Why NROC?
NROC’s high-quality courses are media-rich, adaptable, and affordable, a combination of features not readily available from commercial providers. With rich content mapped to state and federal standards, NROC courses can be used with or without a textbook to enhance online, blended, and face-to-face learning environments.

Course Components Include:

- **Warm-Up:** A series of problems to assess prior knowledge, resulting in customized recommendations for review.
- **Presentation:** A rich media presentation introducing the topic concept with illustrated examples and optional closed caption [CC] script in English and Spanish.
- **Worked Examples:** Narrated, step-by-step demonstration of problem-solving procedures.
- **Practice Problems:** Symbolic and word problems designed in adaptive sets, offering students practice and feedback.
- **Topic Text:** Integrated textbook provides comprehensive coverage of every learning concept within each topic, available in English and Spanish.
- **Review:** Self-test for understanding prior to moving to the next topic.
- **Project:** Collaborative assignments in the project-based learning tradition that use real-world problems.
- **Tutor Simulation:** Cumulative unit activity offers students directed guidance in solving a multi-faceted, real-world application problem.
- **Assessments:** Formative and summative assessments designed to guide a learner’s progress.

Course Description
This two-semester Algebra 1 course was developed for first-time algebra students with a broad range of ability levels, from remedial to advanced. The content is correlated to all U.S. state algebra frameworks and The Common Core. This course can be used as a stand-alone or as a supplement to any algebra textbook.

The flexible, learner-centered approach offers a portfolio of learning objects designed to open the door to mathematics concepts, procedures, mathematical reasoning, and critical thinking for learners.

Students work through activities in a sequence that leverages their own successful learning strategies while building their 21st century skills.

To preview the course, visit NROC.org.

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membership@NROC.org.
SEMESTER 1

Unit 1: Algebra: A New Angle

Lesson 1: Algebra: What’s It All About?
Algebra—Everyday and Extraordinary
Algebra—Why and When
Algebra—Approaching Problems

Unit 2: Solve Linear Equations

Lesson 2: Writing and Solving Equations
Solving Equations
Solving Multi-Step Equations
Writing Expressions and Equations
Solving for a Specific Variable

Lesson 3: Absolute Value Equations
Absolute Value
Solving Absolute Value Equations

Unit 3: Functions and Patterns

Lesson 4: Working with Patterns
Inductive Patterns
Representing Patterns

Unit 4: Analyze and Graph Linear Equations, Functions, and Relations

Lesson 5: Graphing Functions and Relations
Representing Functions and Relations
Domain and Range
Proportional Functions
Linear Functions
Non-Linear Functions

Lesson 6: Graphing Linear Equations
Rate of Change and Slope
Intercepts of Linear Equations
Graphing Equations in Slope Intercept Form
Point Slope Form and Standard Form of Linear Equations

Lesson 7: Parallel and Perpendicular Lines
Parallel Lines
Perpendicular Lines

Unit 5: Analyze, Solve, and Graph Linear Inequalities

Lesson 8: Writing, Solving, and Graphing Inequalities in One Variable
Writing, Solving, and Graphing Inequalities in One Variable
Solving and Graphing Absolute Value Inequalities
Writing and Using Inequalities

Lesson 9: Solving and Graphing Linear Inequalities in Two Variables
Solving and Graphing Linear Inequalities in Two Variables

Unit 6: Systems of Linear Equations and Inequalities

Lesson 10: Solving Systems of Linear Equations
Solving Systems by Graphing
Solving Systems by Substitution
Solving Systems by Elimination

Lesson 11: Applying Systems of Equations
Rate Problems
Mixture Problems

Lesson 12: Graphing Systems of Inequalities

SEMESTER 2

Unit 7: Radical Expressions

Lesson 13: Exponents
Rules of Exponents
Scientific Notation
Simplifying Expressions with Exponents

Lesson 14: The Pythagorean Theorem
Applications of the Pythagorean Theorem

Lesson 15: Radical Expressions and Equations
Simplifying Radical Expressions
Solving Radical Equations
Applying Radical Equations
Fractional Exponents

Unit 8: Polynomials

Lesson 16: Operations on Monomials
Multiplying and Dividing Monomials

Lesson 17: Operations on Polynomials
Adding and Subtracting Polynomials

Lesson 18: Factoring Monomials and Polynomials
Factoring and the Distributive Property
Factoring Trinomials by Grouping 1
Factoring Trinomials by Grouping 2

Lesson 19: Factoring Special Products of Polynomials
Factoring Special Products
Solving Quadratic Equations by Factoring

Unit 9: Quadratic Functions

Lesson 20: Quadratic Functions
Graphing Quadratic Functions
Solving Quadratic Equations by Completing the Square
Solving Quadratic Equations Using the Quadratic Formula

Lesson 21: Applying Quadratic Functions
Applications of Quadratic Functions
Systems of Non-Linear Equations

Unit 10: Rational Expressions and Equations

Lesson 22: Rational Expressions
Simplifying Rational Expressions
Multiplying and Dividing Rational Expressions
Adding and Subtracting Rational Expressions

Lesson 23: Rational Equations
Solving Rational Equations
Applying Rational Equations

Unit 11: Extensions and Applications

Lesson 24: Logical Reasoning and Number Sets
Number Sets
Understanding Logic Statements
Inductive Reasoning
Deductive Reasoning

Lesson 25: Probability
Events and Outcomes (Counting)
Permutations and Combinations
Probability of Independent Events
Probability of Compound Events