$y=mx+b$

Example 2: Write an equation of the line with the following information:

a) slope = ½, y-intercept = -1

b) slope = -2, has point (0, 9)

$$y = \frac{1}{2}x + (-1)$$
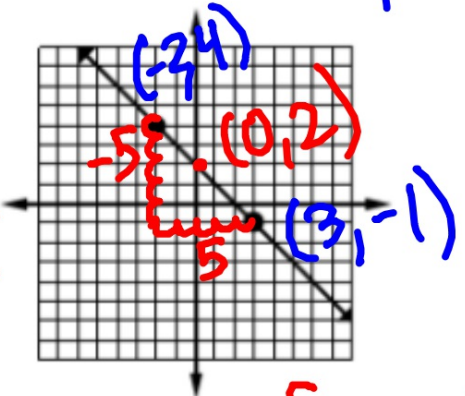$$y = \frac{1}{2}x - 1$$

$$y = -2x + 9 \quad \uparrow$$
$$\text{y-int}$$

c) through points (3, -2) and (1, -3)

$$x \quad y$$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-3 - (-2)}{1 - 3} = \frac{-1}{-2} = \frac{1}{2}$$

$$m = \frac{1}{2}$$

$$\boxed{y = \frac{1}{2}x - 3\frac{1}{2}}$$

$$y = \frac{1}{2}x + b$$
$$-3 = \frac{1}{2}(1) + b$$
$$-3 = \frac{1}{2} + b$$
$$-\frac{1}{2} - \frac{1}{2}$$
$$b = -3\frac{1}{2}$$

d)

(-3,4)

(0,2)

(3,-1)

$$m = \frac{-5}{5} = -1$$

$$b = 2$$

$$\boxed{\begin{array}{l} y = -1x + 2 \\ y = -x + 2 \end{array}}$$