**Example 2.** Let's say we have a line that passes through the point (3, 6) and has a slope of 4. Find the equation of the line using point-slope equation.

Step 1. m = 
$$\frac{y - y_1}{x - x_1}$$
  
Step 2. 4 =  $\frac{y - 3}{x - 6}$ 

Substitute the value of (x<sub>1</sub>, y<sub>1</sub>)

Step 3. The point-slope equation is  $4 = \frac{y-3}{x-6}$ .

**Example 3.** Find the equations of the line using point-slope equation that passes through the points (4, 0) and (3, 4).



Step 2. Substitute the value of (x, y). There will be two point-slope equations here in the example.

a. 
$$-4 = \frac{y}{x-4}$$
 and b.  $-4 = \frac{y-4}{x-3}$ .

## **SLOPE-INTERCEPT EQUATION**

The next equation of the line that has also significance is the slopeintercept equation. In this equation, the slope and the intercept are required to complete the equation.

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Step 3. The point-slope equation is  $\frac{1}{4} = \frac{y-6}{x+2}$ 

5. Step 1. The slope is unknown. We need to solve for it first.

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$
$$m = \frac{2 - 1}{-6 - 5}$$
$$m = \frac{1}{-1}$$

and b.  $\frac{1}{2}$   $\frac{1}{2}$ Step 2. Substitute the value of (x, y). There will be two point-slope equations here in the example.

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$
$$m = \frac{8 - (-3)}{2 - 5}$$
$$m = \frac{11}{-3}$$
$$m = -\frac{11}{3}$$

Step 2. Put m =  $-\frac{11}{3}$  to the slope-intercept equation.

$$y = -\frac{11}{3}x + b$$