The Algebra II curriculum builds on the concepts covered in Algebra I. Through a "Discovery-Confirmation-Practice"-based exploration of intermediate algebra, students are challenged to work toward a mastery of computational skills, to deepen their understanding of key ideas and solution strategies, and to extend their knowledge through a variety of problem-solving applications.

Course topics include systems of linear equations and inequalities, functions, relations, and their graphs; quadratic functions; parent functions, domain and range, inverse functions, composition of functions, and function transformations; and advanced polynomial functions. Students also cover topics relating to rational, radical, exponential, and logarithmic functions and their transformations; and data analysis.

This course supports all students as they develop computational fluency, deepen conceptual understanding, and apply mathematical process standards. Students begin each lesson by discovering new concepts through guided instruction, and then confirm their understanding in an interactive, feedback-rich environment. Modeling activities equip students with tools for analyzing a variety of real-world scenarios and mathematical ideas. Journaling activities allow students to reason abstractly and quantitatively, construct arguments, critique reasoning, and communicate precisely.

The content is built to the TEKS Algebra II Standards.

No required or optional materials.

Length: Two Semesters

Unit 1: Systems of Linear Equations

- Formulating Systems of Equations
- Two-Variable Systems: Matrices
- Two-Variable Systems of Inequalities
- Three-Variable Systems of Equations
- Three-Variable Systems: Matrices
- Systems of Linear Equations Wrap-Up

Unit 2: Functions, Relations, & Their Graphs

- What Is a Function?
- Graphing Functions
- Domain and Range
- Solving Absolute Value Equations and Inequalities
- Discrete and Continuous Data

Copyright© Edmentum Inc. All Rights Reserved.

- Composition of Functions
- Functions, Relations, & Their Graphs Wrap-Up

Unit 3: Quadratic Functions

- Special Cases
- Solving Quadratic Equations
- Completing the Square
- The Quadratic Formula
- Graphs of Quadratic Functions and Inequalities
- Working with Quadratic Equations and Functions
- Working with Complex Numbers
- Nonlinear Systems of Equations
- Quadratic Functions Wrap-Up

Unit 4: Transforming Functions

- Inverses
- Graphs of Inverses
- Parent Functions
- Shifting Functions
- Stretching Functions
- Transformation of Parent Functions
- Transforming Functions Wrap-Up

Unit 5: Polynomial Functions

- Polynomial Basics
- Polynomial Functions
- Synthetic Division
- Factoring Polynomials Completely
- Polynomial Identities
- Polynomial Functions Wrap-Up

Unit 6: Semester 1 Review and Exam

- Semester 1 Review and Exam

Unit 7: Rational Expressions and Functions

- Rational Expressions
- Simplifying Rational Expressions
- Multiplying and Dividing Rational Expressions
- Adding and Subtracting Rational Expressions
- Inverse Variation
- Writing Rational Functions
- Solving Rational Equations
- Vertical Asymptotes
- Graphing Rational Functions
- Rational Expressions and Functions Wrap-Up

Copyright© Edmentum Inc. All Rights Reserved.

edmentum

Unit 8: Radical Expressions and Functions

- Basics of Radicals
- Multiplying and Dividing Radicals
- Adding and Subtracting Radicals
- Rationalizing Denominators
- Solving Radical Equations and Inequalities
- Square Root Functions
- Rational Exponents
- Review of Complex Numbers
- Performance Task: The Skid Distance Problem
- Radical Expressions and Functions Wrap-Up

Unit 9: Exponents, Logarithms, & Their Graphs

- Exponents and Radicals
- Exponential Functions
- Examples and Applications of Exponential Functions
- Graphs of Exponential Functions
- Logarithmic Functions
- Graphs of Logarithmic Functions
- More on Graphs of Logarithmic Functions
- Properties of Exponents and Logarithms
- Solving Exponential Equations
- Solving Logarithmic Equations
- Applications of Logarithms
- Comparing and Analyzing Function Types
- Exponents, Logarithms, & Their Graphs Wrap-Up

Unit 10: Bivariate Data

- Correlation Coefficients
- Linear Regression
- Assessing Linear Regression
- Nonlinear Regression
- Bivariate Data Wrap-Up

Unit 11: Semester 2 Review and Exam

- Semester 2 Review and Exam

Copyright© Edmentum Inc. All Rights Reserved.