



Switched-On

SCHOOLHOUSE® 2012 EDITION

Curriculum Catalog

Algebra I

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Course Overview

Algebra I is a full year, high school credit course that is intended for the student who has successfully mastered the core algebraic concepts covered in the prerequisite course, Pre-Algebra. Within the Algebra I course, the student will explore basic algebraic fundamentals such as evaluating, creating, solving and graphing linear, quadratic, and polynomial functions.

Upon successfully completing the course, the student should have mastered the following concepts:

- Solve single variable, absolute value, and linear systems of equations.
- Solve and graph single variable, absolute value, and linear inequalities.
- Evaluate, solve, and graph linear and quadratic functions as well as conceptualize the relationship between the independent and dependent variable of a function.
- Understand and know how to apply the distance, midpoint, and slope formulas as well as the Pythagorean theorem.
- Form an equation of a line using the slope-intercept, point-slope and standard forms of a line.
- Organize data in the form of a table or matrix; perform complex matrix operations such as multiplication, evaluating the determinant, and solving a system of linear equations using Cramer's Rule.
- Apply basic fundamental rules of exponents.
- Be able to construct a formula or equation necessary to solve algebraic word problems involving area, perimeter, and linear systems of equations, basic probability and statistical reasoning, distance, and compounding interest.
- Evaluate rational expressions and solve equations with rational expressions.
- Simplify and perform operations with radical expressions and polynomials.

UNIT 1: FOUNDATIONS OF ALGEBRA

Assignment Titles

1. Course Overview	12. Quiz 2: The Real Numbers
2. Variables and Expressions	13. Commutative and Associative Properties
3. Exponents and Order of Operations	14. Distributive Property
4. Evaluating Expressions	15. Simplifying Expressions
5. Quiz 1: The Language of Algebra	16. Quiz 3: Properties of the Real Numbers
6. Classifying and Comparing Numbers	17. Special Project
7. Decimal-Fraction Conversions	18. Review
8. Fractions	19. Test
9. Adding and Subtracting Signed Numbers	20. Alternate Test
10. Multiplying and Dividing Signed Numbers	21. Glossary and Credits
11. Absolute Value	

UNIT 2: LINEAR EQUATIONS

Assignment Titles

1. Open Sentences	13. More than Two Unknowns
2. Addition Property of Equality	14. Using a Chart
3. Multiplication Property of Equality	15. Quiz 3: Word Problems
4. Two-Step Equations	16. Percent Problems
5. Quiz 1: Solving Equations	17. Mixture and Interest Problems
6. Variables on Both Sides	18. Quiz 4: Mixture and Investment Problems
7. Combining Like Terms	19. Special Project
8. The Distributive Property	20. Review
9. Literal Equations	21. Test
10. Quiz 2: Multi-Step Equations	22. Alternate Test
11. Writing Equations from Word Problems	23. Glossary and Credits
12. Two Unknowns	

UNIT 3: FUNCTIONS
Assignment Titles

- | | |
|----------------------------|---------------------------------------|
| 1. The Coordinate Plane | 13. Absolute Value Functions |
| 2. Identifying Functions | 14. Quiz 3: Graphing Linear Functions |
| 3. Function Notation | 15. Writing Linear Equations (1) |
| 4. Modeling Functions | 16. Writing Linear Equations (2) |
| 5. Quiz 1: Function Basics | 17. Writing Linear Equations (3) |
| 6. Writing a Function Rule | 18. Quiz 4: Writing Linear Equations |
| 7. Arithmetic Sequences | 19. Special Project |
| 8. Direct Variation | 20. Review |
| 9. Slope | 21. Test |
| 10. Quiz 2: Patterns | 22. Alternate Test |
| 11. Linear Equations | 23. Glossary and Credits |
| 12. Slope-Intercept Form | |

UNIT 4: INEQUALITIES
Assignment Titles

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|--|--|
| 1. Graphing | 11. Absolute Value Solution Sets |
| 2. Addition Property of Inequality | 12. Absolute Value Inequalities with One Variable |
| 3. Multiplication Property of Inequality | 13. Absolute Value Inequalities with Two Variables |
| 4. Multi-Step Inequalities | 14. Quiz 3: Absolute Value |
| 5. Problem Solving | 15. Special Project |
| 6. Quiz 1: Solving Inequalities | 16. Review |
| 7. Compound Inequality Graphs | 17. Test |
| 8. Solving Compound Inequalities | 18. Alternate Test |
| 9. Inequalities with Two Variables | 19. Glossary and Credits |
| 10. Quiz 2: Compound Inequalities | |

UNIT 5: LINEAR SYSTEMS
Assignment Titles

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|---|---|
| 1. Solution of a System | 11. Money and Unit Pricing |
| 2. Graphing Systems of Equations | 12. Using Formulas |
| 3. Systems of Inequalities | 13. Quiz 3: Representing Problems Using a Linear System |
| 4. Quiz 1: Solving Linear Systems by Graphing | 14. Special Project |
| 5. Substitution Method | 15. Review |
| 6. Addition Method | 16. Test |
| 7. Matrices | 17. Alternate Test |
| 8. Fractional Coefficients | 18. Glossary and Credits |
| 9. Quiz 2: Solving Linear Systems Algebraically | |
| 10. Using Two Variables | |

UNIT 6: SEMESTER REVIEW AND EXAM
Assignment Titles

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|-----------|---------------------------|
| 1. Review | 3. Alternate Exam: Form A |
| 2. Exam | 4. Alternate Exam: Form B |

UNIT 7: POLYNOMIALS
Assignment Titles

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|---|-----------------------------------|
| 1. Adding and Subtracting Polynomials | 12. Factoring by Grouping |
| 2. Grouping Symbols | 13. Factoring Trinomials (1) |
| 3. Quiz 1: Adding and Subtracting Polynomials | 14. Factoring Trinomials (2) |
| 4. Multiplying by a Monomial | 15. Special Cases |
| 5. Multiplying Polynomials | 16. Complete Factorization |
| 6. F.O.I.L. and Special Cases | 17. Quiz 3: Factoring Polynomials |
| 7. Dividing by a Monomial | 18. Special Project |
| 8. Long Division | 19. Review |
| 9. Quiz 2: Multiplying and Dividing Polynomials | 20. Test |
| 10. Greatest Common Factor | 21. Alternate Test |
| 11. Factoring Out the GCF | 22. Glossary and Credits |

UNIT 8: EXPONENTIAL AND RADICAL FUNCTIONS
Assignment Titles

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|---|-------------------------------------|
| 1. Negative Exponents | 11. Multiplying Radicals |
| 2. Exponential Expressions | 12. Dividing Radicals |
| 3. Scientific Notation | 13. Adding and Subtracting Radicals |
| 4. Quiz 1: Evaluating Exponential Expressions | 14. Radical Equations |
| 5. Multiplication | 15. Quiz 3: Radical Functions |
| 6. Raising to a Power | 16. Special Project |
| 7. Division | 17. Review |
| 8. Geometric Sequences | 18. Test |
| 9. Quiz 2: Properties of Exponents | 19. Alternate Test |
| 10. Simplifying Radicals | 20. Glossary and Credits |

UNIT 9: QUADRATICS
Assignment Titles

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|---|---|
| 1. Pythagorean Theorem | 12. Applications of Quadratics |
| 2. Distance | 13. Completing the Square |
| 3. Midpoint | 14. Completing the Square |
| 4. Quiz 1: Formulas | 15. Quadratic Formula (1) |
| 5. Quadratic Functions | 16. Quadratic Formula (2) |
| 6. Transformations | 17. Quiz 3: Solving Quadratic Equations |
| 7. Line of Symmetry | 18. Special Project |
| 8. Quadratic Inequalities | 19. Review |
| 9. Quiz 2: Graphing Quadratic Functions | 20. Test |
| 10. Solving by Factoring | 21. Alternate Test |
| 11. Square Root Method | 22. Glossary and Credits |

UNIT 10: RATIONAL EXPRESSIONS
Assignment Titles

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|--|---|
| 1. Simplifying Rational Expressions | 10. Applications of Rational Equations |
| 2. Multiplying and Dividing Rational Expressions | 11. More Problems |
| 3. Adding and Subtracting with Like Denominators | 12. Quiz 2: Rational Equations and Inequalities |
| 4. Adding and Subtracting with Unlike Denominators | 13. Special Project |
| 5. Quiz 1: Operations with Rational Expressions | 14. Review |
| 6. Proportions | 15. Test |
| 7. Using the LCD | 16. Alternate Test |
| 8. Complex Fractions | 17. Glossary and Credits |
| 9. Inequalities | |

UNIT 11: PROBABILITY AND STATISTICS
Assignment Titles

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|---|--------------------------|
| 1. Measures of Central Tendency | 10. Probability |
| 2. Dispersion | 11. Compound Events |
| 3. Interpreting Data | 12. Project: Probability |
| 4. Project: Data Analysis | 13. Quiz 3: Probability |
| 5. Quiz 1: Measures of Central Tendency | 14. Special Project |
| 6. Sampling and Outcomes | 15. Review |
| 7. Permutations | 16. Test |
| 8. Combinations | 17. Alternate Test |
| 9. Quiz 2: Outcomes | 18. Glossary and Credits |

UNIT 12: SEMESTER REVIEW AND EXAM
Assignment Titles

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|-----------|---------------------------|
| 1. Review | 3. Alternate Exam: Form A |
| 2. Exam | 4. Alternate Exam: Form B |

UNIT 13: FINAL EXAM
Assignment Titles

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|---------------------------|---------------------------|
| 1. Exam | 3. Alternate Exam: Form B |
| 2. Alternate Exam: Form A | |