

Math 2 extends students' algebraic and geometric knowledge of functional relationships, geometric modeling, proofs, and probability. 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 polynomial, rational, and radical relationships, transformation of functions; trigonometry with triangles; proofs; constructions and transformations; and probability.

This course supports all students as they develop computational fluency, deepen conceptual understanding, and apply the standards for mathematical practice. 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. Throughout the course, students are evaluated through a diversity of assessments.

This course is built to the revised North Carolina Math standards adopted in 2016.

Length: Two Semesters

UNIT 1: FUNCTIONS

LESSON 1: WHAT IS A FUNCTION?

Study: Relating to Functions

Learn about functions, their graphs, and some special functions.

Duration: 0 hrs 35 mins

Checkpoint: Lessons Learned

Complete a set of practice problems on functions.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: What Is a Function?

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 2: FUNCTIONS AND TABLES

Study: Functions and Tables

Learn to use input-output tables to describe and define functions.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkpoint: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Functions and Tables

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

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 3: GRAPHING FUNCTIONS

Study: Graphing Functions

Learn the vertical line and horizontal line tests for evaluating a function. Evaluate a function for given values and explore special functions.

Duration: 0 hrs 35 mins

Checkpoint: Lessons Learned

Complete a set of practice problems on graphing functions.

Duration: 0 hrs 25 mins

Quiz: Graphing Functions

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 4: LINEAR FUNCTIONS

Study: Linear Functions

Learn about slope and the three main forms of linear functions.

Duration: 0 hrs 35 mins

Checkpoint: Lessons Learned

Complete a set of practice problems on linear functions.

Duration: 0 hrs 25 mins

Quiz: Linear Functions

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 5: LINEAR AND NONLINEAR FUNCTIONS

Study: Linear and Nonlinear Functions

Learn about linear and nonlinear functions.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkpoint: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Linear and Nonlinear Functions

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

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 6: FUNCTIONS WRAP-UP

Checkpoint: Functions Practice Problems

Check your understanding of the unit.

Duration: 0 hrs 25 mins Scoring: 0 points

Review: Functions

Get ready for the unit test by reviewing important ideas and skills.

Duration: 0 hrs 20 mins Scoring: 0 points

Test (CS): Functions

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

Duration: 0 hrs 40 mins Scoring: 44 points

Test (TS): Functions

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

Duration: 0 hrs 30 mins Scoring: 30 points

UNIT 2: RATIONAL FUNCTIONS

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

Checkpoint: 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: EXPONENTS

Study: Exponents

Evaluate exponential expressions. Use properties to rewrite exponential expressions, including those with rational exponents, and to rewrite radicals using fractional exponents.

Duration: 0 hrs 45 mins Scoring: 0 points

Checkpoint: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Exponents

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

Duration: 0 hrs 25 mins Scoring: 20 points

LESSON 3: INVERSE VARIATION

Study: Inverse Variation

Review direct variation and how increasing input leads to proportionally increasing output. Review inverse variation and how increasing input leads to proportionally decreasing output. Review finding the constant of variation.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkpoint: Practice Problems

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

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Inverse Variation

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

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: Finding the Constant in Inverse Variation

Create a graph using a table of inverse variation data, and determine a constant value to create an approximate functional model.

Duration: 0 hrs 30 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

Discuss: Using X to Mark the Spot

Join a three- to five-question discussion to practice methods learned in this unit.

Duration: 0 hrs 40 mins Scoring: 20 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

Test (TS): Foundations of Algebra

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

Duration: 0 hrs 50 mins Scoring: 50 points

UNIT 3: RADICAL EXPRESSIONS AND FUNCTIONS

LESSON 1: 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

Checkpoint: 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 2: 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

Checkpoint: 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 3: 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

Checkpoint: 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 4: RATIONALIZING DENOMINATORS

Study: Rationalizing Denominators

Learn about rationalizing a denominator in order to simplify a fraction with a radical expression in the denominator. Learn about multiplying by the conjugate of a denominator.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkpoint: Practice Problems

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

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Rationalizing Denominators

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

Duration: 0 hrs 20 mins Scoring: 20 points

Journal: Rationalizing Denominators

Discuss rationalizing denominators with a peer.

Duration: 0 hrs 30 mins Scoring: 20 points

LESSON 5: SOLVING RADICAL FUNCTIONS

Study: Solving Radical Functions

Learn how to solve equations with radical expressions by isolating the radical and squaring both sides.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkpoint: Practice Problems

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

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Solving Radical Functions

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

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 6: APPLICATIONS OF RADICAL EQUATIONS

Study: Applications of Radical Equations

Explore case studies in order to practice methods of solving radical equations in applied settings.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkpoint: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Applications of Radical Equations

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

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: Pendulums and Bridges

Create an equation to model pendulums and bridges.

Duration: 0 hrs 30 mins Scoring: 20 points

LESSON 7: REVIEW OF COMPLEX NUMBERS

Study: Review of Complex Numbers

Learn about square roots of negative numbers; imaginary units; parts of a complex number; adding and subtracting complex numbers by collecting like terms and simplifying; multiplying two complex numbers using the FOIL method; and dividing complex numbers using complex conjugates.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkpoint: 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 Complex Numbers

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

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: Multiplying and Dividing Complex Numbers

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

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 8: RADICAL EXPRESSIONS AND FUNCTIONS WRAP-UP

Checkpoint: Assignment

Submit your work for a set of 20 practice problems.

Duration: 0 hrs 25 mins Scoring: 0 points

Review: Radical Expressions and Functions

Get ready for the unit test by reviewing important ideas and skills.

Duration: 0 hrs 20 mins Scoring: 0 points

Test (CS): Radical Expressions and Functions

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

Duration: 0 hrs 40 mins Scoring: 42 points

Test (TS): Radical Expressions and Functions

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

Duration: 0 hrs 30 mins Scoring: 27 points

UNIT 4: POLYNOMIALS

LESSON 1: POLYNOMIAL BASICS

Study: Polynomial Basics

Learn that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkpoint: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Polynomial Basics

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

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 2: FACTORING $x^2 + bx + c$

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

Learn about factoring quadratic trinomials with leading coefficients of 1; rules for finding the constant term and coefficient of the x-term; using a table to factor trinomials; and diagramming signs while factoring trinomials.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkpoint: Practice Problems

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

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Factoring Trinomials

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

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 3: FACTORING $ax^2 + bx + c$

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

Learn about factoring trinomials with leading coefficients other than 1; factoring out a leading coefficient of -1; how values of factors relate to values of a trinomial; finding factor pairs of leading coefficients and constant terms; and finding signs in factors of trinomials with leading coefficients other than 1.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkpoint: Practice Problems

Complete a set of practice problems to 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 20 mins Scoring: 20 points

LESSON 4: POLYNOMIALS WRAP-UP

Review: Polynomials Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins Scoring: 0 points

Discuss: FOILed Again

Join a three- to five-question discussion to practice methods learned in this unit.

Duration: 0 hrs 40 mins Scoring: 20 points

Test (CS): Polynomials

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

Duration: 0 hrs 40 mins Scoring: 50 points

Test (TS): Polynomials

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

Duration: 0 hrs 50 mins Scoring: 50 points

UNIT 5: QUADRATIC EQUATIONS AND FUNCTIONS

LESSON 1: SOLVING QUADRATIC EQUATIONS

Study: Solving Quadratic Equations

Learn about solving quadratic equations using factoring and the zero product rule, manipulating a quadratic equation into standard form, and solving quadratic equations with perfect-square trinomials.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkpoint: Practice Problems

Complete a set of practice problems to 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 20 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

Checkpoint: 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

Checkpoint: 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. Use the discriminant of the quadratic formula to identify the number and types of solutions to a given quadratic equation, as well as to visualize its corresponding graph.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkpoint: Practice Problems

Complete a set of practice problems to 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 20 mins Scoring: 20 points

Practice: Modeling: Pumpkin Launch

Model a graph with real world data.

Duration: 0 hrs 30 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

Checkpoint: 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

Checkpoint: 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

Discuss: All Squared Away

Join a three- to five-question discussion to practice methods learned in this unit.

Duration: 0 hrs 40 mins Scoring: 20 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

Test (TS): Quadratic Equations and Functions

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

Duration: 0 hrs 50 mins Scoring: 50 points

UNIT 6: SEMESTER 1 EXAM

LESSON 1: SEMESTER 1 EXAM

Review: Semester 1 Review

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: 120 points

UNIT 7: UNDOING FUNCTIONS AND MOVING THEM AROUND

LESSON 1: 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 2: 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

Checkpoint: 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 3: 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

Checkpoint: 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 4: 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

Checkpoint: 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 5: 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

Discuss: Transformation Station

Join a three- to five-question discussion to practice methods learned in this unit.

Duration: 0 hrs 40 mins Scoring: 20 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: 40 points

Test (TS): Undoing Functions and Moving Them Around

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

UNIT 8: PROOFS

LESSON 1: 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 2: 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

Checkpoint: 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 3: 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

Checkpoint: Practice Problems and Proofs

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 4: 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

Checkpoint: 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 5: PROOFS WRAP-UP

Checkpoint: Proofs Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 25 mins Scoring: 0 points

Review: Proofs

Get ready for the unit test by reviewing important ideas and skills.

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Proofs

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

Duration: 0 hrs 40 mins Scoring: 50 points

Test (TS): Proofs

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

Duration: 0 hrs 30 mins Scoring: 42 points

UNIT 9: TRIANGLES

LESSON 1: 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

Checkpoint: 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 2: 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

Checkpoint: 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 3: CONGRUENCE POSTULATES

Study: Congruence Postulates

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

Duration: 0 hrs 35 mins Scoring: 0 points

Checkpoint: 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 4: 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

Checkpoint: 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 5: 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

Checkpoint: 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 6: 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

Checkpoint: 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 7: 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 8: TRIANGLES WRAP-UP

Checkpoint: Triangles Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 25 mins Scoring: 0 points

Review: Triangles

Get ready for the unit test by reviewing important ideas and skills.

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: 48 points

Test (TS): Triangles

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

Duration: 0 hrs 30 mins Scoring: 27 points

UNIT 10: RIGHT TRIANGLES AND TRIGONOMETRY

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

Checkpoint: 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: 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

Checkpoint: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: 45-45-90 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 3: 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

Checkpoint: 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 4: RIGHT TRIANGLES AND TRIGONOMETRY WRAP-UP

Checkpoint: Right Triangles and Trigonometry Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 25 mins Scoring: 0 points

Review: Right Triangles and Trigonometry

Get ready for the unit test by reviewing important ideas and skills.

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Right Triangles and Trigonometry

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

Duration: 0 hrs 40 mins Scoring: 42 points

Test (TS): Right Triangles and Trigonometry

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

Duration: 0 hrs 30 mins Scoring: 40 points

UNIT 11: 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: TRANSFORMATIONS

Study: Transformations

Learn about rigid motions, describe the image and preimage, predict the results of transformations, and use 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 3: 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 4: CONSTRUCTIONS AND TRANSFORMATIONS WRAP-UP

Checkpoint: Constructions and Transformations Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 25 mins Scoring: 0 points

Review: Constructions and Transformations

Get ready for the unit test by reviewing important ideas and skills.

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: 26 points

Test (TS): Transformations

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

Duration: 0 hrs 30 mins Scoring: 35 points

UNIT 12: APPLICATIONS OF PROBABILITY

LESSON 1: WHAT IS PROBABILITY?

Study: What Is Probability?

Learn the definition for probability and explore its different forms.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkpoint: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: What Is Probability?

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

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: Sample Space

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

Duration: 0 hrs 20 mins Scoring: 20 points

Quiz: Simple and Compound Events

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

Duration: 0 hrs 20 mins Scoring: 20 points

Study: Organizing What Is Possible

Explore the numbers of possible outcomes from a brown bag containing gum balls of different colors.

Duration: 0 hrs 35 mins Scoring: 0 points

LESSON 2: BASIC RULES OF PROBABILITY

Study: Basic Rules of Probability

Learn four rules of probability, as well as the addition rule for disjoint events and the multiplication rule for independent events.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkpoint: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Basic Rules of Probability, Part I

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

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 3: CONDITIONAL PROBABILITY

Study: Conditional Probability

Learn how to identify and solve conditional probability problems using correct notation, formulas, and tables.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkpoint: Practice Problems

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

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Conditional Probability

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: Modeling: A Student Survey

Use your knowledge of conditional probability to analyze the results of a student survey.

Duration: 0 hrs 30 mins Scoring: 20 points

LESSON 4: INDEPENDENCE

Study: Independence

Learn how to show if two events are independent, and solve probability problems for both independent and dependent events using the multiplication rule and tree diagrams.

Duration: 0 hrs 35 mins Scoring: 0 points

Checkpoint: Practice Problems

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

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Independence

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Journal: Smoking and Lung Cancer

Use what you know about conditional probability and independence to critique the reasoning of others.

Duration: 0 hrs 30 mins Scoring: 20 points

LESSON 5: APPLICATIONS OF PROBABILITY WRAP-UP

Checkpoint: Applications of Probability Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 25 mins Scoring: 0 points

Review: Applications of Probability

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

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Applications of Probability

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

Duration: 0 hrs 40 mins Scoring: 32 points

Test (TS): Applications of Probability

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

Duration: 0 hrs 30 mins Scoring: 30 points

UNIT 13: SEMESTER 2 EXAM

LESSON 1: SEMESTER 2 EXAM

Review: Semester 2 Review

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

Duration: 0 hrs 10 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: 0 hrs 50 mins Scoring: 150 points