



华夏糖城周末数学竞赛类

针对性辅导对数学有兴趣和特长的学生，
通过训练帮助同学在各种比赛中取得优异成绩。

2021秋学期课程：

<u>CM L11 Class</u>	<u>Number Sense班</u>	<u>于成飞</u>	星期六	11:00 AM To 01:00 PM	Online
<u>AMC 8 (Gr. 7-8) Class</u>	<u>AMC 8 (Gr. 7-8)班</u>	<u>刘立峰</u>	星期六	09:00 AM To 11:00 AM	Online
<u>CM L12 Class</u>	<u>Review number sense /Preview Prealgebra 班</u>	<u>刘弈君</u>	星期日	09:00 AM To 11:00 AM	Online
<u>CM L21 Class</u>	<u>First half of AOPS Pre-algebra 班</u>	<u>刘秋华</u>	星期日	11:00 AM To 01:00 PM	Online
<u>CM L22 Class</u>	<u>Second half of AOPS Pre-algebra 班</u>	<u>刘秋华</u>	星期日	09:00 AM To 11:00 AM	Online
<u>CM L31 Class</u>	<u>AOPS Algebra + CP(Chapter 1-7)班</u>	<u>刘立峰</u>	星期日	02:00 PM To 04:00 PM	Online
<u>CM L41 Class</u>	<u>AOPS Algebra + CP(Chapter 8-14)班</u>	<u>刘立峰</u>	星期日	11:00 AM To 01:00 PM	Online
AMC 10 Class	AMC 10班	刘立峰	星期日	09:00 AM To 11:00 AM	Online

NUMBER SENSE

Instructor: 于成飞博士

Dr. Yu received her B.S in chemical engineering from Tianjin University and PhD in Chemical Engineering from University of Houston. She currently works as a senior quality engineer。

Course Syllabus

Number Sense is geared toward students in grades 4-5, and focuses on improving the speed and accuracy of their calculations. The Number Sense test is a 10 minute, 80-question mental math test covering all basic math concepts and operations: addition, subtraction, multiplication, division, square, square root, fraction, decimal, percentage, probability, geometry, number theory, Roman numerical, base conversion, sequence, and estimation. In addition, shortcuts need to be developed and practiced in order to compete and finish the test.

Prerequisites

Students should already be familiar with basic four operations: addition, subtraction, multiplication and division, and the students should know about fractions and decimals.

Course Descriptions & learning objectives:

After taking Number Sense, students will have a solid foundation of fundamental mathematical techniques and its various shortcuts. This class is very helpful for those wishing to do competition math in the future, or for those wishing to build a stronger mathematical foundation for school.



**Review number sense /
Preview Prealgebra**

Instructor: 刘怡君 博士

) : Course is designed for prepare 4th-5th grade students who has taken Number Sense Class. The class is designed to re-enforce important math concepts that were taught in Number Sense Class and introduce a few new ones that will be further taught in Pre-Algebra . Topic include the properties of arithmetic, exponents and exponents laws, prime numbers, prime factorization, fraction, decimal, ratios, percentages, rates, counting, probability, estimation.

Dr Liu received her B.S. in Chemical Engineering from Tsinghua University and PhD in the same major from Clemson University. She currently works as a senior process engineer.

Prerequisites: Students shall be already very familiar with basic four operations: addition, subtraction, multiplication, division; know about exponent, fraction, decimal, percentage. Students who have taken Number Sense Class in the past is preferred but not mandatory.

Learning Objectives: After taking this class, students will build stronger foundation in fundamental mathematical techniques, number theory, critical thinking skills and problem-solving capabilities. This class would be ideal for 4th- 5th grade students who are going to consider math contests or just improve mathematic understanding, thus building stronger foundation for middle school.

First half of AOPS Pre-algebra
Second half of AOPS Pre-algebra

Dr. Liu received her B.S in Physics from Peking University and Ph. D in Electrical Engineering from Duke University. She currently works as an AI engineer.

刘老师北京大学物理专业本科毕业，杜克大学电子工程专业博士毕业，目前是人工智能工程师

Instructor: 刘秋华博士

Course Syllabus

Pre-Algebra: Topics include the properties of arithmetic, exponents and exponent laws, primes and prime factorization, fractions, linear equations, inequalities, decimals, ratios, proportions, rates, percents, square roots, basic geometry, statistics, counting and probability

基础代数，包括小学数学比赛的基本知识点：四则运算的性质，指数，分数，小数，百分比的运算和性质，比值问题，质数，合数，单位换算，线性方程，不等式，平方根，基础几何，基础统计及概率。

Target Students:

Advanced 4th and 5th grade students who just starts math contest.

开始参加小学数学竞赛的四五年级学生。

Course Descriptions & learning objectives:

This course will be focusing on prealgebra topics that appears in elementary school math contests, including mathleague, MOEMS, and TMSCA.

小学数学竞赛基础代数知识点。

Required Prerequisites

Regular Elementary school math

小学数学基本知识点

Required Text & Resources:

Book: AOPS Pre-Algebra

AOPS Algebra + CP(Chapter 1-7)
AOPS Algebra + CP(Chapter 8-14)

EDUCATION BACKGROUND

- Graduated from Shanghai Jiaotong University and majored in Electrical Engineering with Bachelor Degree
- Peking University in major of Master of Business Administration (MBA)
- Fordham University in major Master of Business Administration (MBA)
- Participated in China Mathematical Olympiad (CMO) and China Physics Olympiad (CPhO) in 1991 (High School)

Instructor: 刘立峰老师

Course Syllabus

Algebra: Order of Operations, Linear Equations, Multi-variable Linear Equations, Ratios, Percents, Propotion, Graphing Lines, Inequalities.

Target Students:

Advanced 5th to 6th grade students who completed pre-algebra.

Course Descriptions & learning objectives:

This course will be focusing on the first half of the book of AOPS Introduction to Algebra.

Required Prerequisites

Pre-Algebra 初级代数

Required Text & Resources:

Book: AOPS Introduction to Algebra



Instructor: 刘立峰老师

Syllabus/Preparation COURSE

- AMC has been welcomed by more and more students for years because of its strong affinity, wide range of students suitability and high recognition. However, AMC is competition mathematics, the key for students to achieve good grades is to acquire professional training and master effective learning skills. In this training session, the teacher will explain the knowledge points and logic of the AMC real questions, analyze the key questions, and simulate the exam, so that the students are able to be familiar with the characteristics of competition mathematics, draw conclusions from examples, simplify the logic, and answer more questions correctly.
- 近年来AMC因为其题目亲和力强，难度循序渐进，适合学生范围广，认知度高等优势，受到越来越多的学生欢迎，但是AMC毕竟是竞赛数学，因此，学生们获得专业的培训方法和掌握有效的学习技巧才是取得好成绩的关键。本期安排的培训，老师将通过以往AMC真题知识点和逻辑讲解，重点题目分析，实操模拟考试三个环节，让学生们能够熟悉竞赛类数学的特点，能够举一反三，快速定位，简化逻辑，从而答对更多的题目。

Class Reference

- Basic Requirement
 - Strong Logic Thinking Mindset
 - Has Background on Contest Math (ie. Kangaroo Math, The Math League Contest)
 - Get at least 70% of Accuracy for the first 15 questions in Mock Test
 - Suitable Students: Currently in Grade 4-7
- Class Size
 - Medium Class (5-10 students)
- Class Sections
 - Section 1: Explanation on Real Questions with Concept Consolidation (16 Hours)
 - Section 2: Key Concepts and Examples (16 Hours)
 - Section 3: Simulation Tests and Practices (16 Hours)
- Reference Books
 - AOPS Prealgebra
 - AOPS Introduction to Number Theory
 - AOPS Introduction to Counting and Probability
 - AOPS Introduction to Geometry

Class Introduction

- Training Procedures:
- 培训的步骤:
- Session-1: We will select some samples of real questions in recent years, analyze the principles of questions, explain relevant knowledge points and logic one by one, list the corresponding problem-solving ideas and expanding thinking methods, we will cover all questions from the simplest to the most complex so that students can get access to all knowledge points (16 hours in total, Summer Weekend Class)
- 第一期: 选择近年的真题样本, 逐一解释出题的原则和相关知识点和逻辑, 罗列对应的解题思路和拓展思维模式, 讲解覆盖从简单到复杂的所有题目, 让学生能够接触到所有知识点 (共16小时, 暑期周末班)
- Session-2: Choose typical or popular questions, analyze the direction of the logics, guide the students to take the initiative to think, independently determine the effective logic, and eventually answer the questions correctly (16 hours in total, Summer Weekend Class)
- 第二期: 选择代表意义强的题目, 针对出题的方向进行分析, 引导学生主动思维, 独立筛选有效逻辑, 并最终答对题目 (共16小时, 暑期周末班)
- Session-3: Through simulation tests, students will be able to use knowledge points and logic effectively, answer questions quickly and accurately, they will also learn how to manage the time and control the operation pace in the test, and complete the preparation for the AMC competition (16 hours in total, will be scheduled in fall)
- 第三期: 通过模拟考试训练, 让学生能够有效使用知识点和逻辑, 快速准确的答题, 学会管理考试时间和控制答题节奏, 高效率完成竞赛的准备 (共16小时, 秋季开课)

SYLLABUS
PREPARATION
COURSE

AMC 10

Instructor: 刘立峰老师



Class Reference

- Basic Requirement
 - Strong Logic Thinking Mindset
 - Has Background on AMC 8 and other Math Contest Experience
 - Get at least 70% of Accuracy for the first 15 questions in Mock Test
 - Suitable Students: Currently in Grade 6-9
- Class Size
 - Medium Class (5-10 students)
- Class Sections
 - Section 1: Explanation on Real Questions with Concept Consolidation (16 Hours)
 - Section 2: Key Concepts and Examples (16 Hours)
 - Section 3: Simulation Tests and Practices (32 Hours)
- Reference Books
 - AOPS Introduction to Algebra
 - AOPS Introduction to Number Theory
 - AOPS Introduction to Counting and Probability
 - AOPS Introduction to Geometry

Class Introduction

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