

Math (Grade 6-8)

Math201-AMC 8

The AMC 8 is a contest for students in grades 8 and below, hosted annually by the American Mathematics Competitions (AMC) to students all over the United States.

The AMC 8 exam is a 25 problem exam. There are 40 minutes given in the exam. Problems increase in difficulty as the problem number increases.

The AMC 8 is usually administered in the third week of January. There is a 1-week window for students to take the test.

The material covered on the AMC 8 includes topics from a typical middle school mathematics curriculum:

- Counting and probability.
- Estimation.
- Proportional reasoning.
- Elementary geometry including Pythagorean Theorem.
- Spatial visualization.
- Everyday applications.
- Reading/interpreting graphs and tables.
- Linear or quadratic functions and equations.

The following AMC 8 tests will be EXCLUDED from our curriculum and problem sets, and thus can be used as mock tests:

- 2022 AMC 8
- 2020
- 2019
- 2018
- 2017

Our AMC 8 curriculum is designed as follows:

1. Intro: people intro, course run through, benchmark walkthrough (4 problems - algebra, number theory, counting/probability, geometry)
2. Algebra 1: Operations and statistics
 - a. Addition, subtraction, multiplication, exp, division
 - b. Statistics: mean, min, max, median, mode, range
 - c. Special operations
3. Algebra 2: Variables and equations
 - a. Single variable linear equations
 - b. Multivariable linear equations
 - i. Manipulation techniques - Substitution, elimination, ...
 - c. Simple nonlinear equations
4. Algebra 3: Graphing and functions
 - a. Functions and graphing functions: slope, intercept
 - b. Special functions: exp, factorial, square roots
5. Algebra 4: Word Problems
 - a. Rate
 - b. Ratio, proportion, percentage
 - c. Calendar (time)
6. Algebra 5: Graphs/Tables Interpretation
7. Algebra 6: Sequences and Series:
 - a. Arithmetic
 - b. Geometric
 - c. General sequences and series
8. Number Theory 1
 - a. Integers
 - i. Basic concepts
 - b. Primes
 - i. Factorization
 - c. GCD LCM
9. Number Theory 2
 - a. Modular Arithmetic
 - i. Introduction
 - b. Divisibility
 - i. Units digit
 - ii. Divisibility rules
10. Counting
 - a. Addition, multiplication
 - b. Venn diagram
 - c. Permutation and combination

11. Probability and advanced counting
 - a. Probability concept
 - b. Advanced counting
 - i. Casework, complimentary
12. Geometry 1
 - a. Angles
 - i. Intro, parallel lines, perpendicular lines, angle chasing
 - b. Triangles basic ideas
 - i. Introduction to triangles related to angles
13. Geometry 2
 - a. Advanced triangles: area, similarity, pythagorean theorem
 - b. Polygons: quadrilaterals, square, parallelogram
14. Geometry 3
 - a. Circles: areas, circumference, chords
 - b. More advanced topics
15. Logic, miscellaneous, and problem solving
 - a. Problem solving strategies
 - b. Miscellaneous problems
 - c. Will get to if finished the main curriculum
16. Problem solving - AMC 8 mock test & Review

17. Algebra 4: factorization, quadratics & polynomials
 - a. Factorization, quadratic formula, Vieta's formulas
 - b. Introduction to polynomials

Syllabus: <https://school.thinkland.ai/syllabus/>

Curriculum: <https://school.thinkland.ai/curriculum>

Teachers: <https://school.thinkland.ai/teacher>

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