## The Equation of a Line Given the Slope and a Point

Write the equation of the line that passes through the given point with the given slope.

a) 
$$m = 4$$
 P(-6, -2) b)  $m = \frac{1}{4}$  P(5, 2)

c) 
$$m = \frac{-3}{2}$$
 P(-4, 5) d)  $m = 3$  P(3, -1)

Standard Form Ax + By + C = 0  $y = m \chi + b$  slope y-int form  $y - y_1 = m (x - x_1)$  is the equation in **point-slope form** 

2 Determine the equation of the line: All 3 Forms

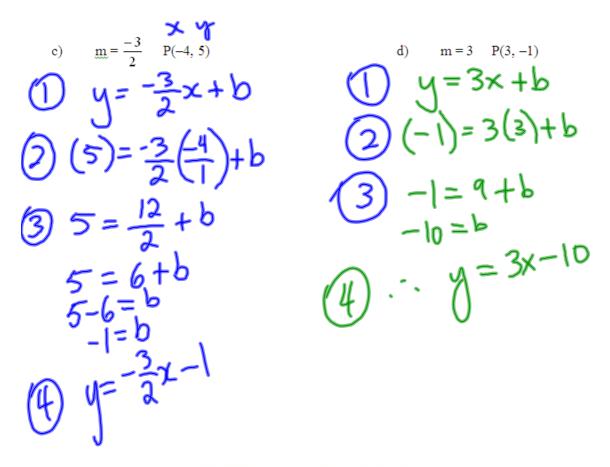
a) with a slope of -4, and that passes through the point (-3, 5)

b) with a slope of  $\frac{2}{3}$ , and that passes through the point (4, -2)

3 Determine the equation of the line with the same slope as y = 6x - 5 and that has the same x-intercept as the line defined by the equation 2x - 4y + 8 = 0.

Write the equation of the line with each slope and passing through the indicated point.

× y P(-6. \_) P(5, 2)  $m = \frac{1}{4}$ a) m = 4b) u = • ctb + b =4(-6)+b ) -2 = -24 + b-+b 6



Standard Form Ax + By + C = 0 y = mx + b slope y-int form  $y - y_1 = m(x - x_1)$  is the equation in **point-slope form** 

## 2 Determine the equation of the line: All 3 Forms

a) with a slope of -4, and that passes through the point (-3, 5)

$$y - y_{1} = m(x - x_{1})$$
  
 $y - 5 = -4(x - -3)$   
 $y - 5 = -4(x + 3)$  pt - slope form  
 $y - 5 = -4x - 12$   
 $y - 5 = -4x - 12$ 

b) with a slope of  $\frac{2}{3}$ , and that passes through the point (4, -2)  $y-y_1 = m(x-x_1)$   $y--2 = \frac{2}{3}(x-y)$   $y+2 = \frac{2}{3}(x-y)$  pt - slope form  $y+2 = \frac{2}{3}x - \frac{8}{3}$   $y = \frac{2}{3}x - \frac{14}{3}$  slope - yint form 3y = 2x - 140 = 2x - 3y - 14 standard Determine the equation of a line whose slope is the same as the line y = 6 - 5 and has the same x-intercept as the line 2x - 4y + 8 = 0. (point) M = 6

$$2x - 4y + 8 = 0$$

$$let y = 0:$$

$$2x - 4(0) + 8 = 0$$

$$2x + 8 = 0$$

$$2x + 8 = 0$$

$$2x = -8$$

$$x = -4$$

$$(-4, 0)$$

$$3 = -24 + b$$

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