

# 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  $-3x+2y \geq -6$

## 2 SOLUTION

Let  $(-3 \ 2)\mathbf{x} = -6$  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

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

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

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

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

Put **B** in equation

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

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

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

3) Origin  $= \begin{pmatrix} 0 \\ 0 \end{pmatrix}$  satisfy the equation  $(-3 \ 2)\mathbf{x} \geq -6$   
 $\Rightarrow$  The solution is the right side of the line  $(-3 \ 2)\mathbf{x} = -6$

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

Solution of  $-3x+2y \geq -6$

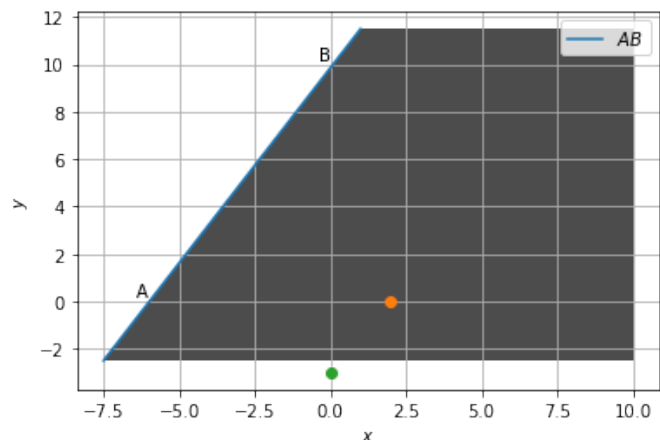


Fig. 2.1: Graphical Solution