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.

$m = \frac{3}{2}$ $\quad (x_1, y_1) = (0, 1)$ $\quad y - 1 = \frac{3}{2}(x - 0)$ OR $y - 1 = \frac{3}{2}x$

2. Find the equation of the line with slope 4 passing through the point (-2, 1) in point-slope form.

$m = 4$ $\quad (x_1, y_1) = (-2, 1)$ $\quad y - 1 = 4(x + 2)$

3. Find the Find the equation of the line in point-slope form that is parallel to $y + 2 = 1(x - 5)$ and passes through (-3, -1).

$m = 1$ $\quad (x_1, y_1) = (-3, -1)$ $\quad y + 1 = 1(x + 3)$

4. Find the 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).

$m = 2$ $\quad (x_1, y_1) = (2, 0)$ $\quad y - 0 = 2(x - 2)$ OR $y = 2(x - 2)$

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

$m = \frac{4 - (-2)}{2 - 1} = \frac{6}{1} = 6$

$y + 2 = 6(x - 1)$

OR

$y - 4 = 6(x - 2)$

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).

$m = \frac{3 - 5}{2 - (-1)} = \frac{-2}{3}$ ← SLOPE of *k*

$m_\perp = \frac{3}{2}$; so $y + 5 = \frac{3}{2}(x - 4)$