

Syllabus (Junior)

1 Number theory

- 1.1 Primes, Divisibility and Congruence.
- 1.2 Division Lemma.
- 1.3 Theorems of Euler, Wilson and Fermat.
- 1.4 Chinese Remainder Theorem.
- 1.5 Sophie Germain identity.
- 1.6 Diophantine Equations.

2 Algebra and Pre-Calculus

- 2.1 Sets, Relations and Functions.
- 2.2 Polynomials.
- 2.3 Sequences and series.
- 2.4 Identities and Inequalities.

3 Combinatorics

- 3.1 Basic Counting Problems.
- 3.2 Pigeon Hole Principle.
- 3.3 Invariants.

4 Geometry

- 4.1 Euclidean Geometry.
- 4.2 Lines and Circles in the Coordinate Plane.

5 Puzzles and Logical Reasoning.