

# 2.4 Point-Slope Form

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

$m = \text{slope}$        $(x_1, y_1)$

**Problem 1** Writing an Equation in Point-Slope Form

A line passes through  $(-3, 6)$  and has slope  $-5$ . What is an equation of the line?

$$\begin{array}{ccc} (-3, 6) & \text{slope} = -5 & \\ x_1, y_1 & m & \end{array}$$

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

$$y - 6 = -5(x + 3)$$

$$y - 6 = -5(x + 3)$$

A line passes through  $(8, -4)$  and has slope  $\frac{2}{3}$ . What is an equation in point-slope form of the line?

$$\left( \underset{x}{8}, \underset{y}{-4} \right) \quad m = \frac{2}{3}$$

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

$$y + 4 = \frac{2}{3}(x - 8)$$

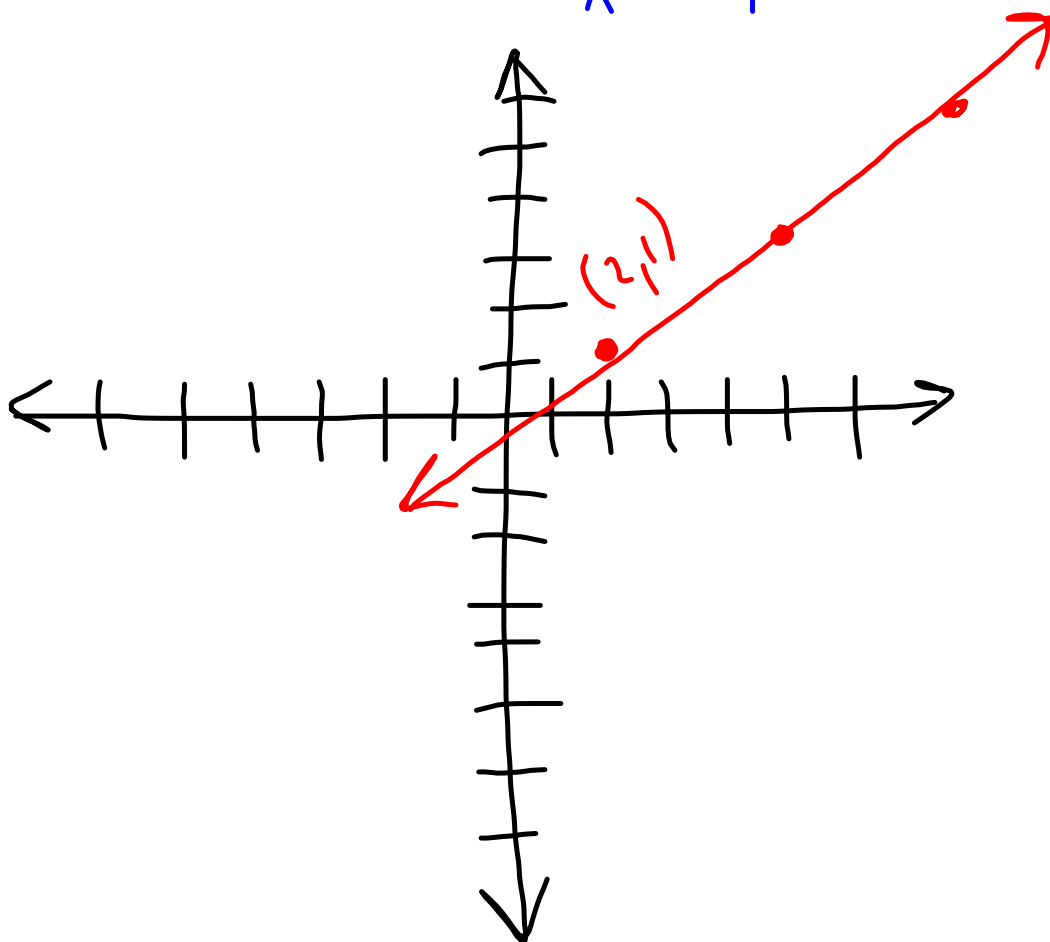
2. What is an equation of the line that passes through the point  $(3, -8)$  and has slope  $-2$ ?

Equation  $y - 1 = \frac{2}{3}(x - 2)$ ?  $(x, y)$

Graph in point-slope form

$$m = \frac{2}{3}$$

$$\left( \begin{matrix} 2 \\ x \end{matrix}, \begin{matrix} 1 \\ y \end{matrix} \right) \textcircled{1}$$

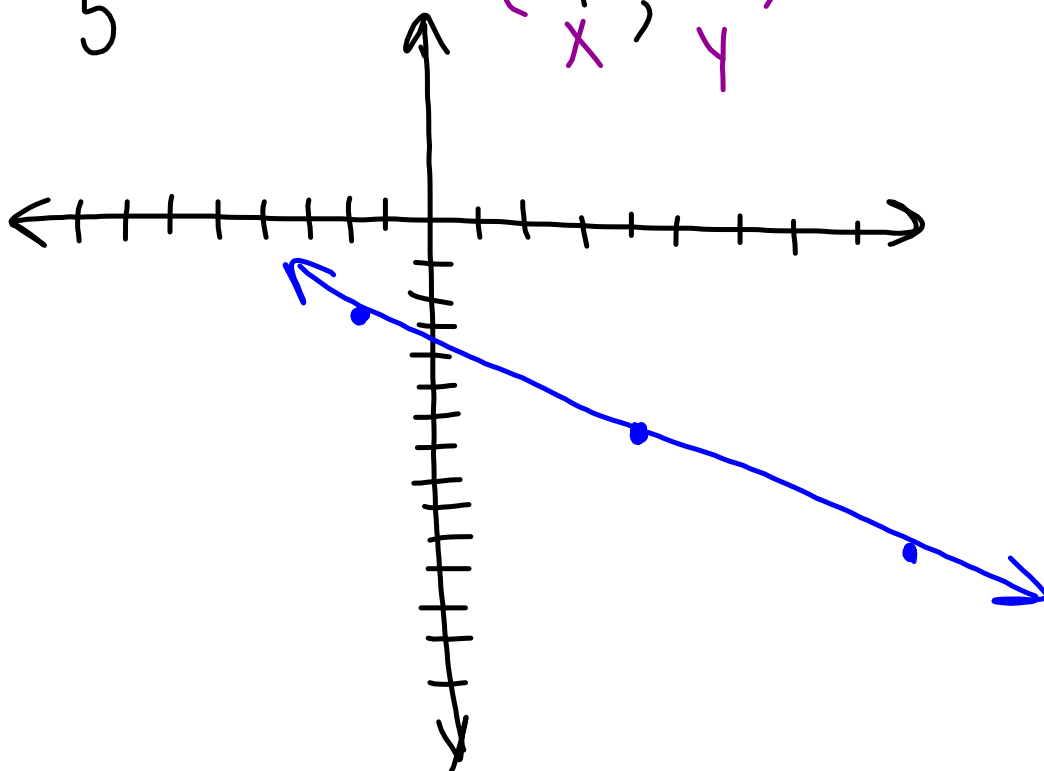


the equation  $y + 7 = -\frac{4}{5}(x - 4)$ ?

$$m = -\frac{4}{5}$$

$$(4, -7) \textcircled{1}$$

$x$     $y$



What is an equation of the line that passes through the points  $(-1, -2)$  and  $(2, 4)$ ?

- ① Find the slope  
② Write equation

$$\frac{y_2 - y_1}{x_2 - x_1}$$

$$1) \frac{4 - (-2)}{2 - (-1)} = \frac{6}{3}$$

$$m = 2$$

$$2) y - y_1 = m(x - x_1)$$

$$y + 2 = 2(x + 1)$$



2-4

# 1-7, 11-13, 17-19

4. What is the equation of the graph?

