

# IdeaMath Class Expectations

Welcome to IdeaMath! We're excited to meet and work with all of you.

## 1 Ground Rules and Other Expectations

Above all, respect everything and everyone around you: the classroom, your teacher, the IDEA MATH Staff, and most importantly, each other. In particular, make sure to listen attentively in class.

We expect you to come to class prepared with materials and having completed any assignments from the previous class. Written notes aid in learning and understanding material, and are useful for review. You may be assessed on your ability to make readable, concise written notes without simply copying down the board. You should review and master class material on your own time. Make sure to prioritize concentrated, productive study over quantity of time spent grinding on problems. During class, participate actively in coming up with new ideas and solutions.

We value each and every student's learning experience. Improper behavior not only hinders the student's own learning but also ruins the class for others. Improper behavior will be dealt with accordingly.

If you need to miss class due to sickness or other reasons, please contact us (email [info@ideamath.org](mailto:info@ideamath.org), with student's full name and ID number stated in the email subject), call IDEA MATH (603)686-1706 or (603)686-1705, or talk to your teacher. We will make sure to provide you with any handouts or additional guidance to ensure that you stay caught up with your class.

## 2 What We'll Cover

Classes will focus on one or more of the four main subject areas of algebra, geometry, combinatorics, and number theory. However, while we do teach advanced concepts, the focus of our classes is problem solving. Our objective is to solidify what you already know and use your grounding in the basics to solve problems that are harder than what you're used to. You will be challenged fully irrespective of math background and problem solving experience.

Our goal is for you to develop your problem solving skills to the point that you are never fazed by unfamiliar-looking problems, and that you'll be able to rely on your creativity and your firm grasp of the fundamentals to solve even more varieties of problems in the future.

Please don't hesitate to approach me with any concerns you might have.

## 3 But I already know all of that!

Great. In fact, we're sure that most of you have some familiarity with a lot of the things we listed in our program curriculum. As explained in the previous section, the objective of our class is to take what you know and apply it to new problems, not to introduce you to lots of brand new topics.

If you ask about moving to a higher level class, the first thing we'll probably do is refer you back to this section. If we do think that you should be studying more advanced material this week, we'll take notice and approach you.

## 4 Additional Comments on Problem-Solving

Efficient learning requires diligence, preparation, and focus. Emphasis will be put on problem-solving ideas and strategies instead of just getting the right number. The methods that you use to approach a problem, the corrections that you make in your approach, the means by which you test the validity of your solutions, AND the ability to communicate your ideas are even more important than getting the correct answer. In addition to pure technical ability, written and oral presentation skills are also essential in mathematics, not only as necessary skills in class and in proof-based olympiads, but also in any math-related career. Learning to write clean, clear solutions and to present your ideas to your classmates is a main part of our program. Mathematics is a social and cooperative science, so watching your teacher solve problems on the board is not learning math. Don't be afraid to ask questions for a deeper understanding of underlying ideas in class. Everyone has weaknesses, and recognizing and confronting your own weaknesses is a mark of strength and self-respect. Above all, be honest to yourself: when you don't understand something, simply speak up. You are rarely alone when you have trouble with a difficult problem or a new concept.

*The following is selected from the Preface of the teaching materials at Phillips Exeter Academy.*

You should approach each problem as an exploration. Reading each question carefully is essential, especially since definitions, highlighted in italics, are routinely inserted into the problem texts. It is important to make accurate diagrams whenever appropriate. Useful strategies to keep in mind are: create an easier problem, guess and check, work backwards, and recall a similar problem. It is important that you work on each problem when assigned, since the questions you may have about a problem will likely motivate later class discussion. Problem-solving requires persistence as much as it requires ingenuity. When you get stuck, or solve a problem incorrectly, back up and start over. Keep in mind that you're probably not the only one who is stuck, and that may even include your teacher. If you have taken the time to think about a problem, you should bring to class a written record of your efforts, not just a blank space in your notebook. The methods that you use to solve a problem, the corrections that you make in your approach, the means by which you test the validity of your solutions, and your ability to communicate ideas are just as important as getting the correct answer.