ASSIGNMENT-4

Nagajyothi

1 QUESTION No-2.38 (Linear forms)

Find the equation of the planes with intercept 3 on the y- axis and parallel to Zox plane

2 Solution

Given intercept 3 on y- axis

let $\mathbf{A} = \begin{pmatrix} 0 \\ 3 \\ 0 \end{pmatrix}$

normal vector to the plane is $\mathbf{n} = \begin{pmatrix} 0 \\ 1 \\ 0 \end{pmatrix}$. Equation of the plane is given by

$$\mathbf{n}^T (\mathbf{x} - \mathbf{A}) = 0 \qquad (2.0.1)$$

$$\begin{pmatrix} 0 & 1 & 0 \end{pmatrix} \mathbf{x} = \begin{pmatrix} 0 \\ 1 \\ 0 \end{pmatrix} \begin{pmatrix} 0 & 3 & 0 \end{pmatrix} \qquad (2.0.2)$$
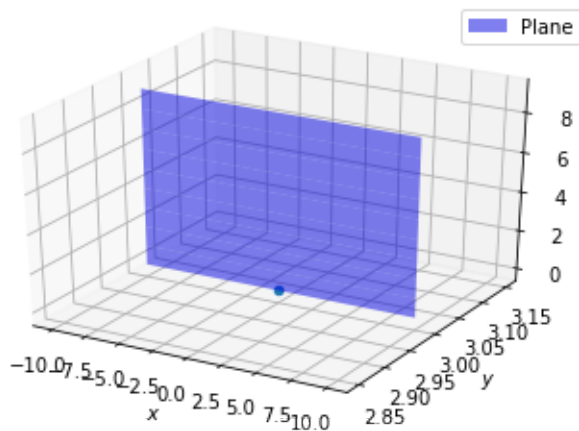
$$\begin{pmatrix} 0 & 1 & 0 \end{pmatrix} \mathbf{x} = 3 \qquad (2.0.3)$$

plane of the intercept

Fig. 2.1: Plot of the plane