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	$\alpha = 90^{\circ}$
Y	$\beta = 60^{\circ}$
Z	$\gamma = 30^{\circ}$

TABLE 0: Input parameters

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

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$$\implies A = \begin{pmatrix} \cos 90^{\circ} \\ \cos 60^{\circ} \\ \cos 30^{\circ} \end{pmatrix}$$

$$(0.1)$$

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

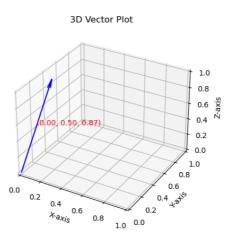


Fig. 0.1: 3D vector Represention of Direction Cosines