

Assignment 3

Priyanka - EE21MTECH12002

Download all python codes from

https://github.com/PeriPriyanka/Linear_forms_assign/Assignment3/code

and latex-tikz codes from

https://github.com/PeriPriyanka/Linear_forms_assign/Assignment3

Consider the equation (1.0.3)

$$\begin{pmatrix} 3 & -1 \end{pmatrix} \mathbf{X} = 0 \quad (2.0.8)$$

By performing matrix multiplication

$$\begin{pmatrix} 3 & -1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = 0 \quad (2.0.9)$$

$$\mathbf{EF} = 3x - y = 0 \quad (2.0.10)$$

Lines AB, CD, EF are shown in the Fig0

1 PROBLEM

(Linear forms 2.3) Draw the graphs of the following equations

$$\begin{pmatrix} 1 & 1 \end{pmatrix} \mathbf{X} = 4 \quad (1.0.1)$$

$$\begin{pmatrix} 1 & -1 \end{pmatrix} \mathbf{X} = 2 \quad (1.0.2)$$

$$\begin{pmatrix} 3 & -1 \end{pmatrix} \mathbf{X} = 0 \quad (1.0.3)$$

2 SOLUTION

Consider the equation (1.0.1)

$$\begin{pmatrix} 1 & 1 \end{pmatrix} \mathbf{X} = 4 \quad (2.0.1)$$

where,

$$\mathbf{X} = \begin{pmatrix} x \\ y \end{pmatrix} \quad (2.0.2)$$

By performing matrix multiplication

$$\begin{pmatrix} 1 & 1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = 4 \quad (2.0.3)$$

$$\mathbf{AB} = x + y = 4 \quad (2.0.4)$$

Consider the equation (1.0.2)

$$\begin{pmatrix} 1 & -1 \end{pmatrix} \mathbf{X} = 2 \quad (2.0.5)$$

By performing matrix multiplication

$$\begin{pmatrix} 1 & -1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = 2 \quad (2.0.6)$$

$$\mathbf{CD} = x - y = 2 \quad (2.0.7)$$

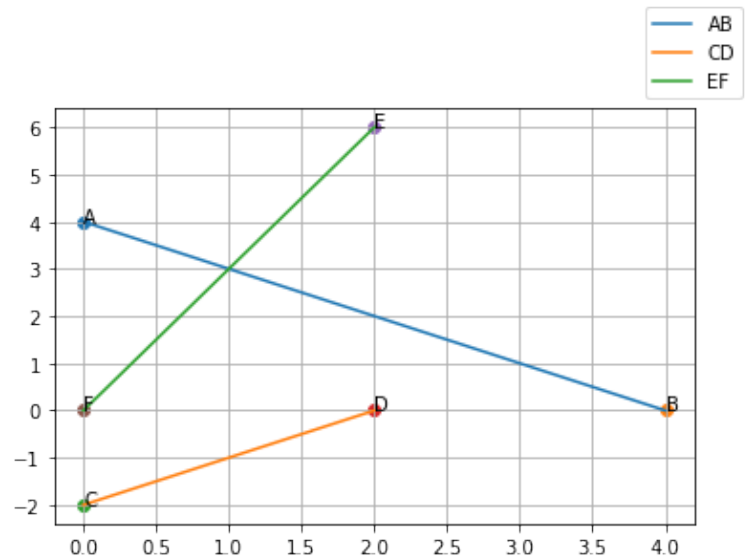


Fig. 0: Plot of 2D Lines.