**Point-Slope Form**

The other day we learned how to write an equation in Slope-Intercept Form if we were given the slope and a point on the line. Today we’re going to do the same thing except we’re going to use Point-Slope Form.

After today you’ll have learned 3 different forms that we can write linear equations in. What are these 3 forms?

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Point-Slope Form looks like this: 

You already know what the “m” stands for. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The x1 and the y1 will be the point we are given in the problem.

Example #1 Give the equation of a line in point slope form with a slope of 4 through the point (1,-2).

Whenever we are faced with this type of problem there is always a simple 2-step process we will go through. Follow along with each step.

*Step 1:* Write the equation for Point-Slope Form out.

*Step 2:* Substitute in the values for (x1 , y1) and slope (m). Simplify if necessary.

That was it! Notice the only tricky part with that one was you had the –(-2) part, which you had to make into a positive.

Example #2 Give the equation of a line in point slope form through the two points (2,-3) and (-4,1).

Well in order to write an equation in point slope form we first need to find the slope. Use the two points given to find the slope of the line first. Show work below:

Now that you have the slope, follow the 2 steps to write the equation in point slope form. Write the equation below.

(Answer: )

**Graphing**

Now instead of writing an equation, let’s use the equation to create a graph.

Example: Graph the following equation: 

There are two things we need to identify in order to graph this.

First we need to identify the slope. What is it? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Next, we need to identify the specific point on the line. What is the (x , y) coordinate? Be careful! Remember the original equation and how the pluses and minuses worked.

What is the (x , y) point? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Come show me your answer!

So you’ve got a point on the line and the slope, you can graph the linear equation.

**Converting Between Equations**

Another thing you will be asked to do is convert from Point-Slope Form to Slope-Intercept Form.

Example: 

*1st Step:* Distribute the 4. (That means multiply it by the x and the -1.)

*2nd Step:* Solve for y.

Show your work below.

(Answer: y = 4x – 6)

*Do Homework:* pg 345 #4-18