

Assignment 3

Y.KAVYA

and latex-tikz codes from

https://github.com/kavya309/ASSIGNMNT_3/main.tex

Substituting in (2.0.2)

$$(2 \ 1 \ 1) \begin{pmatrix} 0 \\ 0 \\ 1 \end{pmatrix} e_3 = 5 \quad (2.0.12)$$

$$(0 + 0 + e_3) = 5 \quad (2.0.13)$$

$$e_3 = 5 \quad (2.0.14)$$

1 QUESTION No.2.37

Find the intercepts cut off by the plane $(2 \ 1 \ 1)x = 5$

2 SOLUTION

The given plane is ,

$$(2 \ 1 \ 1)x = 5 \quad (2.0.1)$$

$$\text{Let, } x = \begin{pmatrix} 1 \\ 0 \\ 0 \end{pmatrix} e_1 \quad (2.0.2)$$

Substituting in (2.0.1)

$$(2 \ 1 \ 1) \begin{pmatrix} 1 \\ 0 \\ 0 \end{pmatrix} e_1 = 5 \quad (2.0.3)$$

$$(2e_1 + 0 + 0) = 5 \quad (2.0.4)$$

$$2e_1 = 5 \quad (2.0.5)$$

$$e_1 = \frac{5}{2} \quad (2.0.6)$$

$$\text{Let, } x = \begin{pmatrix} 0 \\ 1 \\ 0 \end{pmatrix} e_2 \quad (2.0.7)$$

Substituting in (2.0.1)

$$(2 \ 1 \ 1) \begin{pmatrix} 0 \\ 1 \\ 0 \end{pmatrix} e_2 = 5 \quad (2.0.8)$$

$$(0 + e_2 + 0) = 5 \quad (2.0.9)$$

$$e_2 = 5 \quad (2.0.10)$$

$$\text{Let, } x = \begin{pmatrix} 0 \\ 0 \\ 1 \end{pmatrix} e_3 \quad (2.0.11)$$

Hence the intercepts cut off by the plane $(2 \ 1 \ 1)x = 5$ are $5/2$, 5 , 5