

## **Prealgebra 1 (26-27 Live virtual classes)**

**Instructor: Dr. Bao**

### **Time:**

- Lectures Class: **Sundays, 11:30am - 1:00pm EST (August 30, 2027 – Feb 21, 2027);**
- Homework Review Sessions: **Tuesdays, 8 - 9pm EST**

### **Location: Virtually via Zoom**

### **Textbook and Supplementary Course Materials:**

- *Lecture notes by Dr. Shi; AoPS Prealgebra (and Solution Manual)*
- *Online Beast Academy.*
- *The course materials will remain accessible for 6 months following the final lecture.*

### **Signature Features of the Course:**

The Prealgebra course is divided into two parts and this course covers the material from the first part. The course is intended to be beneficial for students seeking to excel in their school math curriculum as well as for those aiming to excel in math competitions. Although the course is based on the AoPS Prealgebra textbook, it is differentiated by Dr. Shi's distinctive teaching style. Below are some of the hallmark features of the course and Dr. Shi's instructional approach.

#### ➤ **Enhanced content beyond AoPS**

With more than 5 years' experience of teaching this course, we have added exclusive, enriched content to the materials covered by the AoPS book to increase the effectiveness of learning. It helps students establish a stronger foundation in pre-algebra, promoting a deeper understanding of the subject matter. The enriched content can be particularly beneficial for students who aspire to set a solid foundation in algebra for the AMC 8 and AMC 10/12 competitions. A solid foundation in algebra also helps students who focus on excelling in their academic studies to perform better in the subsequent more advanced courses such as Algebra 1 and 2.

#### ➤ **Junior Mathcounts Competitions**

There are three Junior Mathcounts Competitions during the period of course. The intention of this arrangement is three folds: It serves as "midterm exam" for the students to review the materials periodically; Each competition has money prizes as incentives for the students to study for the competition; Last but not the least, the competition adapts a structure similar as the real Mathcounts competition with team round and countdown round so that they will have sufficient trainings before they participate in the real Mathcounts when they are qualified in middle school.

#### ➤ **Complimentary live homework Discussion**

To provide students with further support, each 1.5-hour lecture taught by Dr. Shi and Dr. Bao is followed by a 1-hour homework review session led by a teaching assistant. This review session is intended to offer instant feedback on students' homework and provide additional assistance as needed.

**Course schedule (tentative)**

<b>Lecture</b>	<b>Date</b>	<b>Topic</b>
1	8/30/2026	Arithmetic Rules
2	9/6/2026	Arithmetic Rules (continued)
3	9/13/2026	Arithmetic Rules (continued)
4	9/20/2026	Arithmetic Rules (continued)
5	9/27/2026	Exponent
6	10/4/2026	Exponent (continued)
7	10/11/2026	Review
8	10/18/2026	Junior MATHCOUNTS 1
9	10/25/2026	Number Theory
10	11/1/2026	Number Theory (continued)
11	11/8/2026	Number Theory (continued)
12	11/15/2026	Number Theory (continued)
13	11/22/2026	Algebraic Expressions
14	12/6/2026	Junior MATHCOUNTS 2
15	12/13/2026	Fractions
16	12/20/2026	Fractions (continued)
17	1/10/2027	Fractions (continued)
18	1/17/2027	Fractions (continued)
19	1/24/2027	Decimals
20	1/31/2027	Decimals (continued)
21	2/14/2027	Equations Intro
22	2/21/2027	Junior MATHCOUNTS 3

*Holiday Breaks: Labor day, Thanks Giving, Christmas, New year and Chinese New Year weekends.*

**Prerequisite:**

We recommend that students have completed an elementary school math curriculum or a similar program such as Beast Academy, covering grades 1-4, prior to enrolling in our program. This will ensure that students have a foundational understanding of mathematical concepts and skills needed for the program.

**Targeted Level:**

Our program is designed to help students excel in their school's math curriculum by comprehensively covering most of the topics in the Prealgebra textbook. Additionally, we aim to prepare students for subsequent courses such as Algebra, Geometry, Counting and Probability, and Number Theory. Our goal is to provide a strong foundation of knowledge and skills that will set students up for success in these

advanced courses. Furthermore, for those preparing for the AMC 8 and MathCounts contests, we have enriched the content in selected chapters to meet the specific requirements of the contests and build a solid knowledge base for more advanced math contests like AMC 10.

**Dr. Bao's Background:**

Dr. Ellen Bao is a Teaching Associate Professor in the Department of Mathematics at the University of Pittsburgh. She graduated from the Special Class for the Gifted Young at the University of Science and Technology of China and earned her Ph.D. in Mathematics from Rutgers University. Dr. Bao's research focuses on the analysis of Partial Differential Equations (PDEs) with applications across various scientific fields.

With over two decades of experience in teaching mathematics at various levels, Dr. Bao is deeply committed to education and has a particular passion for engaging with students from all ages and backgrounds. She is dedicated to making mathematics accessible and exciting for everyone, regardless of their prior experience or background. Her ability to inspire and connect with students from diverse demographics has been recognized through multiple teaching awards, starting from her Ph.D. years. Dr. Bao continues to be an influential figure in both her research and teaching, contributing significantly to the academic community.

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