Name: Key	Class:
Topic:	Date:

Main Ideas/Questions	Notes
the point-slope formula	**Used to write the equation of a line when given a point (x_1, y_1) and the slope of the line (m)** **Formula:** $y - y_1 = m(x - x_1)$ ***Be sure to distribute and solve for y!**

EXAMPLES!

Find the equation of the line given the point and slope.

1. (4, 1); slope = 2

$y - 1 = 2(x - 4)$

$y - 1 = 2x - 8$

$+1 \quad +1$

$y = 2x - 7$

2. (2, 4); slope = $\frac{1}{2}$

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

$y - 4 = \frac{1}{2}x - 1$

$+4 \quad +4$

$y = \frac{1}{2}x + 3$

3. (-6, 0); slope = $\frac{2}{3}$

$y - 0 = \frac{2}{3}(x + 6)$

$y = \frac{2}{3}x + 4$

4. (-8, -1); slope = $-\frac{3}{4}$

$y + 1 = -\frac{3}{4}(x + 8)$

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

$-1 \quad -1$

$y = -\frac{3}{4}x - 7$

5. (4, -3); slope = -1

$y + 3 = -1(x - 4)$

$y + 3 = -1x + 4$

$-3 \quad -3$

$y = -1x + 1$

6. (0, -9); slope = 4

$y + 9 = 4(x - 0)$

$y + 9 = 4x - 0$

$-9 \quad -9$

$y = 4x - 9$

New Vocabulary Label the diagram using the terms at the left.

dependent variable ▶

slope ▶

independent variable ▶

x-coordinate of point on the line ▶

y-coordinate of point on the line ▶

Point-Slope Form

dependent variable

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

y-coordinate

x-coordinate

slope

independent variable

Vocabulary Link Write the point-slope formula and the slope formula below. Explain how the two formulas are related.

slope formula	point-slope form
$m = \frac{y_2 - y_1}{x_2 - x_1}$	$y - y_1 = m(x_2 - x_1)$
How are they related? Same expressions with one being multiplied by slope and one being divided.	