

PRE-COURSE MATHEMATICS 2026

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SYLLABUS

September 1 Sets theory

- a. Sets and subsets
- b. Operations: intersection, union, difference, Cartesian product
- c. Numbers
- d. Subsets of $\mathbb{R}^2$

September 2 Powers and roots – Monomials

- a. Powers: properties and operations
- b. Roots: properties and operations
- c. Rationalization

September 3 Monomials and Polynomials I

- a. Monomials and operations
- b. Polynomials and special products
- c. Polynomial factorization

September 4 Monomials and Polynomials II

- a. Polynomial division by monomial
- b. Division between polynomials in column
- c. Decomposition with Ruffini's theorem
- d. GCD and LCM between polynomials

September 7 Rational equations and inequalities I

- a. First degree Equations and inequalities
- b. Second degree equations and inequalities

September 8 Rational equations and inequalities II

- a. Fractional equations and inequalities
- b. Equations and inequalities of degree higher than 2

September 9 Absolute value and Irrational Equation/Inequalities

- a. Equations and inequalities with absolute value
- b. Irrational equations and inequalities

September 10 Exponentials and Logarithms I

- a. Exponential equations
- b. Logarithmic equations

September 11 Exponentials and Logarithms II

- a. Exponential inequalities
- b. Logarithmic inequalities

September 12 Final Online Asynchronous Pre-Course Test

The purpose of the test is to evaluate the learning outcomes of the pre-course. It is asynchronous, repeatable, and not graded, and is intended as a practice tool. It will be available on the e-learning page.

All the material will be available at

<https://elearning.uniroma1.it/course/view.php?id=21601>