# ASSIGNMENT 9

SOWMYA BANDI

Download all python codes from

\begin{lstlisting}
https://github.com/Sowmyabandi99/Assignment5/blob/main/Ass5/assignment5.py

Latex-tikz codes from

https://github.com/Sowmyabandi99/Assignment5/blob/main/Ass5/main.tex

## 1 Question No 2.44

Solve 3y-5x < 30.

## 2 SOLUTION

Let 3y-5x = 30 intersects the x-axis and y-axis at **A** and **B** respectively.

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

$$-5x = 30 \tag{2.0.1}$$
$$\implies x = -6 \tag{2.0.2}$$
$$\mathbf{A} = \begin{pmatrix} -6 \\ 0 \end{pmatrix} \tag{2.0.3}$$

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

$$3y = 30 \tag{2.0.4}$$
$$\implies y = 10 \tag{2.0.5}$$
$$\mathbf{B} = \begin{pmatrix} 0 \\ 10 \end{pmatrix} \tag{2.0.6}$$

3) Origin = $\begin{pmatrix} 0 \\ 0 \end{pmatrix}$ satisfy the equation 3y-5x < 30
$\implies$ The solution is the right side of the line 3y-5x = 30

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

Solution of 3y-5x < 30

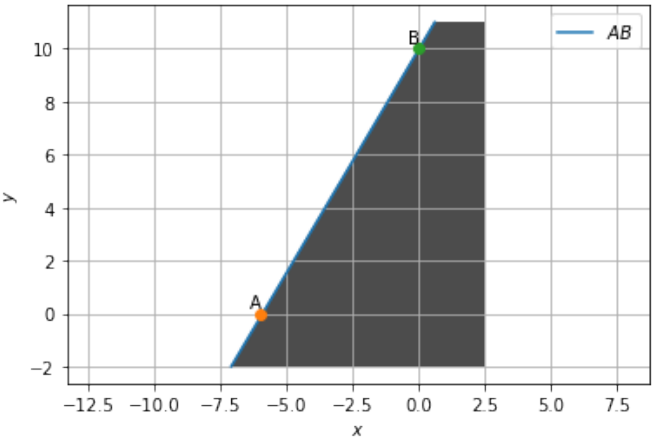


Fig. 2.1: 3y-5x < 30