

Continuing Algebra

COURSE DESCRIPTION: In this course, students build on what they learned in Developmental Algebra to complete their knowledge of all topics associated with a deep understanding of Algebra I. They learn about relations and functions, radicals and radical expressions, polynomials and their graphs, factoring expressions and using factoring to solve equations, solving quadratics, rational expressions, and logic and reasoning.

PREREQUISITES: Developmental Algebra (or equivalent)

COURSE LENGTH: Two Semesters

REQUIRED TEXT: Algebra I: Reference Guide and Problem Sets

MATERIALS LIST: None

COURSE OUTLINE:

SEMESTER 1

Unit 1: Relations and Functions, Part 1

- Semester Introduction
- Foundations
- Foundations Wrap-Up
- Relations
- Relations Wrap-Up
- Functions
- Functions Wrap-Up
- Function Equations, Part 1
- Function Equations, Part 1 Wrap-Up
- Function Equations, Part 2
- Function Equations, Part 2 Wrap-Up
- Absolute Value Functions
- Absolute Value Functions Wrap-Up
- Unit Review

- Unit Test

Unit 2: Relations and Functions, Part 2

- Foundations
- Foundations Wrap-Up
- Direct Variation, Part 1
- Direct Variation, Part 1 Wrap-Up
- Direct Variation, Part 2
- Direct Variation, Part 2 Wrap-Up
- Quadratic Variation
- Quadratic Variation Wrap-Up
- Inverse Variation
- Inverse Variation Wrap-Up
- Unit Review
- Unit Test

Unit 3: Irrationals and Radicals, Part 1

- Foundations
- Foundations Wrap-Up
- Rational Numbers
- Rational Numbers Wrap-Up
- Terminating and Repeating Numbers
- Terminating and Repeating Numbers Wrap-Up
- Square Roots, Part 1
- Square Roots, Part 1 Wrap-Up
- Square Roots, Part 2
- Square Roots, Part 2 Wrap-Up
- Irrational Numbers
- Irrational Numbers Wrap-Up
- Unit Review
- Unit Test

Unit 4: Irrationals and Radicals, Part 2

- Foundations

- Foundations Wrap-Up
- Estimating Square Roots
- Estimating Square Roots Wrap-Up
- Radicals with Variables, Part 1
- Radicals with Variables, Part 1 Wrap-Up
- Radicals with Variables, Part 2
- Radicals with Variables, Part 2 Wrap-Up
- Using Square Roots to Solve Equations
- Using Square Roots to Solve Equations Wrap-Up
- Pythagorean Theorem
- Pythagorean Theorem Wrap-Up
- Unit Review
- Unit Test

Unit 5: Working with Polynomials, Part 1

- Foundations
- Foundations Wrap-Up
- Overview of Polynomials
- Overview of Polynomials Wrap-Up
- Adding and Subtracting Polynomials
- Adding and Subtracting Polynomials Wrap-Up
- Multiplying Monomials
- Multiplying Monomials Wrap-Up
- Unit Review
- Unit Test

Unit 6: Working with Polynomials, Part 2

- Foundations
- Foundations Wrap-Up
- Multiplying Polynomials by Monomials
- Multiplying Polynomials by Monomials Wrap-Up
- Multiplying Polynomials
- Multiplying Polynomials Wrap-Up
- The FOIL Method

- The FOIL Method Wrap-Up
- Unit Review
- Unit Test

Unit 7: Semester Review and Test

- Semester Review
- Semester Test

SEMESTER 2

Unit 1: Factoring Polynomials, Part 1

- Foundations
- Foundations Wrap-Up
- Factoring Integers
- Factoring Integers Wrap-Up
- Properties of Exponents
- Properties of Exponents Wrap-Up
- Dividing Monomials
- Dividing Monomials Wrap-Up
- Dividing Polynomials by Monomials
- Dividing Polynomials by Monomials Wrap-Up
- Unit Review
- Unit Test

Unit 2: Factoring Polynomials, Part 2

- Foundations
- Common Factors of Polynomials
- Common Factors of Polynomials Wrap-Up
- Factoring Perfect Squares
- Factoring Perfect Squares Wrap-Up
- Factoring Differences of Squares, Part 1
- Factoring Differences of Squares, Part 2
- Factoring Differences of Squares Wrap-Up
- Factoring Quadratic Trinomials
- Factoring Quadratic Trinomials Wrap-Up

- Finding Roots of a Polynomial
- Finding Roots of a Polynomial Wrap-Up
- Unit Review
- Unit Test

Unit 3: Quadratic Equations, Part 1

- Foundations
- Foundations Wrap-Up
- Solving Perfect Square Equations
- Solving Perfect Square Equations Wrap-Up
- Completing the Square
- Completing the Square Wrap-Up
- The Quadratic Formula
- The Quadratic Formula Wrap-Up
- The Discriminant
- The Discriminant Wrap-Up
- Unit Review
- Unit Test

Unit 4: Quadratic Equations, Part 2

- Foundations
- Solving Quadratic Equations
- Solving Quadratic Equations Wrap-Up
- Equations and Graphs: Roots and Intercepts
- Equations and Graphs: Roots and Intercepts Wrap-Up
- Applications: Area Problems
- Applications: Area Problems Wrap-Up
- Applications: Projectile Motion
- Applications: Projectile Motion Wrap-Up
- Unit Review
- Unit Test

Unit 5: Rational Expressions

- Foundations

- Foundations Wrap-Up
- Simplifying Rational Expressions
- Simplifying Rational Expressions Wrap-Up
- Multiplying Rational Expressions
- Multiplying Rational Expressions Wrap-Up
- Dividing Rational Expressions
- Dividing Rational Expressions Wrap-Up
- Adding and Subtracting Rational Expressions, Part 1
- Adding and Subtracting Rational Expressions, Part 2
- Adding and Subtracting Rational Expressions Wrap-Up
- Unit Review
- Unit Test

Unit 6: Logic and Reasoning

- Foundations
- Foundations Wrap-Up
- Hypothesis and Conclusion
- Hypothesis and Conclusion Wrap-Up
- Reasoning and Arguments
- Reasoning and Arguments Wrap-Up
- Inductive and Deductive Reasoning
- Inductive and Deductive Reasoning Wrap-Up
- Algebraic Proof
- Algebraic Proof Wrap-Up
- Unit Review
- Unit Test

Unit 7: Semester Review and Test

- Semester Review
- Semester Test