

4-4.2-12

EE24BTECH11005 - Arjun Pavanje

Question:

Find the direction and normal vectors of the given line $3 = 2x + y$

Variable	Description
m	Direction vector
n	Normal vector
h	$\begin{pmatrix} 0 \\ c \end{pmatrix}$

TABLE I: Variables Used

Solution: The equation of the line is given by,

$$2x + y = 3 \quad (1)$$

$$\mathbf{x} = \begin{pmatrix} 0 \\ 3 \end{pmatrix} + k \begin{pmatrix} 3 \\ -2 \end{pmatrix} \quad (2)$$

$$\mathbf{m} = \begin{pmatrix} 1 \\ -2 \end{pmatrix} \quad (3)$$

equation of line in terms of normal vector **n** is,

$$2x + y = 3 \quad (4)$$

$$\begin{pmatrix} 2 & 1 \end{pmatrix} \mathbf{x} = 3 \quad (5)$$

$$\mathbf{n} = \begin{pmatrix} 2 \\ 1 \end{pmatrix} \quad (6)$$

Direction vector: $\mathbf{m} = \begin{pmatrix} 1 \\ -2 \end{pmatrix}$

Normal Vector: $\mathbf{n} = \begin{pmatrix} 2 \\ 1 \end{pmatrix}$

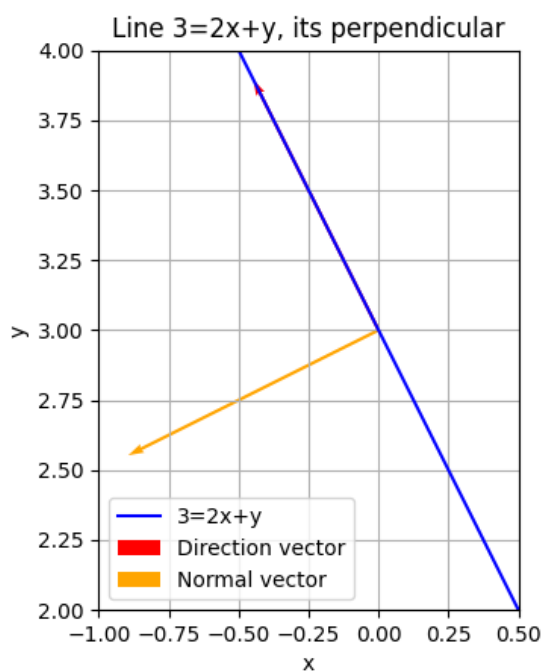


Fig. 1: Plot of the line