



2012 Curriculum Catalog

Essentials of Mathematics

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Ignitia comes complete with a full, multimedia-rich curriculum for grades 3-12 in five core subjects and electives.

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Course Overview

Essentials: Mathematics is a semester-length review of the fundamentals taught in Pre-Algebra, Algebra I and Geometry courses and is useful at the high school level for basic skill remediation and/or practice necessary to prepare for a state exam. The course highlights basic mathematical skills through multiple review, practice and sample exam questions.

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

- Understand and know how to compute and define rational numbers
- Perform basic operations such as addition, subtraction, multiplication, and division with fractions, decimals, and percents
- Apply basic fundamental rules of exponents as well as scientific notation
- Be able to construct basic and complex geometric shapes; solve for perimeter, area, surface area, and volume
- Use inductive and deductive reasoning, conjectures, and estimation necessary to construct a picture, formula or equation needed for analyzing and solving algebraic and geometric word problems involving basic probability and statistical reasoning, scale factor, graphic representation of quantities, and linear systems of equations
- Solve single variable, absolute value, and linear systems of equations
- Evaluate, solve, and graph linear functions as well as conceptualize the relationship between the independent and dependent variable of a function
- Simplify and perform operations with radical expressions and polynomials
- Understand and know how to apply the slope-intercept form of a line, slope formula, and Pythagorean theorem

UNIT 1: NUMBER SENSE	
Assignment Titles	
1. Course Overview	9. Fractions and Factoring
2. Reviewing Rational Numbers	10. Using Exponent Rules
3. Absolute Value and Integers	11. Exponents in Scientific Notation
4. Quiz 1: Reviewing Rational Numbers	12. Negative Whole-Number Exponents
5. Converting Fractions to Decimals and Percents	13. Powers and Roots
6. Working with Percents (1) Increase and Decrease	14. Quiz 3: Fractions and Factoring, Exponents, Powers and Roots
7. Working with Percents (2) Applications of Percents	15. Test
8. Quiz 2: Fractions, Decimals, and Percents	

UNIT 2: STATISTICS, DATA, ANALYSIS, AND PROBABILITY	
Assignment Titles	
1. Measures of Central Tendency	6. Representing Probabilities
2. Evaluating Statistical Claims	7. Independent and Dependent Variables
3. Displaying and Comparing Data Sets	8. Quiz 2: Probability
4. Quiz 1: Working with Data	9. Test
5. Outcomes	

UNIT 3: ALGEBRA AND FUNCTIONS	
Assignment Titles	
1. Order of Operations	7. Inverse Operations
2. Working with Exponents and Roots	8. Solving Two-Step Equations and Inequalities
3. The Distributive Property	9. Writing Mathematical Statements
4. Add and Subtract Polynomials	10. Quiz 2: Solving Equations and Inequalities
5. Multiply and Divide Polynomials	11. Test
6. Quiz 1: Simplifying Expressions	

UNIT 4: MEASUREMENT AND GEOMETRY
Assignment Titles

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|--|---|
| 1. Measurement Systems | 9. Complex 3D Objects |
| 2. Scale Drawings and Models | 10. Geometric Shapes: Scale Factors |
| 3. Measures of Rates and Products | 11. Quiz 2: Complex Objects |
| 4. Perimeter and Area: 2D Figures | 12. Pythagorean Theorem |
| 5. Surface Area and Volume: 3D Figures | 13. Coordinate Graphs |
| 6. Quiz 1: Measurement and Geometry | 14. Transformations and Congruent Figures |
| 7. Converting Between Units of Measure | 15. Quiz 3: Coordinate Geometry |
| 8. Complex 2D Objects | 16. Test |

UNIT 5: MATHEMATICAL REASONING
Assignment Titles

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|-----------------------|--------------------------------------|
| 1. Analyzing Problems | 5. Inductive and Deductive Reasoning |
| 2. Making Conjectures | 6. Solving Problems |
| 3. Estimation (1) | 7. Quiz 1: Mathematical Reasoning |
| 4. Estimation (2) | 8. Test |

UNIT 6: ALGEBRA I
Assignment Titles

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| 1. Graphs and Charts | 10. Solving Linear Inequalities |
| 2. Represent Data | 11. Quiz 2: Equations |
| 3. Graphing Linear Functions | 12. Multi-Step Word Problems (Rate) |
| 4. Parallel Lines | 13. Multi-Step Word Problems (Work) |
| 5. Solutions of Linear Equations | 14. Multi-Step Word Problems (Percent Mixture) |
| 6. Graphing Higher Power Functions | 15. System of Equations |
| 7. Quiz 1: Graphing | 16. System of Linear Inequalities |
| 8. Solving Absolute Value Inequalities | 17. Quiz 3: Equations |
| 9. Solving Linear Equations | 18. Test |

UNIT 7: FINAL EXAM
Assignment Titles

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|-------------------------|
| 1. Final Exam |
| 2. Alternate Final Exam |