Analytic Geometry is a state-designed mathematics course that presents the formal concepts of geometry and analyzes them through the means of algebraic operations alongside the engagement with correlated topics of probability and statistical analysis and representation. It builds upon students' command of geometric relationships and formulating mathematical arguments. Students learn through discovery and application, developing the skills they need to break down complex challenges and demonstrate their knowledge in new situations.

Course topics include algebraic foundations; factoring polynomials; quadratic equations and functions; reasoning, proof, and the creation of sound mathematical arguments; points, lines, and angles; triangles and trigonometry; quadrilaterals and other polygons; circles; congruence, similarity, transformations, and constructions; coordinate geometry; three-dimensional solids; and applications of probability.

This course supports all students as they develop computational fluency and deepen conceptual understanding. Students begin each lesson by discovering new concepts through guided instruction, and then confirm their understanding in an interactive, feedback-rich environment. Modeling activities equip students with tools for analyzing a variety of real-world scenarios and mathematical ideas. Journaling activities allow students to reason abstractly and quantitatively, construct arguments, critique reasoning, and communicate precisely. Performance tasks prepare students to synthesize their knowledge in novel, real-world scenarios and require that they make sense of multifaceted problems and persevere in solving them.

This course is built to match the Georgia state Standards of Excellence (GSE).

Length: Two Semesters

UNIT 1: FOUNDATIONS OF ALGEBRA

LESSON 1: RATIONAL AND IRRATIONAL NUMBERS

Study: Rational and Irrational Numbers
Learn about different types of real numbers, including rational and irrational numbers. Investigate sums and products of rational and irrational numbers.
Duration: 0 hrs 45 mins Scoring: 0 points

Checkup: Practice Problems
Check your understanding of the lesson.
Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Rational and Irrational Numbers
Take a quiz to assess your understanding of what you have learned.
Duration: 0 hrs 25 mins Scoring: 20 points

LESSON 2: ALGEBRAIC PROPERTIES AND EXPRESSIONS

Study: Algebraic Properties and Expressions
Translate verbal descriptions to mathematical expressions, write expressions to model real-world situations, and evaluate expressions using algebraic properties.
Duration: 0 hrs 45 mins Scoring: 0 points

Checkup: Practice Problems
Check your understanding of the lesson.
Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Algebraic Properties and Expressions
Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

Journal: Algebraic Properties and Expressions
Construct arguments and critique the reasoning of others as you write about topics in algebra.

Duration: 0 hrs 45 mins Scoring: 20 points

LESSON 3: LITERAL EQUATIONS

Study: Literal Equations
Learn how to solve literal equations, including formulas, for a particular variable.

Duration: 0 hrs 45 mins Scoring: 0 points

Checkup: Practice Problems
Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Literal Equations
Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

LESSON 4: FOUNDATIONS OF ALGEBRA WRAP-UP

Review: Foundations of Algebra Practice Problems
Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Foundations of Algebra
Take a computer-scored test to check what you have learned in this unit.

Duration: 0 hrs 40 mins Scoring: 40 points

UNIT 2: OPERATING WITH EXPRESSIONS

LESSON 1: WHAT IS A POLYNOMIAL?

Study: What Is a Polynomial?
Learn the definitions for monomials, polynomials, constants, terms, coefficients, binomials, trinomials, and degree. Learn how to find the degree of polynomials.

Duration: 0 hrs 45 mins Scoring: 0 points

Checkup: Practice Problems
Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: What Is a Polynomial?
Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

LESSON 2: ADDING AND SUBTRACTING POLYNOMIALS

Study: Adding and Subtracting Polynomials
Learn how to add and subtract polynomials by collecting like terms. Practice adding and subtracting polynomials both vertically and horizontally.

Duration: 0 hrs 45 mins Scoring: 0 points

Checkup: Practice Problems
Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Adding and Subtracting Polynomials
Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

LESSON 3: MULTIPLYING BINOMIALS

Study: Multiplying Binomials

Learn how to multiply binomials using the distributive property. Use the FOIL mnemonic to help you multiply binomials.

Duration: 0 hrs 45 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Multiplying Binomials

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

Practice: Modeling: Multiplying Binomials

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 20 points

LESSON 4: MULTIPLYING POLYNOMIALS

Study: Multiplying Polynomials

Extend the use of the distributive property to multiply polynomials with more than two terms. Use a table to organize the multiplication of polynomials. Practice multiplying polynomials horizontally and vertically.

Duration: 0 hrs 45 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Multiplying Polynomials

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

Journal: Multiplying Polynomials

Construct arguments and critique the reasoning of others as you write about topics in algebra.

Duration: 0 hrs 45 mins Scoring: 20 points

LESSON 5: BASICS OF RADICALS

Study: Basics of Radicals

Learn the definition of radical expression. Explore simplifying the product and quotient of radicals and simplifying individual radicals.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Complete a set of practice problems to check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Simplifying Products of Radicals

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: Simplifying Quotients of Radicals

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 6: MULTIPLYING AND DIVIDING RADICALS

Study: Multiplying and Dividing Radicals

Learn about multiplying and dividing radical expressions that include variables and about using the FOIL (first inner outer last) method to simplify radical expressions.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Complete a set of practice problems to check your understanding of the lesson.

Duration: 0 hrs 25 mins   Scoring: 0 points

Quiz: Multiplying Radicals

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins   Scoring: 20 points

Quiz: Dividing Radicals

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins   Scoring: 20 points

LESSON 7: ADDING AND SUBTRACTING RADICALS

Study: Adding and Subtracting Radicals

Learn about adding and subtracting radical expressions by combining like terms and about simplifying terms to get the same radicand.

Duration: 0 hrs 35 mins   Scoring: 0 points

Checkup: Practice Problems

Complete a set of practice problems to check your understanding of the lesson.

Duration: 0 hrs 25 mins   Scoring: 0 points

Quiz: Adding and Subtracting Radicals

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins   Scoring: 20 points

LESSON 8: OPERATING WITH EXPRESSIONS WRAP-UP

Review: Operating with Expressions Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins   Scoring: 0 points

Test (CS): Operating with Expressions

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

Duration: 0 hrs 40 mins   Scoring: 64 points

UNIT 3: FACTORING POLYNOMIALS

LESSON 1: GCF AND FACTORING BY GROUPING

Study: GCF and Factoring by Grouping

Explore the similarities between factoring numbers and polynomials. Learn how to identify the greatest common factor (GCF) of the terms of a polynomial, and how to use grouping to factor polynomials.

Duration: 0 hrs 45 mins   Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins   Scoring: 0 points

Quiz: GCF and Factoring by Grouping

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins   Scoring: 20 points

LESSON 2: FACTORING $X^2 + BX + C$

Study: Factoring $x^2 + bx + c$

Learn the definition of a quadratic trinomial. Learn how to factor quadratic trinomials when the coefficient of the x-squared term is 1.

Duration: 0 hrs 45 mins   Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins   Scoring: 0 points

Quiz: Factoring $x^2 + bx + c$

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

LESSON 3: FACTORING $AX^2 + BX + C$

Study: Factoring $ax^2 + bx + c$

Learn how to factor quadratic trinomials with leading coefficients other than 1.

Duration: 0 hrs 45 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Factoring $ax^2 + bx + c$

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

Practice: Modeling: Factoring $ax^2 + bx + c$

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 20 points

LESSON 4: SPECIAL CASES

Study: Special Cases

Learn how to work with special cases of factoring. Learn definitions for a perfect square trinomial and a difference of two squares. Practice using strategies that will help you factor each of these special cases.

Duration: 0 hrs 45 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Special Cases

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

LESSON 5: FACTORING AND GRAPHING

Study: Factoring and Graphing

Compare x-intercepts, zeros, roots, and linear factors. Identify the roots of a polynomial. Use the intercepts of the graph of a function to identify the roots and factors of a related equation and vice versa. Understand that a quadratic function may have 0, 1, or 2 real zeros.

Duration: 0 hrs 45 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Factoring and Graphing

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

Journal: Factoring and Graphing

Construct arguments and critique the reasoning of others as you write about topics in algebra.

Duration: 0 hrs 45 mins Scoring: 20 points

LESSON 6: FACTORING POLYNOMIALS WRAP-UP

Review: Factoring Polynomials Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Factoring Polynomials
Take a computer-scored test to check what you have learned in this unit.
Duration: 0 hrs 40 mins Scoring: 50 points

UNIT 4: QUADRATIC EQUATIONS AND FUNCTIONS

LESSON 1: SOLVING QUADRATIC EQUATIONS

Study: Solving Quadratic Equations
Learn to solve quadratics in the form $x^2 = b$ by taking square roots. Use the zero product property to solve quadratic equations by factoring. Learn about standard form and rewrite quadratic equations in that form.
Duration: 0 hrs 45 mins Scoring: 0 points

Checkup: Practice Problems
Check your understanding of the lesson.
Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Solving Quadratic Equations
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 25 mins Scoring: 20 points

LESSON 2: COMPLETING THE SQUARE

Study: Completing the Square
Learn the definition for a special case of factoring called completing the square. Explore the steps to complete a square and practice solving quadratic equations by using this way of factoring.
Duration: 0 hrs 45 mins Scoring: 0 points

Checkup: Practice Problems
Check your understanding of the lesson.
Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Completing the Square
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 25 mins Scoring: 20 points

Journal: Completing the Square
Construct arguments and critique the reasoning of others as you write about topics in algebra.
Duration: 0 hrs 45 mins Scoring: 20 points

LESSON 3: THE QUADRATIC FORMULA

Study: The Quadratic Formula
Learn the derivation of the quadratic formula and see how it can be used to solve quadratic equations. Understand that the discriminant can be used to determine whether a quadratic equation has 0, 1, or 2 real solutions.
Duration: 0 hrs 45 mins Scoring: 0 points

Checkup: Practice Problems
Check your understanding of the lesson.
Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: The Quadratic Formula
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 25 mins Scoring: 20 points

LESSON 4: GRAPHS OF QUADRATIC FUNCTIONS

Study: Graphs of Quadratic Functions
Relate factors of a quadratic function to the graph of a parabola and its corresponding x-intercepts. Locate the vertex of a quadratic function graphically and algebraically. Understand vertex form and use it to identify the vertex of a quadratic function.
Duration: 0 hrs 45 mins Scoring: 0 points

Checkup: Practice Problems
Check your understanding of the lesson.
Duration: 0 hrs 25 mins   Scoring: 0 points

Quiz: Graphs of Quadratic Functions
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 25 mins   Scoring: 20 points

LESSON 5: NONLINEAR SYSTEMS OF EQUATIONS

Study: Nonlinear Systems of Equations
Learn about solution sets for nonlinear systems of equations. Practice solving nonlinear systems of equations by graphing and by using the substitution method. Explore a human-cannonball case study.
Duration: 0 hrs 45 mins   Scoring: 0 points

Checkup: Practice Problems
Check your understanding of the lesson.
Duration: 0 hrs 25 mins   Scoring: 0 points

Quiz: Nonlinear Systems of Equations
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 25 mins   Scoring: 20 points

LESSON 6: LINEAR, QUADRATIC, AND EXPONENTIAL FUNCTIONS

Study: Linear, Quadratic, and Exponential Functions
Identify and compare linear, quadratic, and exponential functions and write functions that model real-world situations.
Duration: 0 hrs 45 mins   Scoring: 0 points

Checkup: Practice Problems
Check your understanding of the lesson.
Duration: 0 hrs 25 mins   Scoring: 0 points

Quiz: Linear, Quadratic, and Exponential Functions
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 25 mins   Scoring: 20 points

Practice: Modeling: Linear, Quadratic, and Exponential Functions
Model and solve a real-world problem.
Duration: 0 hrs 45 mins   Scoring: 20 points

LESSON 7: PERFORMANCE TASK: PRICING FOR PROFIT

Study: The Headphones Problem
Use what you have learned about graphing polynomials to solve a real-world business problem.
Duration: 0 hrs 45 mins   Scoring: 0 points

Project: Your Dog-Walking Business
Use your knowledge, skills, and resources to make sense of and persevere in solving a real-world problem.
Duration: 2 hrs   Scoring: 80 points

LESSON 8: QUADRATIC EQUATIONS AND FUNCTIONS WRAP-UP

Review: Quadratic Equations and Functions Practice Problems
Check your understanding of the topics in this unit.
Duration: 0 hrs 30 mins   Scoring: 0 points

Test (CS): Quadratic Equations and Functions
Take a computer-scored test to check what you have learned in this unit.
Duration: 0 hrs 40 mins   Scoring: 50 points

UNIT 5: UNDOING FUNCTIONS AND MOVING THEM AROUND

LESSON 1: DOMAIN AND RANGE

Study: Domain and Range

Understand the meanings of the domain and range of a function. Use function notation and evaluate a function for a given value in its domain.

Duration: 0 hrs 45 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Domain and Range

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

Journal: Domain and Range

Construct arguments and critique the reasoning of others as you write about topics in algebra.

Duration: 0 hrs 45 mins Scoring: 20 points

LESSON 2: PARENT FUNCTIONS

Study: Parent Functions

Learn about the properties and graphs of linear parent functions, quadratic parent functions, absolute value parent functions, and step functions.

Duration: 0 hrs 45 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Parent Functions

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

LESSON 3: SHIFTING FUNCTIONS

Study: Shifting Functions

Learn about shifting graphs of functions up/down and left/right by changing the coordinates of each ordered pair. Learn about changing the equation of a function to shift its graph vertically or horizontally and about combining vertical and horizontal shifts.

Duration: 0 hrs 45 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Shifting Functions

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

Journal: Shifting Functions

Construct arguments and critique the reasoning of others as you write about topics in algebra.

Duration: 0 hrs 45 mins Scoring: 20 points

LESSON 4: STRETCHING AND COMPRESSING FUNCTIONS

Study: Stretching and Compressing Functions

Learn about stretching or compressing a function's graph by multiplying by a constant, flipping the graph by multiplying by a negative constant, and combining stretches with shifts.

Duration: 0 hrs 45 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Stretching and Compressing Functions

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

Practice: Modeling: Stretching and Compressing Functions

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 20 points

LESSON 5: TRANSFORMATIONS OF PARENT FUNCTIONS

Study: Transformations of Parent Functions

Learn how to perform vertical and horizontal shifts, stretches, and compressions, and any combination of these transformations, on parent functions.

Duration: 0 hrs 45 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Transformations of Parent Functions

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

LESSON 6: UNDOING FUNCTIONS AND MOVING THEM AROUND WRAP-UP

Review: Undoing Functions and Moving Them Around Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Undoing Functions and Moving Them Around

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

Duration: 0 hrs 40 mins Scoring: 48 points

UNIT 6: FOUNDATIONS OF GEOMETRY

LESSON 1: INDUCTION: THE SEARCH FOR RULES AND PATTERNS

Study: Induction: The Search for Rules and Patterns

Learn about looking for patterns, making conjectures, cross-referencing to history and science, real-world examples of inductive reasoning, building a triangle, and examples of symmetry.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Induction: The Search for Rules and Patterns

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 2: DEDUCTION: MAKING A CASE

Study: Deduction: Making a Case

Learn about the definition of deductive reasoning; postulates and conditional statements; and using deductive reasoning in proofs. Explore a real-world example of deducing that deals with the combination of a lock.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Deduction: Making a Case

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 3: THE LOOK AND LANGUAGE OF LOGIC

Study: The Look and Language of Logic

Explore examples of geometric reasoning. Learn about converses, inverses, and contrapositives of conditional statements.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: The Look and Language of Logic

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 4: INTRODUCTION TO PROOFS

Study: Introduction to Proofs

Learn about postulates and axioms, givens, proof by contradiction (indirect proof), theorems and corollaries, and the axiomatic method.

Duration: 0 hrs 35 mins Scoring: 0 points

Quiz: Introduction to Proofs

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 5: BASIC POSTULATES IN GEOMETRY

Study: Basic Postulates in Geometry

Learn about the relationship of rays, lines, and angles to direction; the definition of a line; notation for rays and lines; building and defining an angle (including its vertex and sides); conventions for naming angles; and straight and zero angles.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Basic Postulates in Geometry

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 6: PLANES AND THE SPACE OF GEOMETRY

Study: Planes and the Space of Geometry

Learn about dimensionality, collinear points, two-dimensional objects, the geometric plane, the flat plane, postulate coplanar objects, and three-dimensional objects (solids).

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Planes and the Space of Geometry

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: Modeling: Logo Design

Use your knowledge of location, direction, and angles to model and solve a real-world problem.

Duration: 0 hrs 30 mins Scoring: 20 points

LESSON 7: INTERSECTING LINES AND PROOFS

Study: Intersecting Lines and Proofs

Learn about intersections that form vertical angles; the vertical angle theorem; perpendicular lines, rays, and segments; distance and length; and perpendicular bisectors.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Intersecting Lines and Proofs

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 8: PARALLEL LINES AND PROOFS

Study: Parallel Lines and Proofs

Learn about skew lines, coplanar lines that do not intersect, parallel line notation, transversals and corresponding angles, alternate interior angles, consecutive interior angles, and parallel line theorems.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Parallel Lines and Proofs

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Journal: Consecutive Angle Theorem

Use what you know about lines and angles to critique the reasoning of others and prove a theorem.

Duration: 0 hrs 30 mins Scoring: 20 points

Study: Solving the Mirror Problem

Learn about applying theorems from this unit to the problem of measuring light reflected off a mirror. Learn about the law of reflection.

Duration: 0 hrs 35 mins Scoring: 0 points

LESSON 9: FOUNDATIONS OF GEOMETRY WRAP-UP

Review: Foundations of Geometry Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Foundations of Geometry

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

Duration: 0 hrs 40 mins Scoring: 50 points

UNIT 7: TRIANGLES

LESSON 1: WHAT IS A TRIANGLE?

Study: What Is a Triangle?

Learn about the definition and parts of a triangle; opposite and included figures; naming and sorting triangles; equilateral, isosceles, and scalene triangles; and the triangle inequality theorem.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Naming Triangles by Angle Measures

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: Naming Triangles by Side Lengths

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: The Triangle Inequality Theorem

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 2: THE ANGLES OF A TRIANGLE

Study: The Angles of a Triangle

Explore the angle sum theorem and third angle theorem for triangles. Investigate the relationship between a given triangle's vertex and its exterior and remote interior angles.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Angle Theorems

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: Exterior and Remote Interior Angles

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 3: CONGRUENCE

Study: Congruence

Learn about congruence, transformations of triangles, corresponding triangles, notation for writing congruence statements, and the CPCTC triangle congruence theorem.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Congruent Triangles

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: Properties of Congruence

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 4: CONGRUENCE POSTULATES

Study: Congruence Postulates

Learn about postulates including the SSS, SAS, ASA, and AAS theorems.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Using Congruence Postulates

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: The AAS Theorem

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 5: PROOFS OF CONGRUENCE

Study: Proofs of Congruence

Learn about proving that parts of triangles are congruent by using Thales's method for measuring the distance from ship to shore.

Duration: 0 hrs 35 mins Scoring: 0 points

Quiz: Proofs of Congruence

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Journal: Proofs of Congruence

Use what you know about congruence of triangles to prove the Perpendicular Bisector Theorem.

Duration: 0 hrs 30 mins Scoring: 20 points

LESSON 6: SIMILAR TRIANGLES

Study: Similar Triangles

Learn about similarity versus congruence, testing for similarity among triangles, proportionality, the definition of similar triangles, and scale factor.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Similar Triangles

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 7: SIMILARITY THEOREMS AND PROPORTIONAL REASONING

Study: Similarity Theorems and Proportional Reasoning

Learn about the ASA similarity postulate, the SSS similarity theorem, and the SAS similarity theorem.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Similarity Theorems

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: Modeling: Similarity Theorems

Use your knowledge of similarity to model and solve a real-world problem.

Duration: 0 hrs 30 mins Scoring: 20 points

LESSON 8: TRIANGLE THEOREMS

Study: Triangle Theorems

Learn and prove the isosceles triangle theorem and its converse. Investigate two corollaries involving angle measures for equilateral triangles. Explore theorems for scalene triangles. Apply what you have learned to solve Thales's problem.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems
Check your understanding of the lesson.
Duration: 0 hrs 25 mins   Scoring: 0 points

Quiz: Isosceles and Equilateral Triangles
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 20 mins   Scoring: 20 points

Quiz: Scalene Triangles
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 20 mins   Scoring: 20 points

LESSON 9: MEDIANS AND ALTITUDES

Study: Medians and Altitudes
Identify and explore medians and altitudes. Discover their relationship to centroids, orthocenters, incenters, and circumcenters.
Duration: 0 hrs 35 mins   Scoring: 0 points

Quiz: Medians and Altitudes
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 20 mins   Scoring: 20 points

LESSON 10: BISECTORS AND MIDSEGMENTS

Study: Bisectors and Midsegments
Identify and explore angle bisectors, perpendicular bisectors, and midpoint bisectors, and lines parallel to one side of a triangle to discover their relationships to circumcenters, incenters, and side lengths.
Duration: 0 hrs 35 mins   Scoring: 0 points

Quiz: Bisectors and Midsegments
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 20 mins   Scoring: 20 points

LESSON 11: PERFORMANCE TASK: THE PARALLAX PROBLEM

Study: The Parallax Problem
Learn to apply the concepts of congruence, similarity, ratio, and proportion to the solution of a real-world parallax problem.
Duration: 0 hrs 35 mins   Scoring: 0 points

Project: Performance Task: The Parallax Problem
Apply the concepts of congruence, similarity, ratio, and proportion to solve a real-world problem.
Duration: 2 hrs   Scoring: 120 points

LESSON 12: TRIANGLES WRAP-UP

Review: Triangles Practice Problems
Check your understanding of the topics in this unit.
Duration: 0 hrs 30 mins   Scoring: 0 points

Test (CS): Triangles
Take a computer-scored test to check what you have learned in this unit.
Duration: 0 hrs 40 mins   Scoring: 50 points

UNIT 8: SEMESTER 1 EXAM

LESSON 1: SEMESTER 1 EXAM

Review: Semester 1 Exam
Prepare for the final exam by reviewing key concepts and skills.
Duration: 0 hrs 30 mins   Scoring: 0 points

Exam: Semester 1 Exam

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

Duration: 1 hr Scoring: 235 points

UNIT 9: RIGHT TRIANGLES

LESSON 1: THE PYTHAGOREAN THEOREM

Study: The Pythagorean Theorem

Learn how the Pythagorean theorem applies only to right triangles and discover one proof of it. Learn about the converse of the Pythagorean theorem, Pythagorean triples, and applying the theorem to the problem of fitting a baseball bat into a rectangular trunk.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: The Pythagorean Theorem

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Journal: Proving the Pythagorean Theorem

Use what you know about congruence of triangles to prove the Pythagorean Theorem.

Duration: 0 hrs 30 mins Scoring: 20 points

LESSON 2: CONGRUENT RIGHT TRIANGLES

Study: Congruent Right Triangles

Learn about the HL, LL, HA, LA, and perpendicular bisector theorems. Learn about the angle bisector theorem and its converse.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Proving Right Triangle Congruence

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: Right Triangle Measurements

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 3: SIMILAR RIGHT TRIANGLES

Study: Similar Right Triangles

Explore the properties of similar right triangles. Prove that if an altitude is drawn from the right-angle vertex of a right triangle to its hypotenuse, then three similar triangles are formed. Calculate the missing sides of similar right triangles by using proportions and apply concepts learned to a miniature-golf problem.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Similar Right Triangles

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: Modeling: The Pool Table Problem

Use your knowledge of similar right triangles to model a pool table and hit your ball in the pocket.

Duration: 0 hrs 30 mins Scoring: 20 points

LESSON 4: SPECIAL RIGHT TRIANGLES

Study: Special Right Triangles

Explore 45-45-90 and 30-60-90 triangles as special cases of right triangles and learn how to apply the ratios of their side lengths.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Special Right Triangles

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: 30-60-90 Right Triangles

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 5: RIGHT TRIANGLES WRAP-UP

Review: Right Triangles Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Right Triangles

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

Duration: 0 hrs 40 mins Scoring: 50 points

UNIT 10: TRIGONOMETRY

LESSON 1: TRIGONOMETRIC RATIOS

Study: Trigonometric Ratios

Learn the definitions of *sine*, *cosine*, and *tangent*. Memorize the shortcut "soh-cah-toa" as a way to relate these ratios. Explore the use of trigonometric ratios in the solution of a real-world problem involving the construction of a cable car.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Trigonometric Ratios

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: Modeling: Leaning Towers

Use your knowledge of right triangles, trigonometric ratios, and the Pythagorean Theorem to model and solve a real-world problem.

Duration: 0 hrs 30 mins Scoring: 20 points

LESSON 2: LAW OF COSINES AND PROOFS

Study: Law of Cosines and Proofs

Use the law of cosines to solve triangles.

Duration: 0 hrs 35 mins

Checkup: Practice Problems

Complete a set of practice problems using the law of cosines.

Duration: 0 hrs 25 mins

Quiz: Law of Cosines and Proofs

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 3: LAW OF SINES AND PROOFS

Study: Law of Sines and Proofs

Use the law of sines to solve triangles and to explore the ambiguous case.

Duration: 0 hrs 35 mins

Checkup: Practice Problems

Complete a set of practice problems using the law of sines.

Duration: 0 hrs 25 mins

Journal: Law of Sines and Proofs

Use what you know about triangles and trigonometric ratios to prove the law of sines.

Duration: 0 hrs 30 mins Scoring: 20 points

LESSON 4: TRIGONOMETRY WRAP-UP

Review: Trigonometry Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Trigonometry

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

Duration: 0 hrs 40 mins Scoring: 50 points

UNIT 11: QUADRILATERALS AND OTHER POLYGONS

LESSON 1: ANGLE SUMS OF A POLYGON AND PROOFS

Study: Angle Sums of a Polygon and Proofs

Learn about the diagonal of a polygon, the formula for the sum of the measures of a polygon's interior angles and exterior angles, and a theorem for the sum of their measures.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Angle Sums of a Polygon and Proofs

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 2: PARALLELOGRAMS AND PROOFS

Study: Parallelograms and Proofs

Learn about the definition of a parallelogram, properties and theorems of parallelograms, consecutive angle pairs, and diagonals.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Parallelograms and Proofs

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 3: TESTS FOR PARALLELOGRAMS

Study: Tests for Parallelograms

Explore parallelogram theorems involving opposite side lengths, opposite and consecutive angle measures, and

bisecting diagonals. Then work through a sample proof.

Duration: 0 hrs 35 mins   Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins   Scoring: 0 points

Quiz: Tests for Parallelograms

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins   Scoring: 20 points

Practice: Modeling: Finding Parallelograms

Use your knowledge of quadrilaterals to model and solve a real-world problem.

Duration: 0 hrs 30 mins   Scoring: 20 points

LESSON 4: RECTANGLES

Study: Rectangles

Learn about the definition of a rectangle, congruent diagonal theorems, and right angle theorems. Explore a sample problem about using the congruent diagonal theorem to prove that a window is rectangular.

Duration: 0 hrs 35 mins   Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins   Scoring: 0 points

Quiz: Rectangles

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins   Scoring: 20 points

LESSON 5: RHOMBI AND SQUARES

Study: Rhombi and Squares

Identify the properties and definitions of a rhombus and a square. Prove that the diagonals of a rhombus are perpendicular. Investigate how diagonals of a rhombus bisect opposite vertices. Apply the properties of rhombi and squares to find missing side lengths, diagonal lengths, and angle measures.

Duration: 0 hrs 35 mins   Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins   Scoring: 0 points

Quiz: Rhombi and Squares

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins   Scoring: 20 points

LESSON 6: TRAPEZOIDS

Study: Trapezoids

Learn the definition of a trapezoid and identify its parts. Explore how base angles and diagonals of an isosceles trapezoid are congruent. Investigate the medians of a trapezoid. Apply the properties of trapezoids and isosceles trapezoids to find missing side lengths and median lengths.

Duration: 0 hrs 35 mins   Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins   Scoring: 0 points

Quiz: Trapezoids

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins   Scoring: 20 points

Journal: The Stone Arch

Use what you know about triangles and parallelograms to solve a real-world problem.

Duration: 0 hrs 30 mins Scoring: 20 points

LESSON 7: COORDINATE GEOMETRY WITH POLYGONS

Study: Coordinate Geometry with Polygons

Investigate the properties of polygons using coordinate geometry and congruence transformations on the coordinate plane.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

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

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Coordinate Geometry with Polygons

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 8: QUADRILATERALS AND OTHER POLYGONS WRAP-UP

Review: Quadrilaterals and Other Polygons Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Quadrilaterals and Other Polygons

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

Duration: 0 hrs 40 mins Scoring: 50 points

UNIT 12: CIRCLES WITHOUT COORDINATES

LESSON 1: WHAT IS A CIRCLE?

Study: What Is a Circle?

Learn about the definition of a circle and about its center, radius, and circumference.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: What Is a Circle?

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 2: CHORDS

Study: Chords

Investigate the properties and definitions of chords and diameters. Discover that two chords are congruent if they are the same distance from the center of the circle. Prove that the radius bisects a chord if it is perpendicular to the chord.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Congruent Chords

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: Chords and Perpendicular Radii

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: Diameter of a Circle

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 3: ARCS

Study: Arcs

Learn the definitions of arc, endpoint, central angle, and intercept. Learn about minor and major arcs and semicircles, arc notation, the measure of minor and major arcs, and the arc congruence and congruent chord theorems.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Arc Types and Measure

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 4: CHORD AND ARC RELATIONSHIPS

Study: Chord and Arc Relationships

Learn the definitions of arc, endpoint, central angle, and intercept. Learn about minor and major arcs and semicircles, arc notation, the measure of minor and major arcs, and the arc congruence and congruent chord theorems.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Congruent Chords and Circle Angle Measure

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 5: CIRCLES, ANGLES, AND PROOFS

Study: Circles, Angles, and Proofs

Learn the definition of an inscribed angle. Experiment with inscribed angles and their intercepted arcs. Discover and prove that an inscribed angle is half the measure of its intercepted arc. Discover and prove the intersecting chord theorem.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Inscribed Angles

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: Intersecting Chord Theorem

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 6: SECANTS, TANGENTS, AND PROOFS

Study: Secants, Tangents, and Proofs

Learn about the definition of secant and about secant-secant angle, its theorem, and proving the theorem. Learn about tangent line, point of tangency and tangent segments, tangents perpendicular to a circle's radius, a tangent-tangent angle and its theorem, and a tangent-chord angle and its theorem. Explore a sample proof.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Secant-Secant Angles

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: Tangent-Chord Angles

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: Tangent-Tangent Angles and Their Intercepted Arcs

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 7: CIRCUMFERENCE AND ARC LENGTH

Study: Circumference and Arc Length

Learn about the irrational number pi and the formula for finding the circumference of a circle. Apply circumference to a real-world problem about how to build a bridge that's tall enough for boats to travel beneath it. Learn about the degree measure of an arc and arc length. Derive the formula for arc length.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Circumference of a Circle

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: Arc Length

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 8: AREA AND SECTORS

Study: Area and Sectors

Learn about the formula for the area of a circle. Explore a case study comparing the cost per square inch of small and large pizzas. Learn about sectors and the area of a sector.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Area of a Circle

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: Area of a Sector

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: Modeling: Stained Glass Window

Use what you know about finding the area of circles and sectors to model and solve a real-world problem.

Duration: 0 hrs 30 mins Scoring: 20 points

LESSON 9: CIRCLES AND TRIANGLES

Study: Circles and Triangles

Learn about inscribed objects; circumscribed objects; and the definitions of incenter and circumcenter.

Duration: 0 hrs 35 mins   Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins   Scoring: 0 points

Quiz: Circles and Triangles

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins   Scoring: 20 points

Journal: Similar Circles

A peer uses dilation to prove that two circles are similar. Now you prove it using inscribed triangles.

Duration: 0 hrs 30 mins   Scoring: 20 points

LESSON 10: CIRCLES AND POLYGONS

Study: Circles and Polygons

Learn about the theorems of a quadrilateral inscribed in a circle and of a parallelogram inscribed in a circle.

Duration: 0 hrs 35 mins   Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins   Scoring: 0 points

Quiz: Circles and Polygons

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins   Scoring: 20 points

LESSON 11: CIRCLES WITHOUT COORDINATES WRAP-UP

Review: Circles Without Coordinates Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins   Scoring: 0 points

Test (CS): Circles Without Coordinates

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

Duration: 0 hrs 40 mins   Scoring: 50 points

UNIT 13: CONIC SECTIONS

LESSON 1: FROM LINES TO CONIC SECTIONS

Study: From Lines to Conic Sections

Learn about four kinds of conic sections, as well as the definitions of right circular cone, nappe, vertex, conic section, and cross section.

Duration: 0 hrs 35 mins   Scoring: 0 points

Checkup: Practice Problems

Complete a set of practice problems to check your understanding of the lesson.

Duration: 0 hrs 25 mins   Scoring: 0 points

Quiz: Linear Equations

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins   Scoring: 20 points

Quiz: What Is a Conic Section?

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins   Scoring: 20 points

LESSON 2: GEOMETRY OF CONIC SECTIONS

Study: Geometry of Conic Sections

Learn about parts and geometric properties of circles, ellipses, hyperbolas, and parabolas.

Duration: 0 hrs 35 mins   Scoring: 0 points

Checkup: Practice Problems

Complete a set of practice problems to check your understanding of the lesson.

Duration: 0 hrs 25 mins   Scoring: 0 points

Quiz: Geometry of Circles and Ellipses

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins   Scoring: 20 points

Quiz: Geometry of Hyperbolas and Parabolas

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins   Scoring: 20 points

LESSON 3: CIRCLES WITH COORDINATES AND PROOFS

Study: Circles with Coordinates and Proofs

Use algebra to find an equation whose solution set is a circle. Learn about the standard equation for circles that are not centered at the origin.

Duration: 0 hrs 35 mins   Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins   Scoring: 0 points

Quiz: Circles Centered at the Origin

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins   Scoring: 20 points

Quiz: Circles Not Centered at the Origin

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins   Scoring: 20 points

Journal: Point on a Circle

Use what you know about equations of circles to prove whether or not a point is on a circle.

Duration: 0 hrs 30 mins   Scoring: 20 points

LESSON 4: CONIC SECTIONS WRAP-UP

Review: Conic Sections Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins   Scoring: 0 points

Test (CS): Conic Sections

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

Duration: 0 hrs 40 mins   Scoring: 32 points

UNIT 14: CONSTRUCTIONS AND TRANSFORMATIONS

LESSON 1: CONSTRUCTIONS

Study: Constructions

Learn about using a straightedge and a compass, common notions of Euclidean geometry, five postulates, constructing an equilateral triangle and a regular hexagon, bisecting an angle, and constructing a perpendicular bisector.

Duration: 0 hrs 35 mins   Scoring: 0 points

Quiz: Constructions

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins   Scoring: 20 points

Practice: Modeling: Constructing a Square

Use your geometry skills to construct a square using only a straightedge and a compass.

Duration: 0 hrs 30 mins Scoring: 20 points

LESSON 2: PAPER FOLDING

Study: Paper Folding

Learn about constructing geometric solids with folding paper, coinciding objects bisecting an angle, and constructing a parallel line segment.

Duration: 0 hrs 35 mins Scoring: 0 points

Quiz: Paper Folding

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 3: TRANSFORMATIONS

Study: Transformations

Learn about rigid motions, describe the image and preimage, predict the results of transformations, and use a series of transformations to move figures onto themselves.

Duration: 0 hrs 35 mins Scoring: 0 points

Quiz: Transformations

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Journal: Transformations

Critique a conjecture about a series of transformations.

Duration: 0 hrs 30 mins Scoring: 20 points

LESSON 4: SYMMETRY

Study: Symmetry

Learn about reflectional symmetry and line of symmetry and explore an example of an isosceles triangle. Learn about rotational symmetry, point of symmetry, and the symmetry of a human face.

Duration: 0 hrs 35 mins Scoring: 0 points

Quiz: Symmetry

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 5: CONSTRUCTIONS AND TRANSFORMATIONS WRAP-UP

Review: Constructions and Transformations Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Constructions and Transformations

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

Duration: 0 hrs 40 mins Scoring: 38 points

UNIT 15: THREE-DIMENSIONAL SOLIDS

LESSON 1: THREE DIMENSIONS

Study: Three Dimensions

Learn about measuring three-dimensional figures.

Duration: 0 hrs 35 mins Scoring: 0 points

Quiz: Three Dimensions

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 2: WHAT IS A POLYHEDRON?

Study: What Is a Polyhedron?

Learn about the definition and elements of a polyhedron, prisms and their components, triangular and rectangular prisms, cubes, and regular and irregular pyramids.

Duration: 0 hrs 35 mins Scoring: 0 points

Quiz: What Is a Polyhedron?

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 3: CYLINDERS AND CONES

Study: Cylinders and Cones

Learn about the definition, components, and properties of a cylinder; the definition and components of a cone; and the similarities between cones and pyramids.

Duration: 0 hrs 35 mins Scoring: 0 points

Quiz: Cylinders and Cones

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 4: PLATONIC SOLIDS

Study: Platonic Solids

Learn about polygonal numbers, regularity of Platonic solids, and building your own Platonic solids.

Duration: 0 hrs 35 mins Scoring: 0 points

Quiz: Platonic Solids

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: Modeling: Solids

Practice with a real-world solid modeling application.

Duration: 0 hrs 30 mins Scoring: 20 points

LESSON 5: SURFACE AREA

Study: Surface Area

Learn about perimeter and surface area; base and lateral area; slant height versus altitude; and the formulas for surface area of a right prism, an oblique prism, a regular pyramid, an oblique cylinder, a right cone, and an oblique cone. Explore sample problems dealing with these subjects.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Surface Area of Regular Prisms and Pyramids

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: Surface Area of Right Cylinders and Cones

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 6: VOLUME

Study: Volume

Learn about area and volume, the formulas for volume of a cube and a rectangular prism, and Bonaventura Francesco Cavalieri's principle. Learn about the formulas for volume of a cylinder, a pyramid, and a cone; explore sample problems dealing with these formulas. Learn about cross-sectional area.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Volume of Prisms, Cylinders, and Cubes

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: Volume of Cones, Cylinders, and Pyramids

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Journal: Volume

Think about and discuss how changing one dimension of a given shape changes its volume and surface area.

Duration: 0 hrs 30 mins Scoring: 20 points

LESSON 7: SPHERES

Study: Spheres

Learn about the definition of a sphere; the formulas for surface area and volume of a sphere; comparing the surface area and volume of a sphere, cube, cylinder, and cone; and using Cavalieri's principle to derive the formula for volume of a sphere.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Spheres

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 8: SIMILAR SOLIDS

Study: Similar Solids

Learn about similar prisms, pyramids, cylinders, cones, and spheres; the constant ratio between corresponding parts of similar solids; and the ratio of volumes of similar solids.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Similar Solids

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 9: PERFORMANCE TASK: THREE-DIMENSIONAL SOLIDS

Study: Geodesic Domes

Use your knowledge of three-dimensional solids to solve a geodesic dome problem.

Duration: 0 hrs 35 mins Scoring: 0 points

Project: Performance Task: The Subway Stop

Use what you know about three-dimensional solids to solve a real-world problem.

Duration: 2 hrs Scoring: 120 points

LESSON 10: THREE-DIMENSIONAL SOLIDS WRAP-UP

Review: Three-Dimensional Solids Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Three-Dimensional Solids

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

Duration: 0 hrs 40 mins Scoring: 50 points

UNIT 16: APPLICATIONS OF PROBABILITY

LESSON 1: PROBABILITY

Study: Probability

Explore sample spaces, events, and outcomes. Find probabilities of events and complements of events.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Probability

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Probability

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 2: PROBABILITY OF INDEPENDENT AND DEPENDENT EVENTS

Study: Probability of Independent and Dependent Events

Use the general addition rule to find probabilities of compound events. Learn the definitions of independent and dependent events, and classify events as independent or dependent. Find $P(A$ and $B)$ for independent events.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Probability of Independent and Dependent Events

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Probability of Independent and Dependent Events

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Journal: Probability of Independent and Dependent Events

Use what you know about independent and dependent events to analyze a real-world problem.

Duration: 0 hrs 30 mins Scoring: 20 points

LESSON 3: CONDITIONAL PROBABILITY

Study: Conditional Probability

Learn how to identify and solve conditional probability problems. Use conditional probability concepts to test events for independence.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Conditional Probability

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Conditional Probability

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 4: TWO-WAY FREQUENCY TABLES

Study: Two-Way Frequency Tables

Identify joint and marginal frequencies. Use two-way tables to find probabilities and conditional probabilities. Use two-way tables to test for independence and to help make decisions.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkup: Two-Way Frequency Tables

Check your understanding of the lesson.

Quiz: Two-Way Frequency Tables

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: Two-Way Frequency Tables

Conduct a survey and use a two-way table to organize and interpret the results.

Duration: 0 hrs 30 mins Scoring: 20 points

LESSON 5: APPLICATIONS OF PROBABILITY WRAP-UP

Review: Applications of Probability

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Applications of Probability

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

Duration: 0 hrs 40 mins Scoring: 40 points

UNIT 17: SEMESTER 2 EXAM

LESSON 1: SEMESTER 2 EXAM

Review: Semester 2 Exam

Prepare for the final exam by reviewing key concepts and skills.

Duration: 0 hrs 30 mins Scoring: 0 points

Exam: Semester 2 Exam

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

Duration: 1 hr Scoring: 285 points