

Assignment 3

Aman Pratap Singh

Vector

Abstract—This document contains the solution to find the area of a triangle, from the given coordinates of the vertices.

Download all python codes from

<https://github.com/AP1920/Assignment-3/blob/main/Assignment%202.ipynb>

Download latex-tikz codes from

<https://github.com/AP1920/Assignment-3/blob/main/main.tex>

Substituting in equation (2.0.2),

$$\begin{pmatrix} 1 & 2 \end{pmatrix} \begin{pmatrix} 0 \\ q \end{pmatrix} = -3 \quad (2.0.7)$$

$$q = \frac{-3}{2} \quad (2.0.8)$$

So, the intercepts of X and Y axes can be obtained as,

$$\mathbf{P} = \begin{pmatrix} -3 \\ 0 \end{pmatrix}, \mathbf{B} = \begin{pmatrix} 0 \\ -\frac{3}{2} \end{pmatrix} \quad (2.0.9)$$

1 PROBLEM

1.1 Vector 2, Example-5,11

Trace the straight line whose equation is

$$x + 2y + 3 = 0 \quad (1.1.1)$$

2 SOLUTION

The given equation is,

$$x + 2y + 3 = 0 \quad (2.0.1)$$

We can write above equation as,

$$\begin{pmatrix} 1 & 2 \end{pmatrix} \mathbf{x} = -3 \quad (2.0.2)$$

We can find different solutions of the equation as ,
Let

$$\mathbf{x} = \begin{pmatrix} p \\ 0 \end{pmatrix} \quad (2.0.3)$$

Substituting in equation (2.0.2),

$$\begin{pmatrix} 1 & 2 \end{pmatrix} \begin{pmatrix} p \\ 0 \end{pmatrix} = -3 \quad (2.0.4)$$

$$p = -3 \quad (2.0.5)$$

Similarly we can consider,

$$\mathbf{x} = \begin{pmatrix} 0 \\ q \end{pmatrix} \quad (2.0.6)$$

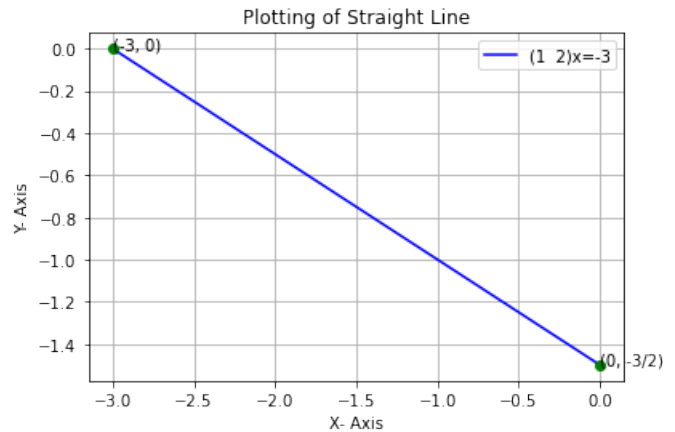


Fig. 1: Plot obtained from Python code