

CLASS 12

MATHEMATICS

REVISION NOTES

Class 12 Mathematics Chapter 10 Vectors – Revision Notes

Vectors combines magnitude and direction into a single quantity, and this chapter covers the dot and cross products that let you test for perpendicularity, parallelism, and compute areas.

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Class 12 Mathematics Chapter 10 – Solutions and Important Questions

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Basics

$$|\mathbf{a}| = \sqrt{a_1^2 + a_2^2 + a_3^2}; \text{ unit vector} = \mathbf{a}/|\mathbf{a}|.$$

$$\text{Section formula: } (m\mathbf{b} + n\mathbf{a})/(m+n).$$

Products

$$\text{Dot product: } \mathbf{a} \cdot \mathbf{b} = |\mathbf{a}||\mathbf{b}|\cos\theta; \text{ perpendicular} \Leftrightarrow \text{dot}=0.$$

$$\text{Cross product: } \mathbf{a} \times \mathbf{b} = |\mathbf{a}||\mathbf{b}|\sin\theta \hat{n}; \text{ parallel} \Leftrightarrow \text{cross}=0.$$

$$\text{Triangle area} = \frac{1}{2}|\mathbf{a} \times \mathbf{b}|.$$

One-Line Summary

Vectors combine magnitude and direction; dot product relates to $\cos\theta$ (perpendicularity test), cross product relates to $\sin\theta$ (parallelism test and area computation).

Class 12 Mathematics Chapter 10 – Solutions and Important Questions

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