LINE

1 11^{th} Maths - EXERCISE-10.2

1. Passing through the point (– 4, 3) with slope $\frac{1}{2}$

2 SOLUTION

Given points are

$$\mathbf{P} = \begin{pmatrix} -4 \\ 3 \end{pmatrix}, m = \frac{1}{2} \tag{1}$$

The line formula in matrix form

$$\mathbf{m}^{\top}\left(\mathbf{x} - \mathbf{P}\right) = 0 \tag{2}$$

$$\mathbf{m} = \begin{pmatrix} 1 \\ m \end{pmatrix} \tag{3}$$

$$\begin{pmatrix} 1 & 2 \end{pmatrix}\mathbf{x} - \mathbf{P} = 0 \tag{4}$$

$$\begin{pmatrix} 1 & 2 \end{pmatrix}\begin{pmatrix} x+4 \\ y-3 \end{pmatrix} = 0 \tag{5}$$

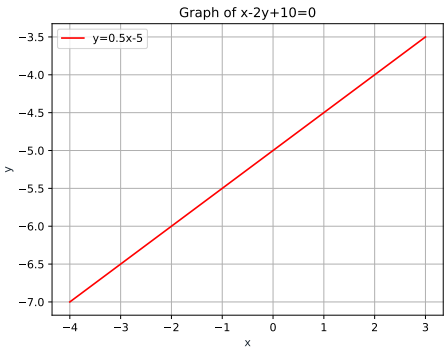

Figure 1: line

The required line equation is

$$\mathbf{x} - 2\mathbf{y} + 10 = 0 \tag{6}$$

$$\left(\mathbf{x} - 2\mathbf{y} + 10\right) = 0 \tag{7}$$

3 Figure