***Graphing Linear Equations***

Name:

Division:

Given two points along a line one can write an equation representing the line:

The basic layout for a Linear Equation is: y = mx + b

The slope, or angle, of the line is represented by the “m” in the basic layout of a linear equation. To find the SLOPE, you use two points along the line and use the two “x” and “y” values in the following equations:

A completely vertical or horizontal line has no slope, since there is no second coordinate point.

Ex. y = 3 x = 7

 M = Rise = y2 – y1

 Run = x2 – x1

Once you have your “m” value, then you can find the “b” of the equation, which is the y- intercept of the line (Where the line crosses the vertical line). To do this you take the coordinates of one of your points (x, y) and put those values into your equation along with the “m” value you found in the previous step and solve for the unknown “b” value.

Ex. y = mx + b Points: (4, 2) and (8, 10)

 M = Rise = y2 – y1 = 10 – 2 = 8 = 2

 Run = x2 – x1 = 8 – 4 = 4

 y = 2x + b 10 = 2(8) + b 10 = 16 + b 10 – 16 = b

 - 6 = b **y = 2x – 6** is the equation for the points (4, 8) and (8, 24)

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Fill in the following table of values for the equation y = 2x – 6

 X Y Pair(x,y)

 0

 2

 4

 6

 8

Now Graph out the line. Where does the line cross the y- axis?

Do all the points solve the equation we created?