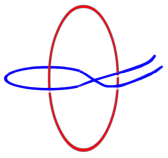

Cheenta

Passion for Mathematical Science

Book List

If you are starting with the course, then you may buy the books in the Miscellaneous Section only. Later, your faculty will prescribe other books in class.

Miscellaneous

- Challenges and Thrills of Pre-College Mathematics by Venkatchala
- Excursion in Mathematics by Bhaskaracharya Pratishthana
- Test of Mathematics at 10+2 Level by East West Press

Number Theory

- Excursion in Mathematics; Challenges and Thrills of Pre-College Mathematics
- Elementary Number Theory by David Burton

Combinatorics

- Principles and Techniques in Combinatorics by Chen Chuan Chong and Koh Khee Meng

Algebra

- Excursion in Mathematics; Challenges and Thrills of Pre-College Mathematics

Geometry

- Challenges and Thrills of Pre-College Mathematics

Trigonometry

- Trigonometry by S.L. Loney
- 101 Problems in Trigonometry by Titu Andreescu

Inequality

- Inequality by Little Mathematical Library

Complex Numbers

- Complex Numbers from A to Z

Coordinate Geometry

- Coordinate Geometry by S.L. Loney

Calculus

- Pre-Calculus by Tarasov
- Single Variable Calculus by I.A. Maron
- Play with Graphs (Arihant Publication)

Curriculum

Number Theory I

This is the first course in elementary number theory:

- **NT.I.1** Primes, Divisibility
- **NT.I.2** Arithmetic of Remainders
- **NT.I.3** Bezout's Theorem and Euclidean Algorithm
- **NT.I.4** Theory of congruence
- **NT.I.5** Number Theoretic Functions
- **NT.I.6** Theorems of Fermat, Euler, and Wilson
- **NT.I.7** Pythagorean Triples
- **NT.I.8** Chinese Remainder Theorem

Combinatorics I

This is the first course in combinatorics and elementary counting techniques:

- **Com.I.1** Multiplication and Addition rules
- **Com.I.2** Bijection Principles
- **Com.I.3** Combinatorial Coefficients
- **Com.I.4** Inclusion and Exclusion Principles
- **Com.I.5** Pigeon Hole Principle
- **Com.I.6** Recursions
- **Com.I.7** Shortest Route Problems

Algebra I

This is a first course is school algebra. (We assume that the student is familiar with algebraic expressions, and elementary algebraic identities)

- **Alg.I.1** Algebraic identities (Sophie Germain, Cube of three etc.)
- **Alg.I.2** Mathematical Induction
- **Alg.I.3** Binomial Theorem
- **Alg.I.4** Linear Equations
- **Alg.I.5** Quadratic Equation
- **Alg.I.6** Remainder Theorem
- **Alg.I.7** Theorems related to roots of an integer polynomial

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Geometry I

- **Geo.I.1** Locus visualization
- **Geo.I.2** Straight Lines
- **Geo.I.3** Triangles
- **Geo.I.4** Geometric Constructions
- **Geo.I.5** Circles

Trigonometry I

- **Trig.I.1** Angle and rotation
- **Trig.I.2** Half arcs and Half chords - Genesis of trigonometric ratios
- **Trig.I.3** Elementary ratios and associated angles
- **Trig.I.4** Trigonometric identities
- **Trig.I.5** Geometry and trigonometry
- **Trig.I.6** Basic properties of Triangles

- **Trig.I.7** Compound Angles
- **Trig.I.8** Multiple and Submultiple Angles
- **Trig.I.9** Trigonometric Series
- **Trig.I.10** Height and Distance

Inequality I

This first course in inequality must be preceded by a basic course in algebra.

- **Ineq.I.1** Geometric Inequalities
- **Ineq.I.2** Arithmetic and Geometric Mean Inequality
- **Ineq.I.3** Cauchy Schwarze Inequality
- **Ineq.I.4** Titu's Lemma

Complex Number I

- **Complex.I.1** Geometry of Screw Similarity
- **Complex.I.2** Field Properties of complex Number
- **Complex.I.3** nth roots of unity and Primitive roots
- **Complex.I.4** Basic applications to geometry

Calculus I

- **Calc.I.1** Sequences and Series
- **Calc.I.2** Limit
- **Calc.I.3** Functions
- **Calc.I.4** Continuity
- **Calc.I.5** Differential Calculus
- **Calc.I.6** Cauchy's Theorem and Mean value

- **Calc.I.7** Graphing Techniques
- **Calc.I.8** Integral Calculus

Coordinate Geometry I

- **CG.I.1** Straight Lines
- **CG.I.2** Circles
- **CG.I.3** Parabola
- **CG.I.4** Ellipse
- **CG.I.5** Hyperbola
- **CG.I.6** Polar loci
