Integrated Math II

Integrated Math II provides a second-year math curriculum that combines material traditionally covered in high school algebra, geometry, and precalculus courses. Integrated Math II leads students to develop rigorous mathematical skills while emphasizing real-world applicability.

Course topics include complex numbers, step and piecewise functions, exponential functions, quadratic functions, inverse functions, right triangles, trigonometric functions, and circles, as well as data analysis and modeling.

Carefully paced, guided instruction is accompanied by practice that is engaging and accessible. Interactive animations allow students to approach and explore topics through real-world situations, helping them to gain an intuitive understanding while learning at the appropriate depth and rigor of a standards-based curriculum. Formative assessments help students to understand areas of weakness and improve performance, while summative assessments chart progress and skill development. Throughout the course, students will develop general strategies for honing their problem-solving skills.

The content is based on the National Council of Teachers of Mathematics (NCTM) Principles and Standards for School Mathematics, as well as the Georgia Performance Standards and Instructional Frameworks in Mathematics. Detailed correlations to state-specific standards are available upon request.

Length:Two Semesters

UNIT 1: WHAT IS A FUNCTION?

LESSON 1: WHEN ONE THING DEPENDS ON ANOTHER

Study: When One Thing Depends on Another
Learn the definition and explore examples of functions as quantities that depend on other quantities.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: When One Thing Depends on Another
Take a quiz to assess your understanding of the material.
Duration: 0 hr
25 min Scoring: 28 points

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LESSON 2: FUNCTION NOTATION

Study: Function Notation
Learn about and explore examples of function notation.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min Scoring: 0 points

Quiz: Translating to Function Notation
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 16 points

Quiz: Function Notation for Specific Amounts
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 16 points

Quiz: Naming Functions
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 16 points

LESSON 3: INPUT-OUTPUT MACHINES

Study: Input-Output Machines
Learn about the domain and range of functions, input-output diagrams using rules for functions, and mathematical expressions in functions.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min Scoring: 0 points

Quiz: Using Functions
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 28 points

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LESSON 4: WRAP-UP

Practice: Assignment
Submit your work for a set of 20 practice problems.
Duration: 1 hr Scoring: 100 points

Review: Review Exercise
Take part in interactive games to review unit material in preparation for upcoming assessments.
Duration: 1 hr Scoring: 0 points

Discuss: Real-World Input/Output Machines
Take part in a three- to five-question discussion about applying methods learned in this unit.
Duration: 0 hr 20 min Scoring: 30 points

Test (CS): What Is a Function?
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hr
40 min Scoring: 45 points

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

LESSON 5: DIAGNOSTIC

Diagnostic: What Is a Function?
Take a diagnostic unit test that will generate a study plan based on your responses.

Duration: 0 hr 40 min Scoring: 15 points

UNIT 2: SOLVING PROBLEMS WITH FUNCTIONS

LESSON 1: FUNCTIONS AND TABLES

Study: Functions and Tables
Learn about using input-output tables to define or describe functions, estimating values of functions, and finding a function?s rule from a table.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems

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Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Functions and Tables
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 20 points

LESSON 2: FUNCTIONS AND GRAPHS

Study: Functions and Graphs
Learn about using bar graphs, pie charts, and line graphs to describe or define functions.

Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Functions and Graphs
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 18 points

LESSON 3: FUNCTIONS AND FORMULAS

Study: Functions and Formulas
Learn about using algebraic rules and formulas to describe and define functions.

Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Functions and Formulas
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 16 points

Study: Solving the Profit Problem

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In a real-world application, use tables, rules, and the method of estimating values to write an equation that expresses a function. Solve the equation and express the output in a line graph.
Duration: 0 hr 40 min Scoring: 0 points

LESSON 4: WRAP-UP

Practice: Assignment
Submit your work for a set of 20 practice problems.
Duration: 1 hr Scoring: 100 points

Review: Review Exercise
Take part in interactive games to review unit material in preparation for upcoming assessments.
Duration: 1 hr Scoring: 0 points

Discuss: Presenting Info the Best Way Possible
Take part in a three- to five-question discussion about applying methods learned in this unit.
Duration: 0 hr 20 min Scoring: 30 points

Test (CS): Solving Problems with Functions
Take a computer-scored test to assess what you have learned in this unit.

Duration: 0 hr 40 min Scoring: 51 points

Test (TS): Solving Problems with Functions
Take a teacher-scored test to assess what you have learned in this unit.

Duration: 0 hr 30 min Scoring: 50 points

LESSON 5: DIAGNOSTIC

Diagnostic: Solving Problems with Functions
Take a diagnostic unit test that will generate a study plan based on your responses.
Duration: 0 hr 40 min Scoring: 17 points

UNIT 3: FUNCTIONS RELATIONS & THEIR GRAPHS

LESSON 1: HOW MANY OUTPUTS?

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Study: How Many Outputs?
Review functions and what makes them special, independent and dependent variables, inputs and outputs, and examples of relationships that might not be functional.
Duration: 0 hr 40 min Scoring: 0 points

Quiz: How Many Outputs?
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 22 points

LESSON 2: FUNCTIONS AND RELATIONS

Study: Functions and Relations
Learn about using mapping diagrams, ordered pairs on diagrams, the difference between mapping diagrams of functions and relations, the vertical line test, and equations of functions and relations.

Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min Scoring: 0 points

Quiz: Mapping Functions and Relations
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 16 points

Quiz: Identifying Functions and Relations
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 16 points

LESSON 3: DOMAIN AND RANGE

Study: Domain and Range
Learn about domains and range on a mapping diagram, estimating domain and range of functions, and calculating the domain of a function from an equation.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min Scoring: 0 points

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Quiz: Domain and Range
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 22 points

LESSON 4: 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 40 min Scoring: 0 points

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

Quiz: Graphing Functions
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 20 points

LESSON 5: COMPOSITION OF FUNCTIONS

Study: Composition of Functions
Explore and evaluate the composition of functions by tracking what happens to the output of one function as it becomes the input of another. Write the names of compositions in function notation.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min Scoring: 0 points

Quiz: Composition of Functions
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 20 points

LESSON 6: SOLVING PROBLEMS WITH COMPOSITION

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Study: Solving Problems with Composition
Explore a case study of the submersion of a submarine to demonstrate composite functions.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Solving Problems with Composition
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25
min Scoring: 16 points

LESSON 7: WRAP-UP

Practice: Assignment
Submit your work for a set of 20 practice problems.
Duration: 1 hr Scoring: 100 points

Review: Review Exercises
Take part in interactive games to review unit material in preparation for upcoming assessments.
Duration: 1 hr Scoring: 0 points

Discuss: Real-World Input-Output Machines
Take part in a three- to five-question discussion about applying methods learned in this unit.
Duration: 0 hr 20 min Scoring: 30 points

Test (CS): Functions Relations & Their Graphs
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hr 40 min Scoring: 66 points

Test (TS): Functions Relations & Their Graphs
Take a teacher-scored test to assess what you have learned in this unit.

Duration: 0 hr 30 min Scoring: 50 points

LESSON 8: DIAGNOSTIC

Diagnostic: Functions Relations & Their Graphs

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Take a diagnostic unit test that will generate a study plan based on your responses.
Duration: 0 hr 40 min Scoring: 22 points

UNIT 4: QUADRATIC FUNCTIONS

LESSON 1: PARABOLAS

Study: Parabolas
Learn about finding a parabola?s equation from its graph; equations for a parabola with its vertex at the origin that opens up/down or left/right; the effect of the coefficient of a squared variable on which way the parabola opens and on its shape; equations of parabolas with vertices at points other than the origin; vertex form and standard form of an equation for a parabola; and converting between vertex form and standard form.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Parabolas with Vertices at the Origin
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25
min Scoring: 18 points

Quiz: Parabolas with Vertices Not at the Origin
Take a quiz to assess your understanding of the material.
Duration: 0
hr 25 min Scoring: 20 points

Quiz: Converting Parabolic Equations
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 16 points

LESSON 2: FACTORING X^2+BX+C

Study: Factoring x^2+bx+c
Learn about factoring quadratic trinomials with leading coefficients of 1; rules for finding the constant term and coefficient of the *x*-term; using a table to factor trinomials; and diagramming signs while factoring trinomials.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems

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Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Binomial Factors of Trinomials
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 30 points

Quiz: Factoring Trinomials
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 30 points

LESSON 3: FACTORING AX^2+BX+C

Study: Factoring ax^2+bx+c
Learn about factoring trinomials with leading coefficients other than 1; factoring out a leading coefficient of -1; how values of factors relate to values of a trinomial; finding factor pairs of leading coefficients and constant terms; and finding signs in factors of trinomials with a leading coefficient different from 1.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Factoring Trinomials (Basic)
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 30 points

Quiz: Factoring Trinomials (Advanced)
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 30 points

LESSON 4: SPECIAL CASES

Study: Special Cases
Identify and factor differences of squares and perfect-square trinomials.
Duration: 0 hr 40 min
Scoring: 0 points

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Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Factoring a Difference of Squares
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25
min Scoring: 30 points

Quiz: Factoring Perfect Square Trinomials
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25
min Scoring: 20 points

LESSON 5: SOLVING QUADRATIC EQUATIONS

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

Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Factoring with the Zero Product Rule
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25
min Scoring: 28 points

Quiz: Converting Quadratics to Standard Form
Take a quiz to assess your understanding of the material.
Duration: 0
hr 25 min Scoring: 28 points

Quiz: Quadratics with Perfect Square Trinomials
Take a quiz to assess your understanding of the material.
Duration: 0
hr 25 min Scoring: 16 points

LESSON 6: COMPLETING THE SQUARE

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Study: Completing the Square
Learn the ?Completing the Square? method of solving quadratic equations. Practice adding a strategic number to both sides of an equation to make one side a perfect-square trinomial. Then solve the equation by taking the square root of both sides and simplifying. Use Algebra Tiles to determine the number needed to complete the square.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Completing the Square
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring:
24 points

Quiz: Completing the Square (Advanced)
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25
min Scoring: 24 points

LESSON 7: THE QUADRATIC FORMULA

Study: The Quadratic Formula
Learn about types of equations that can be solved with the quadratic formula; complex numbers; discriminants; and finding roots (including complex roots) using the quadratic formula.
Duration: 0 hr 40 min
Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Complex Numbers and Discriminants
Take a quiz to assess your understanding of the material.
Duration: 0 hr
25 min Scoring: 28 points

Quiz: The Quadratic Formula
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring:
30 points

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LESSON 8: GRAPHS OF QUADRATIC FUNCTIONS

Study: Graphs of Quadratic Functions
Relate factors of a quadratic function to the graph of a parabola and its corresponding *x*-intercepts. Locate the vertex of a quadratic function graphically and algebraically. Use the discriminant of the quadratic formula to identify the number and types of solutions to a given quadratic equation, as well as to visualize its corresponding graph.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Graphs of Quadratic Functions
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 30 points

Quiz: Working with the Discriminant
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 20 points

LESSON 9: IMAGINARY NUMBERS

Study: Imaginary Numbers
Learn about imaginary and complex numbers; perform basic arithmetic operations on complex numbers; and solve equations with imaginary and complex numbers.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Imaginary Numbers
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 16 points

Quiz: Operations on Complex Numbers
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 30 points

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LESSON 10: WRAP-UP

Practice: Assignment
Submit your work for a set of 20 practice problems.
Duration: 1 hr Scoring: 100 points

Review: Review Exercises
Take part in interactive games to review unit material in preparation for upcoming assessments.
Duration: 1 hr Scoring: 0 points

Discuss: Getting to the Root of the Problem
Take part in a discussion about applying methods learned in this unit.

Duration: 0 hr 20 min Scoring: 30 points

Test (CS): Quadratic Functions
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hr 40 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 30 min Scoring: 50 points

LESSON 11: 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 5: UNDOING FUNCTIONS AND MOVING THEM AROUND

LESSON 1: INVERSES

Study: Inverses
Learn about undoing functions, mapping diagrams of inverse functions, and finding the equation for an inverse function.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems

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Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Inverses with Variables *x* and *y*
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 16 points

Quiz: Inverses with Other Variables
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 16 points

LESSON 2: GRAPHS OF INVERSES

Study: Graphs of Inverses
Learn how to convert the graph of a given function to the graph of its inverse by swapping coordinates of all (x, y) pairs. Use mapping diagrams, horizontal line tests, and the concept of symmetry across the line $y = x$ to determine if the inverse of a given function is also a function.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Graphs of Inverses
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 18 points

LESSON 3: SHIFTING FUNCTIONS

Study: Shifting Functions
Learn about shifting graphs of functions up/down and left/right by changing the coordinates of each ordered pair. Learn about changing the equation of a function to shift its graph vertically or horizontally and about combining vertical and horizontal shifts.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

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Quiz: Shifting Functions Vertically
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 18 points

Quiz: Shifting Functions Horizontally
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 16 points

Quiz: Shifting Functions Vertically and Horizontally
Take a quiz to assess your understanding of the material.

Duration: 0 hr 25 min Scoring: 18 points

LESSON 4: STRETCHING FUNCTIONS VERTICALLY

Study: Stretching Functions Vertically
Learn about vertically stretching or compressing a function?s graph by
multiplying by a constant; flipping the graph by multiplying by a negative constant; and combining vertical stretches with vertical or horizontal shifts.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Stretching Functions Vertically
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 16 points

Study: Solving the Ball-Tossing Problem
Learn about shifting and stretching graphs and using inverses and about how
to apply these methods to the real-world problem of tossing a ball. Learn about using average velocity as an estimate of instantaneous velocity.
Duration: 0 hr 40 min Scoring: 0 points

LESSON 5: WRAP-UP

Practice: Assignment
Submit your work for a set of 20 practice problems.
Duration: 1 hr Scoring: 100 points

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Review: Review Exercise
Take part in interactive games to review unit material in preparation for upcoming assessments.
Duration: 1 hr Scoring: 0 points

Discuss: The Power of Undoing or Shifting Functions
Take part in a three- to five-question discussion about applying methods learned in this unit.
Duration: 0 hr 20 min Scoring: 30 points

Test (CS): Undoing Functions and Moving Them Around
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hr 40 min Scoring: 45 points

Test (TS): Undoing Functions and Moving Them Around
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hr 30 min Scoring: 50 points

LESSON 6: DIAGNOSTIC

Diagnostic: Undoing Functions and Moving Them Around
Take a diagnostic unit test that will generate a study plan based on your responses.
Duration: 0 hr 40 min Scoring: 15 points

UNIT 6: MATH II SEMESTER 1 WRAP-UP

LESSON 1: MATH II SEMESTER 1

Review: Math II Semester 1
Prepare for the semester exam by reviewing key concepts covered in Math II Semester 1.

Duration: 1 hr Scoring: 0 points

Exam: Math II Semester 1

Duration: 0 hr 50 min Scoring: 200 points

UNIT 7: EXPONENTS & THEIR GRAPHS

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LESSON 1: EXPONENTIAL FUNCTIONS

Study: Exponential Functions
Define the standard form of an exponential function and explore a variety of its applications, such as exponential growth and decay (in the forms of doubling time and half-life), as well as compound interest. Compare compound interest to continuously compounded interest, using the irrational number *e*.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min Scoring: 0 points

Quiz: Evaluating Exponential Functions
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 30 points

Quiz: Calculating Exponential Growth
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 28 points

LESSON 2: EXAMPLES AND APPLICATIONS OF EXPONENTIAL FUNCTIONS

Study: Examples and Applications of Exponential Functions
Explore case studies in exponential growth and decay and logarithmic growth.
Duration: 0 hr 40 min Scoring: 0 points

LESSON 3: GRAPHS OF EXPONENTIAL FUNCTIONS

Study: Graphs of Exponential Functions
Learn about the shape of graphs of exponential functions with various bases and about finding the domain and range of exponential functions.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min Scoring: 0 points

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Quiz: Graphs of Exponential Functions
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 30 points

LESSON 4: PROPERTIES OF EXPONENTS

Study: Properties of Exponents
Review product quotient and power laws of exponents; rewriting the log of a product as the sum of two logs; rewriting the log of a quotient as the difference of two logs; simplifying the log of a power; and using the change-of-base formula to rewrite logarithms.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Equivalent Exponential Expressions
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 16 points

LESSON 5: SOLVING EXPONENTIAL EQUATIONS

Study: Solving Exponential Equations
Learn about using ordinary algebra and the properties of logarithms to solve exponential equations. Answer questions inspired by the classic chessboard problem.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Solving Exponential Equations
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 30 points

LESSON 6: WRAP-UP

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Practice: Assignment
Submit your work for a set of 20 practice problems.
Duration: 1 hr Scoring: 100 points

Review: Review Exercises
Take part in interactive games to review unit material in preparation for upcoming assessments.
Duration: 1 hr Scoring: 0 points

Discuss: The Consequences of Exponential Growth
Take part in a three- to seven-question discussion about applying methods learned in this unit.
Duration: 0 hr 20 min Scoring: 30 points

Test (CS): Exponents & Their Graphs
Take a computer-scored test to assess what you have learned in this unit.

Duration: 0 hr 40 min Scoring: 60 points

Test (TS): Exponents & Their Graphs
Take a teacher-scored test to assess what you have learned in this unit.

Duration: 0 hr 30 min Scoring: 50 points

LESSON 7: DIAGNOSTIC

Diagnostic: Exponents & Their Graphs
Take a diagnostic unit test that will generate a study plan based on your responses.
Duration: 0 hr 40 min Scoring: 33 points

UNIT 8: SEQUENCES AND SERIES

LESSON 1: FINDING PATTERNS

Study: Finding Patterns
Learn about image, letter, and number patterns and about finding the next term.
Duration: 0 hr
40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

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Quiz: Finding Patterns
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 28 points

Quiz: Letter and Number Patterns
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 24 points

LESSON 2: ARITHMETIC SEQUENCES

Study: Arithmetic Sequences
Learn about arithmetic sequences, common difference, explicit and recursive formulas, and finding the next term in a sequence.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Arithmetic Sequences
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 24 points

Quiz: Rules For Arithmetic Sequences
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 28 points

LESSON 3: GEOMETRIC SEQUENCES

Study: Geometric Sequences
Explore geometric sequences as sets of numbers in which the ratio between any two consecutive numbers is a constant. Compare how the recursive formula and the explicit formula allow you to find the value of any term in a geometric sequence. Explore the graphs of geometric sequences as exponential curves.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min

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Scoring: 0 points

Quiz: Geometric Sequences
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring:
26 points

Quiz: Formulas for Geometric Sequences
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25
min Scoring: 24 points

LESSON 4: APPLICATIONS OF NUMBER SEQUENCES

Study: Applications of Number Sequences
Learn about applications and models of arithmetic, geometric, and special sequences.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Applications of Arithmetic Sequences
Take a quiz to assess your understanding of the material.
Duration: 0 hr
25 min Scoring: 24 points

Quiz: Applications of Geometric Sequences
Take a quiz to assess your understanding of the material.
Duration: 0 hr
25 min Scoring: 28 points

Quiz: Applications of Other Sequences
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 20 points

LESSON 5: NUMBER SERIES

Study: Number Series
Explore arithmetic and geometric number series.
Duration: 0 hr 40 min Scoring: 0 points

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Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Arithmetic Series
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 28 points

Quiz: Geometric Series
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 28 points

LESSON 6: WRAP-UP

Practice: Assignment
Submit your work for a set of 20 practice problems.
Duration: 1 hr Scoring: 100 points

Review: Review Exercises
Take part in interactive games to review unit material in preparation for upcoming assessments.
Duration: 1 hr Scoring: 0 points

Discuss: Examining Sequences and Series
Take part in a three- to seven-question discussion about applying methods learned in this unit.
Duration: 0 hr 20 min Scoring: 30 points

Test (CS): Sequences and Series
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hr 40 min Scoring: 75 points

Test (TS): Sequences and Series
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hr 30 min Scoring: 50 points

LESSON 7: DIAGNOSTIC

Diagnostic: Sequences and Series

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Take a diagnostic unit test that will generate a study plan based on your responses.

Duration: 0 hr 40 min Scoring: 25 points

UNIT 9: RIGHT TRIANGLES

LESSON 1: AREA OF A TRIANGLE

Study: Area of a Triangle
Learn about the area of a polygon, square units, and the triangle area formula and theorem.

Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Area of a Triangle
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 18 points

LESSON 2: THE PYTHAGOREAN THEOREM

Study: The Pythagorean Theorem
Learn about how the Pythagorean theorem applies only to right triangles and discover one proof of it. Learn about the converse of the Pythagorean theorem, Pythagorean triples, and applying the theorem to the problem of fitting a baseball bat into a rectangular trunk.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: The Pythagorean Theorem
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 16 points

LESSON 3: CONGRUENT RIGHT TRIANGLES

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Study: Congruent Right Triangles
Learn about the HL, LL, HA, LA, and perpendicular bisector theorems. Learn about the angle bisector theorem and its converse.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Proving Right Triangle Congruence
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25
min Scoring: 26 points

Quiz: Right Triangle Measurements
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 18 points

LESSON 4: SIMILAR RIGHT TRIANGLES

Study: Similar Right Triangles
Explore the properties of similar right triangles and prove that if an altitude is drawn from the right-angle vertex of a right triangle to its hypotenuse, then three similar triangles are formed. Calculate the missing sides of similar right triangles using proportions, and apply concepts learned to a miniature-golf problem.
Duration: 0 hr 40
min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Similar Right Triangles
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring:
16 points

LESSON 5: SPECIAL RIGHT TRIANGLES

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

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Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: 45-45-90 Right Triangles
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring:
16 points

Quiz: 30-60-90 Right Triangles
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring:
12 points

LESSON 6: TRIGONOMETRIC RATIOS

Study: Trigonometric Ratios
Learn the definitions of *sine*, *cosine*, and *tangent*. Memorize ?soh-cah-toa? as a mnemonic device relating to these ratios. Explore the use of trigonometric ratios in the solution of a real-world problem involving the construction of a cable car.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Trigonometric Ratios
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 16
points

LESSON 7: WRAP-UP

Practice: Assignment
Submit your work for a set of 20 practice problems.
Duration: 1 hr Scoring: 100 points

Review: Review Exercise
Take part in interactive games to review unit material in preparation for upcoming assessments.

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Duration: 1 hr Scoring: 0 points

Discuss: A Closer Look at a Baseball Diamond
Students respond to one of three discussion questions asking them to apply methods learned in this unit.
Duration: 0 hr 20 min Scoring: 30 points

Test (CS): Right Triangles
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hr 40 min Scoring: 75 points

Test (TS): Right Triangles
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hr 30 min Scoring: 50 points

LESSON 8: DIAGNOSTIC

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

Duration: 0 hr 40 min Scoring: 25 points

UNIT 10: CIRCLES

LESSON 1: WHAT IS A CIRCLE?

Study: What Is a Circle?
Learn about the definition of a circle and about its center, radius, and circumference.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min Scoring: 0 points

Quiz: What Is a Circle?
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 30 points

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LESSON 2: CHORDS

Study: Chords
Investigate the properties and definitions of chords and diameters. Discover that two chords are congruent if they are the same distance from the center of the circle. Prove that the radius bisects a chord if it is perpendicular to the chord.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Congruent Chords
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 26 points

Quiz: Chords and Perpendicular Radii
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 22 points

Quiz: Diameter of a Circle
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 18 points

LESSON 3: ARCS

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

Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Arc Types and Measure
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 30 points

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Quiz: Congruent Chords and Circle Angle Measure
Take a quiz to assess your understanding of the material.

Duration: 0 hr 25 min Scoring: 24 points

LESSON 4: CIRCLES AND ANGLES

Study: Circles and Angles
Learn the definition of an inscribed angle. Experiment with inscribed angles and their intercepted arcs. Discover and prove that an inscribed angle is half the measure of its intercepted arc. Discover and prove the intersecting chord theorem.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Inscribed Angles
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 24 points

Quiz: Intersecting Chord Theorem
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 22 points

LESSON 5: SECANTS AND TANGENTS

Study: Secants and Tangents
Learn about the definition of secant and about secant-secant angle, its theorem, and proving the theorem. Learn about tangent line, point of tangency and tangent segments, tangents perpendicular to a circle?s radius, a tangent-tangent angle and its theorem, and a tangent-chord angle and its theorem; explore a sample proof.

Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Secant-Secant Angles
Quiz on secant-secant angles

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Duration: 0 hr 25 min Scoring: 22 points

Quiz: Tangent-Chord Angles
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring:
24 points

Quiz: Tangent-Tangent Angles and Their Intercepted Arcs
Take a quiz to assess your understanding of the material.

Duration: 0 hr 25 min Scoring: 14 points

LESSON 6: CIRCUMFERENCE AND ARC LENGTH

Study: Circumference and Arc Length
Learn about the irrational number pi and the formula for finding the circumference of a circle. Apply circumference to a real-world problem involving the raising of a highway over a river to allow for boating traffic underneath. Learn about the degree measure of an arc and arc length. Derive the formula for arc length.
Duration: 0
hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Circumference of a Circle
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 14 points

Quiz: Arc Length
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 26 points

LESSON 7: AREA AND SECTORS

Study: Area and Sectors
Learn about the formula for the area of a circle. Explore a case study comparing the cost per square inch of small and large pizzas. Learn about sectors and the area of a sector.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.

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Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Area of a Circle
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 20 points

Quiz: Area of a Sector
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 26 points

LESSON 8: CIRCLES AND TRIANGLES

Study: Circles and Triangles
Learn about inscribed objects, the definition of incenter, circumscribed objects, and the definition of circumcenter.
Duration: 0 hr 40 min Scoring: 0 points

Quiz: Circles and Triangles
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 28 points

LESSON 9: CIRCLES AND POLYGONS

Study: Circles and Polygons
Learn about the theorem of a quadrilateral inscribed in a circle and the theorem of a parallelogram inscribed in a circle.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Circles and Polygons
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 24 points

LESSON 10: SPHERES

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Study: Spheres
Learn about the definition of a sphere; the formulae for surface area and volume of a sphere; comparing the surface area and volume of a sphere, cube, cylinder, and cone; and deriving the formula for volume of a sphere using Cavalieri?s principle.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Spheres
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 24 points

LESSON 11: WRAP-UP

Practice: Assignment
Submit your work for a set of 20 practice problems.
Duration: 1 hr Scoring: 100 points

Review: Review Exercise
Take part in interactive games to review unit material in preparation for upcoming assessments.
Duration: 1 hr Scoring: 0 points

Discuss: A Circular Peg within A Square Hole
Respond to one of three discussion questions asking you to apply methods learned in this unit.
Duration: 0 hr 20 min Scoring: 30 points

Test (CS): Circles
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hr 40 min
Scoring: 75 points

Test (TS): Circles
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hr 30 min
Scoring: 50 points

LESSON 12: DIAGNOSTIC

Diagnostic: Circles

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Take a diagnostic unit test that will generate a study plan based on your responses.
Duration: 0 hr
40 min Scoring: 25 points

UNIT 11: DATA ANALYSIS

LESSON 1: WHAT IS A STATISTIC?

Study: What Is a Statistic?
Learn about descriptive inferential statistics, statistics parameters, sampling techniques, random samples, categorical numerical data, and graphic displays.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: What Is a Statistic?
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 28
points

Quiz: Types of Data
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 26 points

LESSON 2: GRAPHICAL ANALYSIS OF DATA

Study: Graphical Analysis of Data
Learn about the different ways to express data graphically and the various shapes or properties these representations have.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Graphical Analysis of Data
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 24 points

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LESSON 3: NUMERICAL ANALYSIS OF DATA

Study: Numerical Analysis of Data
Learn about the numerical analysis of data as it relates to means, medians, modes, IQR outliers, test quartiles, boxplots, variance, and standard deviation.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Measures of Central Tendency
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 30 points

Quiz: Quartiles and Boxplots
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring:
28 points

Quiz: Measures of Spread
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 26
points

LESSON 4: RANDOM VARIABLES

Study: Random Variables
Explore random variable concepts such as discrete continuous variables, histograms, density, curves, mean, standard deviation of discrete random variables, normal curve, and *z*-score percentiles.
Duration: 0 hr 40
min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Random Variables
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 24
points

Quiz: Normal Curves

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Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 24 points

LESSON 5: TWO-VARIABLE DATA

Study: Two-Variable Data
Investigate two-variable data sets through concepts such as explanatory and response variables, scatterplots, correlation, least-squares regression, and residuals.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Scatterplots and Correlation
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 20 points

Quiz: Least Squares Regression
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min
Scoring: 20 points

Study: Least Squares Regression Lines
Investigate two-variable data concepts such as scatterplots, least-squares regression lines, best-fit lines, and residuals.
Duration: 0 hr 40 min Scoring: 0 points

LESSON 6: EXPERIMENTAL DESIGN

Study: Experimental Design
Learn how to design and carry out an experiment employing the basic principles of experimental design.
Duration: 0 hr 40 min Scoring: 0 points

Checkup: Practice Problems
Complete a set of practice problems to hone your calculation skills.
Duration: 0 hr 30 min
Scoring: 0 points

Quiz: Sampling and Simulation
Take a quiz to assess your understanding of the material.

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Duration: 0 hr 25 min
Scoring: 26 points

Quiz: Experimental Design
Take a quiz to assess your understanding of the material.
Duration: 0 hr 25 min Scoring: 24 points

LESSON 7: WRAP-UP

Practice: Assignment
Submit your work for a set of 20 practice problems.
Duration: 1 hr Scoring: 100 points

Review: Review Exercises
Take part in interactive games to review unit material in preparation for upcoming assessments.
Duration: 1 hr Scoring: 0 points

Discuss: Representing Data
Take part in a discussion about applying methods learned in this unit.
Duration: 0 hr 20 min
Scoring: 30 points

Test (CS): Data Analysis
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hr 40 min Scoring: 75 points

Test (TS): Data Analysis
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hr 30 min
Scoring: 50 points

LESSON 8: DIAGNOSTIC

Diagnostic: Data Analysis
Based on student responses this diagnostic will generate a personalized study plan that includes specific review material to address student weaknesses.
Duration: 0 hr 40 min Scoring: 25 points

UNIT 12: MATH II SEMESTER 2 WRAP-UP

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LESSON 1: MATH II SEMESTER 2

Review: Math II Semester 2

Prepare for the semester exam by reviewing key concepts covered in Math II Semester 2.

Duration: 1 hr Scoring: 0 points

Exam: Math II Semester 2

Duration: 0 hr 50 min Scoring: 200 points

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