

Find an equation of the line with the given slope and containing the given point.

Write the equation in slope-intercept form.

(a) Slope  $-2$ ; through  $(2, -4)$   
 $x_1, y_1$

Point Slope Form.

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

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

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

Solve  
for  $y$

$$y = -2x$$

(b) Slope  $4$ ; through  $(5, 1)$

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

$$y - 1 = 4(x - 5)$$

$$\frac{y - 1}{+1} = \frac{4x - 20}{+1}$$

$$y = 4x - 19$$

(c) Slope  $\frac{2}{3}$ ; through  $(-9, 4)$

$$y - y_1 = m(x - x_1) \quad x - (-9)$$

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

$$y - 4 = \frac{2}{3}x + 6$$

$$\begin{array}{r} +4 \qquad \qquad \qquad +4 \\ \hline \end{array}$$

$$y = \frac{2}{3}x + 10$$

$$\frac{2}{3} \cdot \frac{3}{1} = 6$$