

<b>Standards</b>	<p>A1.FIF.9* Compare properties of two functions given in different representations such as algebraic, graphical, tabular, or verbal. (Limit to linear; quadratic; exponential.)</p> <p>A1.FIF.6* Given a function in graphical, symbolic, or tabular form, determine the average rate of change of the function over a specified interval. Interpret the meaning of the average rate of change in a given context. (Limit to linear; quadratic; exponential.)</p>
<b>Learning Targets/I Can Statements</b>	<p>I can compare and contrast different representations of linear equations. I can calculate the average rate of change of a function given in different forms.</p>
<b>Essential Question(s)</b>	<p><b>What are the different properties of the linear functions? How do I calculate the average rate of change of linear functions?</b></p>
<b>Resources</b>	<p><a href="https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:linear-equations-graphs">https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:linear-equations-graphs</a> <a href="https://www.math-play.com/slope-intercept-game.html">https://www.math-play.com/slope-intercept-game.html</a></p>
<b>Learning Activities or Experiences</b>	<p>1<sup>st</sup>: Recall questions (attached) 2<sup>nd</sup>: Watch the Khan Academy video (link above) Slope, X and Y intercept, Applying Slope and Y intercept Alternative: Notes on Slope and Intercepts 3<sup>rd</sup>: Slope Intercept Game (link above) 4<sup>th</sup>: Assignment</p>

### Recall Questions

1. Name a coordinate that located in quadrant IV.
2. What is the slope of a horizontal line?
3. What is the slope of a vertical line?
4. What is the formula for calculating the slope of a line?

# LINEAR EQUATIONS

There are many different types of functions, and their graphs can be points, lines, or curves. When a function has a graph that is a line, it can be written in a specific form. Being able to recognize this form of the equation makes graphing easier because then we will know that the graph will be a line, not a curve.

Linear equation - an open sentence whose graph is a line; the general form for such an equation is  $Ax + By + C = 0$

Different forms of linear equations

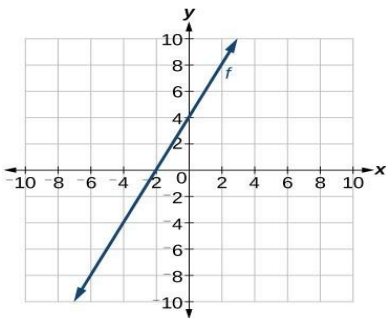
Slope Intercept Form:  $y = mx + b$       $m = \text{slope}$       $b = \text{y intercept}$

Point Slope:  $y - y_1 = m(x - x_1)$

Standard form:  $Ax + By = C$       $A$  has to be a positive hold number

1. Slope:  $\frac{2}{-1}$      y intercept: 4     x intercept: -2

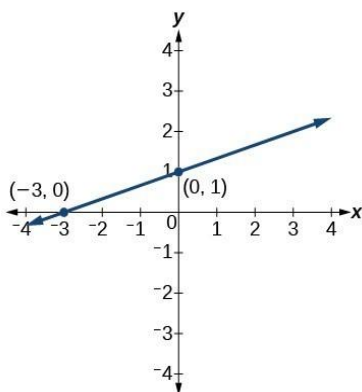
Slope intercept form:  $y = 2x - 2$



Your turn:

Slope: \_\_\_\_\_ y intercept: \_\_\_\_\_ x intercept: \_\_\_\_\_

Slope intercept form: \_\_\_\_\_



2. Slope:  $\frac{-4}{1}$  y intercept:  $8$  x intercept :  $4$

Slope intercept form:  $y = -4x + 8$

X	Y
0	8
1	4
2	0

Your turn:

Slope: \_\_\_\_\_ y intercept: \_\_\_\_\_ x intercept: \_\_\_\_\_

Slope intercept form: \_\_\_\_\_

X	Y
-1	6
0	3
1	0

3. Which equation has the greatest slope?

a.  $Y = 3x + 5$

b.  $Y - 4 = -2(x - 3)$

c.  $12x + 4y = 8$

Explanation: The slope of equation a is 3. The slope of b is -2. The slope of c is -3 because you have to convert to slope intercept form.

Your turn:

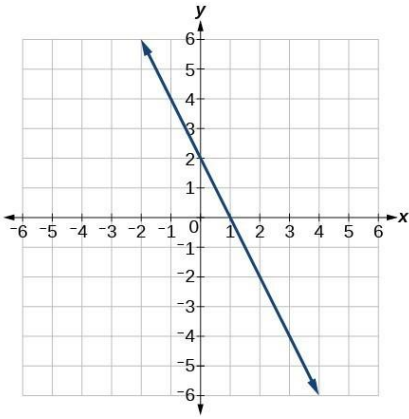
Which equation has the greatest slope?

a.  $6x - 2y = 3$

b.  $Y = 2x + 4$

c.  $Y - 6 = 3.5(x - 4)$

Your turn: Compare the graph and the table which representation has the greatest slope?  
Explain



X	Y
6	9
7	11
8	13
9	15