

ASSIGNMENT-8

Y KAVYA

Download all python codes from

<https://github.com/kavya309/Assignment8/tree/main/Assignment8>

Latex-tikz codes from

<https://github.com/kavya309/Assignment8/tree/main/Assignment8>

1 QUESTION No 2.42

Solve $2x-3y > 6$

2 SOLUTION

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

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

$$\Rightarrow x = 3 \quad (2.0.2)$$

$$\therefore \mathbf{A} = \begin{pmatrix} 3 \\ 0 \end{pmatrix} \quad (2.0.3)$$

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

Put **B** in equation

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

$$\Rightarrow y = -2 \quad (2.0.5)$$

$$\therefore \mathbf{B} = \begin{pmatrix} 0 \\ -2 \end{pmatrix} \quad (2.0.6)$$

3) Origin = $\begin{pmatrix} 0 \\ 0 \end{pmatrix}$ does not satisfy the equation

$(2 \ -3)\mathbf{x} > 6$
 \Rightarrow The solution is the right side of the line
 $(2 \ -3)\mathbf{x} = 6$

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

Solution of $2x-3y > 6$

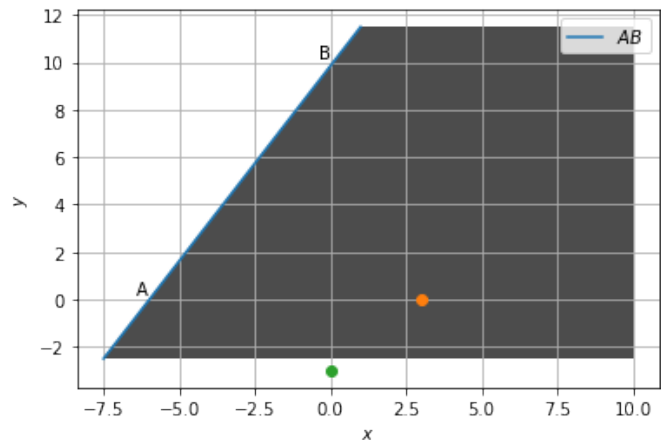


Fig. 2.1: Graphical Solution