Writing Linear Equations

C.O.:_____

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L.O.:_____

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Linear Equations Review:

- **(Recap) Slope – Intercept From:**

With slope ___ and y-intercept __

- **Point – Slope Form:** The equation of a line that passes through a point (x_1, y_1) and has slope m is

Example (With a Point and Slope): Give the equation, in Slope-Intercept form, of a line that goes through the point **(1, 4)** and has slope $m = -3$.

Practice: Give the equation, in Slope-Intercept form, for the line with following points and slopes

1.) Point: (-4, -7)

Slope: $m = 3$

2.) Point: (6, 1)

Slope: $m = {}^{1}/_{2}$

Example (With Two Points): Give the equation, in Slope-Intercept form, for the line with the following points: **(0, 1)** and **(3,-8)**.

Hint: You must first find the slope, and then use point-slope form.

Slope: Equation:

Practice: Give the equation, in Slope-Intercept form, for the line with the following points: **(4, 1) and (-4, 7)**

Parallel and Perpendicular:

Recall our rules for the slopes of the following types of lines:

Parallel: The slopes _____.

Perpendicular: The slopes _____.

Practice: Find the slope of the line parallel to the linear equation given, then find the slope of the line perpendicular to it: $y = -\frac{2}{3}x + 5$

Slope of this line: $m =$

Slope of Parallel Line:

$m_{\parallel} =$

Slope of Perpendicular Line

$m_{\perp} =$

Horizontal and Vertical Lines:

Horizontal:

Recall: The slope is always ___

Vertical:

Recall: The slope is always _____

Practice (All the Lines): Write the linear equation, in Slope-Intercept Form, for a line the given information.

1.) Slope: -2; Passes Through (8,6)

2.) Slope: $-\frac{1}{4}$; Passes Through (3,1)

3.) y-intercept: -3; Parallel to $y = -\frac{4}{5}x + 2$

4.) y-intercept: 4; Perpendicular to $y = -\frac{7}{4}x + 9$

5.) A vertical line through the point (5, 20)

6.) A horizontal line through the point (100, 4)