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## Grade 8 | Georgia's K–12 Mathematics Standards (2021) Correlation to *Eureka Math*<sup>2</sup>® (2027)

*Eureka Math*<sup>2</sup> is a research-proven math curriculum that empowers teachers to center instructional techniques on student success. Teachers can foster more “aha!” learning moments by providing the support needed for all learners to build a more confident math mindset.

This *Eureka Math*<sup>2</sup> edition builds on a strong foundation of effective instruction. It provides teachers with guidance on delivering rigorous instruction that honors student choice and encourages confident problem-solving.

*Eureka Math*<sup>2</sup> carefully sequences mathematical content to maximize vertical alignment from kindergarten through high school. This kind of sequencing has proven to be essential in students' mastery of math.

### Teachability

*Eureka Math*<sup>2</sup> employs streamlined materials that allow teachers to plan more efficiently and focus their energy on delivering high-quality instruction that meets the individual needs of their students. Differentiation suggestions, slide decks, digital interactives, and multiple forms of assessment are just a few of the resources built into the teacher materials.

### Accessibility

*Eureka Math*<sup>2</sup> incorporates Universal Design for Learning (UDL) principles so all learners can access the mathematics and take on challenging math concepts. UDL, Differentiation, and Multilingual Learner supports are built into the instructional design and are clearly identified in the *Teach* book.

The curriculum also carries a focus on readability. By eliminating unnecessary words and using clear sentences, the *Eureka Math*<sup>2</sup> teacher-writers have created one of the most readable mathematics curricula on the market. The curriculum's readability and accessibility help all students see themselves as mathematical thinkers and doers who are fully capable of owning their mathematics learning.

### Math Confidence

*Eureka Math*<sup>2</sup> fosters a classroom culture of learning by encouraging student-led discourse and cognitive engagement that results in confident learners. By leveraging consistent models, routines, and progressions, teachers can remove barriers and allow all students an avenue to success. Within the digital platform, each grade includes wordless videos and digital interactives that spark students' curiosity and help them make conceptual connections. Using the *Learn* books, students wonder, explore, and make sense of mathematics, which helps them develop a strong, positive mathematical identity.

Standards for Mathematical Practice	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>MP.1</b> Make sense of problems and persevere in solving them.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p><b>MP.2</b> Reason abstractly and quantitatively.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p><b>MP.3</b> Construct viable arguments and critique the reasoning of others.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p><b>MP.4</b> Model with mathematics.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p><b>MP.5</b> Use appropriate tools strategically.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p><b>MP.6</b> Attend to precision.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p><b>MP.7</b> Look for and make use of structure.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p><b>MP.8</b> Look for and express regularity in repeated reasoning.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>

## Numerical Reasoning

**8.NR.1** Solve problems involving irrational numbers and rational approximations of irrational numbers to explain realistic applications.

### Georgia’s K–12 Mathematics Standards

### Aligned Components of *Eureka Math*<sup>2</sup>

<p><b>8.NR.1.1</b></p> <p>Distinguish between rational and irrational numbers using decimal expansion. Convert a decimal expansion which repeats eventually into a rational number.</p>	<p>8 M1 Lesson 22: Familiar and Not So Familiar Numbers</p> <p>8 M4 Lesson 5: An Interesting Application of Linear Equations, Part 1</p> <p>8 M4 Lesson 6: An Interesting Application of Linear Equations, Part 2</p>
<p><b>8.NR.1.2</b></p> <p>Approximate irrational numbers to compare the size of irrational numbers, locate them approximately on a number line, and estimate the value of expressions.</p>	<p>8 M1 Lesson 21: Approximating Values of Roots and <math>\pi^2</math></p> <p>8 M1 Lesson 22: Familiar and Not So Familiar Numbers</p> <p>8 M1 Lesson 23: Ordering Irrational Numbers</p> <p>8 M1 Lesson 24: Revisiting Equations with Squares and Cubes</p>

## Numerical Reasoning

**8.NR.2 Solve problems involving radicals and integer exponents including relevant application situations; apply place value understanding with scientific notation and use scientific notation to explain real phenomena.**

### Georgia’s K–12 Mathematics Standards

### Aligned Components of *Eureka Math*<sup>2</sup>

<p><b>8.NR.2.1</b></p> <p>Apply the properties of integer exponents to generate equivalent numerical expressions.</p>	<p>8 M1 Lesson 1: Large and Small Positive Numbers</p> <p>8 M1 Lesson 2: Comparing Large Numbers</p> <p>8 M1 Lesson 3: Time to Be More Precise—Scientific Notation</p> <p>8 M1 Lesson 4: Adding and Subtracting Numbers Written in Scientific Notation</p> <p>8 M1 Lesson 5: Products of Exponential Expressions with Whole Number Exponents</p> <p>8 M1 Lesson 6: More Properties of Exponents</p> <p>8 M1 Lesson 7: Making Sense of the Exponent of 0</p> <p>8 M1 Lesson 8: Making Sense of Integer Exponents</p> <p>8 M1 Lesson 9: Writing Equivalent Expressions</p> <p>8 M1 Lesson 10: Evaluating Numerical Expressions by Using Properties of Exponents</p>
<p><b>8.NR.2.2</b></p> <p>Use square root and cube root symbols to represent solutions to equations. Recognize that <math>x^2 = p</math> (where <math>p</math> is a positive rational number and <math> x  \leq 25</math>) has two solutions and <math>x^3 = p</math> (where <math>p</math> is a negative or positive rational number and <math> x  \leq 10</math>) has one solution. Evaluate square roots of perfect squares <math>\leq 625</math> and cube roots of perfect cubes <math>\geq -1000</math> and <math>\leq 1000</math>.</p>	<p>8 M1 Lesson 16: Perfect Squares and Perfect Cubes</p> <p>8 M1 Lesson 17: Solving Equations with Squares and Cubes</p> <p>8 M1 Lesson 18: The Pythagorean Theorem</p> <p>8 M1 Lesson 19: Using the Pythagorean Theorem</p> <p>8 M1 Lesson 20: Square Roots</p> <p>8 M1 Lesson 21: Approximating Values of Roots and <math>\pi^2</math></p> <p>8 M1 Lesson 22: Familiar and Not So Familiar Numbers</p> <p>8 M1 Lesson 23: Ordering Irrational Numbers</p> <p>8 M1 Lesson 24: Revisiting Equations with Squares and Cubes</p>

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<p><b>8.NR.2.3</b></p> <p>Use numbers expressed in scientific notation to estimate very large or very small quantities, and to express how many times as much one is than the other.</p>	<p>8 M1 Lesson 1: Large and Small Positive Numbers</p> <p>8 M1 Lesson 2: Comparing Large Numbers</p> <p>8 M1 Lesson 3: Time to Be More Precise—Scientific Notation</p> <p>8 M1 Lesson 4: Adding and Subtracting Numbers Written in Scientific Notation</p> <p>8 M1 Lesson 7: Making Sense of the Exponent of 0</p> <p>8 M1 Lesson 11: Small Positive Numbers in Scientific Notation</p>
<p><b>8.NR.2.4</b></p> <p>Add, subtract, multiply, and divide numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Interpret scientific notation that has been generated by technology (e.g., calculators or online technology tools).</p>	<p>8 M1 Lesson 1: Large and Small Positive Numbers</p> <p>8 M1 Lesson 2: Comparing Large Numbers</p> <p>8 M1 Lesson 3: Time to Be More Precise—Scientific Notation</p> <p>8 M1 Lesson 4: Adding and Subtracting Numbers Written in Scientific Notation</p> <p>8 M1 Lesson 11: Small Positive Numbers in Scientific Notation</p> <p>8 M1 Lesson 12: Operations with Numbers in Scientific Notation</p> <p>8 M1 Lesson 13: Applications with Numbers in Scientific Notation</p> <p>8 M1 Lesson 14: Choosing Units of Measurement</p> <p>8 M1 Lesson 15: Get to the Point</p>

## Patterning and Algebraic Reasoning

**8.PAR.3** Create and interpret expressions within relevant situations. Create, interpret, and solve linear equations and linear inequalities in one variable to model and explain real phenomena.

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<p><b>8.PAR.3.1</b></p> <p>Interpret expressions and parts of an expression, in context, by utilizing formulas or expressions with multiple terms and/or factors.</p>	<p>A1 M5 Lesson 1: Exploring Patterns</p> <p>A1 M5 Lesson 2: The Recursive Challenge</p> <p>A1 M5 Lesson 3: Recursive Formulas for Sequences</p> <p>A1 M5 Lesson 4: Explicit Formulas for Sequences</p> <p>A1 M5 Lesson 5: Arithmetic and Geometric Sequences</p> <p>A1 M5 Lesson 6: Representation of Arithmetic and Geometric Sequences</p> <p>A1 M5 Lesson 7: Sierpinski Triangle</p> <p>A1 M5 Lesson 8: Exponential Functions</p> <p>A1 M5 Lesson 9: Unit Fraction Exponents</p> <p>A1 M5 Lesson 10: Rational Exponents</p> <p>A1 M5 Lesson 11: Graphing Exponential Functions</p> <p>A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1)</p> <p>A1 M5 Lesson 13: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1)</p> <p>A1 M5 Lesson 14: Writing Equations for Exponential Functions from Tables or Graphs</p> <p>A1 M5 Lesson 15: Calculating Interest</p> <p>A1 M5 Lesson 16: Exponential Growth</p> <p>A1 M5 Lesson 17: Exponential Decay</p> <p>A1 M5 Lesson 18: Modeling Populations</p> <p>A1 M5 Lesson 19: Analyzing Exponential Growth</p> <p>A1 M5 Lesson 20: Comparing Growth of Functions</p> <p>A1 M5 Lesson 21: World Population Prediction</p> <p>A1 M5 Lesson 22: A Closer Look at Populations</p> <p>A1 M5 Lesson 23: Modeling the Temperature of Objects Cooling Over Time</p> <p>A1 M5 Lesson 24: Modeling an Invasive Species Population</p>

### Georgia's K–12 Mathematics Standards

### Aligned Components of *Eureka Math*<sup>2</sup>

<p><b>8.PAR.3.2</b></p> <p>Describe and solve linear equations in one variable with one solution (<math>x = a</math>), infinitely many solutions (<math>a = a</math>), or no solutions (<math>a = b</math>). Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form <math>x = a</math>, <math>a = a</math>, or <math>a = b</math> results (where <math>a</math> and <math>b</math> are different numbers).</p>	<p>8 M4 Lesson 7: Linear Equations with More Than One Solution</p> <p>8 M4 Lesson 8: Another Possible Number of Solutions</p> <p>8 M4 Lesson 9: Writing Linear Equations</p> <p>8 M4 Lesson 10: Using Linear Equations to Solve Real-World Problems</p> <p>8 M4 Lesson 11: Planning a Trip</p>
<p><b>8.PAR.3.3</b></p> <p>Create and solve linear equations and inequalities in one variable within a relevant application.</p>	<p>7 M3 Lesson 18: Understanding Inequalities and Their Solutions</p> <p>7 M3 Lesson 19: Using Equations to Solve Inequalities</p> <p>7 M3 Lesson 20: Preserving and Reversing</p> <p>7 M3 Lesson 21: Solving Two-Step Inequalities</p> <p>7 M3 Lesson 22: Solving Problems Involving Inequalities</p> <p>7 M3 Lesson 23: Inequalities vs. Equations</p>
<p><b>8.PAR.3.4</b></p> <p>Using algebraic properties and the properties of real numbers, justify the steps of a one-solution equation or inequality.</p>	<p>8 M4 Lesson 1: Equations</p> <p>8 M4 Lesson 2: Solving Linear Equations</p> <p>8 M4 Lesson 3: Solving Linear Equations with Rational Coefficients</p> <p>8 M4 Lesson 4: Using Linear Equations to Solve Problems</p> <p>8 M4 Lesson 5: An Interesting Application of Linear Equations, Part 1</p> <p>8 M4 Lesson 6: An Interesting Application of Linear Equations, Part 2</p> <p>8 M4 Lesson 10: Using Linear Equations to Solve Real-World Problems</p> <p>8 M4 Lesson 11: Planning a Trip</p>

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<p><b>8.PAR.3.5</b></p> <p>Solve linear equations and inequalities in one variable with coefficients represented by letters and explain the solution based on the contextual, mathematical situation.</p>	<p>7 M3 Lesson 18: Understanding Inequalities and Their Solutions</p> <p>7 M3 Lesson 19: Using Equations to Solve Inequalities</p> <p>7 M3 Lesson 20: Preserving and Reversing</p> <p>7 M3 Lesson 21: Solving Two-Step Inequalities</p> <p>7 M3 Lesson 22: Solving Problems Involving Inequalities</p> <p>7 M3 Lesson 23: Inequalities vs. Equations</p> <p>8 M4 Lesson 1: Equations</p> <p>8 M4 Lesson 2: Solving Linear Equations</p> <p>8 M4 Lesson 3: Solving Linear Equations with Rational Coefficients</p> <p>8 M4 Lesson 4: Using Linear Equations to Solve Problems</p> <p>8 M4 Lesson 5: An Interesting Application of Linear Equations, Part 1</p> <p>8 M4 Lesson 6: An Interesting Application of Linear Equations, Part 2</p> <p>8 M4 Lesson 7: Linear Equations with More Than One Solution</p> <p>8 M4 Lesson 8: Another Possible Number of Solutions</p> <p>8 M4 Lesson 9: Writing Linear Equations</p> <p>8 M4 Lesson 10: Using Linear Equations to Solve Real-World Problems</p> <p>8 M4 Lesson 11: Planning a Trip</p>
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## Georgia's K–12 Mathematics Standards

## Aligned Components of *Eureka Math*<sup>2</sup>

<p><b>8.PAR.3.6</b></p> <p>Use algebraic reasoning to fluently manipulate linear and literal equations expressed in various forms to solve relevant, mathematical problems.</p>	<p>A1 M1 Lesson 1: The Growing Pattern of Ducks</p> <p>A1 M1 Lesson 2: The Commutative, Associative, and Distributive Properties</p> <p>A1 M1 Lesson 3: Polynomial Expressions</p> <p>A1 M1 Lesson 4: Adding and Subtracting Polynomial Expressions</p> <p>A1 M1 Lesson 5: Multiplying Polynomial Expressions</p> <p>A1 M1 Lesson 6: Polynomial Identities</p> <p>A1 M1 Lesson 7: Printing Presses</p> <p>A1 M1 Lesson 8: Solution Sets for Equations and Inequalities in One Variable</p> <p>A1 M1 Lesson 9: Solving Linear Equations in One Variable</p> <p>A1 M1 Lesson 10: Some Potential Dangers When Solving Equations</p> <p>A1 M1 Lesson 11: Writing and Solving Equations in One Variable</p> <p>A1 M1 Lesson 12: Rearranging Formulas</p> <p>A1 M1 Lesson 13: Solving Linear Inequalities in One Variable</p> <p>A1 M1 Lesson 14: Solution Sets of Compound Statements</p> <p>A1 M1 Lesson 15: Solving and Graphing Compound Inequalities</p> <p>A1 M1 Lesson 16: Solving Absolute Value Equations</p> <p>A1 M1 Lesson 17: Solving Absolute Value Inequalities</p> <p>A1 M1 Lesson 18: Applying Absolute Value</p> <p>A1 M1 Lesson 19: Distributions and Their Shapes</p> <p>A1 M1 Lesson 20: Describing the Center of a Distribution</p> <p>A1 M1 Lesson 21: Using Center to Compare Data Distributions</p> <p>A1 M1 Lesson 22: Describing Variability in a Univariate Distribution with Standard Deviation</p> <p>A1 M1 Lesson 23: Estimating Variability in Data Distributions</p> <p>A1 M1 Lesson 24: Comparing Distributions of Univariate Data</p>
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<b>8.PAR.3.6 <i>continued</i></b>	
	A1 M4 Lesson 1: Falling Objects
	A1 M4 Lesson 2: Projectile Motion
	A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion
	A1 M4 Lesson 4: Graphs of Quadratic Functions
	A1 M4 Lesson 5: Solving Equations That Contain Factored Expressions
	A1 M4 Lesson 6: Solving Quadratic Equations by Factoring: Identities and Guess and Check
	A1 M4 Lesson 7: Solving Quadratic Equations by Factoring: Splitting the Linear Term
	A1 M4 Lesson 8: A Summary of Solving Quadratic Equations by Factoring
	A1 M4 Lesson 9: Creating and Solving Quadratic Equations in One Variable
	A1 M4 Lesson 10: Zeros of Functions
	A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form
	A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form
	A1 M4 Lesson 13: Using Square Roots to Solve Quadratic Equations
	A1 M4 Lesson 14: Solving Quadratic Equations by Completing the Square
	A1 M4 Lesson 15: Deriving the Quadratic Formula
	A1 M4 Lesson 16: Solving Quadratic Equations
	A1 M4 Lesson 17: Rewriting Square Roots
	A1 M4 Lesson 18: The Quadratic Formula and Zeros of a Function
	A1 M4 Lesson 19: Transforming the Graphs of Quadratic Functions
	A1 M4 Lesson 20: Art with Transformations
	A1 M4 Lesson 21: Completing the Square to Graph Quadratic Functions
	A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions
	A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts
	A1 M4 Lesson 24: Another Look at Systems of Equations

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<b>8.PAR.3.6 <i>continued</i></b>	<p>A1 M4 Lesson 25: Maximizing Area</p> <p>A1 M4 Lesson 26: Modeling Data with Quadratic Functions</p> <p>A1 M4 Lesson 27: Search and Rescue Helicopter</p>
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**Patterning and Algebraic Reasoning**

**8.PAR.4 Show and explain the connections between proportional and non-proportional relationships, lines, and linear equations; create and interpret graphical mathematical models and use the graphical, mathematical model to explain real phenomena represented in the graph.**

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**Aligned Components of *Eureka Math*<sup>2</sup>**

<p><b>8.PAR.4.1</b></p> <p>Use the equation <math>y = mx</math> (proportional) for a line through the origin to derive the equation <math>y = mx + b</math> (non-proportional) for a line intersecting the vertical axis at <math>b</math>.</p>	<p>8 M6 Lesson 3: Linear Functions and Proportionality</p> <p>8 M6 Lesson 6: Linear Functions and Rate of Change</p> <p>8 M6 Lesson 10: Graphs of Nonlinear Functions</p>
<p><b>8.PAR.4.2</b></p> <p>Show and explain that the graph of an equation representing an applicable situation in two variables is the set of all its solutions plotted in the coordinate plane.</p>	<p>A1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables</p> <p>A1 M2 Lesson 2: Graphing Linear Equations in Two Variables</p> <p>A1 M2 Lesson 3: Creating Linear Equations in Two Variables</p> <p>A1 M2 Lesson 4: Solution Sets of Linear Inequalities in Two Variables</p> <p>A1 M2 Lesson 5: Graphing Linear Inequalities in Two Variables</p> <p>A1 M2 Lesson 6: Applications of Linear Equations and Inequalities</p> <p>A1 M2 Lesson 7: Low-Flow Showerhead</p> <p>A1 M2 Lesson 8: Systems of Linear Equations in Two Variables</p>

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<p><b>8.PAR.4.2 <i>continued</i></b></p>	<p>A1 M2 Lesson 9: A New Way to Solve Systems</p> <p>A1 M2 Lesson 10: The Elimination Method</p> <p>A1 M2 Lesson 11: Applications of Systems of Equations</p> <p>A1 M2 Lesson 12: Solution Sets of Systems of Linear Inequalities</p> <p>A1 M2 Lesson 13: Graphing Solution Sets of Systems of Linear Inequalities</p> <p>A1 M2 Lesson 14: Applications of Systems of Linear Inequalities</p> <p>A1 M2 Lesson 15: Relationships Between Quantitative Variables</p> <p>A1 M2 Lesson 16: Using Lines to Model Bivariate Quantitative Data</p> <p>A1 M2 Lesson 17: Modeling Relationships with a Line</p> <p>A1 M2 Lesson 18: Calculating and Analyzing Residuals</p> <p>A1 M2 Lesson 19: Analyzing Residuals</p> <p>A1 M2 Lesson 20: Interpreting Correlation</p> <p>A1 M2 Lesson 21: Analyzing Bivariate Quantitative Data</p> <p>A1 M2 Lesson 22: Summarizing Bivariate Categorical Data with Two-Way Tables</p> <p>A1 M2 Lesson 23: Bivariate Categorical Data and Conditional Relative Frequency Tables</p> <p>A1 M2 Lesson 24: Conditional Relative Frequencies and Association</p>
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**Functional and Graphical Reasoning**

**8.FGR.5 Describe the properties of functions to define, evaluate, and compare relationships, and use functions and graphs of functions to model and explain real phenomena.**

<b>Georgia's K–12 Mathematics Standards</b>	<b>Aligned Components of <i>Eureka Math</i><sup>2</sup></b>
<p><b>8.FGR.5.1</b></p> <p>Show and explain that a function is a rule that assigns to each input exactly one output.</p>	<p>8 M6 Lesson 1: Motion and Speed</p> <p>8 M6 Lesson 2: Definition of a Function</p> <p>8 M6 Lesson 3: Linear Functions and Proportionality</p> <p>8 M6 Lesson 4: More Examples of Functions</p> <p>8 M6 Lesson 5: Graphs of Functions and Equations</p>
<p><b>8.FGR.5.2</b></p> <p>Within realistic situations, identify and describe examples of functions that are linear or nonlinear. Sketch a graph that exhibits the qualitative features of a function that has been described verbally.</p>	<p>8 M6 Lesson 9: Increasing and Decreasing Functions</p> <p>8 M6 Lesson 10: Graphs of Nonlinear Functions</p>
<p><b>8.FGR.5.3</b></p> <p>Relate the domain of a linear function to its graph and where applicable to the quantitative relationship it describes.</p>	<p>A1 M3 Lesson 1: The Definition of a Function</p> <p>A1 M3 Lesson 2: Representing, Naming, and Evaluating Functions</p> <p>A1 M3 Lesson 3: The Graph of a Function</p> <p>A1 M3 Lesson 4: The Graph of the Equation <math>y = f(x)</math></p> <p>A1 M3 Lesson 5: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations</p> <p>A1 M3 Lesson 6: Representations of Functions</p> <p>A1 M3 Lesson 7: Inverses of Linear Functions</p>

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<p><b>8.FGR.5.4</b></p> <p>Compare properties (rate of change and initial value) of two functions used to model an authentic situation each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).</p>	<p>8 M6 Lesson 7: Interpreting Rate of Change and Initial Value</p> <p>8 M6 Lesson 8: Comparing Functions</p>
<p><b>8.FGR.5.5</b></p> <p>Write and explain the equations <math>y = mx + b</math> (slope-intercept form), <math>Ax + By = C</math> (standard form), and <math>(y - y_1) = m(x - x_1)</math> (point-slope form) as defining a linear function whose graph is a straight line to reveal and explain different properties of the function.</p>	<p>8 M4 Lesson 20: Slope-Intercept Form of the Equation of a Line</p> <p>8 M4 Lesson 21: Slope and Parallel Lines</p> <p>8 M4 Lesson 22: Point-Slope Form of the Equation of a Line</p> <p>8 M4 Lesson 23: Comparing Equations in Different Forms</p>
<p><b>8.FGR.5.6</b></p> <p>Write a linear function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.</p>	<p>8 M6 Lesson 1: Motion and Speed</p> <p>8 M6 Lesson 2: Definition of a Function</p> <p>8 M6 Lesson 3: Linear Functions and Proportionality</p> <p>8 M6 Lesson 4: More Examples of Functions</p> <p>8 M6 Lesson 5: Graphs of Functions and Equations</p>

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<p><b>8.FGR.5.7</b></p> <p>Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two <math>(x, y)</math> values, including reading these from a table or from a graph.</p>	<p>8 M6 Lesson 6: Linear Functions and Rate of Change</p> <p>8 M6 Lesson 7: Interpreting Rate of Change and Initial Value</p> <p>8 M6 Lesson 25: Applications of Volume</p>
<p><b>8.FGR.5.8</b></p> <p>Explain the meaning of the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.</p>	<p>8 M6 Lesson 1: Motion and Speed</p> <p>8 M6 Lesson 2: Definition of a Function</p> <p>8 M6 Lesson 3: Linear Functions and Proportionality</p> <p>8 M6 Lesson 4: More Examples of Functions</p> <p>8 M6 Lesson 5: Graphs of Functions and Equations</p> <p>8 M6 Lesson 6: Linear Functions and Rate of Change</p> <p>8 M6 Lesson 7: Interpreting Rate of Change and Initial Value</p> <p>8 M6 Lesson 8: Comparing Functions</p> <p>8 M6 Lesson 9: Increasing and Decreasing Functions</p> <p>8 M6 Lesson 10: Graphs of Nonlinear Functions</p> <p>8 M6 Lesson 11: Scatter Plots</p> <p>8 M6 Lesson 12: Patterns in Scatter Plots</p> <p>8 M6 Lesson 13: Informally Fitting a Line to Data</p> <p>8 M6 Lesson 14: Determining an Equation of a Line Fit to Data</p> <p>8 M6 Lesson 15: Linear Models</p> <p>8 M6 Lesson 16: Using the Investigative Process</p> <p>8 M6 Lesson 17: Analyzing the Model</p>

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**Aligned Components of *Eureka Math*<sup>2</sup>**

<b>8.FGR.5.8 <i>continued</i></b>	<p>8 M6 Lesson 18: Bivariate Categorical Data</p> <p>8 M6 Lesson 19: Association in Bivariate Categorical Data</p> <p>8 M6 Lesson 20: Analyzing Bivariate Categorical Data</p> <p>8 M6 Lesson 21: Volumes of Prisms and Pyramids</p> <p>8 M6 Lesson 22: Volume of Cylinders</p> <p>8 M6 Lesson 23: Volume of Cones</p> <p>8 M6 Lesson 24: Volume of Spheres</p> <p>8 M6 Lesson 25: Applications of Volume</p>
<p><b>8.FGR.5.9</b></p> <p>Graph and analyze linear functions expressed in various algebraic forms and show key characteristics of the graph to describe applicable situations.</p>	<p>AI M2 Lesson 2: Graphing Linear Equations in Two Variables</p> <p>AI M2 Lesson 3: Creating Linear Equations in Two Variables</p> <p>AI M3 Lesson 6: Representations of Functions</p> <p>AI M3 Lesson 8: Identifying Key Features of a Function and Its Graph</p> <p>AI M3 Lesson 14: Piecewise Linear Functions</p> <p>AI M3 Lesson 15: The Absolute Value Function</p> <p>AI M3 Lesson 19: Building New Functions—Translations</p> <p>AI M3 Lesson 21: Building New Functions—Vertical Scaling</p>

## Functional and Graphical Reasoning

### 8.FGR.6 Solve practical, linear problems involving situations using bivariate quantitative data.

Georgia’s K–12 Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>8.FGR.6.1</b></p> <p>Show that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, visually fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line of best fit.</p>	<p>8 M6 Lesson 11: Scatter Plots</p> <p>8 M6 Lesson 12: Patterns in Scatter Plots</p> <p>8 M6 Lesson 13: Informally Fitting a Line to Data</p> <p>8 M6 Lesson 14: Determining an Equation of a Line Fit to Data</p> <p>8 M6 Lesson 15: Linear Models</p> <p>8 M6 Lesson 16: Using the Investigative Process</p> <p>8 M6 Lesson 17: Analyzing the Model</p>
<p><b>8.FGR.6.2</b></p> <p>Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercepts.</p>	<p>8 M6 Lesson 11: Scatter Plots</p> <p>8 M6 Lesson 12: Patterns in Scatter Plots</p> <p>8 M6 Lesson 13: Informally Fitting a Line to Data</p> <p>8 M6 Lesson 14: Determining an Equation of a Line Fit to Data</p> <p>8 M6 Lesson 15: Linear Models</p> <p>8 M6 Lesson 16: Using the Investigative Process</p> <p>8 M6 Lesson 17: Analyzing the Model</p>

<b>Georgia's K–12 Mathematics Standards</b>	<b>Aligned Components of <i>Eureka Math</i><sup>2</sup></b>
<p><b>8.FGR.6.3</b></p> <p>Explain the meaning of the predicted slope (rate of change) and the predicted intercept (constant term) of a linear model in the context of the data.</p>	<p>8 M6 Lesson 11: Scatter Plots</p> <p>8 M6 Lesson 12: Patterns in Scatter Plots</p> <p>8 M6 Lesson 13: Informally Fitting a Line to Data</p> <p>8 M6 Lesson 14: Determining an Equation of a Line Fit to Data</p> <p>8 M6 Lesson 15: Linear Models</p> <p>8 M6 Lesson 16: Using the Investigative Process</p> <p>8 M6 Lesson 17: Analyzing the Model</p>
<p><b>8.FGR.6.4</b></p> <p>Use appropriate graphical displays from data distributions involving lines of best fit to draw informal inferences and answer the statistical investigative question posed in an unbiased statistical study.</p>	<p>8 M6 Lesson 16: Using the Investigative Process</p> <p>8 M6 Lesson 17: Analyzing the Model</p>

### Functional and Graphical Reasoning

**8.FGR.7** Justify and use various strategies to solve systems of linear equations to model and explain realistic phenomena.

<b>Georgia's K–12 Mathematics Standards</b>	<b>Aligned Components of <i>Eureka Math</i><sup>2</sup></b>
<p><b>8.FGR.7.1</b></p> <p>Interpret and solve relevant mathematical problems leading to two linear equations in two variables.</p>	<p>8 M5 Lesson 1: Solving Problems with Equations and Their Graphs</p> <p>8 M5 Lesson 11: Writing and Solving Systems of Equations for Mathematical Problems</p> <p>8 M5 Lesson 12: Solving Historical Problems with Systems of Equations</p> <p>8 M5 Lesson 13: Writing and Solving Systems of Equations for Real-World Problems</p> <p>8 M5 Lesson 14: Back to the Coordinate Plane</p>

**Georgia's K–12  
Mathematics Standards**

**Aligned Components of *Eureka Math*<sup>2</sup>**

<p><b>8.FGR.7.2</b></p> <p>Show and explain that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because the points of intersection satisfy both equations simultaneously.</p>	<p>8 M5 Lesson 1: Solving Problems with Equations and Their Graphs</p> <p>8 M5 Lesson 2: Introduction to Systems of Linear Equations</p> <p>8 M5 Lesson 3: Identifying Solutions</p> <p>8 M5 Lesson 4: More Than One Solution</p> <p>8 M5 Lesson 5: Estimating Solutions</p> <p>8 M5 Lesson 7: The Substitution Method</p> <p>8 M5 Lesson 10: Choosing a Solution Method</p> <p>8 M5 Lesson 14: Back to the Coordinate Plane</p>
<p><b>8.FGR.7.3</b></p> <p>Approximate solutions of two linear equations in two variables by graphing the equations and solving simple cases by inspection.</p>	<p>8 M5 Lesson 1: Solving Problems with Equations and Their Graphs</p> <p>8 M5 Lesson 2: Introduction to Systems of Linear Equations</p> <p>8 M5 Lesson 3: Identifying Solutions</p> <p>8 M5 Lesson 4: More Than One Solution</p> <p>8 M5 Lesson 5: Estimating Solutions</p> <p>8 M5 Lesson 6: Solving Systems of Linear Equations without Graphing</p> <p>8 M5 Lesson 7: The Substitution Method</p> <p>8 M5 Lesson 8: Using Tape Diagrams to Solve Systems of Equations</p> <p>8 M5 Lesson 9: Rewriting Equations to Solve a System of Equations</p> <p>8 M5 Lesson 10: Choosing a Solution Method</p> <p>8 M5 Lesson 11: Writing and Solving Systems of Equations for Mathematical Problems</p> <p>8 M5 Lesson 12: Solving Historical Problems with Systems of Equations</p> <p>8 M5 Lesson 13: Writing and Solving Systems of Equations for Real-World Problems</p> <p>8 M5 Lesson 14: Back to the Coordinate Plane</p>

### Georgia's K–12 Mathematics Standards

### Aligned Components of *Eureka Math*<sup>2</sup>

<p><b>8.FGR.7.4</b></p> <p>Analyze and solve systems of two linear equations in two variables algebraically to find exact solutions.</p>	<p>8 M5 Lesson 6: Solving Systems of Linear Equations without Graphing</p> <p>8 M5 Lesson 7: The Substitution Method</p> <p>8 M5 Lesson 8: Using Tape Diagrams to Solve Systems of Equations</p> <p>8 M5 Lesson 9: Rewriting Equations to Solve a System of Equations</p> <p>8 M5 Lesson 10: Choosing a Solution Method</p>
<p><b>8.FGR.7.5</b></p> <p>Create and compare the equations of two lines that are either parallel to each other, perpendicular to each other, or neither parallel nor perpendicular.</p>	<p>8 M5 Lesson 3: Identifying Solutions</p>

### Geometric and Spatial Reasoning

**8.GSR.8 Solve geometric problems involving the Pythagorean Theorem and the volume of geometric figures to explain real phenomena.**

### Georgia's K–12 Mathematics Standards

### Aligned Components of *Eureka Math*<sup>2</sup>

<p><b>8.GSR.8.1</b></p> <p>Explain a proof of the Pythagorean Theorem and its converse using visual models.</p>	<p>8 M2 Lesson 17: Proving the Pythagorean Theorem</p> <p>8 M2 Lesson 18: Proving the Converse of the Pythagorean Theorem</p> <p>8 M2 Lesson 19: Using the Pythagorean Theorem and Its Converse</p> <p>8 M2 Lesson 20: Distance in the Coordinate Plane</p> <p>8 M2 Lesson 21: Applying the Pythagorean Theorem</p> <p>8 M2 Lesson 22: On the Right Path</p>
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### Georgia's K–12 Mathematics Standards

### Aligned Components of *Eureka Math*<sup>2</sup>

<p><b>8.GSR.8.2</b></p> <p>Apply the Pythagorean Theorem to determine unknown side lengths in right triangles within authentic, mathematical problems in two and three dimensions.</p>	<p>8 M1 Lesson 16: Perfect Squares and Perfect Cubes</p> <p>8 M1 Lesson 17: Solving Equations with Squares and Cubes</p> <p>8 M1 Lesson 18: The Pythagorean Theorem</p> <p>8 M1 Lesson 19: Using the Pythagorean Theorem</p> <p>8 M1 Lesson 20: Square Roots</p> <p>8 M2 Lesson 17: Proving the Pythagorean Theorem</p> <p>8 M2 Lesson 18: Proving the Converse of the Pythagorean Theorem</p> <p>8 M2 Lesson 19: Using the Pythagorean Theorem and Its Converse</p> <p>8 M2 Lesson 20: Distance in the Coordinate Plane</p> <p>8 M2 Lesson 21: Applying the Pythagorean Theorem</p> <p>8 M2 Lesson 22: On the Right Path</p> <p>8 M3 Lesson 16: Similar Right Triangles</p>
<p><b>8.GSR.8.3</b></p> <p>Apply the Pythagorean Theorem to find the distance between two points in a coordinate system in practical, mathematical problems.</p>	<p>8 M2 Lesson 20: Distance in the Coordinate Plane</p> <p>8 M2 Lesson 22: On the Right Path</p>
<p><b>8.GSR.8.4</b></p> <p>Apply the formulas for the volume of cones, cylinders, and spheres and use them to solve in relevant problems.</p>	<p>8 M6 Lesson 21: Volumes of Prisms and Pyramids</p> <p>8 M6 Lesson 22: Volume of Cylinders</p> <p>8 M6 Lesson 23: Volume of Cones</p> <p>8 M6 Lesson 24: Volume of Spheres</p> <p>8 M6 Lesson 25: Applications of Volume</p>