1.11.13

AI25BTECH11011-VARUN

Question:
If a line makes angles 90°,135°,45° with the x, y and z axes respectively,find its direction cosines.
Solution:
The direction cosines of a vector **A** making α, β and γ angles with x,y and z axes respectively is,

$$\mathbf{A} = \begin{pmatrix} \cos\alpha \\ \cos\beta \\ \cos\gamma \end{pmatrix} \tag{0.1}$$

Then, the direction vector is,

$$\mathbf{A} = \begin{pmatrix} \cos 90^\circ \\ \cos 135^\circ \\ \cos 45^\circ \end{pmatrix} \tag{0.2}$$

$$\mathbf{A} = \begin{pmatrix} 0 \\ -\frac{1}{\sqrt{2}} \\ \frac{1}{\sqrt{2}} \end{pmatrix} \tag{0.3}$$

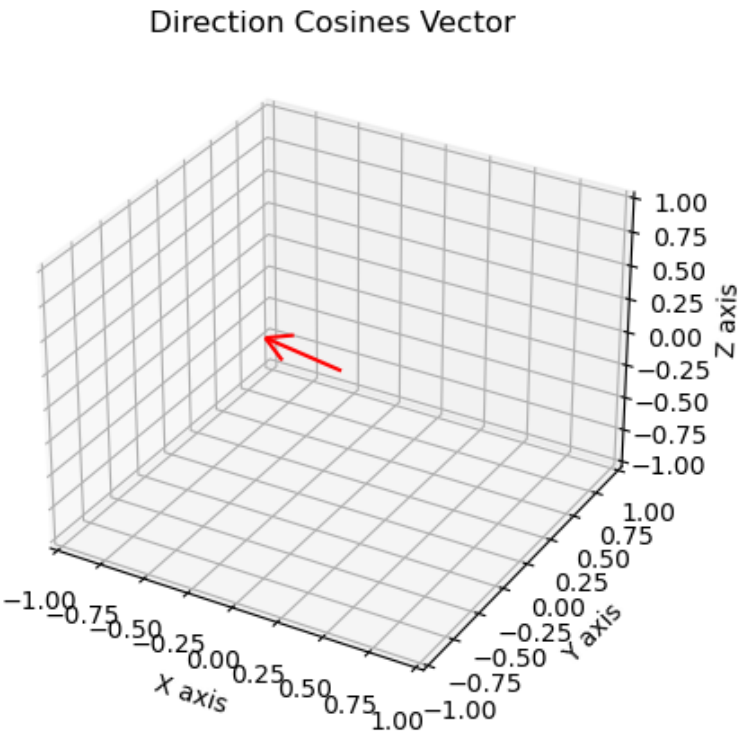

Fig. 0.1