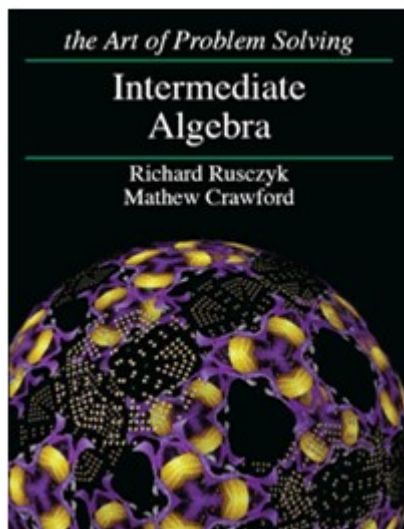


Course Name: AoPS Algebra 2

Textbook: “**Intermediate Algebra**”, by Richard Rusczyk and Mathew Crawford, the Art of Problem Solving series, ISBN-13: 978-1-934124-04-8



Course Introduction:

Algebra 2 covers complex numbers, quadratic equations, conics, polynomials, functions, logarithms, clever factorizations and substitutions, systems of equations, sequences and series, symmetric sums, advanced factoring methods, classical inequalities, functional equations, and more. This course goes beyond what you would find in a typical honors Algebra II curriculum, as it covers topics found in honors Algebra II and Precalculus classes, as well as many topics not found in most other curricula. This is a one-year course and is divided into two parts to be taught in two semesters, Algebra 2A and Algebra 2B.

Algebra 2A covers Chapter 1 – Chapter 10, including complex numbers, conics, polynomial division, polynomial roots, factoring multivariable polynomials, sequences and series.

Algebra 2B covers Chapter 11 – Chapter 20, including identities, induction, inequalities, exponents and logarithms, radicals, special classes of functions, and piecewise defined functions.

This course is intended for high-performing students and will focus on problem solving skills. Students will learn via practicing solving problems in the classroom.

Who Should Take Algebra 2A:

Students should have a mastery of basic algebra up through and including quadratic equations before taking this course. Typically this class follows our “Algebra 1B” class. Students who have completed typical Algebra 1 may be ready for this class.

[An entrance exam](#) should be taken to evaluate student’s readiness.

Who Should Take Algebra 2B:

Students should have a mastery of basic algebra up through and including polynomials, sequences and series, advanced factoring before taking this course. Typically this class follows our “Algebra 2A” class.

Requirements for Students Registering for Algebra 2A or Algebra 2B

In general, students in grade 8 – 10 are eligible to register for either one of Algebra 2 courses. All students interested in take any of these courses should pass the corresponding evaluation test. The test must be taken and submitted before the specified deadline posted by the school web site. The tests are posted on the school web site as well. Please check the class schedule at the school web site.

Teaching Plan

Algebra 2A	
Lesson 1	Review of Algebra I and Chapter 1
Lesson 2	Chapter 2: Functions Review
Lesson 3	Chapter 3: Complex Numbers
Lesson 4	Chapter 4: Quadratics (I)
Lesson 5	Chapter 4: Quadratics (II)
Lesson 6	Chapter 5: Conics (I)
Lesson 7	Chapter 5: Conics (II)
Lesson 8	Review of Midterm Exam
Lesson 9	Chapter 6: Polynomial Division
Lesson 10	Chapter 7: Polynomial Roots Part I (I)
Lesson 11	Chapter 7: Polynomial Roots Part I (II)
Lesson 12	Chapter 8: Polynomial Roots Part II (I)
Lesson 13	Chapter 8: Polynomial Roots Part II (II)
Lesson 14	Chapter 9: Factoring Multivariable Polynomials
Lesson 15	Chapter 10: Sequences and Series
Lesson 16	Review of Final Exam

Algebra 2B	
Lesson 1	Chapter 11: Identities, Manipulations, and Induction (I)
Lesson 2	Chapter 11: Identities, Manipulations, and Induction (II)
Lesson 3	Chapter 12: Inequalities (I)
Lesson 4	Chapter 12: Inequalities (II)

Lesson 5	Chapter 13: Exponents and Logarithms (I)
Lesson 6	Chapter 13: Exponents and Logarithms (II)
Lesson 7	Chapter 14: Radicals
Lesson 8	Review of Midterm Exam
Lesson 9	Chapter 15: Special Classes of Functions (I)
Lesson 10	Chapter 15: Special Classes of Functions (II)
Lesson 11	Chapter 16: Piece-wise Defined Functions
Lesson 12	Chapter 17: More Sequences and Series (I)
Lesson 13	Chapter 17: More Sequences and Series (II)
Lesson 14	Chapter 18: More Inequalities
Lesson 15	Chapter 19: Functional Equations
Lesson 16	Review of Final Exam

About The Teacher:

Huaizhong Han, received BS/MS from University of Science and Technology of China and PhD from University of Massachusetts - Amherst. He volunteers as the coach of Wayland Middle Schools MathCounts Team (2016 - 2020). In 2020, Wayland Middle School MC team was ranked 4th in State Contest and 2nd in MetroWest Chapter Contest. In 2018, he received the "Best Coach" award and Wayland Middle School received the "Most Improved School" award.