Assignment - 12.11.1.1

Surajit Sarkar

CONTENTS

I. PROBLEM

The perpendicular distance from the origin is 5 units and the angle made by the perpendicular with the positive x-axis is $30°$.Find the equation of the line ?

II. SOLUTION

$$\mathbf{m} = \begin{pmatrix} 1 \\ \tan 30° \end{pmatrix} \tag{1}$$

$$\mathbf{n} = \begin{pmatrix} 1 \\ \frac{1}{\sqrt{3}} \end{pmatrix} \tag{2}$$

$$\mathbf{P} = \frac{10}{\sqrt{3}} \tag{3}$$

Equation

$$\mathbf{n}^{\top}\left(\mathbf{x}-\mathbf{P}\right) = 0 \tag{4}$$

$$\begin{pmatrix} 1 & \frac{1}{\sqrt{3}} \end{pmatrix}\mathbf{x} = \frac{10}{\sqrt{3}} \tag{5}$$

$$\begin{pmatrix} \sqrt{3} & 1 \end{pmatrix}\mathbf{x} = 10 \tag{6}$$

III. CODE LINK

https://github.com/sssurajit/fwc/blob/main/lines/11.10.2.8/codes/code.py

Execute the code by using the command
python3 code.py

IV. FIGURE

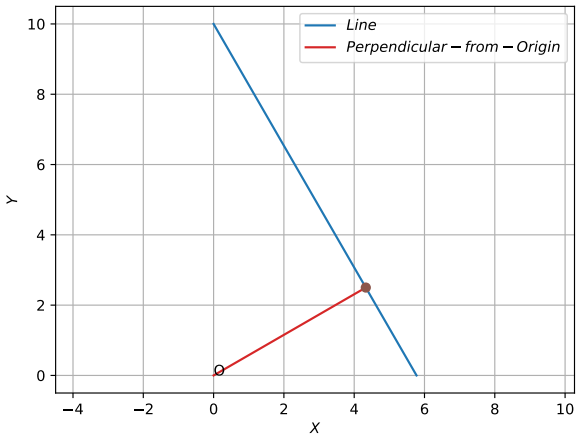

Fig. 1