

Mathematics I provides a first-year integrated math curriculum that combines material traditionally covered in high school algebra, geometry, and statistics courses. Mathematics I is uniquely organized around thematic learning tasks that integrate concepts from the various strands of math. Within the course, a balance is struck between task-based discovery and focused development of skills and conceptual understanding.

Course topics include function families, propositional logic, polynomials and factoring, similarity and congruence properties of triangles, introductory probability and statistics, square roots, rational expressions, and coordinate geometry.

Carefully paced, guided instruction is accompanied by interactive practice that is engaging and accessible. Interactive tasks allow students to approach and explore topics through real-world situations, helping them to gain an intuitive understanding while learning at the appropriate depth and rigor of a standards-based curriculum. Formative assessments help students to understand areas of weakness and improve performance, while summative assessments chart progress and skill development. Throughout the course, students develop general strategies to hone their problem-solving skills.

The content is based on the Georgia Performance Standards and Instructional Frameworks in Mathematics, as well as the National Council of Teachers of Mathematics (NCTM) Principles and Standards for School Mathematics.

Length: Two Semesters

## UNIT 1: FUNCTION FAMILIES

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### LESSON 1: FUNCTION NOTATION

#### **Study: Function Notation**

Review the concepts of domain, range, and independent and dependent variables. Learn about function notation, and work with tables and dot plots to discover the difference between a relation and a function.

*Duration:*

*0 hr 50 min Scoring: 0 points*

#### **Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

#### **Quiz: Function Notation**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20*

*points*

## LESSON 2: EQUALITY OF FUNCTIONS

### Study: Equality of Functions

Learn the difference between discrete and continuous domains and use this distinction to discover what it means for two functions to be equal.

*Duration: 0 hr 50 min Scoring: 0 points*

### Checkout: Practice Problems

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### Quiz: Equality of Functions

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring:*

*20 points*

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## LESSON 3: GRAPHS OF FUNCTIONS: $x^N$

### Study: Graphs of Functions: $x^n$

Learn the definition of the graph of a function and discover the vertical-line test. Explore the examples  $f(x) = x$ ,  $x^2$ , and  $x^3$ .

*Duration: 0 hr 50 min Scoring: 0 points*

### Checkout: Practice Problems

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### Quiz: Graphs of Functions: $x^n$

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min*

*Scoring: 20 points*

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## LESSON 4: GRAPHS OF FUNCTIONS: $\sqrt{x}$ AND $1/x$

### Study: Graphs of Functions: $\sqrt{x}$ and $1/x$

Learn how to graph the functions  $\sqrt{x}$  and  $1/x$ . Discuss how to limit the domain and range of a function to define new functions.

*Duration: 0 hr 50 min Scoring: 0 points*

### Checkout: Practice Problems

Complete a set of practice problems to hone your calculation skills.

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*Duration: 0 hr 30 min*  
*Scoring: 0 points*

**Quiz: Graphs of Functions:  $\sqrt{x}$  and  $1/x$**

Take a quiz to assess your understanding of the material.  
*Duration: 0 hr 25 min*  
*Scoring: 20 points*

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## LESSON 5: RATES OF CHANGE

**Study: Rates of Change**

Learn about average rate of change by discussing the example of average speed. Discover the difference between constant and variable rates of change.  
*Duration: 0 hr 50 min Scoring: 0 points*

**Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.  
*Duration: 0 hr 30 min*  
*Scoring: 0 points*

**Quiz: Rates of Change**

Take a quiz to assess your understanding of the material.  
*Duration: 0 hr 25 min Scoring: 20 points*

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## LESSON 6: SHIFTS OF LINES

**Study: Shifts of Lines**

Learn about vertical and horizontal shifts of functions in the context of the example  $y = f(x) = x$ . Discover that shifting a line does not change the slope.  
*Duration: 0 hr 50 min Scoring: 0 points*

**Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.  
*Duration: 0 hr 30 min*  
*Scoring: 0 points*

**Quiz: Shifts of Lines**

Take a quiz to assess your understanding of the material.  
*Duration: 0 hr 25 min Scoring: 20 points*

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## LESSON 7: THE EQUATION OF A LINE

**Study: The Equation of a Line**

Apply the stretch and contract transformations to the line  $y = x$  and discover that these are equivalent to changing the slope. Discover the point-slope and slope-intercept equations of a general line.

*Duration: 0 hr*

*50 min Scoring: 0 points*

**Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

**Quiz: The Equation of a Line**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring:*

*20 points*

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**LESSON 8: ZEROS AND INTERCEPTS OF A FUNCTION****Study: Zeros and Intercepts of a Function**

Define and graphically interpret the zeros and intercepts of a function.

*Duration: 0 hr 50 min Scoring: 0 points*

**Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

**Quiz: Zeros and Intercepts of a Function**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25*

*min Scoring: 20 points*

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**LESSON 9: INCREASE, DECREASE, MAX AND MIN****Study: Increase, Decrease, Maximum, and Minimum**

Learn how to determine the intervals of increase and decrease of a function. Identify the maximum and minimum of a function, when it exists, using the graph.

*Duration: 0 hr 50 min Scoring:*

*0 points*

**Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

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Scoring: 0 points

### Quiz: Increase, Decrease, Maximum, and Minimum

Take a quiz to assess your understanding of the material.

Duration: 0 hr 25 min Scoring: 20 points

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## LESSON 10: SEQUENCES AS FUNCTIONS

### Study: Sequences as Functions

Explore the definition of a sequence as a function. Learn the difference between a finite and an infinite sequence.

Duration: 0 hr 50 min Scoring: 0 points

### Checkup: Practice Problems

Complete a set of practice problems to hone your calculation skills.

Duration: 0 hr 30 min

Scoring: 0 points

### Quiz: Sequences as Functions

Take a quiz to assess your understanding of the material.

Duration: 0 hr 25 min Scoring:

20 points

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## LESSON 11: WORKING WITH SEQUENCES

### Study: Working with Sequences

Explore examples of sequences such as Fibonacci and square numbers. Understand recursive definitions of sequences and closed forms.

Duration: 0 hr 50 min Scoring: 0 points

### Checkup: Practice Problems

Complete a set of practice problems to hone your calculation skills.

Duration: 0 hr 30 min

Scoring: 0 points

### Quiz: Working with Sequences

Take a quiz to assess your understanding of the material.

Duration: 0 hr 25 min

Scoring: 20 points

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## LESSON 12: CONDITIONAL STATEMENTS

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**Study: Conditional Statements**

Explore basic propositional logic of conditional statements.

*Duration: 0 hr 50 min*

*Scoring: 0 points*

**Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

**Quiz: Conditional Statements**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring:*

*20 points*

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**LESSON 13: ABSOLUTE VALUE****Study: Absolute Value**

Learn the definition of the absolute-value function. Explore concepts of propositional logic — such as contrapositive, inverse, and converse — by analyzing statements concerning the absolute-value function.

*Duration: 0*

*hr 50 min Scoring: 0 points*

**Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

**Quiz: Absolute Value**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20 points*

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**LESSON 14: FUNCTION FAMILIES WRAP-UP****Review: Function Families**

Prepare for the unit test by reviewing key concepts and skills.

*Duration: 0 hr 30 min Scoring:*

*0 points*

**Practice: Function Families**

Submit your work for a set of practice problems.

*Duration: 0 hr 50 min Scoring: 60 points*

**Discuss: Group Discussion**

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Discuss ideas from this unit that are still unclear. Inform others of strategies you developed during this unit.

*Duration: 0 hr 30 min Scoring: 40 points*

### **Test (CS): Function Families**

Take a computer-scored test to assess what you have learned in this unit.

*Duration: 0 hr*

*50 min Scoring: 90 points*

### **Test (TS): Function Families**

Take a teacher-scored test to assess what you have learned in this unit.

*Duration: 0 hr 50*

*min Scoring: 90 points*

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## **LESSON 15: DIAGNOSTIC**

### **Diagnostic: Function Families**

Take a diagnostic unit test that will generate a study plan based on your responses.

*Duration: 0 hr 50 min Scoring: 30 points*

## **UNIT 2: ALGEBRA INVESTIGATIONS**

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### **LESSON 1: INTRODUCTION TO POLYNOMIALS**

#### **Study: Introduction to Polynomials**

Learn the definition of a polynomial and what it means for two polynomials to be equal.

*Duration: 0 hr 50 min Scoring: 0 points*

#### **Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

#### **Quiz: Introduction to Polynomials**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min*

*Scoring: 20 points*

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### **LESSON 2: ALGEBRA OF POLYNOMIALS**

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**Study: Algebra of Polynomials**

Discover how to add, subtract, and multiply polynomials while using the commutative, distributive, and associative properties.

*Duration: 0 hr 50 min Scoring: 0 points*

**Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

**Quiz: Algebra of Polynomials**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring:*

*20 points*

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**LESSON 3: BINOMIAL EXPANSION****Study: Binomial Expansion**

Learn the binomial theorem up to  $n = 3$  and learn how to use binomial coefficients.

*Duration: 0 hr 50 min Scoring: 0 points*

**Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

**Quiz: Binomial Expansion**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20*

*points*

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**LESSON 4: AREA AND VOLUME MODELS****Study: Area and Volume Models**

Use the algebra of polynomials to solve problems relating to area and volume. Discover how identities involving polynomials can be proved using such models.

*Duration: 0 hr 50 min Scoring: 0 points*

**Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

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### Quiz: Area and Volume Models

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min*

*Scoring: 20 points*

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## LESSON 5: FACTORING

### Study: Factoring

Learn the definition of the greatest common factor and learn how to factor it out of a polynomial. Explore factoring by grouping.

*Duration: 0 hr 50 min Scoring: 0 points*

### Checkup: Practice Problems

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### Quiz: Factoring

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20 points*

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## LESSON 6: COMMON FACTOR FORMULAS

### Study: Common Factor Formulas

Use common factoring formulas to solve problems.

*Duration: 0 hr 50 min Scoring: 0*

*points*

### Checkup: Practice Problems

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### Quiz: Common Factor Formulas

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min*

*Scoring: 20 points*

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## LESSON 7: SOLVING QUADRATIC EQUATIONS

### Study: Solving Quadratic Equations

Learn the definition of a quadratic equation. Discover how the square-root function

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can be used to solve quadratics without a linear term. Use factoring to solve more general quadratic equations.

*Duration: 0*

*hr 50 min Scoring: 0 points*

### **Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### **Quiz: Solving Quadratic Equations**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min*

*Scoring: 20 points*

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## **LESSON 8: INTERPRETING SOLUTIONS GRAPHICALLY**

### **Study: Interpreting Solutions Graphically**

Revisit the concept of a zero and learn the definition of a root of a quadratic.

*Duration: 0 hr 50 min Scoring: 0 points*

### **Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### **Quiz: Interpreting Solutions Graphically**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25*

*min Scoring: 20 points*

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## **LESSON 9: ALGEBRA INVESTIGATIONS WRAP-UP**

### **Review: Algebra Investigations**

Prepare for the unit test by reviewing key concepts and skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### **Practice: Algebra Investigations**

Submit your work for a set of practice problems.

*Duration: 0 hr 50 min Scoring: 60*

*points*

### **Discuss: Group Discussion**

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Discuss ideas from this unit that are still unclear. Inform others of strategies you developed during this unit.

*Duration: 0 hr 30 min Scoring: 40 points*

### **Test (CS): Algebra Investigations**

Take a computer-scored test to assess what you have learned in this unit.

*Duration: 0*

*hr 50 min Scoring: 90 points*

### **Test (TS): Algebra Investigations**

Take a teacher-scored test to assess what you have learned in this unit.

*Duration: 0*

*hr 50 min Scoring: 90 points*

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## **LESSON 10: DIAGNOSTIC**

### **Diagnostic: Algebra Investigations**

Take a diagnostic unit test that will generate a study plan based on your responses.

*Duration: 0 hr 50 min Scoring: 30 points*

## **UNIT 3: GEOMETRY GALLERY**

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## **LESSON 1: POLYGONS: INTERIOR AND EXTERIOR ANGLES**

### **Study: Polygons: Interior and Exterior Angles**

Learn the definition of a polygon and prove theorems involving interior and exterior angles.

*Duration: 0 hr 50 min Scoring: 0 points*

### **Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### **Quiz: Polygons: Interior and Exterior Angles**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr*

*25 min Scoring: 20 points*

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## **LESSON 2: REGULAR POLYGONS**

### **Study: Regular Polygons**

Explore regular polygons and how the exterior angle–sum theorem reduces in this case.

*Duration: 0 hr 50 min Scoring: 0 points*

### **Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### **Quiz: Regular Polygons**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20*

*points*

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## **LESSON 3: TRIANGLES**

### **Study: Triangles**

Explore triangles as a special class of polygons. Discover the triangle inequality and other inequality theorems concerning side length and angle measure.

*Duration: 0 hr 50 min Scoring: 0 points*

### **Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### **Quiz: Triangles**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20 points*

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## **LESSON 4: RIGHT TRIANGLES**

### **Study: Right Triangles**

Understand right triangles as a special class of triangles. Review the Pythagorean theorem and see how its converse is used as a test for right triangles.

*Duration: 0 hr 50 min Scoring: 0 points*

### **Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### **Quiz: Right Triangles**

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Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20 points*

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## LESSON 5: TRIANGLE CONGRUENCE

### **Study: Triangle Congruence**

Learn the definition of congruence and discover the triangle congruence theorems: SSS, SAS, ASA, and AAS.

*Duration: 0 hr 50 min Scoring: 0 points*

### **Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### **Quiz: Triangle Congruence**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20*

*points*

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## LESSON 6: RIGHT-TRIANGLE CONGRUENCE

### **Study: Right-Triangle Congruence**

Discover how the congruence theorems simplify for right-triangle congruence.

*Duration: 0 hr 50 min Scoring: 0 points*

### **Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### **Quiz: Right-Triangle Congruence**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min*

*Scoring: 20 points*

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## LESSON 7: APPLICATIONS OF CONGRUENCE

### **Study: Applications of Congruence**

Apply the congruence theorems to answer real-world application problems.

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*Duration: 0 hr 50 min Scoring: 0 points*

**Checkpoint: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

**Quiz: Applications of Congruence**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min*

*Scoring: 20 points*

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**LESSON 8: TYPES OF TRIANGLES**

**Study: Types of Triangles**

Learn the various terms used to classify triangles by angle measure or side length.

*Duration:*

*0 hr 50 min Scoring: 0 points*

**Checkpoint: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

**Quiz: Types of Triangles**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20*

*points*

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**LESSON 9: BASIC CONSTRUCTIONS**

**Study: Basic Constructions**

Review the terms altitude, median, perpendicular, and angle bisectors, and use various techniques to construct these for a given triangle.

*Duration: 0 hr 50 min Scoring: 0 points*

**Checkpoint: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

**Quiz: Basic Constructions**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20*

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## LESSON 10: CENTERS OF TRIANGLES

### Study: Centers of Triangles

Learn the definitions of the circumcenter, centroid, orthocenter, and incenter of a triangle.

*Duration: 0 hr 50 min Scoring: 0 points*

### Checkout: Practice Problems

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### Quiz: Centers of Triangles

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20*

*points*

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## LESSON 11: QUADRILATERALS AND DIAGONALS

### Study: Quadrilaterals and Diagonals

Learn how to use diagonals to classify the different types of quadrilaterals.

*Duration: 0 hr 50 min Scoring: 0 points*

### Checkout: Practice Problems

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### Quiz: Quadrilaterals and Diagonals

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min*

*Scoring: 20 points*

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## LESSON 12: QUADRILATERALS AND SIDES

### Study: Quadrilaterals and Sides

Learn how to use the relationships between diagonals, sides, and angles of quadrilaterals to list the minimum conditions necessary for each type of quadrilateral.

*Duration: 0 hr 50 min Scoring: 0*

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points

### **Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### **Quiz: Quadrilaterals and Sides**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring:*

*20 points*

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## **LESSON 13: GEOMETRY GALLERY WRAP-UP**

### **Review: Geometry Gallery**

Prepare for the unit test by reviewing key concepts and skills.

*Duration: 0 hr 30 min Scoring:*

*0 points*

### **Practice: Geometry Gallery**

Submit your work for a set of practice problems.

*Duration: 0 hr 50 min Scoring: 60 points*

### **Discuss: Group Discussion**

Discuss ideas from this unit that are still unclear. Inform others of strategies you developed during this unit.

*Duration: 0 hr 30 min Scoring: 40 points*

### **Test (CS): Geometry Gallery**

Take a computer-scored test to assess what you have learned in this unit.

*Duration: 0 hr*

*50 min Scoring: 90 points*

### **Test (TS): Geometry Gallery**

Take a teacher-scored test to assess what you have learned in this unit.

*Duration: 0 hr 50*

*min Scoring: 90 points*

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## **LESSON 14: DIAGNOSTIC**

### **Diagnostic: Geometry Gallery**

Take a diagnostic unit test that will generate a study plan based on your responses.

*Duration: 0 hr 50 min Scoring: 30 points*



## UNIT 4: MATH I SEMESTER 1 REVIEW AND EXAM

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### LESSON 1: MATH I SEMESTER 1

#### **Review: Math I Semester 1**

Prepare for the semester exam by reviewing key concepts covered in Math I semester 1.

*Duration: 0 hr 50 min Scoring: 0 points*

#### **Exam: Math I Semester 1 (Computer-Scored)**

Take a computer-scored exam to demonstrate your mastery of concepts and skills covered in Math I Semester 1.

*Duration: 0 hr 50 min Scoring: 120 points*

#### **Final Exam: Math I Semester 1 (Teacher-Scored)**

Take a teacher-scored exam to demonstrate your mastery of concepts and skills covered in Math I Semester 1.

*Duration: 0 hr 50 min Scoring: 120 points*

## UNIT 5: THE CHANCE OF WINNING

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### LESSON 1: PROBABILITY

#### **Study: Probability**

Learn both the theoretical and empirical definitions of probability. Use sample spaces to compute probabilities.

*Duration: 0 hr 50 min Scoring: 0 points*

#### **Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

#### **Quiz: Probability**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20 points*

### LESSON 2: INDEPENDENT EVENTS

#### **Study: Independent Events**

Explore the difference between independent and dependent events. Use the fundamental

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counting principle to compute probabilities. Learn how to use tree diagrams.

*Duration: 0 hr 50 min Scoring: 0 points*

#### **Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

#### **Quiz: Independent Events**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20*

*points*

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### **LESSON 3: COMBINATIONS**

#### **Study: Combinations**

Learn the definitions of a set and a subset. Explore counting situations using combinations where order doesn't matter.

*Duration: 0 hr 50 min Scoring: 0 points*

#### **Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

#### **Quiz: Combinations**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20 points*

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### **LESSON 4: PERMUTATIONS**

#### **Study: Permutations**

Explore situations where order does matter, and use permutations to count.

*Duration: 0 hr 50 min*

*Scoring: 0 points*

#### **Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

#### **Quiz: Permutations**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20 points*

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## LESSON 5: MUTUALLY EXCLUSIVE EVENTS

### Study: Mutually Exclusive Events

Use Venn diagrams to learn about mutually exclusive events. Learn how to calculate probabilities of events where the sample spaces do not overlap.

*Duration: 0 hr 50 min Scoring: 0 points*

### Checkup: Practice Problems

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### Quiz: Mutually Exclusive Events

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min*

*Scoring: 20 points*

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## LESSON 6: DEPENDENT EVENTS

### Study: Dependent Events

Explore the concept of dependent events. Learn the multiplication rule for independent and dependent events.

*Duration: 0 hr 50 min Scoring: 0 points*

### Checkup: Practice Problems

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### Quiz: Dependent Events

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20*

*points*

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## LESSON 7: CONDITIONAL PROBABILITY

### Study: Conditional Probability

Learn the definition of conditional probability. Use Venn diagrams to visualize how to compute conditional probabilities.

*Duration: 0 hr 50 min Scoring: 0 points*

### Checkup: Practice Problems

Complete a set of practice problems to hone your calculation skills.

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*Duration: 0 hr 30 min*  
*Scoring: 0 points*

### **Quiz: Conditional Probability**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring:*  
*20 points*

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## **LESSON 8: MEAN, MEDIAN, AND MODE**

### **Study: Mean, Median, and Mode**

Learn how to compute the mean, median, and mode of a data set. Explore situations where one measure of central tendency is more useful than the others.

*Duration: 0 hr 50 min Scoring: 0 points*

### **Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*  
*Scoring: 0 points*

### **Quiz: Mean, Median, and Mode**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring:*  
*20 points*

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## **LESSON 9: QUARTILES**

### **Study: Quartiles**

Explore quartiles and box plots.

*Duration: 0 hr 50 min Scoring: 0 points*

### **Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*  
*Scoring: 0 points*

### **Quiz: Quartiles**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20 points*

---

## **LESSON 10: DISTRIBUTIONS**

**Study: Distributions**

Explore data distributions and learn how to compute the mean deviation.

*Duration: 0 hr 50 min*

*Scoring: 0 points*

**Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

**Quiz: Distributions**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20 points*

---

**LESSON 11: STANDARD DEVIATION AND VARIANCE****Study: Standard Deviation and Variance**

Learn how to compute the standard deviation and variance. Use distributions to interpret these numbers.

*Duration: 0 hr 50 min Scoring: 0 points*

**Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

**Quiz: Standard Deviation and Variance**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min*

*Scoring: 20 points*

---

**LESSON 12: PREDICTION AND EXPECTED VALUE****Study: Prediction and Expected Value**

Learn the definition of expected value and use that to predict outcomes.

*Duration: 0 hr 50 min Scoring: 0 points*

**Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

**Quiz: Prediction and Expected Value**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min*

*Scoring: 20 points*

---

## LESSON 13: SAMPLES AND POPULATION

### **Study: Samples and Population**

Learn the definitions of a sample and a population. Use proportions to make predictions about a population based on a sample.

*Duration: 0 hr 50 min Scoring: 0 points*

### **Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### **Quiz: Samples and Population**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring:*

*20 points*

---

## LESSON 14: SAMPLING TECHNIQUES

### **Study: Sampling Techniques**

Explore various sampling techniques and learn about bias.

*Duration: 0 hr 50 min Scoring:*

*0 points*

### **Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### **Quiz: Sampling Techniques**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20*

*points*

---

## LESSON 15: THE CHANCE OF WINNING WRAP-UP

### **Review: The Chance of Winning**

Prepare for the unit test by reviewing key concepts and skills.

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*Duration: 0 hr 30 min*

*Scoring: 0 points*

**Practice: The Chance of Winning**

Submit your work for a set of practice problems.

*Duration: 0 hr 50 min Scoring: 60 points*

**Discuss: Group Discussion**

Discuss ideas from this unit that are still unclear. Inform others of strategies you developed during this unit.

*Duration: 0 hr 30 min Scoring: 40 points*

**Test (CS): The Chance of Winning**

Take a computer-scored test to assess what you have learned in this unit.

*Duration: 0 hr 50 min Scoring: 90 points*

**Test (TS): The Chance of Winning**

Take a teacher-scored test to assess what you have learned in this unit.

*Duration: 0 hr 50 min Scoring: 90 points*

---

**LESSON 16: DIAGNOSTIC**

**Diagnostic: The Chance of Winning**

Take a diagnostic unit test that will generate a study plan based on your responses.

*Duration: 0 hr 50 min Scoring: 30 points*

**UNIT 6: ALGEBRA IN CONTEXT**

---

**LESSON 1: SQUARE ROOTS**

**Study: Square Roots**

Learn how to perform algebraic operations with square roots. Find the simplest radical form.

*Duration: 0 hr 50 min Scoring: 0 points*

**Checkup: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min Scoring: 0 points*

### Quiz: Square Roots

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20 points*

---

## LESSON 2: SOLVING WITH SQUARE ROOTS

### Study: Solving with Square Roots

Learn how use square roots and algebra to solve equations.

*Duration: 0 hr 50 min*

*Scoring: 0 points*

### Checkup: Practice Problems

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### Quiz: Solving with Square Roots

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min*

*Scoring: 20 points*

---

## LESSON 3: DIVIDING POLYNOMIALS

### Study: Dividing Polynomials

Learn how to divide polynomials. Practice simplifying quotients of polynomials.

*Duration: 0*

*hr 50 min Scoring: 0 points*

### Checkup: Practice Problems

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### Quiz: Dividing Polynomials

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20*

*points*

---

## LESSON 4: RATIONAL EXPRESSIONS

### Study: Rational Expressions

Learn how to perform algebraic operations with rational expressions. Explore issues

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surrounding the domain of rational functions, including graphical representations.

*Duration: 0 hr 50 min Scoring: 0 points*

### **Checkpoint: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### **Quiz: Rational Expressions**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20*

*points*

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## **LESSON 5: RATIONAL EQUATIONS**

### **Study: Rational Equations**

Learn how to solve simple rational equations.

*Duration: 0 hr 50 min Scoring: 0 points*

### **Checkpoint: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### **Quiz: Rational Equations**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20*

*points*

---

## **LESSON 6: SYMMETRY**

### **Study: Symmetry**

Explore symmetries of graphs of functions and geometric objects. Learn the definitions of even and odd functions.

*Duration: 0 hr 50 min Scoring: 0 points*

### **Checkpoint: Practice Problems**

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### **Quiz: Symmetry**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20 points*

---

## LESSON 7: TRANSFORMATIONS

### Study: Transformations

Learn about general transformations of the graph of a function.

*Duration: 0 hr 50 min Scoring: 0*

*points*

### Checkout: Practice Problems

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### Quiz: Transformations

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20*

*points*

---

## LESSON 8: RESTRICTING DOMAIN AND RANGE

### Study: Restricting Domain and Range

Explore the effect of restricting the domain or range of a function.

*Duration: 0 hr*

*50 min Scoring: 0 points*

### Checkout: Practice Problems

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### Quiz: Restricting Domain and Range

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min*

*Scoring: 20 points*

---

## LESSON 9: CHARACTERISTICS

### Study: Characteristics

Explore the concepts of increase, decrease, maximum, and minimum for a larger class of functions.

*Duration: 0 hr 50 min Scoring: 0 points*

### Checkout: Practice Problems

Complete a set of practice problems to hone your calculation skills.

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*Duration: 0 hr 30 min*  
*Scoring: 0 points*

### **Quiz: Characteristics**

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20 points*

---

## **LESSON 10: ALGEBRA IN CONTEXT WRAP-UP**

### **Review: Algebra in Context**

Prepare for the unit test by reviewing key concepts and skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### **Practice: Algebra in Context**

Submit your work for a set of practice problems.

*Duration: 0 hr 50 min Scoring: 60 points*

### **Discuss: Group Discussion**

Discuss ideas from this unit that are still unclear. Inform others of strategies you developed during this unit.

*Duration: 0 hr 30 min Scoring: 40 points*

### **Test (CS): Algebra in Context**

Take a computer-scored test to assess what you have learned in this unit.

*Duration: 0 hr*

*50 min Scoring: 90 points*

### **Test (TS): Algebra in Context**

Take a teacher-scored test to assess what you have learned in this unit.

*Duration: 0 hr 50*

*min Scoring: 90 points*

---

## **LESSON 11: DIAGNOSTIC**

### **Diagnostic: Algebra in Context**

Take a diagnostic unit test that will generate a study plan based on your responses.

*Duration: 0 hr 50 min Scoring: 30 points*

## **UNIT 7: COORDINATE GEOMETRY**

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## LESSON 1: DISTANCE FORMULA

### Study: Distance Formula

Explore points and line segments in the coordinate plane and learn how the distance formula is an application of the Pythagorean theorem.

*Duration: 0 hr 50 min Scoring: 0 points*

### Checkup: Practice Problems

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### Quiz: Distance Formula

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring: 20*

*points*

---

## LESSON 2: THE MIDPOINT FORMULA

### Study: The Midpoint Formula

Learn the midpoint formula of a line segment.

*Duration: 0 hr 50 min Scoring: 0 points*

### Checkup: Practice Problems

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

### Quiz: The Midpoint Formula

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 25 min Scoring:*

*20 points*

---

## LESSON 3: COORDINATE GEOMETRY

### Study: Coordinate Geometry

Learn how to compute the distance between a point and a line. Learn how to verify conjectures about parallel and perpendicular lines in the plane.

*Duration: 0 hr 50 min Scoring: 0 points*

### Checkup: Practice Problems

Complete a set of practice problems to hone your calculation skills.

*Duration: 0 hr 30 min*

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Scoring: 0 points

### Quiz: Coordinate Geometry

Take a quiz to assess your understanding of the material.

Duration: 0 hr 25 min Scoring: 20 points

---

## LESSON 4: PLANAR GEOMETRY: TRIANGLES

### Study: Planar Geometry: Triangles

Learn how to describe triangles in the coordinate plane. Use distance, midpoint, and other techniques to verify conjectures concerning triangles in the plane.

Duration: 0 hr 50 min Scoring: 0 points

### Checkup: Practice Problems

Complete a set of practice problems to hone your calculation skills.

Duration: 0 hr 30 min  
Scoring: 0 points

### Quiz: Planar Geometry: Triangles

Take a quiz to assess your understanding of the material.

Duration: 0 hr 25 min  
Scoring: 20 points

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## LESSON 5: PLANAR GEOMETRY: QUADRILATERALS

### Study: Planar Geometry: Quadrilaterals

Learn how to describe quadrilaterals in the coordinate plane. Use distance, midpoint, and other techniques to verify conjectures concerning quadrilaterals in the plane.

Duration: 0 hr 50 min Scoring:  
0 points

### Checkup: Practice Problems

Complete a set of practice problems to hone your calculation skills.

Duration: 0 hr 30 min  
Scoring: 0 points

### Quiz: Planar Geometry: Quadrilaterals

Take a quiz to assess your understanding of the material.

Duration: 0 hr 25 min  
Scoring: 20 points

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## LESSON 6: COORDINATE GEOMETRY WRAP-UP

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**Review: Coordinate Geometry**

Prepare for the unit test by reviewing key concepts and skills.

*Duration: 0 hr 30 min*

*Scoring: 0 points*

**Practice: Coordinate Geometry**

Submit your work for a set of practice problems.

*Duration: 0 hr 50 min Scoring: 60*

*points*

**Discuss: Group Discussion**

Discuss ideas from this unit that are still unclear. Inform others of strategies you developed during this unit.

*Duration: 0 hr 30 min Scoring: 40 points*

**Test (CS): Coordinate Geometry**

Take a computer-scored test to assess what you have learned in this unit.

*Duration: 0*

*hr 50 min Scoring: 90 points*

**Test (TS): Coordinate Geometry**

Take a teacher-scored test to assess what you have learned in this unit.

*Duration: 0 hr*

*50 min Scoring: 90 points*

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**LESSON 7: DIAGNOSTIC****Diagnostic: Coordinate Geometry**

Take a diagnostic unit test that will generate a study plan based on your responses.

*Duration: 0 hr 50 min Scoring: 30 points*

**UNIT 8: MATH I SEMESTER 2 REVIEW AND EXAM**

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**LESSON 1: MATH I SEMESTER 2****Review: Math I Semester 2**

Prepare for the semester exam by reviewing key concepts covered in Math I Semester 2.

*Duration: 0 hr 50 min Scoring: 0 points*

**Exam: Math I Semester 2 (Computer-Scored)**

Take a computer-scored exam to demonstrate your mastery of concepts and skills covered in Math I Semester 2.

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*Duration: 0 hr 50 min Scoring: 120 points*

**Final Exam: Math I Semester 2 (Teacher-Scored)**

Take a teacher-scored exam to demonstrate your mastery of concepts and skills covered in Math I Semester 2.

*Duration: 0 hr 50 min Scoring: 120 points*