

# VECTORS

## 1 12<sup>th</sup> 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  $\vec{a} \perp \vec{b}$ .

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

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  $|\vec{b}| = 0$