2.2.7

AI25BTECH11017-SAI CHARAN

Question:
The angles between two vectors **a**, **b** with magnitude $\sqrt{3}, 4$ respectively, and $\mathbf{a} \cdot \mathbf{b} = 2\sqrt{3}$
is _ _ _ _ _

Solution:
Let us solve the given equation theoretically and then verify the solution computationally
According to the question,
From the given information,

$$\|\mathbf{a}\| = \sqrt{3}, \|\mathbf{b}\| = 4, \mathbf{a}^T\mathbf{b} = 2\sqrt{3} \tag{0.1}$$

$$\cos\theta = \frac{\mathbf{a}^T\mathbf{b}}{\|\mathbf{a}\|\|\mathbf{b}\|} \tag{0.2}$$

$$\cos\theta = \frac{1}{2} \tag{0.3}$$

$$\theta = 60° \tag{0.4}$$

$$\tag{0.5}$$

Angle between two vectors is 60°

From the figure it is clearly verified that the theoretical solution matches with the computational solution.

Angle between a and b = 63°