Core Precalculus

Course materials required. See ‘Course Materials’ below.

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
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

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.
Duration: 0 hr 40 min Scoring: 20 points

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*

**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*

**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

Quiz: Graphing Polynomial Functions
Take a quiz to assess your understanding of the material.
Duration: 0 hr 40 min 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 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 unit.
*Duration: 0 hr 50 min 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 hr 50 min Scoring: 100 points*

**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.
*Duration: 0 hr 50 min*

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

**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

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

Duration: 0 hr 50 min

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

Duration: 0 hr 40 min Scoring: 20 points

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*
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

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

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

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*

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**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*

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**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*

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**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.
Duration: 0 hr 50 min

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

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*

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*

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*

**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.
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

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

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

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?
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: 60 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*