Odysseyware®

CURRICULUM OVERVIEW

Algebra I Fundamentals

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Algebra I Fundamentals Course Overview

Algebra I Fundamentals 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, Mathematics 800 Fundamentals. Within the Algebra I Fundamentals course, the student will explore basic algebraic fundamentals such as evaluating, creating, solving and graphing linear, quadratic, and polynomial functions.

- **Foundations of Algebra**: Student will identify different real number properties, and how to use them to solve algebraic expressions.
- **Linear Equations**: Student will translate word problems into algebraic equations, and solve them using real number properties, converting between fractions, decimals, and percent's.
- **Functions**: Student will understand the characteristics of functions, how to plot them, how to derive their equations, and determine what type of function a graph represents.
- **Inequalities**: Student will write, graph, and solve inequalities using real number properties.
- **Linear Systems**: Student will determine the solution of a pair of linear equations, using the addition method, substitution method and matrices.
- **Polynomials**: Student will add, subtract, multiply, and divide monomials and polynomials, as well as factor polynomials, using several different methods.
- **Exponential and Radical Functions**: Student will simplify powers of products, a power raised to a power, and quotients of powers, using the rule of exponents, and add, subtract, multiply, and divide radical expressions to solve equations.
- **Quadratics**: Student will identify, write, and graph various triangle, circle and quadratic equations and inequalities using the Pythagorean theorem, and by factoring, completing the square, and using the square root method.
- **Rational Expressions**: Student will add and subtract fractions with like and unlike denominators, solve proportions, equations and inequalities containing rational expressions, and solve different word problems using rational equations.
- **Probability and Statistics**: Student will determine the central tendencies of a given data set, as well as evaluate probability of possible outcomes using multiple methods.

Algebra I Fundamentals	Unit 1: Foundations of Algebra	
	Assignments	
	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	

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

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. Special Project*
19. Review
20. Test
21. Alternate Test*
22. Glossary and Credits

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Unit 8: Exponential and Radical Functions

Assignments

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

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Unit 9: Quadratics

Assignments

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

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Unit 11: Probability and Statistics

Assignments

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

Assignments

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

Unit 13: Final Exam

Assignments

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

(*) Indicates alternative assignment