

Writing Equations in Point-Slope Form

Essential Question: How can you write an equation of a line when you are given the slope and a point on the line?

Think About it! You would like to write the equation of a line in slope-intercept form that passes through (1, -4) with a slope of -5 but, you don't remember how without a y-intercept!! What can you do??

Point-Slope Form:

$$\underline{y - y_1 = m(x - x_1)}$$

What you need:

Slope (m) and Point (x₁, y₁)

Let's Practice!

Example 1: Write the equation in point-slope form: $m = -\frac{2}{5}$ and goes through (-6, 1)

$$y - y_1 = m(x - x_1)$$
$$y - 1 = -\frac{2}{5}(x - (-6))$$
$$\boxed{y - 1 = -\frac{2}{5}(x + 6)}$$

Example 2: Write the equation in point-slope form: slope is $\frac{3}{4}$ and has an x-intercept 12

$$m = \frac{3}{4} \quad (12, 0)$$

$$y - y_1 = m(x - x_1)$$
$$y - 0 = \frac{3}{4}(x - 12)$$
$$\boxed{y = \frac{3}{4}(x - 12)}$$

Example 3: Write the equation in point-slope form: (-2, 10) and (4, -20)

$$m = \frac{-20 - 10}{4 - (-2)} = \frac{-30}{6} = \boxed{-5 = m}$$

x₁, y₁
(-2, 10): $\boxed{y - 10 = -5(x + 2)}$

x₁, y₁
(4, -20): $\boxed{y + 20 = -5(x - 4)}$



Let's Practice with Magnets



1.

2.

3.

4.

5.

6.

7.

8.