

VECTORS

1 12th Maths - EXERCISE-10.3

1. Find the angle between two vectors \vec{a} and \vec{b} with magnitudes $\sqrt{3}$ and 2 respectively having $\vec{a} \cdot \vec{b} = \sqrt{6}$.

Solution: Given points are

$$\|\mathbf{a}\| = \sqrt{3} \quad (1)$$

$$\|\mathbf{b}\| = 2 \quad (2)$$

$$\mathbf{a}^\top \mathbf{b} = \sqrt{6} \quad (3)$$

$$\cos \theta = \frac{\mathbf{a}^\top \mathbf{b}}{\|\mathbf{a}\| \|\mathbf{b}\|} \quad (4)$$

$$= \frac{\sqrt{6}}{\sqrt{3} \times 2} \quad (5)$$

$$= \frac{1}{\sqrt{2}} \quad (6)$$

$$\theta = 45^\circ \quad (7)$$