

Name Key  
Mrs. Roubos

Date: \_\_\_\_\_  
8A Period \_\_\_\_\_

Point - Slope Form Homework

I. Use the point-slope form of each equation to identify a point the line passes through and the slope of the line.

1)  $y - 2 = \frac{3}{4}(x + 9)$

slope:  $\frac{3}{4}$

point:  $(-9, 2)$

2)  $y + 9 = 4(x + 5)$

slope: 4

point:  $(-5, -9)$

3)  $y - 13 = 16(x - 4)$

slope: 16

point:  $(4, 13)$

4)  $y - 5 = -1.4(x - 6.7)$

slope: -1.4

point:  $(6.7, 5)$

II. Write the point-slope form of the equation with the given slope that passes through the indicated point.

5) The line with slope -5 passing through  $(-3, -5)$

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

$y - (-5) = -5(x - (-3))$

$y + 5 = -5(x + 3)$  or  $y + 5 = -5x - 15$

6) The line with the slope 6 passing through  $(2, 5)$

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

$y - 5 = 6(x - 2)$  or  $y - 5 = 6x - 12$

7) The line containing the point  $(-4, 2)$  and parallel to the line  $\frac{2y}{2} = \frac{6x}{2} - \frac{4}{2}$

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

$y - 2 = 3(x - (-4))$

$y - 2 = 3(x + 4)$  or  $y - 2 = 3x + 12$

$y = 3x - 2$

$m = 3$

parallel slope = 3  
Same slope

8) The line containing the point  $(2, 6)$  and perpendicular to the line  $5y = 6x - 15$

↓  
Neg. reciprocal

$$\frac{5}{5} = \frac{6}{5} - \frac{15}{5}$$

$$y = \frac{6}{5}x - 3$$

$$m = \frac{6}{5}$$

$$\text{perp} = -\frac{5}{6}$$

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

$$y - 6 = -\frac{5}{6}(x - 2) \quad \text{or}$$

$$y - 6 = -\frac{5}{6}x + \frac{5}{3}$$

9) The line with slope  $\frac{3}{5}$  passing through  $(-7, -2)$

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

$$y + 2 = \frac{3}{5}(x + 7) \quad \text{or}$$

$$y + 2 = \frac{3}{5}x + \frac{21}{5}$$

10) What is the equation of a line that passes through the points  $(4, 7)$  and  $(5, 1)$ ?

$$m = \frac{y_2 - y_1}{x_2 - x_1}, \quad m = \frac{1 - 7}{5 - 4} = \frac{-6}{1} = -6$$

using  $(4, 7)$ :  $y - y_1 = m(x - x_1)$   
 $y - 7 = -6(x - 4) \quad \text{or} \quad y - 7 = -6x + 24$

using  $(5, 1)$ :  $y - 1 = -6(x - 5) \quad \text{or} \quad y - 1 = -6x + 30$

11) Write the equation in point-slope form of the line that passes through the given point and has the given slope.  $(4, -7); m = -\frac{1}{4}$

- a)  $y + 7 = -\frac{1}{4}(x - 4)$
- b)  $y - 4 = -\frac{1}{4}(x + 7)$
- c)  $y + 7 = 4(x - 4)$
- d)  $y - 7 = -\frac{1}{4}(x - 4)$