



**Switched-On**  
SCHOOLHOUSE

# Course 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.

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## UNIT 3: FUNCTIONS

## Assignment Titles

ALGEBRA I	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

ALGEBRA I	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

ALGEBRA I	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

ALGEBRA I	1.	Review	3.	Alternate Exam - Form A*
	2.	Exam	4.	Alternate Exam - Form B*

## UNIT 7: POLYNOMIALS

ALGEBRA I

## Assignment Titles

- |   |                                   |
|---|-----------------------------------|
| 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

ALGEBRA I

## Assignment Titles

- |   |                                     |
|---|-------------------------------------|
| 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

ALGEBRA I

## Assignment Titles

- |   |   |
|---|---|
| 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

ALGEBRA I

## Assignment Titles

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

UNIT 11: PROBABILITY AND STATISTICS	
ALGEBRA I	<b>Assignment Titles</b>
	1. Measures of Central Tendency
	2. Dispersion
	3. Interpreting Data
	4. Project: Data Analysis
	5. Quiz 1: Measures of Central Tendency
	6. Sampling and Outcomes
	7. Permutations
	8. Combinations
	9. Quiz 2: Outcomes
	10. Probability
	11. Compound Events
	12. Project: Probability
	13. Quiz 3: Probability
	14. Special Project
	15. Review
	16. Test
	17. Alternate Test
18. Glossary and Credits	

UNIT 12: SEMESTER REVIEW AND EXAM	
ALGEBRA I	<b>Assignment Titles</b>
	1. Review
	2. Exam
	3. Alternate Exam - Form A*
	4. Alternate Exam - Form B*

UNIT 13: FINAL EXAM	
ALGEBRA I	<b>Assignment Titles</b>
	1. Exam
	2. Alternate Exam - Form A*
	3. Alternate Exam - Form B*

(\*) Indicates alternate assignment