

Assignment-3(EE5600)

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EE20MTECH14015

Abstract—This assignment deals with basic linear form. The normal vector of the line is

$$\mathbf{n} = \begin{pmatrix} -3 \\ 5 \end{pmatrix} \quad (2.0.3)$$

Download tex file from

<https://github.com/satyam463/EE5600Ass1/blob/main/Assignment3.tex>

Equation of the line is

$$\mathbf{n}^T \mathbf{x} = c \quad (2.0.4)$$

$$\begin{pmatrix} -3 & 5 \end{pmatrix} \mathbf{x} = -3 \quad (2.0.5)$$

1 PROBLEM STATEMENT

1.1 Vector2, Example 5, Question No 4

Find the equation to the straight line cutting off an intercept -3 from the axis of y and inclined at an angle $\tan^{-1} \frac{3}{5}$ to the axis of x.

2.0.6 is the required equation of the line and Fig.0 is the plot of the line.

$$\begin{pmatrix} -3 & 5 \end{pmatrix} \mathbf{x} = -15 \quad (2.0.6)$$

2 SOLUTION

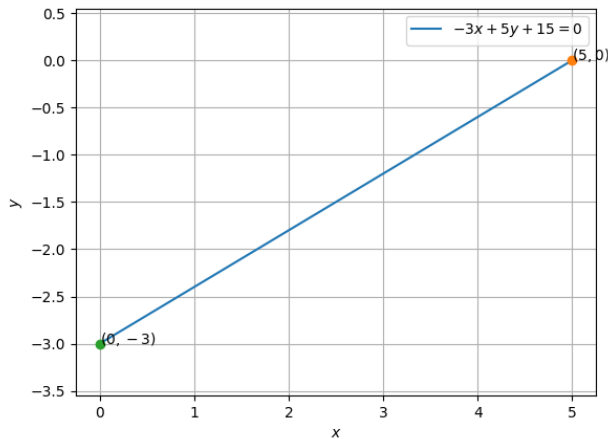


Fig. 0: Required equation of the line

Given information:

$$m = \tan \theta = \frac{3}{5}, c = -3 \quad (2.0.1)$$

The direction vector of the line is

$$\mathbf{m} = \begin{pmatrix} 1 \\ m \end{pmatrix} \Rightarrow \mathbf{m} = \begin{pmatrix} 1 \\ \frac{3}{5} \end{pmatrix} \quad (2.0.2)$$