

Chennai Mathematical Institute
BSc (Honours) Mathematics and Computer Science

Topics covered in entrance examination

The entrance examination for the B.Sc. (Hons) Maths and Computer Science program, is a test of aptitude to do Mathematics. We expect the students to be familiar with the following topics.

- **Algebra:** Arithmetic and geometric progressions, arithmetic mean, geometric mean, harmonic mean and related inequalities, polynomial equations, roots of polynomials, matrices, determinants, linear equations, solvability of equations, binomial theorem and multinomial theorem, permutations and combinations, mathematical induction. prime numbers and divisibility, GCD, LCM, modular arithmetic logarithms, probability.
- **Geometry:** Vectors, triangles, two dimensional geometry of Conics - straight lines, parabola, hyperbola, ellipses and circles, tangents, measurement of area and volume, co-ordinate geometry.
- **Trigonometry:** addition, subtraction formulas, double-angle formulas.
- **Calculus:** Limits, continuity, derivatives, integrals, indefinite and definite integrals, maxima and minima of functions in a single variable, series and sequences, convergence criterion.
- Complex numbers, roots of unity.

Suggested reading material

The following books are suggested, in addition to the Class XI and XII Mathematics Text-books of the National Council of Educational Research and Training, New Delhi.

1. V. Krishnamoorthy, C.R. Pranesachar, K. N. Ranganathan, B.J.Venkatachala: *Challenge and Thrill of Pre-College Mathematics*, New Age International Publishers.
2. M.R. Modak, S.A. Katre, V.V. Acharya: *An Excursion in Mathematics*, Bhaskaracharya Pratishtan (Pune).
3. D. Fomin, S. Genkin, I. Itenberg: *Mathematical Circles: Russian experience*, Universities Press (Hyderabad) 1998.
4. H.S. Hall, S.R. Knight: *Higher Algebra*.