



# MATH OLYMPIAD

By Ms. Jingmiao Gao

## Course Description:

This course is designed to focus on mathematical thinking and problem-solving strategies. In class, students will be given 10 to 20 problems to solve and discuss. This helps students to learn and practice the critical thinking skills needed to analyze, solve, and explain complex math problems.

## Sample Questions \*:

Q1: 7 identical dices roll them simultaneously, how many total outcomes?

Q2: Insert parentheses to make:  $4 + 6 \times 5 - 2 / 6 - 2 = 12$  a true statement. [MATHCOUNT]

## Pre-requisite

The students need solid knowledge and understanding in Number Theory, Algebra, Geometry, Counting and Basic Probability. The course is recommended for current and upcoming middle school students.

## Curriculum:

Introduction to Number Theory, Algebra, Counting and Probability and Geometry. Focusing on Problem-Solving Strategies: Reverse engineering, look for a pattern, draw a picture, make a list, etc.

## Teacher's background

Years of wall street experience in Goldman Sachs as a data science engineer focusing in firm wide risk and big data, and in Markit as a fixed income portfolio analytics quant developer. Master in computer science from Texas A&M.

\* Answers for sample questions: Q1:  $C(12, 5)$ . Q2:  $((4 + 6) \times 5 - 2) / (6 - 2) = 12$