

Q.04

$$\mathbf{B} = \hat{\mathbf{i}} - \hat{\mathbf{k}}.$$

*Solution*

Now,

$\therefore$

*Find the angle between two*

$$A = |\mathbf{A}| = \sqrt{(2)^2 + (1)^2}$$

$$B = |\mathbf{B}| = \sqrt{(1)^2 + (-1)^2}$$

$$\begin{aligned} \mathbf{A} \cdot \mathbf{B} &= (2\hat{\mathbf{i}} + \hat{\mathbf{j}} - \hat{\mathbf{k}}) \cdot (\hat{\mathbf{i}} - \hat{\mathbf{k}}) \\ &= (2)(1) + (1)(0) + (-1) \end{aligned}$$

$$\cos \theta = \frac{\mathbf{A} \cdot \mathbf{B}}{AB} = \frac{3}{\sqrt{6} \cdot \sqrt{2}}$$

$$= \frac{3}{\sqrt{12}} = \frac{\sqrt{3}}{2}$$

$$\theta = 30^\circ$$