1.1.10.30

EE24BTECH11018 - Durgi Swaraj Sharma

Question:
The direction cosines of the vector $\left(2\hat{i}+2\hat{j}-\hat{k}\right)$ are _____.

Solution:

Point	Description	Coordinates
B	End of the given vector $\mathbf{B}$	$\begin{pmatrix}2\\2\\-1\end{pmatrix}$
A	End of the unit vector in the direction of $\mathbf{B}$, $\mathbf{A}$	$\frac{1}{\|\mathbf{B}\|}\begin{pmatrix}2\\2\\-1\end{pmatrix}$

The unit vector in the direction of the given vector is

$$\mathbf{A} = \frac{1}{\sqrt{9}}\begin{pmatrix}2\\2\\-1\end{pmatrix} \tag{0.1}$$

$$\mathbf{A} = \frac{1}{3}\begin{pmatrix}2\\2\\-1\end{pmatrix} \tag{0.2}$$

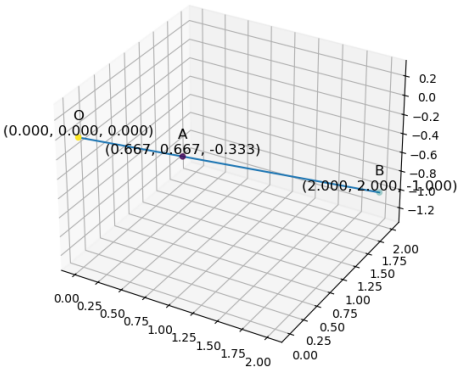

Fig. 0.1: Vector B and Unit Vector A