Name _____

Date _____

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

1. Find the equation of a line with the given slope and point on the line. Express your answers in point slope form.

a. $m = 2$ and $(-1, 3)$ $(y - 3) = 2(x + 1)$ $x - -1 = x + 1$

b. $m = -2$ and $(-5, -2)$ $y + 2 = -2(x + 5)$

c. $m = 3$ and $(0, 10)$ $y - 10 = 3x$

2. Find the equation of the line that passes through the given two points. Express your answers in point slope form.

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

a. $(-4, 7)$ and $(6, -3)$

$M = \frac{7 - 3}{-4 - 6} = \frac{10}{-10} = -1$ $\boxed{y + 3 = -(x - 6)}$

b. $(1, 12)$ and $(-3, 5)$

$M = \frac{12 - 5}{1 - 3} = \frac{7}{4}$ $\boxed{y - 12 = \frac{7}{4}(x - 1)}$

c. $(-6, 10)$ and $(2, -5)$

$M = \frac{10 - 5}{-6 - 2} = \frac{15}{-8} = -1.875$ $\boxed{y + 5 = -1.875(x - 2)}$

3. Given the equation $y - 5 = 6(x - 8)$

a. What is the slope?

6

b. Name a point that is on the line.

$(8, 5)$

c. Find the y-intercept.

$y - 5 = 6x - 48$
$y = 6x - 43$ $\boxed{(0, -43)}$

4. Write the equation of the line graphed below. Express your answer in point-slope form
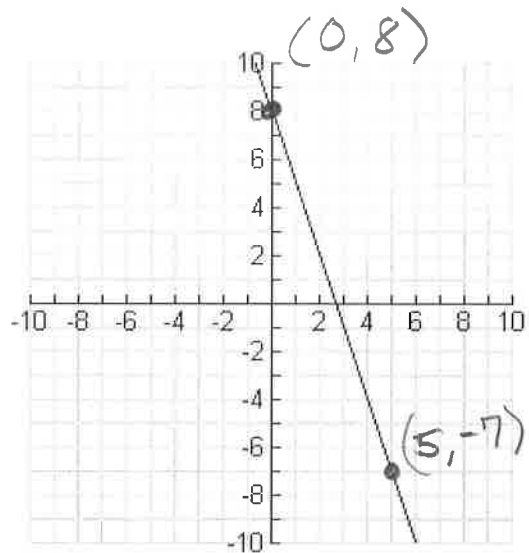
$m = \dfrac{-7-8}{5-0} = -\dfrac{15}{5} = -3$

↓
slope

$y - 8 = -3$

or

$y + 7 = -3(x-5)$

(0,8)

(5,-7)

5. Explain why it's sometimes helpful to **use *point-slope form*** instead of ***slope-intercept form***?

- There is no need to find the y-intercept if you need to make the graph or if you have a graph & need to make an equation