(A) Lesson Context

BIG PICTURE of this UNIT:	• What is meant by the term FUNCTIONS and how do we work with them? • mastery with working with basics & applications of linear functions • mastery with working with basics & applications of linear systems • understanding basics of function concepts and apply them to lines & linear systems		
CONTEXT of this LESSON:	Where we've been In Lesson 5, you graphed data sets as scatter plots & wrote linear functions for the trend line of those data set	Where we are Writing equations of lines in multiple forms & continuing to put linear functions into context.	Where we are heading Mastery of working with multiple representations of f(x) = mx + b

(B) Lesson Objectives:

a. Continue working with equations of linear relations written in the form of $y = mx + b$
b. Continue working with equations of linear relations written in the form of $y - y_1 = m(x - x_1)$
c. Introduce how we can work with equations of linear relations written in the form of $Ax + By = C$
d. Continue working with equations of linear relations in real world applications

(C) Review Exercise #1 – Given slope & point

(a) Determine the equation of the line that passes through A(3,-2) and has a slope of -2. Write the equation in slope-intercept as well as slope-point form. Verify using technology – first your TI-84 then on DESMOS

(b) Determine the equation of the line that passes through the point B(4,-2) and has a slope of $\frac{2}{3}$. Write the equation in slope-intercept as well as slope-point form. Verify using technology – first your TI-84 then on DESMOS

(D) Review Exercise #2 – Given 2 points:

(a) Determine the equation of the line that passes through A(3,-2) and B(-1,-6). Write the equation in slope-intercept as well as slope-point form. Verify using technology – first your TI-84 then on DESMOS

(b) Determine the equation of the line that passes through the point A(-1,2) and B(4,-2). Write the equation in slope-intercept as well as slope-point form. Verify using technology – first your TI-84 then on DESMOS

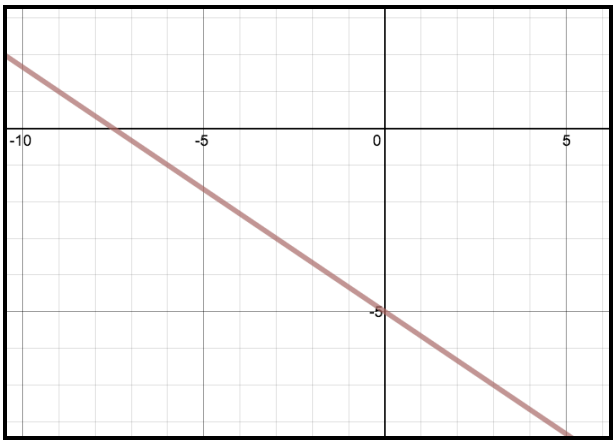
(E) Review Exercise #4 – Changing Forms:

(a) Change the equation $y - 4 = \frac{1}{3}(x + 2)$ into slope-intercept form and standard form. Provide a sketch of the line.

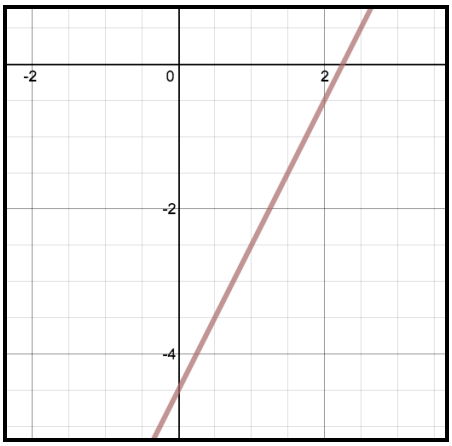
(b) Change the equation $4x - 2y - 12 = 0$ into slope-intercept form and slope-point form. Provide a sketch of the line.

(F) Review Exercise #3 – Given a Graph:

(a) Determine the equation of the line that is shown in the diagram. Write the equation in slope-intercept as well as slope-point form & standard form. Verify using technology – first your TI-84 then on DESMOS

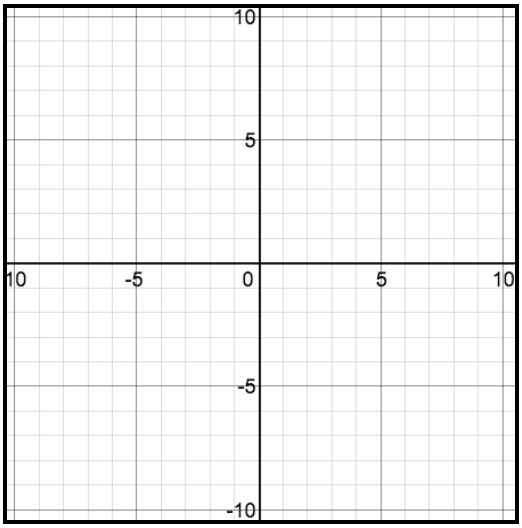


(b) Determine the equation of the line that is shown in the diagram. Write the equation in slope-intercept as well as slope-point form & standard form. Verify using technology – first your TI-84 then on DESMOS

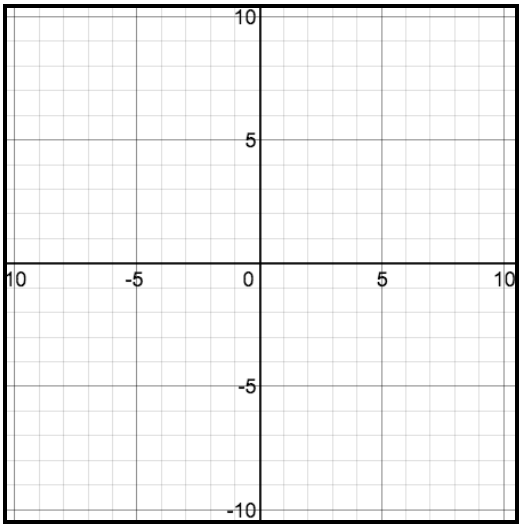


(G) Review Exercise #4 – Prepare a Graph:

(a) Graph the linear equation $y = \frac{3}{2}x - 3$ on the grid below. Verify using technology – first your TI-84 then on DESMOS



(b) Graph the linear equation $y + 4 = \frac{3}{4}(x - 6)$ on the grid below. Verify using technology – first your TI-84 then on DESMOS



(H) Applications of Linear Relations

1. Mr. Santowski was mowing lawns to make money for a video game! Mr. Santowski has 5 dollars in the bank. And for every lawn that he mows, he earns 3 dollars!

Equation in Slope Intercept Form:

_____

Slope = _____

What does the slope mean in the context of the problem:_____

_____

_____

Y:intercept = _____

Real world meaning of the y-intercept: ____

_____

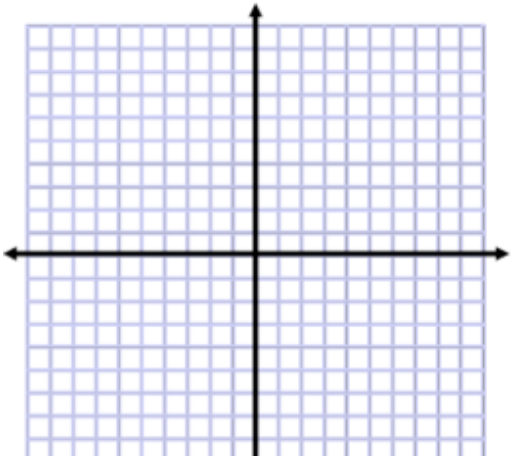
What does x represent? _____

_____

What does y represent?_____

_____

_____



If Mr. S bought a videogame for 62 dollars… how many lawns did he mow? Show your work!

Does the point (4,17) lie on this graph? What does that point mean in the real world? Show your work!

Is there a part of the graph we should not include?

2. Mr. Smith is going BALD!!! Today, he has 7,000 hairs left on his head. If he looses 100 hairs every 4 days, then create a linear equation to model this situation!

Equation in Slope Intercept Form:

_____

Slope = _____

What does the slope mean in the context of the problem:_____

_____

_____

Y:intercept = _____

Real world meaning of the y-intercept: ____

_____

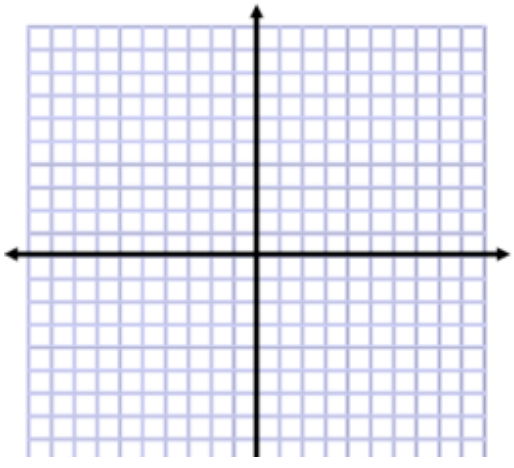
What does x represent? _____

_____

What does y represent?_____

_____

_____



On what day can Mr. Smith expect to be Bald… give me the exact calendar day! Show work

Does the point (150, 3250) lie on the graph. What is the real world meaning of this point? Show work!

How did you have to change your graph to make this one fit?...

Put the following equation into y = mx + b form. Then write a story problem that goes with the numbers of the equation.

$$y - 1500 = 25(x - 20) \rightarrow y = mx + b$$

y = _____

Story: _____

_____

_____

_____

_____

Equation in Slope Intercept Form:

_____

Slope = _____

What does the slope mean in the context of the problem:_____

_____

_____

Y:intercept = _____

Real world meaning of the y-intercept: ____

_____

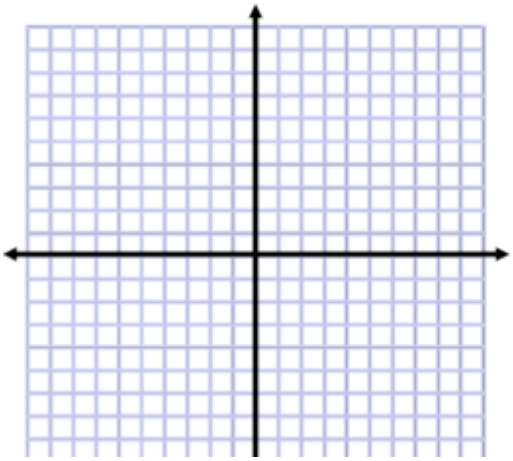
What does x represent? _____

_____

What does y represent?_____

_____

_____



Create a problem for other students to solve based off of your story problem

Create a problem that deals with a point lying on the graph… and the real world meaning of that point.

Draw a picture or a comic strip that explains your problem in detail!