

September 14, 2024

Welcome to Math 8, 2024-2025 academic year

Dear students and parents,

Welcome to the new academic year at SchoolNova. My name is Igor Zaliznyak and I will be the teacher of Math 8a class.

This is the first year that I will be teaching this level of Math – previously I only taught Math 9 and 10, so to some extent this class will be new both to me and to the students. As every previous year, I will be doing my best to pass on the great gift of humanity's knowledge and appreciation of the beauty of mathematical ideas that was gifted to me when I was at school. Every year that I am teaching Mathematics at School Nova, I try to share my affection for the beauty, the rigor, and the elegance of mathematics with the new generation of students. I find this a rewarding and enjoyable experience. I hope that our lessons will enrich your knowledge and further your affection and enthusiasm for mathematics, as well as prepare for Math 9!

This year, in Math 8, we will start learning to appreciate the true rigor of Mathematics. It is greatly satisfying to prove a point with elegant logic instead of "winning an argument" with a dramatic opinion. If in a homework I ask you to prove a statement, please try to make it neat and tidy. As every year, we also plan to participate in two math competitions: Math Kangaroo and American Math Contests (AMC). Math Kangaroo is an international math competition for all ages; you can find more information on their web site at <http://www.mathkangaroo.org>. The contest is in March; details of the registration will follow. AMC (<http://amc.maa.org>) is the "official" American Math Olympiad: it is the first level of the competition that eventually leads to the selection of US team for International Math Olympiad. AMC 8 is intended for students in grades 8 and below. This year, AMC 8 will be given on Tuesday, November 12, 2019. You do not have to register individually - just let me or Prof. Kirillov know if you are interested.

This year, we plan to cover the following topics:

- Review of combinatorics. Binomial formula
- Formal logic and proofs. Logic circuits
- Euclid geometry: axioms, triangles, quadrilaterals and circles
- Number theory: divisibility, factorization, and modular arithmetics.

The classes will be held in person in the same location on the SUNYSB University campus as last year. Our Math 8 class will be in the Humanities building, room 3015. We will be using the Google classroom for submitting and grading the homeworks and other class-related communications. I sent all students an invitation to the Google classroom this week. Please accept the invitation to be able to upload the homework and get it graded. Check the Google class stream regularly for news and updates. To submit your homework, take the picture or scan the notebook, or prepare it in an electronic form, such as pdf, and upload it to the google classroom.

I ask that each student comes to class on time and well prepared, with paper/notebook (preferably quad ruled), pencils, and a folder or binder to keep old assignments – you will need them! And with the homework assignments prepared in a neat, orderly, and clearly understandable fashion.

All HW assignments and other information will be posted online at <http://www.schoolnova.org>. We will try to do some of the homework in class so that you do not need to spend too much time on it at home. However, you should turn in complete homework, including the work done in class.

In addition to handouts, there is a list of recommended literature which could help with the topics' we will study. I recommend that you consider buying or renting these books (if you don't already have) – most of them are timeless mathematical classics and you will never regret getting one.

If you have any questions, please do not hesitate to contact me by email izaliznyak@schoolnova.org.

Again, welcome to the new school year,

Sincerely,

Igor Zaliznyak.

Math 8-9 recommended literature, 2014-2025 academic years

1. R. Courant, H. Robbins. What is Mathematics? (Oxford University Press, 1996)
2. I. Stewart. Concepts of Modern Mathematics. (Dover, 1995).
3. G. E. Andrews. Number Theory. (Dover, 1994)
4. H. S. M. Coxeter, S. L. Greitzer. Geometry revisited. (The Mathematical Association of America, 1975)
5. Kiselev's Geometry. Book I. Planimetry (www.sumizdat.org, 2006)
6. I. M. Gelfand, M. Saul. Trigonometry (Birkhauser, 2001)
7. I. M. Gelfand, E. G. Glagoleva, A. A. Kirillov. The Method of Coordinates (Dover, 2002)
8. I. M. Gelfand, A. Shen. Algebra. (Birkhauser, 1993)
9. I. M. Gelfand, E. G. Glagoleva, E. E. Shnol. Functions and Graphs. (Dover, 2002)