PadhoNa · JEE Main & Advanced

Maths Topic List

Chapter-wise topics for Class XI and Class XII, with book page references.

Class XI

12 chapters · book pages A1 – A154

No.	Chapter	Pages	Topics
1	**Sets**	A1 – A4	1. Sets, Types of Sets, Disjoint Sets, Complementary Sets, Subsets, Power Set, Cardinal Number of Sets, Operations on Sets 2. Venn Diagrams, De Morgan's Law, Practical Problem
2	**Relations and Functions**	A5 – A10	1. Relations, Domain, Codomain and Range of a Relation, Functions, Domain, Codomain and Range of a Function 2. Even and Odd Functions, Explicit and Implicit Functions, Modulus Function, Greatest Integer Function, Periodic Functions, Value of a Function, Equal Functions, Algebraic Operations on Functions
3	**Trigonometric Functions**	A11 – A20	1. Circular System, Trigonometric Ratios, Domain and Range of Trigonometric Functions, Trigonometric Ratios of Allied Angles 2. Trigonometric Identities, Greatest and Least Value of Trigonometric Expressions 3. Miscellaneous (Principal Solution of Trigonometric Equation, Properties of Triangle) *
4	**Complex Numbers and Quadratic Equations**	A21 – A42	1. Integral Powers of Iota, Algebraic Operations of Complex Numbers, Conjugate, Modulus and Argument or Amplitude of a Complex Number 2. Powers of Complex Numbers 3. Solutions of Quadratic Equations, Sum and Product of Roots, Nature of Roots, Relation Between Roots and Co-efficients, Formation of an Equation with Given Roots 4. Miscellaneous (Geometrical Representation of Complex Number, Cube Root of Unity) *
5	**Permutations and Combinations**	A43 – A54	1. Fundamental Principle of Counting, Factorials, Permutations, Counting Formula for Permutations, Permutations in Which Things may be Repeated, Permutations in Which all Things are Different, Number of Permutations Under Certain Restricted Conditions, Circular Permutations 2. Combinations, Counting Formula for Combinations, Division and Distribution of Objects, Dearrangement Theorem, Sum of Numbers, Important Result About Point
6	**Binomial Theorem**	A55 – A66	1. Binomial Theorem for a Positive Integral Index 'x', Expansion of Binomial, General Term, Coefficient of any Power of 'x' 2. Middle Term, Greatest Term, Independent Term, Particular Term from end in Binomial Expansion, Greatest Binomial Coefficients 3. Miscellaneous (Properties of Coefficients) *

No.	Chapter	Pages	Topics
7	**Sequences and Series**	A67 – A86	1. Arithmetic Progression 2. Geometric Progression 3. Relation Between A.M. and G.M. of two Positive Numbers 4. Miscellaneous (Special Series) *
8	**Straight Lines**	A87 – A99	1. Distance Formula, Section Formula, Results of Triangle, Locus, Equation of Locus, Slope of a Straight Line, Slope of a line joining two points, Parallel and Perpendicular Lines 2. Various Forms of Equation of a Line 3. Distance Between two Lines, Angle Between two Lines, Perpendicular Distance of a Point from a Line, Foot of the Perpendicular, Position of a Point with Respect to a Line
9	**Conic Sections**	A100 – A125	1. Circles 2. Parabola 3. Ellipse 4. Hyperbola 5. Miscellaneous (Chord and Focal Chord of Conic Sections) *
10	**Limits and Derivatives**	A126 – A135	1. Limit of a Function, Left Hand & Right Hand Limits, Existence of Limits, Sandwich Theorem, Evaluation of Limits when x → ∞, Limits by Factorisation, Substitution & Rationalisation 2. Limits Using L'Hospital's Rule, Evaluation of Limits of the form 1^∞, Limits by Expansion Method 3. Derivatives of Polynomial & Trigonometric Functions, Derivative of Sum, Difference, Product & Quotient of two Functions
11	**Statistics**	A136 – A148	1. Mean, Median & Mode 2. Measures of Dispersion, Mean Deviation, Variance & Standard Deviation
12	**Probability**	A149 – A154	1. Random Experiment, Sample Space, Events, Probability of an Event, Mutually Exclusive & Exhaustive Events, Equally Likely Outcomes 2. Odds Against & Odds in Favour of an Event, Addition Theorem

Class XII

12 chapters · book pages B1 – B202

No.	Chapter	Pages	Topics
1	**Relations and Functions**	B1 – B12	1. Types of Relations and Types of Function 2. Composite Functions
2	**Inverse Trigonometric Functions**	B13 – B22	1. Trigonometric Functions & Their Inverses, Domain & Range of Inverse Trigonometric Functions, Principal Value of Inverse Trigonometric Functions, Intervals for Inverse Trigonometric Functions 2. Properties of Inverse Trigonometric Functions

No.	Chapter	Pages	Topics
3	**Matrices**	B23 – B31	1. Order of Matrices, Types of Matrices, Addition & Subtraction of Matrices, Scalar Multiplication of Matrices, Multiplication of Matrices 2. Transpose of Matrices, Symmetric & Skew Symmetric Matrices, Inverse Matrix
4	**Determinants**	B32 – B50	1. Determinant of Matrices, Singular & Non-Singular Matrices, Area of Triangle 2. Minor & Cofactor, Adjoint of a Matrix, Inverse of a Matrix 3. Solution of System of Linear Equations 4. Miscellaneous (Cramer's Rule) *
5	**Continuity and Differentiability**	B51 – B70	1. Continuity 2. Differentiability 3. Chain Rule of Differentiation, Differentiation of Explicit & Implicit Functions, Parametric & Composite Functions, Logarithmic & Exponential Functions, Inverse Functions, Differentiation by Trigonometric Substitution 4. Differentiation of Infinite Series, Successive Differentiation
6	**Applications of Derivatives**	B71 – B85	1. Rate of Change of Quantities 2. Increasing & Decreasing Functions 3. Maxima & Minima
7	**Integrals**	B86 – B118	1. Standard Integrals, Integration by Substitution, Integration by Parts 2. Integration of the Forms $\int e^x(f(x) + f'(x))dx$ and $\int e^{kx}(kf(x) + f'(x))dx$, Integration by Partial Fractions, Integration of Some Special Irrational Algebraic Functions, Integration of Different Expressions of e^x 3. Evaluation of Definite Integral by Substitution, Properties of Definite Integrals 4. Miscellaneous (Leibnitz Rule and Integral Limit as Sum) *
8	**Applications of Integrals**	B119 – B131	1. Area of the Region Bounded by a Curve & X-axis (Between two Ordinates), Area of the Region Bounded by a Curve & Y-axis (Between two Abscissae) 2. Different Cases of Area Bounded Between the Curves
9	**Differential Equations**	B132 – B152	1. Ordinary Differential Equations, Order & Degree of Differential Equations 2. General & Particular Solution of Differential Equation, Solution of Differential Equation by the Method of Separation of Variables, Solution of Homogeneous Differential Equations 3. Linear Differential Equation of First Order 4. Miscellaneous (Solution of D.E. by Inspection Method and Reducible to Homogeneous) *
10	**Vector Algebra**	B153 – B174	1. Algebra of Vectors, Section Formula, Position Vector of a Point, Modulus of a Vector 2. Scalar or Dot Product of two Vectors, Projection of a Vector Along any other Vector, Component of a Vector 3. Vector or Cross Product of two Vectors, Area of a Parallelogram & Triangle 4. Miscellaneous (Scalar Triple Product) *

No.	Chapter	Pages	Topics
11	**Three Dimensional Geometry**	B175 – B189	1. Direction Ratios & Direction Cosines of a Line, Angle between two Lines in terms of dc's and dr's, Projection of a Point on a Line, Projection of a Line Segment Joining two Points 2. Equation of a Straight Line in Cartesian and Vector Form, Angle Between two Lines, Condition of Parallelism & Perpendicularity of two Lines, Perpendicular Distance of a Point from a Line, Shortest Distance between two Skew Lines, Distance Between two Parallel Lines
12	**Probability**	B190 – B202	1. Multiplication Theorem on Probability, Independent Events, Conditional Probability, Bayes' Theorem 2. Random Variables, Probability Distribution 3. Miscellaneous (Binomial Distribution) *

* Not in the JEE 2024 syllabus, but questions are still asked.