

# Straight Line

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**Abstract** - This document contains solution of plotting a straight line from the given equation.

$$b = \frac{-9}{7} \quad (0.0.9)$$

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

$$\mathbf{A} = \begin{pmatrix} 9 \\ 5 \\ 0 \end{pmatrix}, \mathbf{B} = \begin{pmatrix} 0 \\ -9 \\ 7 \end{pmatrix} \quad (0.0.10)$$

## Problem

Vector-2, Example-5, Question No.-12

**Question 12.** Trace the straight line whose equation is :

$$5x - 7y - 9 = 0 \quad (0.0.1)$$

**Solution :**

The given equation is,

$$5x - 7y - 9 = 0 \quad (0.0.2)$$

We can write equation (0.0.2) as,

$$\begin{pmatrix} 5 & -7 \end{pmatrix} \mathbf{x} = 9 \quad (0.0.3)$$

We can find different solutions of the equation (0.0.3) as ,  
Let

$$\mathbf{x} = \begin{pmatrix} a \\ 0 \end{pmatrix} \quad (0.0.4)$$

Substituting in equation (0.0.3),

$$\begin{pmatrix} 5 & -7 \end{pmatrix} \begin{pmatrix} a \\ 0 \end{pmatrix} = 9 \quad (0.0.5)$$

$$a = \frac{9}{5} \quad (0.0.6)$$

Similarly we can consider,

$$\mathbf{x} = \begin{pmatrix} 0 \\ b \end{pmatrix} \quad (0.0.7)$$

Substituting in equation (0.0.3),

$$\begin{pmatrix} 5 & -7 \end{pmatrix} \begin{pmatrix} 0 \\ b \end{pmatrix} = 9 \quad (0.0.8)$$

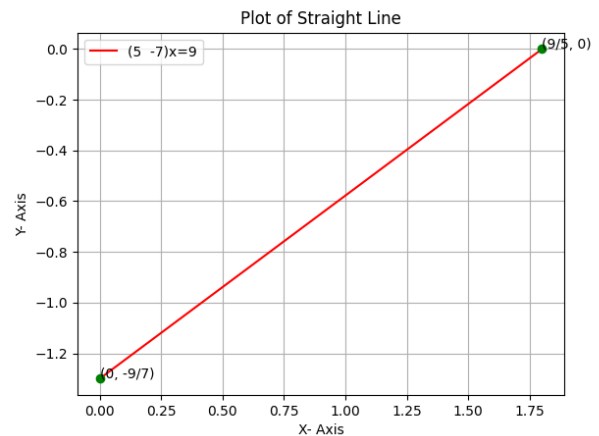


Figure 0: Plot of the straight line