September 14, 2025

Welcome to Math 9b, 2025-2026 academic year

Dear students and parents,

Welcome to the new academic year at SchoolNova. My name is Abhinav Kumar and I will be teaching Math 9b. Last year, we covered many interesting topics, broadly categorized as Combinatorics, Logic, Geometry, and Number Theory.

This year, we will dig deeper into more advanced aspects of *algebra* and *geometry*, with occasional excursions into adjoining subjects, such as mathematical induction, trigonometry, or set theory. These two main subjects will be closely intertwined, so that ideas, concepts, and problems that we will learn in one will be used in the other. The split between subjects will fluctuate from one lesson to another, depending on the pace that we will have in each.

I expect Math 9b will be a fun but challenging class. However, students need not be worried – our goal is not to make them over-worked and exhausted, but to expand the horizons of their knowledge and understanding, to learn, love, and appreciate difficult and interesting math.

Some administrative minutiae:

The classes will be held in person in Humanities 3019, 9:15 - 10:50am, with a five minute break midway.

Like last year in Math 8b, 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 kumar@schoolnova.org

I will usually post handouts for each class, where the material is explained for your reference. It is a good idea to review them after class (and before you do your homework). Sometimes, I may refer you to the corresponding handout for Math 9a (by Igor Zaliznyak).

Both classwork handouts and homework assignments will be posted on School Nova web page, https://schoolnova.org/nova/homeworks.

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.

I will occasionally provide references to recommended textbooks or other resources, which might be helpful for you to buy or borrow from the library. Listed below are a few excellent books.

Please feel free to ask for help in class and, if necessary, by email, esp. if you are stuck on a difficult topic. (There may be others in the same boat who have not spoken up due to shyness.)

Math 9 recommended literature:

(1) R. Courant, H. Robbins. What is Mathematics?
(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)
(10) Hall and Knight, Higher Algebra.
(11) Barnard and Child, Higher Algebra.
(12) Loney, Plane Trigonometry
(13) Loney, The elements of coordinate geometry, Part 1.