

Write an equation given a slope and a point

Use slope-point form $y - y_1 = m(x - x_1)$

Ex) Write an equation in slope-point form given:

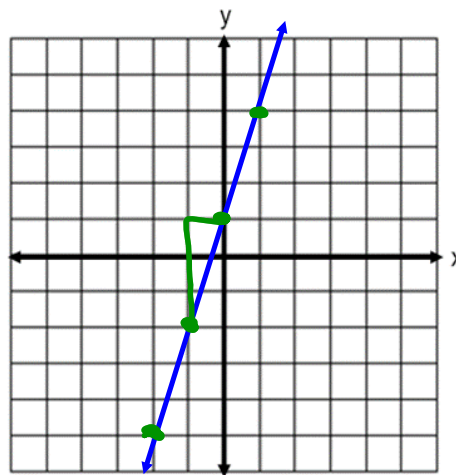
- a) The slope is ^m-4 and the coordinates of a point on the graph are (-1, 5).

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

b) The line graphed to the right.

$$m = 3$$
$$(0, 1)$$
$$x_1, y_1$$

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



$$y = mx + b$$

Ex) Write an equation in slope-intercept form given:

- a) $m = 2$ and that the line passes through (-2, 5)

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

$$y - 5 = 2(x + 2)$$

$$\cancel{y - 5} = 2x + 4$$

$$+5 \quad +5$$
$$y = 2x + 9$$

Steps:

- 1) Plug in m , x_1 and y_1
- 2) Distribute the brackets
- 3) Move all terms to one side to isolate y .
- 4) Combine constant terms

b) The slope is $\frac{2}{3}$ and that the line passes through $(-6, 2)$.

$$y - y_1 = m(x - x_1)$$
$$y - 2 = \frac{2}{3}(x + 6)$$
$$y - \cancel{2} = \frac{2}{3}x + \frac{12}{3}$$
$$y = \frac{2}{3}x + 6$$

c) Line passes through $(-4, 3)$ and has a slope of -1 .

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

d) $m = \frac{5}{4}$ and goes through $(-3, 1)$.

$$y - 1 = \frac{5}{4}(x + 3)$$
$$y - \cancel{1} = \frac{5}{4}x + \frac{15}{4}$$
$$y = \frac{5}{4}x + \frac{15}{4} + \frac{1}{4} \times 4$$
$$y = \frac{5}{4}x + \frac{19}{4}$$