

VECTORS

1 12th Maths - EXERCISE-10.4

1. Given that $\vec{a} \cdot \vec{b} = 0$ and $\vec{a} \times \vec{b} = 0$. What can you conclude about the vectors \vec{a} and \vec{b} .

Solution: Given

(a) $\vec{a} \cdot \vec{b} = 0$

i. either $|\vec{a}| = 0$ or $|\vec{b}| = 0$ or $\vec{a} \perp \vec{b}$.

(b) $\vec{a} \times \vec{b} = 0$

i. either $|\vec{a}| = 0$ or $|\vec{b}| = 0$ or $\vec{a} \parallel \vec{b}$.

But, \vec{a} and \vec{b} cannot be perpendicular and parallel simultaneously.
Hence, $|\vec{a}| = 0$ or $|\vec{b}| = 0$.