

Dear students and parents,

My name is Sergey Syritsyn (syritsyn@schoolnova.org) and will be teaching Math 7 class this year. I hope you had a great summer and are ready to go back to learning math. I am pleased to welcome you to this new semester at SchoolNova!

I am a physics Professor at Stony Brook University, working on theoretical nuclear physics. My primary focus is studying the dynamics of proton and neutron constituents to understand their structure and motion, and how they can be used to discover new phenomena, particles, and interactions. The technical side of my work requires high performance computing and so-called Monte Carlo methods that rely on probability theory to obtain otherwise incalculable results. It always fascinates me how much our understanding of fundamental physics depends on all areas of math, and how much knowledge of physics may often help with math intuition.

Topics that we will be uncovering in the course of the year:

- Combinatorics: choosing with and without repetitions, Pascal triangle;
- Vectors and their properties;
- Basic trigonometry and the law of sines;
- Reflections and rotations of a plane and their compositions;
- Quadratic equations, Vieta's formula, and parabola;
- Fibonacci's numbers and other recurrent sequences.

The first two classes (Sep 18 and 25) we will be reviewing the previous year material.

We will work collectively on problems in the class, and all students will have a turn, and will be encouraged, to show their work on the blackboard. Explaining solutions to math problems to each other is very satisfying!

Materials. The handouts containing the assignments and sometimes the basic theory will be given each class. In addition, each student will need a binder, notebook, and a pencil.

Homeworks will be assigned weekly and will be essential for understanding and getting comfortable with new material. Each assignment should take 1-2 hours, better done mid-week and not the last night. Some problems may be marked with (*) to indicate higher difficulty. While not everyone is expected to solve every problem, more difficult problems are selected with greater care are much more rewarding when they "click", so make sure to give them a try! Even if you don't solve some, we will review them at the beginning of the next class.

There are no grades for the class. I will follow each student's homework and engagement in the class and will help if anybody struggles to understand the material or do the assignments.

I am looking forward to studying with you,

Sergey