

September 20, 2026

Welcome to Math 9a, 2026-2027 academic year

Dear students and parents,

Welcome to the new academic year at SchoolNova. My name is Alexander Kirillov and I will be teaching Math 9a. The best way to reach me is by email: kirillov@schoolnova.org.

All homework assignments will be posted on SchoolNova website, <https://schoolnova.org>

We plan to cover the following topics (not necessarily in that order):

- (1) Geometry: Vectors and center of mass. Ceva theorem.
- (2) Logic and set theory: quantifiers and proofs. Mathematical induction. Functions and bijections. Infinite sets and cardinality.
- (3) Algebra: continuation of number theory; Fermat's little theorem, Euler's function and public key cryptography. Polynomials and roots. Complex numbers and their geometric interpretation; de Moivre's formula.

We assume that you are familiar with most of the material of Math 8 at Schoolnova, in particular, with basic set theory and logic operations, with basics of Euclidean geometry such as congruence tests for triangles or properties of parallelograms, and with number theory: divisibility, congruences, Euclid's algorithm. We might review these topics as needed.

Like last year in Math 8, we will have a single set of problems for homework and classwork. You do not need to hand in the classwork problems. You do not have to do all the homework problems, but please try to attempt as many as you can, and try to complete at least half of them. Solving the problems is the best way to understand the material.

You will usually hand in the homework in hard copy form, but if you are unable to make it to class for some reason, and would still like to hand in completed homework, you can scan and send it to kirillov@schoolnova.org

Students — please come to class on time and well prepared, with paper/notebook and pens/pencils for taking notes, and with the homework assignment prepared in a neat, orderly, and clearly understandable fashion. Most importantly, when I ask you to “solve a problem”, it means **writing a solution**, not the answer. The solution should be written clearly enough so that I can read it and follow what you are doing.

Use of AI: please don't. AI can easily solve any of the problems I give, but if you do that, you learn nothing. If you are stuck on a hard problem, feel free to email me for hints. Also, feel free to ask for help in class — there may be others in the same boat who have not spoken up due to shyness.