Precalculus is a course that combines reviews of algebra, geometry, and functions into a preparatory course for calculus. The course focuses on the mastery of critical skills and exposure to new skills necessary for success in subsequent math courses. The first semester includes linear, quadratic, exponential, logarithmic, radical, polynomial, and rational functions; systems of equations; and conic sections. The second semester covers trigonometric ratios and functions; inverse trigonometric functions; applications of trigonometry, including vectors and laws of cosine and sine; polar functions and notation; and arithmetic of complex numbers.

Within each Precalculus lesson, students are supplied with a post-study Checkup activity that provides them the opportunity to hone their computational skills by working through a low-stakes problem set before moving on to formal assessment. Unit-level Precalculus assessments include a computer-scored test and a scaffolded, teacher-scored test.

The course is built to state standards and the National Council of Teachers of Mathematics (NCTM) standards.

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 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on functions.
Duration: 0 hrs 50 mins

Quiz: What Is a Function?
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 2: GRAPHING FUNCTIONS

Study: Testing and Special 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 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on graphing functions.
Duration: 0 hrs 50 mins

Quiz: Graphing Functions
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 3: LINEAR FUNCTIONS

Study: Walking the Line
Learn about slope and the three main forms of linear functions.
Duration: 0 hrs 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on linear functions.
Duration: 0 hrs 50 mins
LESSON 4: ARITHMETIC SEQUENCES AND SERIES

Study: It All Adds Up
Learn about arithmetic sequences and series.
Duration: 0 hrs 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on arithmetic sequences and series.
Duration: 0 hrs 50 mins

Quiz: Arithmetic Sequences and Series
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 5: LINEAR EQUATIONS AND INEQUALITIES

Study: On Equal Footing
Learn how to solve linear equations and inequalities.
Duration: 0 hrs 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on linear equations and inequalities.
Duration: 0 hrs 50 mins

Quiz: Linear Equations and Inequalities
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 6: LINEAR SYSTEMS

Study: Finding the Point of Intersection
Find the point of intersection of linear systems using algebra, graphing, and matrices.
Duration: 0 hrs 50 mins

Study: Connection to Business: Linear Programming
Learn how businesses solve problems using linear programming.
Duration: 0 hrs 30 mins

Checkup: Lessons Learned
Complete a set of practice problems on linear systems.
Duration: 0 hrs 50 mins

Quiz: Linear Systems
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 7: ARITHMETIC OF FUNCTIONS

Study: Mixing and Matching
Learn how to add, subtract, multiply, divide, and compose functions.
Duration: 0 hrs 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on the arithmetic of functions.
Duration: 0 hrs 50 mins

Quiz: Arithmetic of Functions
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points
LESSON 8: FUNCTIONS WRAP-UP

Review: Functions
Prepare for the unit test by reviewing key concepts and skills.
Duration: 0 hrs 50 mins

Review: Calculator Skills
Review key calculator skills.
Duration: 0 hrs 25 mins

Practice: Functions
Complete a set of practice problems.
Duration: 0 hrs 50 mins Scoring: 50 points

Discuss: What Questions Do You Have?
Discuss ideas about this unit that are still unclear. Help to answer your classmates' questions.
Duration: 0 hrs 30 mins Scoring: 20 points

Test (CS): Functions
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins Scoring: 60 points

Test (TS): Functions
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins Scoring: 100 points

UNIT 2: QUADRATIC FUNCTIONS

LESSON 1: FORMS OF QUADRATIC FUNCTIONS

Study: Express Yourself
Express quadratic functions in a variety of forms.
Duration: 0 hrs 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on forms of quadratic functions.
Duration: 0 hrs 50 mins

Quiz: Forms of Quadratic Functions
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 2: GRAPHING QUADRATIC FUNCTIONS

Study: Putting the Pieces Together
Use key components such as vertex, axis of symmetry, and x- and y-intercepts to sketch the graphs of quadratic functions and solve quadratic inequalities.
Duration: 0 hrs 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on graphing quadratic functions.
Duration: 0 hrs 50 mins

Quiz: Graphing Quadratic Functions
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 3: TRANSFORMATIONS

Study: Getting a Move On
Learn how to reflect about the x- and y-axes. Learn about horizontal and vertical shifts and horizontal and vertical stretches.
Duration: 0 hrs 50 mins
Checkup: Lessons Learned
Complete a set of practice problems on transformations.
Duration: 0 hrs 50 mins

Quiz: Transformations
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 4: SOLVING QUADRATIC EQUATIONS

Study: Answers to Your Questions
Use factoring and the quadratic formula to solve an equation. Also relate solutions to zeros and work with complex numbers.
Duration: 0 hrs 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on solving quadratic equations.
Duration: 0 hrs 50 mins

Quiz: Solving Quadratic Equations
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 5: APPLICATIONS OF QUADRATIC FUNCTIONS

Study: Solving Problems Using Quadratic Functions
Set up and solve application problems involving quadratic functions.
Duration: 0 hrs 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on applications of quadratic functions.
Duration: 0 hrs 50 mins

Quiz: Applications of Quadratic Functions
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 6: QUADRATIC FUNCTIONS WRAP-UP

Review: Quadratic Functions
Prepare for the unit test by reviewing key concepts and skills.
Duration: 0 hrs 50 mins

Review: Calculator Skills
Review key calculator skills.
Duration: 0 hrs 25 mins

Practice: Quadratic Functions
Complete a set of practice problems.
Duration: 0 hrs 50 mins Scoring: 50 points

Discuss: What Questions Do You Have?
Discuss ideas about this unit that are still unclear. Help to answer your classmates' questions.
Duration: 0 hrs 30 mins Scoring: 20 points

Test (CS): Quadratic Functions
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins Scoring: 60 points

Test (TS): Quadratic Functions
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins Scoring: 100 points
UNIT 3: POLYNOMIAL AND RATIONAL FUNCTIONS

LESSON 1: POLYNOMIAL EXPRESSIONS

Study: What Is a Polynomial?
Learn what makes a polynomial and how to test for one.
Duration: 0 hrs 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on polynomial expressions.
Duration: 0 hrs 50 mins

Quiz: Polynomial Expressions
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 2: DIVIDING POLYNOMIALS

Study: Synthetic Doesn't Mean Fake
Learn the technique for dividing polynomials and testing for factors.
Duration: 0 hrs 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on dividing polynomials.
Duration: 0 hrs 50 mins

Quiz: Dividing Polynomials
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 3: SOLVING POLYNOMIAL EQUATIONS

Study: These Roots Grow Deep
Find all solutions to polynomial equations.
Duration: 0 hrs 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on solving polynomial equations.
Duration: 0 hrs 50 mins

Quiz: Solving Polynomial Equations
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 4: GRAPHING POLYNOMIAL FUNCTIONS

Study: What Goes Up Sometimes Comes Down
Explore the behavior of polynomial functions and find key points of the graph of the function.
Duration: 0 hrs 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on graphing polynomial functions.
Duration: 0 hrs 50 mins

Quiz: Graphing Polynomial Functions
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 5: RATIONAL FUNCTIONS

Study: Top and Bottom
Identify rational functions, find domain and range, look at asymptotes, and sketch complete graphs.
Duration: 0 hrs 50 mins
**Checkup: Lessons Learned**
Complete a set of practice problems on rational functions.
Duration: 0 hrs 50 mins

**Quiz: Rational Functions**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

**LESSON 6: POLYNOMIAL AND RATIONAL FUNCTIONS WRAP-UP**

**Review: Polynomial and Rational Functions**
Prepare for the unit test by reviewing key concepts and skills.
Duration: 0 hrs 50 mins

**Review: Calculator Skills**
Review key calculator skills.
Duration: 0 hrs 25 mins

**Practice: Polynomial and Rational Functions**
Complete a set of practice problems.
Duration: 0 hrs 50 mins Scoring: 50 points

**Discuss: What Questions Do You Have?**
Discuss ideas about this unit that are still unclear. Help to answer your classmates’ questions.
Duration: 0 hrs 30 mins Scoring: 20 points

**Test (CS): Polynomial and Rational Functions**
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins Scoring: 60 points

**Test (TS): Polynomial and Rational Functions**
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins Scoring: 100 points

**UNIT 4: EXPONENTIAL AND LOGARITHMIC FUNCTIONS**

**LESSON 1: EXPONENTS AND RADICALS**

**Study: Rational Exponents and Radical Expressions**
Learn the rules of exponents and how to express radicals.
Duration: 0 hrs 50 mins

**Checkup: Lessons Learned**
Complete a set of practice problems on exponents and radicals.
Duration: 0 hrs 50 mins

**Quiz: Exponents and Radicals**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

**LESSON 2: EXPONENTIAL FUNCTIONS**

**Study: Exponential Functions and Their Graphs**
Explore the basic exponential graphs.
Duration: 0 hrs 50 mins

**Checkup: Lessons Learned**
Complete a set of practice problems on exponential functions.
Duration: 0 hrs 50 mins

**Quiz: Exponential Functions**
Take a quiz to assess your understanding of the material.
**LESSON 3: GEOMETRIC SEQUENCES**

**Study: Leaps and Bounds**
Learn about geometric sequences and series.
Duration: 0 hrs 50 mins

**Checkup: Lessons Learned**
Complete a set of practice problems on geometric sequences.
Duration: 0 hrs 50 mins

**Quiz: Geometric Sequences**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

**LESSON 4: INTRODUCTION TO LOGARITHMS**

**Study: Logarithms**
Learn how logarithms are used to express exponents.
Duration: 0 hrs 50 mins

**Checkup: Lessons Learned**
Complete a set of practice problems on logarithms.
Duration: 0 hrs 50 mins

**Quiz: Introduction to Logarithms**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

**LESSON 5: GRAPHS OF LOGARITHMIC FUNCTIONS**

**Study: Undoing What You Have Done**
Learn the graphs of key logarithmic functions.
Duration: 0 hrs 50 mins

**Checkup: Lessons Learned**
Complete a set of practice problems on graphs of logarithmic functions.
Duration: 0 hrs 50 mins

**Quiz: Graphs of Logarithmic Functions**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

**LESSON 6: APPLICATIONS OF LOGARITHMS**

**Study: Logs Are Natural**
Solve application problems involving exponential and logarithmic expressions.
Duration: 0 hrs 50 mins

**Checkup: Lessons Learned**
Complete a set of practice problems on applications of logarithms.
Duration: 0 hrs 50 mins

**Quiz: Applications of Logarithms**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

**LESSON 7: EXPONENTIAL AND LOGARITHMIC FUNCTIONS WRAP-UP**

**Review: Exponential and Logarithmic Functions**
Prepare for the unit test by reviewing key concepts and skills.
Duration: 0 hrs 50 mins
Review: Calculator Skills
Review key calculator skills.
Duration: 0 hrs 25 mins

Practice: Exponential and Logarithmic Functions
Complete a set of practice problems.
Duration: 0 hrs 50 mins Scoring: 50 points

Discuss: What Questions Do You Have?
Discuss ideas about this unit that are still unclear. Help to answer your classmates’ questions.
Duration: 0 hrs 30 mins Scoring: 20 points

Test (CS): Exponential and Logarithmic Functions
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins

Test (TS): Exponential and Logarithmic Functions
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins Scoring: 100 points

UNIT 5: CONIC SECTIONS

LESSON 1: INTRODUCTION TO CONIC SECTIONS
Study: How Do You Cut a Cone?
Explore the various ways a cone can be cut to produce conic sections such as a circle.
Duration: 0 hrs 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on conic sections.
Duration: 0 hrs 50 mins

Quiz: Introduction to Conic Sections
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 2: ELLIPSES
Study: Stretching Circles
Learn how ellipses are defined and formed.
Duration: 0 hrs 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on ellipses.
Duration: 0 hrs 50 mins

Quiz: Ellipses
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 3: HYPERBOLAS
Study: Turning Inside Out
Learn how hyperbolas are defined and formed.
Duration: 0 hrs 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on hyperbolas.
Duration: 0 hrs 50 mins

Quiz: Hyperbolas
Take a quiz to assess your understanding of the material.
LESSON 4: PARABOLAS

Study: A Familiar Friend
Learn how parabolas are defined and formed.
Duration: 0 hrs 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on parabolas.
Duration: 0 hrs 50 mins

Quiz: Parabolas
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 5: SYSTEMS OF CONIC SECTIONS

Study: Finding the Intersections
Find the solutions to systems of conic sections.
Duration: 0 hrs 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on systems of conic sections.
Duration: 0 hrs 50 mins

Quiz: Systems of Conic Sections
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 6: CONIC SECTIONS WRAP-UP

Review: Conic Sections
Prepare for the unit test by reviewing key concepts and skills.
Duration: 0 hrs 50 mins

Review: Calculator Skills
Review key calculator skills.
Duration: 0 hrs 25 mins

Practice: Conic Sections
Complete a set of practice problems.
Duration: 0 hrs 50 mins Scoring: 50 points

Discuss: What Questions Do You Have?
Discuss ideas about this unit that are still unclear. Help to answer your classmates' questions.
Duration: 0 hrs 30 mins Scoring: 20 points

Test (CS): Conic Sections
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins Scoring: 60 points

Test (TS): Conic Sections
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins Scoring: 100 points

UNIT 6: SEMESTER 1 REVIEW AND EXAM

LESSON 1: PREPARING FOR THE SEMESTER EXAM

Review: Semester 1 Review
Prepare for the semester exam by reviewing key concepts covered in Semester 1.
Duration: 1 hr 30 mins
**Exam: Semester Exam (Computer-Scored)**
Take a computer-scored exam to demonstrate your mastery of concepts and skills covered in Semester 1.
Duration: 1 hr Scoring: 150 points

**Final Exam: Semester Exam (Teacher-Scored)**
Take a teacher-scored exam to demonstrate your mastery of concepts and skills covered in Semester 1.
Duration: 1 hr Scoring: 100 points

### UNIT 7: INTRODUCTION TO TRIGONOMETRY

#### LESSON 1: RIGHT TRIANGLES

**Study: All the Right Moves**
Review right triangles and get an introduction to trigonometric ratios.
Duration: 1 hr

**Checkup: Lessons Learned**
Complete a set of practice problems on trigonometry.
Duration: 0 hrs 50 mins

**Quiz: Introduction to Trigonometry**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

#### LESSON 2: ANGLES AND RADIANS

**Study: A Slice of Pi**
Learn about angles expressed in degrees and radians.
Duration: 1 hr

**Checkup: Lessons Learned**
Complete a set of practice problems on angles and radians.
Duration: 0 hrs 50 mins

**Quiz: Angles and Radians**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

#### LESSON 3: TRIGONOMETRIC RATIOS AND THE UNIT CIRCLE

**Study: Terminal Conditions**
Learn the six trigonometric ratios and how the unit circle defines them.
Duration: 1 hr

**Study: Pythagorean Theorem**
Review the Pythagorean theorem.
Duration: 0 hrs 30 mins

**Checkup: Lessons Learned**
Complete a set of practice problems on trigonometric functions and the unit circle.
Duration: 0 hrs 50 mins

**Quiz: Trigonometric Functions and the Unit Circle**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

#### LESSON 4: INTRODUCTION TO TRIGONOMETRY WRAP-UP

**Review: Introduction to Trigonometry**
Prepare for the unit test by reviewing key concepts and skills.
Duration: 0 hrs 50 mins

**Review: Calculator Skills**
UNIT 8: TRIGONOMETRIC FUNCTIONS

LESSON 1: GRAPHS OF SINE AND COSINE

**Study: What Is a Sinusoid Anyway?**
Learn to build the graphs of sine and cosine.
Duration: 1 hr

**Checkup: Lessons Learned**
Complete a set of practice problems on graphs of sine and cosine.
Duration: 0 hrs 50 mins

**Quiz: Graphs of Sine and Cosine**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 2: GRAPHS OF OTHER FUNCTIONS

**Study: Graphing More Trigonometric Functions**
Learn the graphs of the other four trigonometric functions.
Duration: 1 hr

**Checkup: Lessons Learned**
Complete a set of practice problems on graphs of other functions.
Duration: 0 hrs 50 mins

**Quiz: Graphs of Other Functions**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 3: SIMPLE TRANSFORMATIONS OF SINUSOIDS

**Study: Stretches, Shifts, and Flips, Oh My!**
Learn how to transform trigonometric graphs with reflections, shifts, and stretches.
Duration: 0 hrs 50 mins

**Checkup: Lessons Learned**
Complete a set of practice problems on transformations of periodic graphs.
Duration: 0 hrs 50 mins

**Quiz: Simple Transformations of Sinusoids**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points
LESSON 4: GENERAL TRANSFORMATIONS OF PERIODIC GRAPHS

Study: Putting It All Together
Learn how to transform trigonometric graphs with reflections, shifts, and stretches.
Duration: 0 hrs 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on transformations of trigonometric functions.
Duration: 0 hrs 50 mins

Quiz: General Transformations of Periodic Graphs
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 5: TRIGONOMETRIC FUNCTIONS WRAP-UP

Review: Trigonometric Functions
Prepare for the unit test by reviewing key concepts and skills.
Duration: 0 hrs 50 mins

Review: Calculator Skills
Review key calculator skills.
Duration: 0 hrs 25 mins

Practice: Trigonometric Functions
Complete a set of practice problems.
Duration: 1 hr Scoring: 50 points

Discuss: What Questions Do You Have?
Discuss ideas about this unit that are still unclear. Help to answer your classmates' questions.
Duration: 0 hrs 30 mins Scoring: 20 points

Test (CS): Trigonometric Functions
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins Scoring: 60 points

Test (TS): Trigonometric Functions
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins Scoring: 100 points

UNIT 9: WORKING WITH TRIGONOMETRIC FUNCTIONS

LESSON 1: INVERSE TRIGONOMETRIC FUNCTIONS

Study: Arc! Who Goes There?
Learn how to solve for angles using the inverse trigonometric ratios.
Duration: 1 hr

Checkup: Lessons Learned
Complete a set of practice problems on inverse trigonometric functions.
Duration: 0 hrs 50 mins

Quiz: Inverse Trigonometric Functions
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 2: SOLVING TRIGONOMETRIC EQUATIONS

Study: 2 Pi or Not 2 Pi?
Learn to find all solutions to a trigonometric equation.
Duration: 1 hr

Checkup: Lessons Learned
Complete a set of practice problems on solving trigonometric equations.
Duration: 0 hrs 50 mins

**Quiz: Solving Trigonometric Equations**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

**LESSON 3: MODELING SIMPLE HARMONIC MOTION**

**Study: You Are Getting Sleepy**
Explore simple harmonic motion settings.
Duration: 0 hrs 50 mins

**Checkup: Lessons Learned**
Complete a set of practice problems on simple harmonic motion.
Duration: 0 hrs 50 mins

**Quiz: Modeling Simple Harmonic Motion**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

**LESSON 4: WORKING WITH TRIGONOMETRIC FUNCTIONS WRAP-UP**

**Review: Working with Trigonometric Functions**
Prepare for the unit test by reviewing key concepts and skills.
Duration: 0 hrs 50 mins

**Review: Calculator Skills**
Review key calculator skills.
Duration: 0 hrs 25 mins

**Practice: Working with Trigonometric Functions**
Complete a set of practice problems.
Duration: 1 hr Scoring: 50 points

**Discuss: What Questions Do You Have?**
Discuss ideas about this unit that are still unclear. Help to answer your classmates’ questions.
Duration: 0 hrs 30 mins Scoring: 20 points

**Test (CS): Working with Trigonometric Functions**
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins Scoring: 60 points

**Test (TS): Working with Trigonometric Functions**
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins Scoring: 100 points

**UNIT 10: TRIGONOMETRIC IDENTITIES**

**LESSON 1: IDENTITIES AND PROOF**

**Study: Overcoming an Identity Crisis**
Learn how to prove identities.
Duration: 1 hr

**Checkup: Lessons Learned**
Complete a set of practice problems on identities and proof.
Duration: 0 hrs 50 mins

**Quiz: Identities and Proof**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points
LESSON 2: TRIGONOMETRIC IDENTITIES

Study: Just the Facts, Ma'am
Learn the key trigonometric identities.
Duration: 1 hr

Checkup: Lessons Learned
Complete a set of practice problems on trigonometric identities.
Duration: 0 hrs 50 mins

Quiz: Trigonometric Identities
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 3: APPLICATIONS OF IDENTITIES

Study: Use 'Em or Lose 'Em
Use the key trigonometric identities to solve trigonometric equations.
Duration: 0 hrs 50 mins

Checkup: Lessons Learned
Complete a set of practice problems on identities.
Duration: 0 hrs 50 mins

Quiz: Applications of Identities
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 4: TRIGONOMETRIC IDENTITIES WRAP-UP

Review: Trigonometric Identities
Prepare for the unit test by reviewing key concepts and skills.
Duration: 0 hrs 50 mins

Review: Calculator Skills
Review key calculator skills.
Duration: 0 hrs 25 mins

Practice: Trigonometric Identities
Complete a set of practice problems.
Duration: 0 hrs 50 mins Scoring: 50 points

Discuss: What Questions Do You Have?
Discuss ideas about this unit that are still unclear. Help to answer your classmates' questions.
Duration: 0 hrs 30 mins Scoring: 20 points

Test (CS): Trigonometric Identities
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins Scoring: 60 points

Test (TS): Trigonometric Identities
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins Scoring: 100 points

UNIT 11: APPLICATIONS OF TRIGONOMETRY

LESSON 1: LAW OF COSINES

Study: It's the Law
Use the law of cosines to solve triangles.
Duration: 1 hr

Checkup: Lessons Learned
Complete a set of practice problems using the law of cosines.
Duration: 0 hrs 50 mins

**Quiz: Law of Cosines**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

**LESSON 2: LAW OF SINES**

**Study: The Long Arm of the Law**
Use the law of sines to solve triangles and to explore the ambiguous case.
Duration: 1 hr

**Checkup: Lessons Learned**
Complete a set of practice problems using the law of sines.
Duration: 0 hrs 50 mins

**Quiz: Law of Sines**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

**LESSON 3: VECTORS**

**Study: Getting Around**
Use vectors to describe motion.
Duration: 1 hr

**Checkup: Lessons Learned**
Complete a set of practice problems on vectors.
Duration: 0 hrs 50 mins

**Quiz: Vectors**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

**LESSON 4: APPLICATIONS OF TRIGONOMETRY WRAP-UP**

**Review: Applications of Trigonometry**
Prepare for the unit test by reviewing key concepts and skills.
Duration: 0 hrs 50 mins

**Review: Calculator Skills**
Review key calculator skills.
Duration: 0 hrs 25 mins

**Practice: Applications of Trigonometry**
Complete a set of practice problems.
Duration: 0 hrs 50 mins Scoring: 50 points

**Discuss: What Questions Do You Have?**
Discuss ideas about this unit that are still unclear. Help to answer your classmates’ questions.
Duration: 0 hrs 30 mins Scoring: 20 points

**Test (CS): Applications of Trigonometry**
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins Scoring: 60 points

**Test (TS): Applications of Trigonometry**
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins Scoring: 100 points

**UNIT 12: COMPLEX NUMBERS**
LESSON 1: POLAR COORDINATES
Study: The Polar Express
Learn to use polar coordinates to express locations of points.
Duration: 1 hr

Checkup: Lessons Learned
Complete a set of practice problems on polar coordinates.
Duration: 0 hrs 50 mins

Quiz: Polar Coordinates
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 2: GRAPHS OF POLAR FUNCTIONS
Study: From Lemniscates to Limaçons
Produce a variety of new graphs using polar functions.
Duration: 1 hr

Checkup: Lessons Learned
Complete a set of practice problems on graphs of polar functions.
Duration: 0 hrs 50 mins

Quiz: Graphs of Polar Functions
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 3: POLAR FORM OF COMPLEX NUMBERS
Study: A Good Complex to Have
Express complex numbers in polar form.
Duration: 1 hr

Checkup: Lessons Learned
Complete a set of practice problems on the polar form of complex numbers.
Duration: 0 hrs 50 mins

Quiz: Polar Form of Complex Numbers
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 4: ARITHMETIC OF COMPLEX NUMBERS
Study: This Math Isn't Complex
Add, subtract, multiply, and divide complex numbers.
Duration: 1 hr

Checkup: Lessons Learned
Complete a set of practice problems on the arithmetic of complex numbers.
Duration: 0 hrs 50 mins

Quiz: Arithmetic of Complex Numbers
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

LESSON 5: POWERS AND ROOTS OF COMPLEX NUMBERS
Study: Feel the Power
Express powers and roots of complex numbers.
Duration: 1 hr

Checkup: Lessons Learned
Complete a set of practice problems on powers and roots of complex numbers.
Duration: 0 hrs 50 mins

**Quiz: Powers and Roots of Complex Numbers**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 40 mins Scoring: 20 points

**LESSON 6: COMPLEX NUMBERS WRAP-UP**

**Review: Complex Numbers**
Prepare for the unit test by reviewing key concepts and skills.
Duration: 0 hrs 50 mins

**Review: Calculator Skills**
Review key calculator skills.
Duration: 0 hrs 25 mins

**Practice: Complex Numbers**
Complete a set of practice problems.
Duration: 0 hrs 50 mins Scoring: 50 points

**Discuss: What Questions Do You Have?**
Discuss ideas about this unit that are still unclear. Help to answer your classmates' questions.
Duration: 0 hrs 30 mins Scoring: 20 points

**Test (CS): Complex Numbers**
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins Scoring: 60 points

**Test (TS): Complex Numbers**
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 50 mins Scoring: 100 points

**UNIT 13: SEMESTER 2 REVIEW AND EXAM**

**LESSON 1: PREPARING FOR THE SEMESTER EXAM**

**Review: Semester Review**
Prepare for the semester exam by reviewing key concepts covered in Semester 2.
Duration: 2 hrs

**Exam: Semester Exam (Computer-Scored)**
Take a computer-scored exam to demonstrate your mastery of concepts and skills covered in Semester 2.
Duration: 1 hr Scoring: 150 points

**Final Exam: Semester Exam (Teacher-Scored)**
Take a teacher-scored exam to demonstrate your mastery of concepts and skills covered in Semester 2.
Duration: 1 hr Scoring: 100 points