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Class 12th – Mathematics

1. Relations and Functions

- Introduction
- Types of Relations
- Types of Functions
- Composition of Functions and Invertible Function
- Binary Operations

2. Inverse Trigonometric Functions

- Introduction
- Basic Concepts
- Properties of Inverse Trigonometric Functions

3. Matrices

- Introduction
- Matrix
- Types of Matrices
- Operations on Matrices
- Transpose of a Matrix
- Symmetric and Skew Symmetric Matrices
- Elementary Operation (Transformation) of a Matrix
- Invertible Matrices

4. Determinants

- Introduction
- Determinant
- Properties of Determinants
- Area of a Triangle

- Minors and Cofactors
- Adjoint and Inverse of a Matrix
- Applications of Determinants and Matrices

5. Continuity and Differentiability

- Introduction
- Continuity
- Differentiability
- Exponential and Logarithmic Functions
- Logarithmic Differentiation
- Derivatives of Functions in Parametric Forms
- Second Order Derivative
- Mean Value Theorem

6. Application of Derivatives

- Introduction
- Rate of Change of Quantities
- Increasing and Decreasing Functions
- Tangents and Normals
- Approximations
- Maxima and Minima

7. Integrals

- Introduction
- Integration as an Inverse Process of Differentiation
- Methods of Integration
- Integrals of some Particular Functions
- Integration by Partial Fractions
- Integration by Parts
- Definite Integral

- Fundamental Theorem of Calculus
- Evaluation of Definite Integrals by Substitution
- Some Properties of Definite Integrals

8. Application of Integrals

- Introduction
- Area under Simple Curves
- Area between Two Curves

9. Differential Equations

- Introduction
- Basic Concepts
- General and Particular Solutions of a Differential Equation
- Formation of a Differential Equation whose General Solution is given
- Methods of Solving First order, First Degree Differential Equations

10. Vector Algebra

- Introduction
- Some Basic Concepts
- Types of Vectors
- Addition of Vectors
- Multiplication of a Vector by a Scalar
- Product of Two Vectors

11. Three Dimensional Geometry

- Introduction
- Direction Cosines and Direction Ratios of a Line

- Equation of a Line in Space
- Angle between Two Lines
- Shortest Distance between Two Lines
- Plane
- Coplanarity of Two Lines
- Angle between Two Planes
- Distance of a Point from a Plane
- Angle between a Line and a Plane

12. Linear Programming

- Introduction
- Linear Programming Problem and its Mathematical Formulation
- Different Types of Linear Programming Problems

13. Probability

- Introduction
- Conditional Probability
- Multiplication Theorem on Probability
- Independent Events
- Bayes' Theorem
- Random Variables and its Probability Distributions
- Bernoulli Trials and Binomial Distribution