

Day 2 – Writing the Equation of a Line - Point-Slope Form

Name _____

Geometry – Equations of Lines (G.GPE.5)

Date _____ Per _____

Point-Slope Form of a line:

Given the slope m and ordered pair (x_1, y_1) , the equation of a line is $y - y_1 = m(x - x_1)$.Ex 1: Find the equation of the line with slope 3 passing through the point $(-2, 1)$ in point-slope form.

$$\rightarrow y - y_1 = m(x - x_1)$$

$$y - 1 = 3(x - (-2)) \rightarrow y - 1 = 3(x + 2)$$

Ex 2: Find the equation of the line with slope -2 passing through the point $(5, 0)$ in point-slope form.

$$y - 0 = -2(x - 5) \rightarrow y = -2(x - 5)$$

Ex 3: Find the equation of the line in point-slope form that is parallel to $y - 1 = \frac{1}{2}(x + 3)$ and passes through $(4, -2)$.

$$y - (-2) = \frac{1}{2}(x - 4) \rightarrow y + 2 = \frac{1}{2}(x - 4)$$

Ex 4: Find the equation of the line in point-slope form that is perpendicular to $y = 2(x + 3)$ and passes through $(-1, 4)$.

$$y - 4 = -\frac{1}{2}(x - (-1)) \rightarrow y - 4 = -\frac{1}{2}(x + 1)$$

Ex 5. Find the equation of the line in point-slope form that passes through points $(3, 2)$ and $(1, -4)$.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-4 - 2}{1 - 3} = \frac{-6}{-2} = 3$$

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

Day 2 – Writing the Equation of a Line – Point-Slope Form – Homework

1. Find the equation of the line with slope $\frac{3}{2}$ passing through the point (0, 1) in point-slope form.
2. Find the equation of the line with slope 4 passing through the point (-2, 1) in point-slope form.
3. Find the equation of the line in point-slope form that is parallel to $y + 2 = (x - 5)$ and passes through (-3, -1).
4. Find the equation of the line in point-slope form that is perpendicular to $y - 2 = \frac{-1}{2}(x + 5)$ and passes through (2, 0).
5. Find the equation of the line in point-slope form that passes through points (1, -2) and (2, 4).
6. Find the slope of line k that passes through points (-1, 5) and (2, 3). Then find the equation of the line in point-slope form that is perpendicular to line k that passes through (4, -5).