MATRICES

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Contents

1 Problem

Q.Find the equation of the line parallel to the line 3x-4y+2=0 and passing through the point (-2,3).

2 Solution

Given equation is 3x-4y+2=0
the parallel line passing through point(-2,3)

$$\mathbf{n}^\top(\mathbf{x}-\mathbf{p})=0 \tag{1}$$

Symbol	Co-ordinates
n	$\begin{pmatrix}3\\-4\end{pmatrix}$
p	$\begin{pmatrix}-2\\3\end{pmatrix}$
c	2

by substituting we get

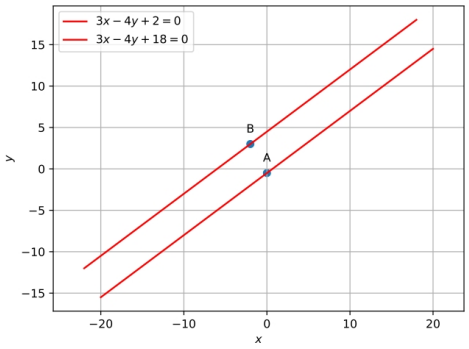
$$\mathbf{n}^\top=\begin{pmatrix}3 & -4\end{pmatrix} \tag{2}$$

$$\begin{pmatrix}3 & -4\end{pmatrix}\left[\mathbf{x}-\begin{pmatrix}-2\\3\end{pmatrix}\right]=0 \tag{3}$$

$$\Big(3(-2)-4(3)\Big)=-18 \tag{4}$$

therefore,the equation parallel to the given equation and passing through the point(-2,3) is 3x-4y+18=0

3 Plot



4 Software

We can get the parallel equation of given equation and the plot of two eqution by executing the following code:

https://github.com/Gowt-hami/fwc-1-module1/blob/main/par.py