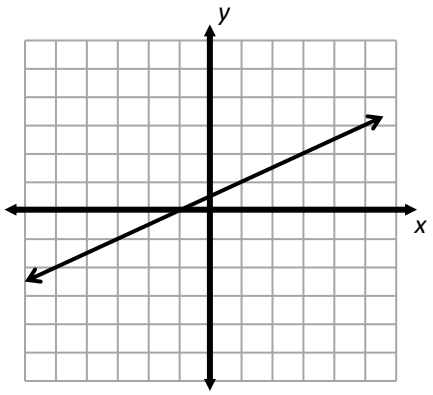
A

$y = -2x + 7$

B

x	-2	0	2
y	3	4	5

C



D

A line that passes through the points (-3, 8) and (-1, 8)

E

To move from one point to another on the graph, count 4 units down and 5 units to the right.

1. Find the slope of each linear function represented. Show any calculations you make. Make sure you label each answer.

A	B	C	D	E
-2	$\frac{1}{2}$	$\frac{1}{2}$	0	$\frac{-4}{5}$

2. Which two linear functions (when graphed) are parallel? Explain how you know these lines are parallel.

   B and C are parallel because they have the same slope.

3. Find the *y*-intercept for lines A and B. Describe how you got each answer.

   A This equation is in the form $y = mx + b$, where b is the *y*-intercept, and $b = 7$.
   B When $x = 0$, $y = 4$, which means the point (0, 4) is on the graph, so the *y*-intercept is 4.

4. Is Line D horizontal or vertical? Explain your reasoning.

   (-3, 8) and (-1, 8) lie on a horizontal line 8 units above the *x*-axis. Horizontal lines have slope = 0.

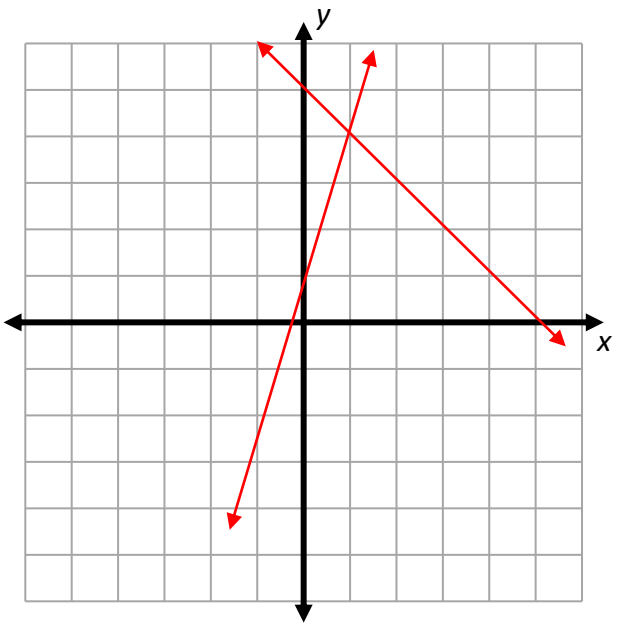
Name _____ Period _____ Date _____

SYSTEMS OF LINEAR EQUATIONS (FUN3)
Essentials Pre-Assessment Answer Key

1. For this system, change the equations to slope-intercept form when needed, graph the lines, and then write the solutions.

$$\begin{cases} y - 1 = 3x \\ 2x + 2y = 10 \end{cases}$$

(1, 4)



2. Inspect the system of equations below and explain why it has infinite solutions. Graphing or using an algebraic method is not required.

$$\begin{cases} 2y = 2x + 2 \\ y = x + 1 \end{cases}$$

This system has infinite solutions because they are the same equation once simplified.

Solve each using an **algebraic** method. Show your work.

3. $$\begin{cases} y = \frac{1}{2}x + 1 \\ x + 2y = 2 \end{cases}$$

(0, 1)

4. Hailey is 16 years older than Kelsey. The sum of their ages is 42. What are their ages?

Kelsey is 13 years old.
Hailey is 29 years old.