

# Assignment3

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Download all python codes from

<https://github.com/ka-raja-babu/Matrix-Theory/tree/main/Assignment4/Codes>

and latex-tikz codes from

<https://github.com/ka-raja-babu/Matrix-Theory/tree/main/Assignment4>

## 1 QUESTION No. 2.16

Find the direction vectors and y-intercepts of the following lines.

1)

$$(1 \ 7)\mathbf{x} = 0 \quad (1.0.1)$$

2)

$$(6 \ 3)\mathbf{x} = 5 \quad (1.0.2)$$

3)

$$(0 \ 1)\mathbf{x} = 0 \quad (1.0.3)$$

## 2 SOLUTION

- Direction vector of the line  $(a \ b)\mathbf{x} = c$  is

$$M = \begin{pmatrix} b \\ -a \end{pmatrix} \quad (2.0.1)$$

1) Direction vector

$$M = \begin{pmatrix} 7 \\ -1 \end{pmatrix} \quad (2.0.2)$$

y-intercept = 0

2) Direction vector

$$M = \begin{pmatrix} 3 \\ -6 \end{pmatrix} \quad (2.0.3)$$

y-intercept = 5/3

3) Direction vector

$$M = \begin{pmatrix} 1 \\ 0 \end{pmatrix} \quad (2.0.4)$$

y-intercept = 0