

Dear Students and Parents, Welcome to Math 6b!

My name is **Andrei Antonenko**, and I will be your SchoolNova Math class teacher this year.

A little bit about me: I hold a PhD in Theoretical Linguistics and an MSc in Applied Mathematics from Stony Brook University and currently work as a Lecturer at the Department of Linguistics at Stony Brook University, as well as a data analyst for the University administration. I have been teaching at SchoolNova for more than twenty years.



Classwork and homework:

Handouts containing the basic theory, classwork, and homework will be posted in Google Classroom. Every student will receive a SchoolNova account for access. New posts will also send a notification to the student's SchoolNova email; account and email information will be available on the student's private page at SchoolNova.org.

I will assign weekly homework. It is extremely important for understanding the material: a new idea or method is sometimes introduced through a sequence of homework problems. Thus, it is vital that students make a serious attempt at the homework. The homework should take about 1 to 2 hours. Each assignment includes problems of varying difficulty, and it is not expected that every student solve every problem. Please complete each homework assignment on separate paper rather than on the handout itself, and write complete solutions rather than answers alone.

Questions and Help:

Students and parents are always welcome to reach out to me with questions and for extra help by email to antonenko@schoolnova.org or by leaving comments in Google Classroom under a particular assignment or topic. There is an option to keep the comments private. I will monitor both regularly.

Topics:

During this year we will study five connected strands:

- Foundations: review of Math 5, numeral systems and binary computation, logic, and set theory
- Algebra and problem solving: parity, exponents and roots, inequalities, systems of equations, invariants, and sequences
- Counting and probability: factorials, permutations, combinations, dependent events, and coloring and cutting arguments
- Coordinates and functions: distance, midpoint, slope, equations of lines, graphs, and absolute value
- Geometry and vectors: congruence, constructions, circles, symmetry, transformations, vector addition, and the dot product

The opening handout reviews Math 5. The numeral-systems handout also revisits earlier work while adding binary computation; later units similarly build on prior ideas rather than starting from scratch.

An important goal is learning to solve problems that are not routine exercises and require creativity—the kind often called puzzles or brain-teasers. We will work on many of them together in class, and students will meet more in homework. Most will connect to the current topic; a few will be included simply because they are too interesting to miss.

We will also solve some interesting problems from math olympiads, such as Math Kangaroo.

Thank you for choosing the SchoolNova! I look forward to working with all of you.