Algebra I | South Carolina College- and Career-Ready Mathematics Standards Correlation to *Eureka Math*®

About *Eureka Math*

Created by Great Minds®, a mission-driven Public Benefit Corporation, *Eureka Math*® helps teachers deliver unparalleled math instruction that provides students with a deep understanding and fluency in math. Crafted by teachers and math scholars, the curriculum carefully sequences the mathematical progressions to maximize coherence from Prekindergarten through Precalculus—a principle tested and proven to be essential in students' mastery of math.

Teachers and students using *Eureka Math* find the trademark "Aha!" moments in *Eureka Math* to be a source of joy and inspiration, lesson after lesson, year after year.

Aligned

Great Minds offers detailed analyses that demonstrate how each grade of *Eureka Math* aligns with specific state standards. Access these free alignment studies at greatminds.org/state-studies.

Data

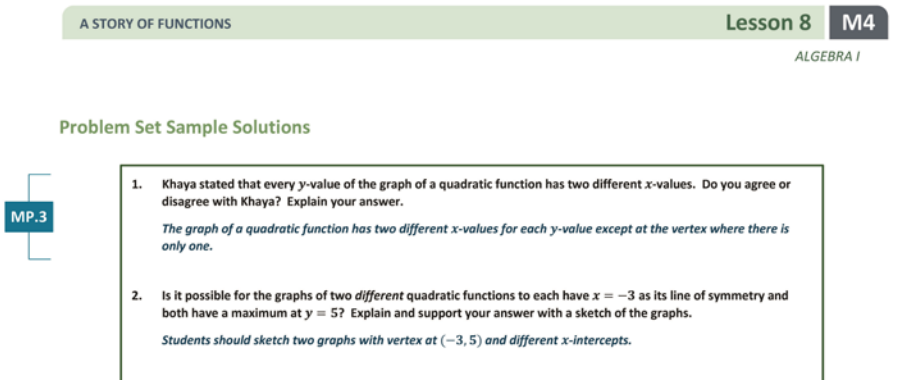
Schools and districts nationwide are experiencing student growth and impressive test scores after using *Eureka Math*. See their stories and data at greatminds.org/data.

Full Suite of Resources

Great Minds offers the *Eureka Math* curriculum as PDF downloads for free, noncommercial use. Access the free PDFs at greatminds.org/math/curriculum.

The teacher–writers who created the curriculum have also developed essential resources, available only from Great Minds, including the following:

- Printed material in English and Spanish
- Digital resources
- Professional development
- Classroom tools and manipulatives
- Teacher support materials
- Parent resources

Mathematical Process Standards	Aligned Components of *Eureka Math*
MPS.PS.1 Make sense of problems and persevere in solving them strategically.	Lessons in every module engage students in mathematical processes. These are designated in the Module Overview and labeled in lessons. For example: 
MPS.RC.1 Explain ideas using precise and contextually appropriate mathematical language, tools, and models.	
MPS.C.1 Demonstrate a deep and flexible conceptual understanding of mathematical ideas, operations, and relationships while making real-world connections.	
MPS.AJ.1 Use critical thinking skills to reason both abstractly and quantitatively.	
MPS.SP.1 Identify and apply regularity in repeated reasoning to make generalizations.	

Data, Probability, and Statistical Reasoning

A1.DPSR.1 Use statistical reasoning to summarize, represent, and interpret data on two categorical and quantitative variables.

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
A1.DPSR.1.1 Summarize categorical data in two-way frequency tables, interpret relative frequencies in real-world situations, and informally determine possible associations and trends in the data.	Algebra I M2 Topic C: Categorical Data on Two Variables
A1.DPSR.1.2 Summarize quantitative data in a table and on a scatter plot and describe how the variables are associated. Limit to linear data.	Algebra I M2 Lesson 12: Relationships Between Two Numerical Variables
A1.DPSR.1.3 Find a linear function for a scatter plot that suggests a linear association.	Algebra I M2 Lesson 14: Modeling Relationships with a Line Algebra I M2 Lesson 15: Interpreting Residuals from a Line Algebra I M5 Lesson 7: Modeling a Context from Data
A1.DPSR.1.4 For linear associations, use technology to determine the correlation coefficient, evaluate the strength of the association, and find the line of best fit.	Algebra I M2 Lesson 19: Interpreting Correlation Algebra I M2 Lesson 20: Analyzing Data Collected on Two Variables Algebra I M5 Lesson 7: Modeling a Context from Data

Data, Probability, and Statistical Reasoning

A1.DPSR.2 Analyze and interpret models for two categorical and quantitative variables.

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
A1.DPSR.2.1 Use two-way frequency tables to make inferences and interpret the data in terms of real-world or mathematical situations.	Algebra I M2 Topic C: Categorical Data on Two Variables
A1.DPSR.2.2 Interpret the slope and the intercept of a linear model in the context of the data.	Algebra I M2 Lesson 14: Modeling Relationships with a Line
A1.DPSR.2.3 Use a linear model to interpolate and extrapolate unknown values close to the data set.	Algebra I M2 Lesson 14: Modeling Relationships with a Line Algebra I M2 Lesson 15: Interpreting Residuals from a Line Algebra I M5 Lesson 7: Modeling a Context from Data *Supplemental data is necessary to address using a model to extrapolate unknown values close to the data set.*

Measurement, Geometry, and Spatial Reasoning

A1.MGSR.1 Use geometric concepts and measurement opportunities to model mathematical and real-world situations.

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
A1.MGSR.1.1 Identify any limitations specific to a real-world situation.	Algebra I M1 Lesson 3: Graphs of Exponential Functions Algebra I M1 Lesson 24: Applications of Systems of Equations and Inequalities Algebra I M4 Lesson 23: Modeling with Quadratic Functions Algebra I M4 Lesson 24: Modeling with Quadratic Functions Algebra I M5 Lesson 1: Analyzing a Graph Algebra I M5 Lesson 4: Modeling a Context from a Graph Algebra I M5 Lesson 6: Modeling a Context from Data Algebra I M5 Lesson 7: Modeling a Context from Data Algebra I M5 Lesson 8: Modeling a Context from a Verbal Description Algebra I M5 Lesson 9: Modeling a Context from a Verbal Description

Numerical Reasoning

A1.NR.1 Represent all points on the number line as irrational and rational numbers in the real number system.

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
A1.NR.1.1 Rewrite numerical and algebraic expressions of irrational and rational numbers involving radicals, including addition, subtraction, multiplication, and division. Limit to square and cube roots.	G8 M7 Lesson 4: Simplifying Square Roots Geometry M2 Lesson 22: Multiplying and Dividing Expressions with Radicals Geometry M2 Lesson 23: Adding and Subtracting Expressions with Radicals *Supplemental material is necessary to address rewriting numerical and algebraic cube roots.*

Numerical Reasoning

A1.NR.2 Represent exponents and radical expressions in different ways.

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
A1.NR.2.1 Translate between rational exponents and radical expressions of irrational and rational numbers. Use properties of addition, subtraction, multiplication, and division to simplify radical and rational expressions. Limit to square and cube roots.	Algebra II M3 Lesson 3: Rational Exponents Algebra II M3 Lesson 4: Properties of Exponents and Radicals

Patterns, Algebra, and Functional Reasoning

A1.PAFR.1 Transform and/or solve equations and expressions in one variable that model real-world and mathematical situations, interpret the solutions, and determine whether they are reasonable.

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
A1.PAFR.1.1 Transform an equation in one variable to create new equations that have the same solution as the original and justify the steps taken.	Algebra I M1 Lesson 10: True and False Equations Algebra I M1 Lesson 11: Solution Sets for Equations and Inequalities Algebra I M1 Lesson 12: Solving Equations Algebra I M1 Lesson 13: Some Potential Dangers when Solving Equations Algebra I M1 Lesson 15: Solution Sets of Two or More Equations (or Inequalities) Joined by "And" or "Or" Algebra I M1 Lesson 17: Equations Involving Factored Expressions Algebra I M1 Lesson 18: Equations Involving a Variable Expression in the Denominator Algebra I M1 Lesson 25: Solving Problems in Two Ways—Rates and Algebra

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
A1.PAFR.1.2 Solve literal equations and formulas for a specified variable including equations and formulas that arise in a variety of disciplines.	Algebra I M1 Lesson 19: Rearranging Formulas
A1.PAFR.1.3 Solve mathematical and real-world situations using linear, quadratic, exponential (same bases), and linear absolute value equations in one variable.	Algebra I M1 Lesson 18: Equations Involving a Variable Expression in the Denominator Algebra I M1 Lesson 19: Rearranging Formulas Algebra I M1 Lesson 25: Solving Problems in Two Ways—Rates and Algebra Algebra I M4 Lesson 6: Solving Basic One-Variable Quadratic Equations Algebra I M4 Lesson 7: Creating and Solving Quadratic Equations in One Variable Algebra II M3 Lesson 7: Bacteria and Exponential Growth *Supplemental material is necessary to address solving situations with absolute value equations.*
A1.PAFR.1.4 Add, subtract, and multiply polynomials with initial terms up to a degree of 2.	Algebra I M1 Lesson 8: Adding and Subtracting Polynomials Algebra I M1 Lesson 9: Multiplying Polynomials Algebra I M4 Lesson 1: Multiplying and Factoring Polynomial Expressions Algebra I M4 Lesson 2: Multiplying and Factoring Polynomial Expressions

Patterns, Algebra, and Functional Reasoning

A1.PAFR.2 Create, solve, and transform equations and inequalities in two or more variables to represent relationships between quantities and graph the equations on coordinate axes using appropriate labels, units, and scales.

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
A1.PAFR.2.1 Transform linear, quadratic, exponential, and linear absolute value functions to equivalent forms to identify slope and y-intercept for linear, vertex, and roots (if any) for quadratic and linear absolute value, and y-intercept for exponential.	G8 M4 Lesson 19: The Graph of a Linear Equation in Two Variables Is a Line G8 M4 Lesson 21: Some Facts About Graphs of Linear Equations in Two Variables G8 M4 Lesson 23: The Defining Equation of a Line Algebra I M1 Lesson 20: Solution Sets to Equations with Two Variables Algebra I M3 Lesson 17: Four Interesting Transformations of Functions Algebra I M3 Lesson 18: Four Interesting Transformations of Functions Algebra I M4 Lesson 9: Graphing Quadratic Functions from Factored Form, $f(x) = a(x - m)(x - n)$ Algebra I M4 Lesson 12: Completing the Square Algebra I M4 Lesson 16: Graphing Quadratic Equations from the Vertex Form, $y = a(x - h)^2 + k$ Algebra I M4 Lesson 17: Graphing Quadratic Functions from the Standard Form, $f(x) = ax^2 + bx + c$ *Supplemental material is necessary to address transforming exponential functions to identify the y-intercepts.*
A1.PAFR.2.2 Solve quadratic equations by completing the square, factoring, and the quadratic formula, explaining the connection between the zeros of the function derived from the equation, its linear factors (if it factors), the x-intercepts of its graph (if they exist), and the solutions (if any) to the corresponding quadratic equation.	Algebra I M4 Lesson 5: The Zero Product Property Algebra I M4 Lesson 6: Solving Basic One-Variable Quadratic Equations Algebra I M4 Lesson 7: Creating and Solving Quadratic Equations in One Variable Algebra I M4 Lesson 11: Completing the Square Algebra I M4 Lesson 12: Completing the Square Algebra I M4 Lesson 13: Solving Quadratic Equations by Completing the Square Algebra I M4 Lesson 14: Deriving the Quadratic Formula Algebra I M4 Lesson 15: Using the Quadratic Formula

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
A1.PAFR.2.3 Solve and graph linear, quadratic, exponential, and linear absolute value equations given in tabular, symbolic, and/or verbal forms using intercepts, domain and range, intervals of increasing and decreasing, vertex (maximum and minimum), end-behavior, and symmetry, and interpret these in terms of mathematical and real-world situations.	Algebra I M1 Lesson 20: Solution Sets to Equations with Two Variables Algebra I M3 Lesson 6: Exponential Growth—U.S. Population and World Population Algebra I M3 Lesson 7: Exponential Decay Algebra I M3 Lesson 14: Linear and Exponential Models—Comparing Growth Rates Algebra I M3 Lesson 16: Graphs Can Solve Equations Too Algebra I M3 Topic D: Using Functions and Graphs to Solve Problems Algebra I M4 Lesson 9: Graphing Quadratic Functions from Factored Form, $f(x) = a(x - m)(x - n)$ Algebra I M4 Lesson 10: Interpreting Quadratic Functions from Graphs and Tables Algebra I M4 Lesson 16: Graphing Quadratic Equations from the Vertex Form, $y = a(x - h)^2 + k$ Algebra I M4 Lesson 17: Graphing Quadratic Functions from the Standard Form, $f(x) = ax^2 + bx + c$ Algebra I M4 Lesson 23: Modeling with Quadratic Functions Algebra I M4 Lesson 24: Modeling with Quadratic Functions Algebra I M5 Lesson 1: Analyzing a Graph Algebra I M5 Lesson 3: Analyzing a Verbal Description Algebra I M5 Topic B: Completing the Modeling Cycle *Supplemental material is necessary to address absolute value equations and solving equations given in tabular form.*
A1.PAFR.2.4 Create, solve, and graph linear inequalities in two variables.	Algebra I M1 Lesson 21: Solution Sets to Inequalities with Two Variables

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
A1.PAFR.2.5 Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.	Algebra I M3 Lesson 2: Recursive Formulas for Sequences Algebra I M3 Lesson 3: Arithmetic and Geometric Sequences
A1.PAFR.2.6 Create symbolic representations of linear and exponential functions, including arithmetic and geometric sequences, given graphs, verbal descriptions, and tables.	Algebra I M3 Topic A: Linear and Exponential Sequences Algebra I M3 Lesson 21: Comparing Linear and Exponential Models Again Algebra I M3 Lesson 22: Modeling an Invasive Species Population Algebra I M3 Lesson 23: Newton's Law of Cooling Algebra I M5 Lesson 3: Analyzing a Verbal Description Algebra I M5 Lesson 5: Modeling from a Sequence Algebra I M5 Lesson 6: Modeling a Context from Data Algebra I M5 Lesson 7: Modeling a Context from Data Algebra I M5 Lesson 8: Modeling a Context from a Verbal Description Algebra I M5 Lesson 9: Modeling a Context from a Verbal Description
A1.PAFR.2.7 Use graphs to obtain exact and/or approximate solutions of equations, inequalities, and systems of linear equations in two variables (given or obtained by using technology).	Algebra I M1 Lesson 21: Solution Sets to Inequalities with Two Variables Algebra I M1 Lesson 22: Solution Sets to Simultaneous Equations Algebra I M1 Lesson 23: Solution Sets to Simultaneous Equations Algebra I M1 Lesson 24: Applications of Systems of Equations and Inequalities Algebra I M3 Lesson 16: Graphs Can Solve Equations Too Algebra I M4 Lesson 24: Modeling with Quadratic Functions

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
A1.PAFR.2.8 Solve an equation of the form $f(x) = g(x)$ graphically by identifying the x-coordinate(s) of the point(s) of intersection of the graphs of $y = f(x)$ and $y = g(x)$.	Algebra I M3 Lesson 16: Graphs Can Solve Equations Too
A1.PAFR.2.9 Solve systems of linear equations algebraically and graphically.	Algebra I M1 Lesson 22: Solution Sets to Simultaneous Equations Algebra I M1 Lesson 23: Solution Sets to Simultaneous Equations Algebra I M1 Lesson 24: Applications of Systems of Equations and Inequalities
A1.PAFR.2.10 Analyze the growth/decay rate between linear and exponential functions specifically between consecutive integers.	Algebra I M3 Lesson 14: Linear and Exponential Models—Comparing Growth Rates

Patterns, Algebra, and Functional Reasoning

A1.PAFR.3 Represent and interpret functions symbolically and graphically.

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
A1.PAFR.3.1 Recognize that $f(x)$ denotes the output of function f that corresponds to the input x, and this corresponds to the set of all the ordered pairs (x, y) that satisfy the equation $y = f(x)$ both tabularly and graphically.	Algebra I M3 Lesson 1: Integer Sequences—Should You Believe in Patterns? Algebra I M3 Lesson 9: Representing, Naming, and Evaluating Functions Algebra I M3 Lesson 10: Representing, Naming, and Evaluating Functions Algebra I M3 Lesson 11: The Graph of a Function Algebra I M3 Lesson 12: The Graph of the Equation $y = f(x)$
A1.PAFR.3.2 Use the definition of a function to analyze the domain and range of a function in relation to its graph, mapping, table, verbal, and/or symbolic description and, where applicable, using interval and set notation.	Algebra I M3 Lesson 9: Representing, Naming, and Evaluating Functions Algebra I M3 Lesson 10: Representing, Naming, and Evaluating Functions Algebra I M3 Lesson 11: The Graph of a Function Algebra I M3 Lesson 12: The Graph of the Equation $y = f(x)$ *Supplemental material is necessary to address interval notation.*
A1.PAFR.3.3 Translate among graphical, tabular, verbal, and symbolic representations in function notation, to identify intercepts, intervals where the function is increasing, decreasing, constant, maximums and minimums, and symmetries and explain their meanings in real-world and mathematical situations.	Algebra I M3 Lesson 13: Interpreting the Graph of a Function Algebra I M3 Lesson 14: Linear and Exponential Models—Comparing Growth Rates Algebra I M3 Lesson 23: Newton's Law of Cooling Algebra I M4 Lesson 8: Exploring the Symmetry in Graphs of Quadratic Functions Algebra I M4 Lesson 9: Graphing Quadratic Functions from Factored Form, $f(x) = a(x - m)(x - n)$ Algebra I M4 Lesson 10: Interpreting Quadratic Functions from Graphs and Tables Algebra I M4 Lesson 17: Graphing Quadratic Functions from the Standard Form, $f(x) = ax^2 + bx + c$ Algebra I M4 Lesson 22: Comparing Quadratic, Square Root, and Cube Root Functions Represented in Different Ways

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
A1.PAFR.3.3 ***continued***	Algebra I M5 Lesson 2: Analyzing a Data Set Algebra I M5 Lesson 4: Modeling a Context from a Graph Algebra I M5 Lesson 6: Modeling a Context from Data Algebra I M5 Lesson 7: Modeling a Context from Data
A1.PAFR.3.4 Interpret how lead coefficients impact the shape of a function's graph.	Algebra I M3 Lesson 17: Four Interesting Transformations of Functions Algebra I M3 Lesson 20: Four Interesting Transformations of Functions Algebra I M4 Lesson 9: Graphing Quadratic Functions from Factored Form, $f(x) = a(x - m)(x - n)$ Algebra I M4 Lesson 20: Stretching and Shrinking Graphs of Functions Algebra I M4 Lesson 21: Transformations of the Quadratic Parent Function, $f(x) = x^2$

Patterns, Algebra, and Functional Reasoning

A1.PAFR.4 Reason with parent functions in varying representations to find families of functions that all have similar distinguishing attributes common to the family and use common characteristics to aid in rewriting and identifying linear, linear absolute value, quadratic, and exponential functions.

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
A1.PAFR.4.1 Describe the effect of the transformations $kf(x)$, $f(x) + k$, $f(x - k)$, and combinations of such transformations on the graph of parent function $y = f(x)$ for any real number k; find the value of k given the graphs; and write the equation of a transformed parent function given its graph.	Algebra I M3 Lesson 17: Four Interesting Transformations of Functions Algebra I M3 Lesson 18: Four Interesting Transformations of Functions Algebra I M3 Lesson 19: Four Interesting Transformations of Functions Algebra I M3 Lesson 20: Four Interesting Transformations of Functions Algebra I M4 Lesson 19: Translating Graphs of Functions Algebra I M4 Lesson 20: Stretching and Shrinking Graphs of Functions Algebra I M4 Lesson 21: Transformations of the Quadratic Parent Function, $f(x) = x^2$
A1.PAFR.4.2 Given a real-world or mathematical situation, determine the parent graph that best models the situation.	Algebra I M3 Lesson 6: Exponential Growth—U.S. Population and World Population Algebra I M3 Lesson 14: Linear and Exponential Models—Comparing Growth Rates Algebra I M5 Lesson 2: Analyzing a Data Set Algebra I M5 Lesson 3: Analyzing a Verbal Description Algebra I M5 Lesson 4: Modeling a Context from a Graph Algebra I M5 Lesson 5: Modeling from a Sequence Algebra I M5 Lesson 6: Modeling a Context from Data Algebra I M5 Lesson 7: Modeling a Context from Data Algebra I M5 Lesson 8: Modeling a Context from a Verbal Description

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
A1.PAFR.4.3 Given different representations of two different functions, compare key features including intercepts, domain and range, intervals of increasing and decreasing, constant, average rate of change, and maximum and minimum values.	Algebra I M4 Lesson 22: Comparing Quadratic, Square Root, and Cube Root Functions Represented in Different Ways *Supplemental material is necessary to fully address this standard.*