1-1.10-29

EE24BTECH11060 - Sruthi Bijili

Question:
If a line makes angle 90°, 60°and 30°with the positive direction of X, Y and Z axes respectively, find its direction cosines.
solution: The direction cosines of an angle are defined as $cos\theta$.

Axis	Angle
X	$\alpha = 90°$
Y	$\beta = 60°$
Z	$\gamma = 30°$

TABLE 0: Input parameters

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

$$\implies A = \begin{pmatrix} \cos 90° \\ \cos 60° \\ \cos 30° \end{pmatrix} \tag{0.2}$$

$$\implies A = \begin{pmatrix} 0 \\ \frac{1}{2} \\ \frac{\sqrt{3}}{2} \end{pmatrix} \tag{0.3}$$

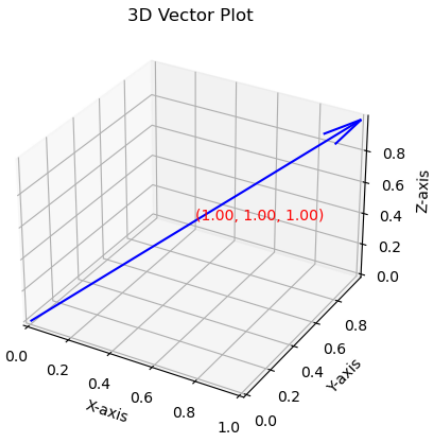

Fig. 0.1: 3D vector Represention of Direction Cosines