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 content is based on the National Council of Teachers of Mathematics (NCTM) standards and is aligned with state 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 hr 50 min

Checkup: Lessons Learned
Complete a set of practice problems on functions.

Duration: 0 hr 50 min

Quiz: What Is a Function?
Take a quiz to assess your understanding of the material.

Duration: 0 hr 40 min 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 hr 50 min*

**Checkup: Lessons Learned**
Complete a set of practice problems on graphing functions.

*Duration: 0 hr 50 min*

**Quiz: Graphing Functions**
Take a quiz to assess your understanding of the material.

*Duration: 0 hr 40 min Scoring: 20 points*

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**LESSON 3: LINEAR FUNCTIONS**

**Study: Walking the Line**
Learn about slope and the three main forms of linear functions.

*Duration: 0 hr 50 min*

**Checkup: Lessons Learned**
Complete a set of practice problems on linear functions.

*Duration: 0 hr 50 min*

**Quiz: Linear Functions**
Take a quiz to assess your understanding of the material.

*Duration: 0 hr 40 min Scoring: 20 points*

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**LESSON 4: ARITHMETIC SEQUENCES AND SERIES**

**Study: It All Adds Up**
Learn about arithmetic sequences and series.

*Duration: 0 hr 50 min*

**Checkup: Lessons Learned**
Complete a set of practice problems on arithmetic sequences and series.

*Duration: 0 hr 50 min*

**Quiz: Arithmetic Sequences and Series**
Take a quiz to assess your understanding of the material.

*Duration: 0 hr 40 min Scoring: 20 points*
LESSON 5: LINEAR EQUATIONS AND INEQUALITIES

Study: On Equal Footing
Learn how to solve linear equations and inequalities.
*Duration: 0 hr 50 min*

Checkup: Lessons Learned
Complete a set of practice problems on linear equations and inequalities.
*Duration: 0 hr 50 min*

Quiz: Linear Equations and Inequalities
Take a quiz to assess your understanding of the material.
*Duration: 0 hr 40 min*  
*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 hr 50 min*

Checkup: Lessons Learned
Complete a set of practice problems on linear systems.
*Duration: 0 hr 50 min*

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

LESSON 7: ARITHMETIC OF FUNCTIONS

Study: Mixing and Matching
Learn how to add, subtract, multiply, divide, and compose functions.
*Duration: 0 hr 50 min*

Checkup: Lessons Learned
Complete a set of practice problems on the arithmetic of functions.
*Duration: 0 hr 50 min*

Quiz: Arithmetic of Functions
Take a quiz to assess your understanding of the material.
LESSON 8: FUNCTIONS WRAP-UP

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

Review: Calculator Skills
Review key calculator skills.
Duration: 0 hr 25 min

Practice: Functions
Complete a set of practice problems.
Duration: 0 hr 50 min 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 hr 30 min Scoring: 20 points

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

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

LESSON 9: DIAGNOSTIC

Diagnostic: Functions
Take a diagnostic unit test that will generate a study plan based on your responses.
Duration: 0
hr 40 min Scoring: 20 points

UNIT 2: QUADRATIC FUNCTIONS

LESSON 1: FORMS OF QUADRATIC FUNCTIONS
Study: Express Yourself
Express quadratic functions in a variety of forms.
*Duration: 0 hr 50 min*

Checkup: Lessons Learned
Complete a set of practice problems on forms of quadratic functions.
*Duration: 0 hr 50 min*

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

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**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 hr 50 min*

Checkup: Lessons Learned
Complete a set of practice problems on graphing quadratic functions.
*Duration: 0 hr 50 min*

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

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**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 hr 50 min*

Checkup: Lessons Learned
Complete a set of practice problems on transformations.
*Duration: 0 hr 50 min*

Quiz: Transformations
Take a quiz to assess your understanding of the material.
*Duration: 0 hr 40 min*  
*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 hr 50 min

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

Quiz: Solving Quadratic Equations
Take a quiz to assess your understanding of the material.
Duration: 0 hr 40 min
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 hr 50 min

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

Quiz: Applications of Quadratic Functions
Take a quiz to assess your understanding of the material.
Duration: 0 hr 40 min
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 hr 50 min

Review: Calculator Skills
Review key calculator skills.
Duration: 0 hr 25 min
Practice: Quadratic Functions
Complete a set of practice problems.
*Duration: 0 hr 50 min 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 hr 30 min Scoring: 20 points*

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

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

LESSON 7: DIAGNOSTIC

Diagnostic: Quadratic Functions
Take a diagnostic unit test that will generate a study plan based on your responses.
*Duration: 0 hr 40 min Scoring: 20 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 hr 50 min*

Checkup: Lessons Learned
Complete a set of practice problems on polynomial expressions.
*Duration: 0 hr 50 min*

Quiz: Polynomial Expressions
Take a quiz to assess your understanding of the material.
*Duration: 0 hr 40 min 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 hr
50 min

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

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

LESSON 3: SOLVING POLYNOMIAL EQUATIONS

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

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

Quiz: Solving Polynomial Equations
Take a quiz to assess your understanding of the material.
Duration: 0 hr 40 min
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 hr 50 min

Checkup: Lessons Learned
Complete a set of practice problems on graphing polynomial functions.
Duration: 0 hr 50 min
LESSON 5: RATIONAL FUNCTIONS

Study: Top and Bottom
Identify rational functions, find domain and range, look at asymptotes, and sketch complete graphs.
Duration: 0 hr 50 min

Checkup: Lessons Learned
Complete a set of practice problems on rational functions.
Duration: 0 hr 50 min

Quiz: Rational Functions
Take a quiz to assess your understanding of the material.
Duration: 0 hr 40 min 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 hr 50 min

Review: Calculator Skills
Review key calculator skills.
Duration: 0 hr 25 min

Practice: Polynomial and Rational Functions
Complete a set of practice problems.
Duration: 0 hr 50 min 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 hr 30 min Scoring: 20 points

Test (CS): Polynomial and Rational Functions
Take a computer-scored test to assess what you have learned in this
 LESSON 7: DIAGNOSTIC

Diagnostic: Polynomial and Rational Functions
Take a diagnostic unit test that will generate a study plan based on your responses.
Duration: 0 hr 40 min Scoring: 20 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 hr 50 min

Checkup: Lessons Learned
Complete a set of practice problems on exponents and radicals.
Duration: 0 hr 50 min

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

LESSON 2: EXPONENTIAL FUNCTIONS

Study: Exponential Functions and Their Graphs
Explore the basic exponential graphs.
Duration: 0 hr 50 min

Checkup: Lessons Learned
Complete a set of practice problems on exponential functions.
**LESSON 3: GEOMETRIC SEQUENCES**

**Study: Leaps and Bounds**  
Learn about geometric sequences and series.  
*Duration: 0 hr 50 min*

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

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

**LESSON 4: INTRODUCTION TO LOGARITHMS**

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

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

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

**LESSON 5: GRAPHS OF LOGARITHMIC FUNCTIONS**

**Study: Undoing What You Have Done**  
Learn the graphs of key logarithmic functions.  
*Duration: 0 hr 50 min*
LESSON 6: APPLICATIONS OF LOGARITHMS

Study: Logs Are Natural
Solve application problems involving exponential and logarithmic expressions.
Duration: 0 hr 50 min

Checkup: Lessons Learned
Complete a set of practice problems on applications of logarithms.
Duration: 0 hr 50 min

Quiz: Applications of Logarithms
Take a quiz to assess your understanding of the material.
Duration: 0 hr 40 min
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 hr 50 min

Review: Calculator Skills
Review key calculator skills.
Duration: 0 hr 25 min

Practice: Exponential and Logarithmic Functions
Complete a set of practice problems.
Duration: 0 hr 50 min 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 hr 30 min 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 hr 50 min Scoring: 60 points

Test (TS): Exponential and Logarithmic Functions
Take a teacher-scored test to assess what you have learned in this unit.

Duration: 0 hr 50 min Scoring: 100 points

LESSON 8: DIAGNOSTIC

Diagnostic: Exponential and Logarithmic Functions
Take a diagnostic unit test that will generate a study plan based on your responses.

Duration: 0 hr 40 min Scoring: 20 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 hr 50 min

Checkup: Lessons Learned
Complete a set of practice problems on conic sections.

Duration: 0 hr 50 min

Quiz: Introduction to Conic Sections
Take a quiz to assess your understanding of the material.

Duration: 0 hr 40 min

Scoring: 20 points

LESSON 2: ELLIPSES

Study: Stretching Circles
Learn how ellipses are defined and formed.

*Duration: 0 hr 50 min*

**Checkup: Lessons Learned**
Complete a set of practice problems on ellipses.

*Duration: 0 hr 50 min*

**Quiz: Ellipses**
Take a quiz to assess your understanding of the material.

*Duration: 0 hr 40 min Scoring: 20 points*

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**LESSON 3: HYPERBOLAS**

**Study: Turning Inside Out**
Learn how hyperbolas are defined and formed.

*Duration: 0 hr 50 min*

**Checkup: Lessons Learned**
Complete a set of practice problems on hyperbolas.

*Duration: 0 hr 50 min*

**Quiz: Hyperbolas**
Take a quiz to assess your understanding of the material.

*Duration: 0 hr 40 min Scoring: 20 points*

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**LESSON 4: PARABOLAS**

**Study: A Familiar Friend**
Learn how parabolas are defined and formed.

*Duration: 0 hr 50 min*

**Checkup: Lessons Learned**
Complete a set of practice problems on parabolas.

*Duration: 0 hr 50 min*

**Quiz: Parabolas**
Take a quiz to assess your understanding of the material.

*Duration: 0 hr 40 min Scoring: 20 points*

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**LESSON 5: SYSTEMS OF CONIC SECTIONS**

**Study: Finding the Intersections**
Find the solutions to systems of conic sections.

Duration: 0 hr 50 min

Checkup: Lessons Learned
Complete a set of practice problems on systems of conic sections.

Duration: 0 hr 50 min

Quiz: Systems of Conic Sections
Take a quiz to assess your understanding of the material.

Duration: 0 hr 40 min
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 hr 50 min

Review: Calculator Skills
Review key calculator skills.

Duration: 0 hr 25 min

Practice: Conic Sections
Complete a set of practice problems.

Duration: 0 hr 50 min 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 hr 30 min Scoring: 20 points

Test (CS): Conic Sections
Take a computer-scored test to assess what you have learned in this unit.

Duration: 0 hr 50 min Scoring: 60 points

Test (TS): Conic Sections
Take a teacher-scored test to assess what you have learned in this unit.

Duration: 0 hr 50 min
Scoring: 100 points

LESSON 7: DIAGNOSTIC

Diagnostic: Conic Sections
Take a diagnostic unit test that will generate a study plan based on your responses.

*Duration: 0 hr 40 min Scoring: 20 points*

### UNIT 6: PRECALCULUS SEMESTER 1 REVIEW AND EXAM

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

**Review: Precalculus Semester 1**
Prepare for the semester exam by reviewing key concepts covered in Precalculus Semester 1.
*Duration: 1 hr 30 min*

**Exam: Semester Exam (Computer-Scored)**
Take a computer-scored exam to demonstrate your mastery of concepts and skills covered in Precalculus 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 Precalculus 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 hr 50 min*

**Quiz: Introduction to Trigonometry**
Take a quiz to assess your understanding of the material.
*Duration: 0 hr 40 min*
*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 hr 50 min

Quiz: Angles and Radians
Take a quiz to assess your understanding of the material.

Duration: 0 hr 40 min 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 hr 30 min

Checkup: Lessons Learned
Complete a set of practice problems on trigonometric functions and the unit circle.

Duration: 0 hr 50 min

Quiz: Trigonometric Functions and the Unit Circle
Take a quiz to assess your understanding of the material.

Duration: 0 hr 40 min 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 hr 50 min

Review: Calculator Skills
Review key calculator skills.

Duration: 0 hr 25 min
Practice: Introduction to Trigonometry
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 hr 30 min  Scoring: 20 points*

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

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

**LESSON 5: DIAGNOSTIC**

Diagnostic: Introduction to Trigonometry
Take a diagnostic unit test that will generate a study plan based on your responses.
*Duration: 0 hr 40 min  Scoring: 20 points*

**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 hr 50 min*

Quiz: Graphs of Sine and Cosine
Take a quiz to assess your understanding of the material.
*Duration: 0 hr 40 min  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 hr 50 min

Quiz: Graphs of Other Functions
Take a quiz to assess your understanding of the material.

Duration: 0 hr 40 min

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 hr 50 min

Checkup: Lessons Learned
Complete a set of practice problems on transformations of periodic graphs.

Duration: 0 hr 50 min

Quiz: Simple Transformations of Sinusoids
Take a quiz to assess your understanding of the material.

Duration: 0 hr 40 min

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 hr 50 min

Checkup: Lessons Learned
Complete a set of practice problems on transformations of trigonometric functions.
LESSON 5: TRIGONOMETRIC FUNCTIONS WRAP-UP

Review: Trigonometric Functions
Prepare for the unit test by reviewing key concepts and skills.
*Duration: 0 hr 50 min*

Review: Calculator Skills
Review key calculator skills.
*Duration: 0 hr 25 min*

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 hr 30 min Scoring: 20 points*

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

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

LESSON 6: DIAGNOSTIC

Diagnostic: Trigonometric Functions
Take a diagnostic unit test that will generate a study plan based on your responses.
*Duration: 0 hr 40 min Scoring: 20 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 hr 50 min

Quiz: Inverse Trigonometric Functions
Take a quiz to assess your understanding of the material.
Duration: 0 hr 40 min
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 hr 50 min

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

LESSON 3: MODELING SIMPLE HARMONIC MOTION

Study: You Are Getting Sleepy
Explore simple harmonic motion settings.
Duration: 0 hr 50 min

Checkup: Lessons Learned
Complete a set of practice problems on simple harmonic motion.
Duration: 0 hr 50 min

Quiz: Modeling Simple Harmonic Motion
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 hr 50 min

Review: Calculator Skills
Review key calculator skills.
Duration: 0 hr 25 min

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 hr 30 min 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 hr 50 min 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 hr 50 min Scoring: 100 points

LESSON 5: DIAGNOSTIC

Diagnostic: Working with Trigonometric Functions
Take a diagnostic unit test that will generate a study plan based on your responses.
Duration: 0 hr 40 min Scoring: 20 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 hr 50 min

Quiz: Identities and Proof
Take a quiz to assess your understanding of the material.
Duration: 0 hr 40 min 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 hr 50 min

Quiz: Trigonometric Identities
Take a quiz to assess your understanding of the material.
Duration: 0 hr 40 min 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 hr 50 min

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

Quiz: Applications of Identities
Take a quiz to assess your understanding of the material.
Duration: 0 hr 40 min
LESSON 4: TRIGONOMETRIC IDENTITIES WRAP-UP

Review: Trigonometric Identities
Prepare for the unit test by reviewing key concepts and skills.
*Duration: 0 hr 50 min*

Review: Calculator Skills
Review key calculator skills.
*Duration: 0 hr 25 min*

Practice: Trigonometric Identities
Complete a set of practice problems.
*Duration: 0 hr 50 min 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 hr 30 min Scoring: 20 points*

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

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

LESSON 5: DIAGNOSTIC

Diagnostic: Trigonometric Identities
Take a diagnostic unit test that will generate a study plan based on your responses.
*Duration: 0 hr 40 min Scoring: 20 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 hr 50 min*

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

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**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 hr 50 min*

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

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**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 hr 50 min*

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

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**LESSON 4: APPLICATIONS OF TRIGONOMETRY WRAP-UP**
Review: Applications of Trigonometry
Prepare for the unit test by reviewing key concepts and skills.
*Duration: 0 hr 50 min*

Review: Calculator Skills
Review key calculator skills.
*Duration: 0 hr 25 min*

Practice: Applications of Trigonometry
Complete a set of practice problems.
*Duration: 0 hr 50 min*  *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 hr 30 min*  *Scoring: 20 points*

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

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

LESSON 5: DIAGNOSTIC

Diagnostic: Applications of Trigonometry
Take a diagnostic unit test that will generate a study plan based on your responses.
*Duration: 0 hr 40 min*  *Scoring: 20 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 hr 50 min*

**Quiz: Polar Coordinates**
Take a quiz to assess your understanding of the material.

*Duration: 0 hr 40 min Scoring: 20 points*

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**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 hr 50 min*

**Quiz: Graphs of Polar Functions**
Take a quiz to assess your understanding of the material.

*Duration: 0 hr 40 min Scoring: 20 points*

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**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 hr 50 min*

**Quiz: Polar Form of Complex Numbers**
Take a quiz to assess your understanding of the material.

*Duration: 0 hr 40 min Scoring: 20 points*

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**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 hr
50 min*

**Quiz: Arithmetic of Complex Numbers**
Take a quiz to assess your understanding of the material.

*Duration: 0 hr 40 min
Scoring: 20 points*

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**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 hr 50 min*

**Quiz: Powers and Roots of Complex Numbers**
Take a quiz to assess your understanding of the material.

*Duration: 0 hr 40 min Scoring: 20 points*

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

**Review: Complex Numbers**
Prepare for the unit test by reviewing key concepts and skills.

*Duration: 0 hr 50 min*

**Review: Calculator Skills**
Review key calculator skills.

*Duration: 0 hr 25 min*

**Practice: Complex Numbers**
Complete a set of practice problems.

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

**Discuss: What Questions Do You Have?**

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*Core > Precalculus

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Discuss ideas about this unit that are still unclear. Help to answer your classmates' questions.

*Duration:* 0 hr 30 min  
*Scoring:* 20 points

**Test (CS): Complex Numbers**
Take a computer-scored test to assess what you have learned in this unit.

*Duration:* 0 hr 50 min  
*Scoring:* 100 points

**Test (TS): Complex Numbers**
Take a teacher-scored test to assess what you have learned in this unit.

*Duration:* 0 hr 50 min  
*Scoring:* 100 points

**LESSON 7: DIAGNOSTIC**

**Diagnostic: Complex Numbers**
Take a diagnostic unit test that will generate a study plan based on your responses.

*Duration:* 0 hr 40 min  
*Scoring:* 20 points

**UNIT 13: PRECALCULUS 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 Precalculus Semester 2.

*Duration:* 2 hr

**Exam: Semester Exam (Computer-Scored)**
Take a computer-scored exam to demonstrate your mastery of concepts and skills covered in Precalculus 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 Precalculus Semester 2.

*Duration:* 1 hr  
*Scoring:* 100 points