



Syllabus

Road to USA(J)MO: AMC 10/12 + AIME Advanced Course¹

OBJECTIVES

This course is designed for those students who already have AMC 10/12 foundations (for example, have previously qualified for AIME) and aim at qualifying for USA(J)MO through AMC 10/12 + AIME.

DIFFICULTY

AMC 10/12 problems 21-25, AIME problems 7-15.

DURATION

This is a 24-hour course.

TEXTBOOKS

We use our own course packet developed by Steven Chen.

COURSE CONTENTS

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1. Complex numbers (exponential form, using complex numbers approach to solve trigonometry and geometry problems)
2. Functions (composite functions, Gaussian functions, polynomials)
3. Algebraic approaches to solve geometry problems
4. Triangle centers (centroid, incenter, circumcenter, orthocenter)
5. Combinatorics identities
6. Sets, mapping, combinatorics
7. Recursive equations approach to solve combinatorics and probability problems
8. Modular arithmetic (for example: Chinese remainder theorem, Euler's theorem)
9. Diophantine equations
10. Past challenging AMC 10/12 and AIME problems

