Name _____     Period _____     Date_____

# EXPRESSION, EQUATIONS, AND APPLICATIONS (EE3)
## Essentials Pre-Assessment

1.  Choose all of the expressions that are equivalent to $3x + 2(x + 1) - 2 - x$.

   A.   5          B.   $4x$          C.   $3x + x$          D.   $5x$          E.   $5x + 2$

2.  Solve each equation for $x$ and check.

| a.   $4 - 6x = 2(x - 8) + 2x$ | b.   $\frac{1}{3}x + 2 = \frac{1}{6}(x - 6)$ |
|---|---|
| Check: | Check: |

3.  The length of a patio is four times its width. The perimeter is 80 feet. Find the length and the width. Draw a diagram and show your work using algebra.

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**INTRODUCTION TO LINEAR FUNCTIONS (FUN1)**
**Essentials Pre-Assessment**

4. 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:  $y =$ _____

      John:    $y =$ _____

   d. Who saves enough for the drone first? Explain how you know.
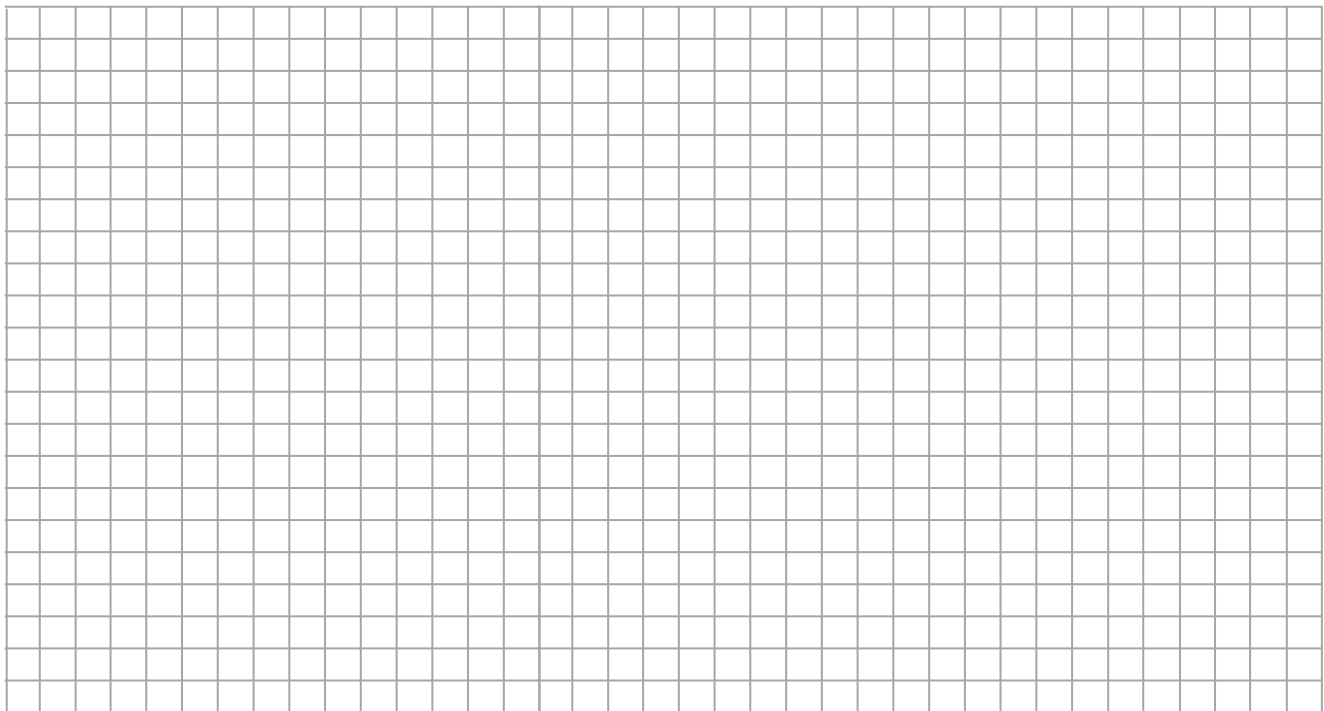
## INTRODUCTION TO LINEAR FUNCTIONS (FUN1)
### Essentials Pre-Assessment Continued

5. 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.
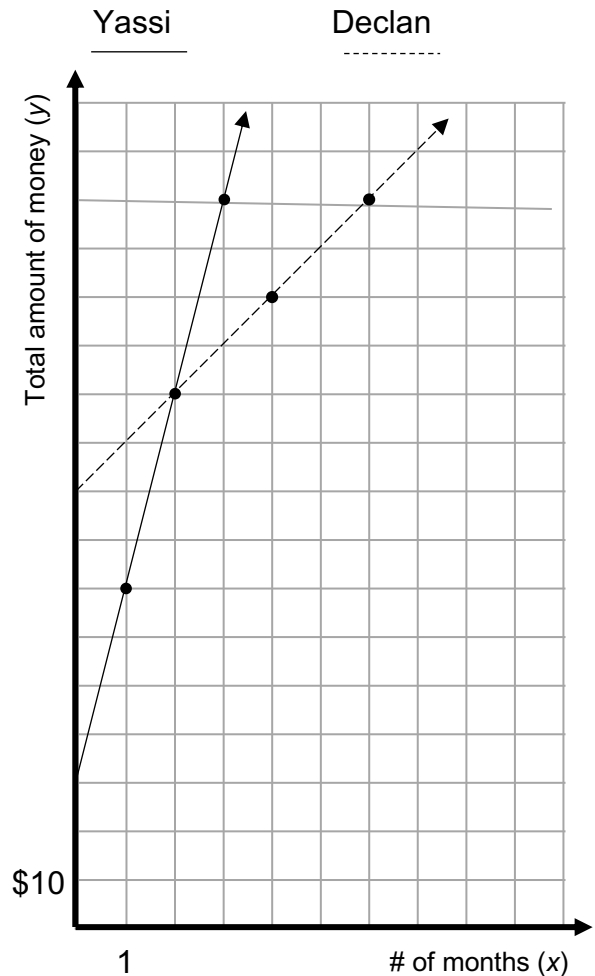
   a. Who starts out with more money and how do you know?

   b. Who is saving at a faster rate and how do you know?

   c. At what month will they have saved the same amount of money and how do you know?
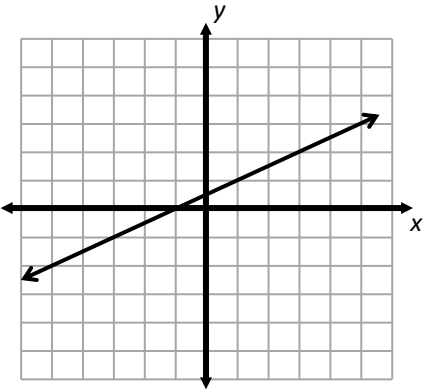
   d. At what month can Declan afford the Activity Tracker?

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

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

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

| A | B | C |
|---|---|---|
| $y = -2x + 7$ | <table><tr><td>x</td><td>-2</td><td>0</td><td>2</td></tr><tr><td>y</td><td>3</td><td>4</td><td>5</td></tr></table> |  |
| **D** | **E** | |
| A line that passes through the points (-3, 8) and (-1, 8) | To move from one point to another on the graph, count 4 units down and 5 units to the right. | |

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

| A | B | C | D | E |
|---|---|---|---|---|
|   |   |   |   |   |

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

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

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

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# SYSTEMS OF LINEAR EQUATIONS (FUN3)
## Essentials Pre-Assessment

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

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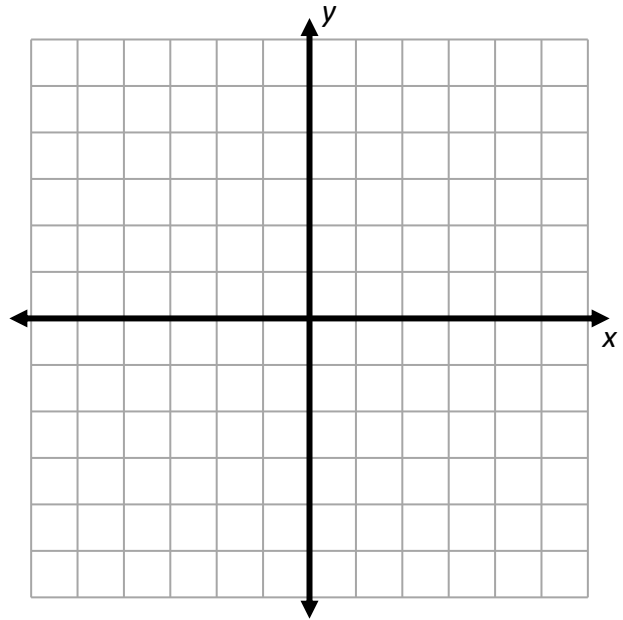


11. Inspect the system of equations below and explain why it has infinite solutions. Graphing or using an algebraic method is not required.

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

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

| 12. $\begin{cases} y = \dfrac{1}{2}x + 1 \\ x + 2y = 2 \end{cases}$ | 13. Hailey is 16 years older than Kelsey. The sum of their ages is 42. What are their ages? |
|---|---|
| | |