**Learning Targets**

* I can express a linear equation in point-slope form.
* I can graph a linear equation in point-slope form using the slope and y-intercept and my calculator.

**Point-Slope Form**

$$y-y\_{1}=m\left(x-x\_{1}\right)$$

Point = (x1, y1)

Slope = m

**Example: Graph the equation** $y-4=\frac{1}{3}(x+6)$

 Point:

 Slope:

**Example: Convert the equation to slope-intercept form**

 $y-4=\frac{1}{3}(x+6)$



1. Write a point-slope form equation given the following information.

a) A line passes through the point b) A line passes through the point

$(2,5)$ and has a slope of 4. $(-3,1)$ and has a slope of $\frac{1}{2}$.



2. Graph the equation.

 $y+6=-2(x-3)$

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 Point Slope

**Connecting the Point-Slope Form to the Slope-Intercept Form**

3. Refer back to the example above. Convert the original equation to slope-intercept form. Verify that it is the same line by plotting the y-intercept and graphing using the slope.

**Examples (writing equations in point-slope form)**

4. Write a point-slope form equation given the following information.

a) A line passes through the points b) A line passes through the points

$(-6, 0)$ and (-2,-3) $(-5,-3)$ and (-6, -4)

**Application**

5. There is a daily fee for renting a moving truck, plus a charge of $0.50 per mile driven. It costs $64 to rent the truck on a day when it is driven 48 miles.

1. Write the point-slope form of an equation to find the total charge y for any number of miles x for a one-day rental.
2. Write the equation in slope intercept form.
3. What is the daily fee?

**Extra Practice** Textbook p. 235, #1-9