



Switched-On
SCHOOLHOUSE

2015 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

ALGEBRA I	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

ALGEBRA I	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				
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

Assignment Titles

ALGEBRA I	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

ALGEBRA I	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

ALGEBRA I	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

ALGEBRA I	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

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

ALGEBRA I

Assignment Titles

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

UNIT 13: FINAL EXAM

ALGEBRA I

Assignment Titles

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

(*) Indicates alternate assignment