ASSIGNMENT-9

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Download all python codes from

https://github.com/balumurisandhyarani550/Assignment9/tree/main/Assignment9

Latex-tikz codes from

https://github.com/balumurisandhyarani550/Assignment9/tree/main/Assignment9

1 Question No 2.43

Solve -3x+2y ≥ -6

2 SOLUTION

Let $\begin{pmatrix}-3 & 2\end{pmatrix}\mathbf{x}$ = -6 intersects the x-axis and y-axis at **A** and **B** respectively.

1) Let $\mathbf{A} = \begin{pmatrix}x\\0\end{pmatrix}$

Put **A** in equation

$$\begin{pmatrix}-3 & 2\end{pmatrix}\begin{pmatrix}x\\0\end{pmatrix} = -6 \quad (2.0.1)$$

$$\implies x = 2 \quad (2.0.2)$$

$$\therefore \mathbf{A} = \begin{pmatrix}2\\0\end{pmatrix} \quad (2.0.3)$$

2) Let $\mathbf{B} = \begin{pmatrix}0\\y\end{pmatrix}$

Put **B** in equation

$$\begin{pmatrix}-3 & 2\end{pmatrix}\begin{pmatrix}0\\y\end{pmatrix} = -6 \quad (2.0.4)$$

$$\implies y = -3 \quad (2.0.5)$$

$$\therefore \mathbf{B} = \begin{pmatrix}0\\-3\end{pmatrix} \quad (2.0.6)$$

3) Origin = $\begin{pmatrix}0\\0\end{pmatrix}$ satisfy the equation $\begin{pmatrix}-3 & 2\end{pmatrix}\mathbf{x}$ ≥-6

$\implies$ The solution is the right side of the line $\begin{pmatrix}-3 & 2\end{pmatrix}\mathbf{x}$ = -6

4) The following python code is the diagrammatic representation of the solution in Fig. 2.1

Solution of -3x+2y = -6

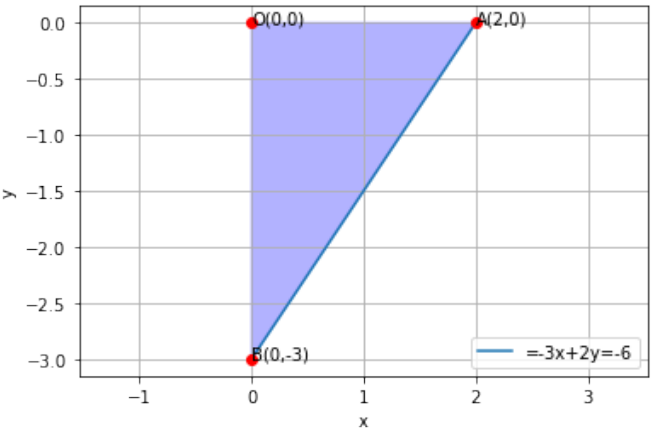

Fig. 2.1: Graphical Solution