

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.

$$\text{Step 1. } m = \frac{y - y_1}{x - x_1}$$

$$\text{Step 2. } 4 = \frac{y - 3}{x - 6}$$

Substitute the value of (x_1, y_1)

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

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

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

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

$$m = \frac{4 - 0}{3 - 4}$$

$$m = \frac{4}{-1}$$

$$m = -4$$

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

$$\text{a. } -4 = \frac{y}{x - 4}.$$

and

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

SLOPE-INTERCEPT EQUATION

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

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.

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

$$m = \frac{2-1}{-6-5}$$

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

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

$$a. \frac{1}{-1} = \frac{y-1}{x-5}$$

and

$$b. \frac{1}{-1} = \frac{y-2}{x+6}$$

Preview from Notesale.co.uk
Page 13 of 16

6. Step 1. The slope is unknown. Find the slope first.

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

$$m = \frac{8 - (-3)}{2 - 5}$$

$$m = \frac{11}{-3}$$

$$m = -\frac{11}{3}$$

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

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