2017-2018 Curriculum Catalog

Algebra I

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Algebra I 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.

Objectives

- Solve and graph single variable, absolute value, and linear equations and inequalities.
- Solve linear, quadratic and exponential systems of equations using graphing, substitution or elimination.
- Evaluate and solve quadratic equations and inequalities using graphing, factoring, quadratic formula, and completing the square.
- Interpret and apply the relationship between the independent and dependent variable in a linear, exponential, and quadratic function through algebraic modeling and applications.
- 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.
- 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 such as addition and subtraction, multiplication and division.
- Perform operations with polynomials such as addition and subtraction, multiplication, long division and factoring.
- Interpret and analyze measures of central tendency, sample data and outcome, probability and frequency tables.

Algebra I	**Unit 1: Foundations of Algebra**	
	Assignments	
	1. Course Overview	13. Commutative and Associative Properties
	2. Variables and Expressions	14. Distributive Property
	3. Exponents and Order of Operations	15. Simplifying Expressions
	4. Evaluating Expressions	16. Quiz 3: Properties of the Real Numbers
	5. Quiz 1: The Language of Algebra	17. Performance Task
	6. Classifying and Comparing Numbers	18. Alternate Performance Task*
	7. Decimal-Fraction Conversions	19. Special Project*
	8. Fractions	20. Review
	9. Adding and Subtracting Signed Numbers	21. Test
	10. Multiplying and Dividing Signed Numbers	22. Alternate Test*
	11. Absolute Value	23. Glossary and Credits
	12. Quiz 2: The Real Numbers	

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Unit 2: Linear Equations

Assignments

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

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Unit 3: Functions

Assignments

1. The Coordinate Plane
2. Identifying Functions
3. Function Notation
4. Modeling Functions
5. Quiz 1: Function Basics
6. Writing a Function Rule
7. Arithmetic Sequences
8. Direct Variation
9. Slope
10. Quiz 2: Patterns
11. Linear Equations
12. Slope-Intercept Form
13. Absolute Value Functions
14. Piecewise Defined Functions
15. Graphs of Piecewise Functions
16. Function Relationships
17. Quiz 3: Graphing Linear Functions
18. Writing Linear Equations (1)
19. Writing Linear Equations (2)
20. Writing Linear Equations (3)
21. Inverse Functions
22. Scatter Plots
23. Quiz 4: Writing Linear Equations
24. Performance Task
25. Alternate Performance Task*
26. Special Project*
27. Review
28. Test
29. Alternate Test*
30. Glossary and Credits

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Unit 4: Inequalities

Assignments

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

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Unit 5: Linear Systems

Assignments

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

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Unit 6: Semester Review and Exam

Assignments

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

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Unit 7: Polynomials

Assignments

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

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Unit 8: Exponential and Radical Functions

Assignments

1. Negative Exponents
2. Exponential Expressions
3. Exponential Functions
4. Scientific Notation
5. Applications of Exponential Functions
6. Quiz 1: Evaluating Exponential Expressions
7. Multiplication
8. Raising to a Power
9. Division
10. Geometric Sequences
11. Geometric Sequences (2)
12. Project: Recursive Sequences
13. Quiz 2: Properties of Exponents
14. Simplifying Radicals
15. Multiplying Radicals
16. Dividing Radicals
17. Adding and Subtracting Radicals
18. Radical Equations
19. Graphing Radical Functions
20. Quiz 3: Radical Functions
21. Performance Task
22. Alternate Performance Task*
23. Special Project*
24. Review
25. Test
26. Alternate Test*
27. Glossary and Credits

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Unit 9: Quadratics

Assignments

1. Pythagorean Theorem
2. Distance
3. Systems of Linear and Exponential Equations
4. Midpoint
5. Quiz 1: Formulas
6. Quadratic Functions
7. Transformations
8. Transformations (2)
9. Line of Symmetry
10. Quadratic Inequalities
11. Quiz 2: Graphing Quadratic Functions
12. Solving by Factoring
13. Project: Solving Polynomials by Factoring
14. Square Root Method
15. Applications of Quadratics
16. Rate of Change
17. Completing the Square (1)
18. Completing the Square (2)
19. Quadratic Formula (1)
20. Quadratic Formula (2)
21. Systems of Equations
22. Comparing Functions
23. Function Composition
24. Quiz 3: Solving Quadratic Equations
25. Performance Task
26. Alternate Performance Task*
27. Special Project*
28. Review
29. Test
30. Alternate Test*
31. Glossary and Credits

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Unit 10: Rational Expressions

Assignments

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

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Unit 11: Probability and Statistics

Assignments

1. Measures of Central Tendency
2. Dispersion
3. Interpreting Data
4. Statistical Relationships
5. Project: Plotting Residuals
6. Project: Data Analysis
7. Quiz 1: Measures of Central Tendency
8. Sampling and Outcomes
9. Permutations
10. Combinations
11. Quiz 2: Outcomes
12. Probability
13. Compound Events
14. Two-Way Frequency Tables
15. Project: Probability
16. Quiz 3: Probability
17. Performance Task
18. Alternate Performance Task*
19. Special Project*
20. Review
21. Test
22. Alternate Test*
23. Glossary and Credits

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Unit 12: Semester Review and Exam

Assignments

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

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Unit 13: Final Exam

Assignments

1. Exam
2. Alternate Exam – Form A*
3. Alternate Exam – Form B*
4. Performance Task 1*
5. Performance Task 2*

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Unit 14: End of Course Exam

Assignments

1. Exam*
2. Alternate Exam – Form A*
3. Alternate Exam – Form B*

(*) Indicates alternative assignment