

Algebra 2

Course Description:

Algebra 2 builds upon the foundations laid in Algebra 1, of combining the concrete world of numbers into the sometimes abstract world of functions and other topics. Designed to be rigorous and engaging, the course equips students with the knowledge, skills and confidence needed for success in Pre-Calculus and beyond.

Students begin the course with a review of exponents, laying the groundwork for rational exponents and complex numbers. From there, they strengthen their core factoring skills, which prepares them for success in exploring a wide range of functions, including quadratics, polynomials and rational functions, as well as solving equations and inequalities. Optional elective units — including matrices, sequences and series, exponential, logarithmic and trigonometric functions, statistics, and probability — allow students to deepen their understanding based on jurisdiction requirements or personal areas of interest. As they progress, students apply algebraic reasoning to real-world problems, analyze patterns, and model relationships using equations, graphs, and tables.

To support this learning, the course features auditory, visual, and hands-on components that accommodate all learning styles. Lessons are engaging and student-friendly, with interactive videos that students can also pause and rewind to go at their own pace. Many lessons also include fun, interactive applets and dynamic graphs that bring key concepts to life and enhance conceptual understanding.

Each instructional video is accompanied by a student-friendly note package that allows students to take notes to whatever level of detail they like. There are also an abundance of practice questions for students to internalize the material they have learned in the lessons, with full, detailed solutions for each. Additionally, there is a comprehensive review assignment and practice test for each unit. Furthermore, with randomized question banks, students can redo every quiz and test in the course to help them master the material and perform their very best.

This course is strongly recommended for students who might take Pre-Calculus and eventually Calculus in either high school or college/university.

Core Units:

- Exponents
- Rational Exponents and Complex Numbers
- Factoring
- Quadratic Functions
- Polynomial and Rational Functions
- Exploring Functions
- Solving Equations and Inequalities

Elective Units:



- Matrices
- Sequences and Series
- Exponential and Logarithmic Functions
- Trigonometric Functions
- Statistics
- Probability

By the end of the course, students will be able to:

- Manipulate increasingly complex algebraic expressions to solve problems
- Solve and interpret linear, quadratic, polynomial, rational, radical, exponential, and logarithmic equations
- Model a wide range of real-world phenomena using functions, graphs, and tables
- Analyze and compare different types of functions and their behaviors
- Use algebraic and numerical reasoning to explore and explain mathematical relationships
- Interpret and apply statistical data and probability in context

Assessments:

- Unit Note Package
- Lesson Practice Questions
- Quizzes
- Unit Review Assignment
- Unit Practice Test
- Unit Test
- Projects
- Semester Exams

Resources:

- Graphing Calculator for assessments (handheld or online)
 - Note: Every practice question has a built-in Desmos graphing calculator

