Algebra I | Mathematics Standards of Learning for Virginia Public Schools 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 Goals for Students	Aligned Components of *Eureka Math*
Mathematical Problem Solving	Lessons in every module engage students in mathematical processes.
Mathematical Communication	
Mathematical Reasoning	
Mathematical Connections	
Mathematical Representations	

Expressions and Operations

A.EO.1 The student will represent verbal quantitative situations algebraically and evaluate these expressions for given replacement values of the variables.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.EO.1.a Translate between verbal quantitative situations and algebraic expressions, including contextual situations.	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 Algebra I M1 Lesson 26: Recursive Challenge Problem—The Double and Add 5 Game Algebra I M1 Lesson 27: Recursive Challenge Problem—The Double and Add 5 Game 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 M5 Lesson 6: Modeling a Context from Data Algebra I M5 Lesson 9: Modeling a Context from a Verbal Description
A.EO.1.b Evaluate algebraic expressions which include absolute value, square roots, and cube roots for given replacement values to include rational numbers, without rationalizing the denominator.	Algebra I M1 Lesson 10: True and False Equations Algebra I M1 Lesson 19: Rearranging Formulas Algebra I M3 Lesson 10: Representing, Naming, and Evaluating Functions Algebra I M3 Lesson 16: Graphs Can Solve Equations Too Algebra I M4 Lesson 18: Graphing Cubic, Square Root, and Cube Root Functions

Expressions and Operations

A.EO.2 The student will perform operations on and factor polynomial expressions in one variable.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.EO.2.a Determine sums and differences of polynomial expressions in one variable, using a variety of strategies, including concrete objects and their related pictorial and symbolic models.	Algebra I M1 Lesson 8: Adding and Subtracting Polynomials *Supplemental material is necessary to address determining sums and differences of polynomial expressions in one variable using concrete objects.*
A.EO.2.b Determine the product of polynomial expressions in one variable, using a variety of strategies, including concrete objects and their related pictorial and symbolic models, the application of the distributive property, and the use of area models. The factors should be limited to five or fewer terms (e.g., $(4x + 2)(3x + 5)$ represents four terms and $(x + 1)(2x^2 + x + 3)$ represents five terms).	Algebra I M1 Topic B: The Structure of Expressions Algebra I M4 Lesson 1: Multiplying and Factoring Polynomial Expressions Algebra I M4 Lesson 2: Multiplying and Factoring Polynomial Expressions Algebra I M4 Lesson 3: Advanced Factoring Strategies for Quadratic Expressions Algebra I M4 Lesson 4: Advanced Factoring Strategies for Quadratic Expressions *Supplemental material is necessary to address determining the product of polynomial expressions in one variable using concrete objects.*
A.EO.2.c Factor completely first- and second-degree polynomials in one variable with integral coefficients. After factoring out the greatest common factor (GCF), leading coefficients should have no more than four factors.	Algebra I M4 Lesson 1: Multiplying and Factoring Polynomial Expressions Algebra I M4 Lesson 2: Multiplying and Factoring Polynomial Expressions Algebra I M4 Lesson 3: Advanced Factoring Strategies for Quadratic Expressions Algebra I M4 Lesson 4: Advanced Factoring Strategies for Quadratic Expressions Algebra II M1 Lesson 12: Overcoming Obstacles in Factoring Algebra II M1 Lesson 13: Mastering Factoring

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.EO.2.d Determine the quotient of polynomials, using a monomial or binomial divisor, or a completely factored divisor.	Algebra II M1 Lesson 18: Overcoming a Second Obstacle in Factoring—What If There Is a Remainder? Algebra II M1 Lesson 22: Equivalent Rational Expressions
A.EO.2.e Represent and demonstrate equality of quadratic expressions in different forms (e.g., concrete, verbal, symbolic, and graphical).	Algebra I M1 Topic B: The Structure of Expressions Algebra I M4 Lesson 1: Multiplying and Factoring Polynomial Expressions Algebra I M4 Lesson 2: Multiplying and Factoring Polynomial Expressions Algebra I M4 Lesson 3: Advanced Factoring Strategies for Quadratic Expressions Algebra I M4 Lesson 4: Advanced Factoring Strategies for Quadratic Expressions 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 15: Using the Quadratic Formula 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, $f(x) = ax^2 + bx + c$

Expressions and Operations

A.EO.3 The student will derive and apply the laws of exponents.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.EO.3.a Derive the laws of exponents through explorations of patterns, to include products, quotients, and powers of bases.	G8 M1 Topic A: Exponential Notation and Properties of Integer Exponents
A.EO.3.b Simplify multivariable expressions and ratios of monomial expressions in which the exponents are integers, using the laws of exponents.	G8 M1 Topic A: Exponential Notation and Properties of Integer Exponents Algebra II M3 Lesson 1: Integer Exponents

Expressions and Operations

A.EO.4 The student will simplify and determine equivalent radical expressions involving square roots of whole numbers and cube roots of integers.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.EO.4.a Simplify and determine equivalent radical expressions involving the square root of a whole number in simplest form.	G8 M7 Lesson 2: Square Roots G8 M7 Lesson 3: Existence and Uniqueness of Square Roots and Cube Roots G8 M7 Lesson 4: Simplifying Square Roots
A.EO.4.b Simplify and determine equivalent radical expressions involving the cube root of an integer.	G8 M7 Lesson 3: Existence and Uniqueness of Square Roots and Cube Roots *Supplemental material is necessary to fully address this standard.*

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.EO.4.c Add, subtract, and multiply radicals, limited to numeric square and cube root expressions.	Geometry M2 Lesson 22: Multiplying and Dividing Expressions with Radicals Geometry M2 Lesson 23: Adding and Subtracting Expressions with Radicals Algebra II M1 Lesson 9: Radicals and Conjugates
A.EO.4.d Generate equivalent numerical expressions and justify their equivalency for radicals using rational exponents, limited to rational exponents of $\frac{1}{2}$ and $\frac{1}{3}$ (e.g., $\sqrt{5} = 5^{\frac{1}{2}}$; $\sqrt[3]{8} = 8^{\frac{1}{3}} = (2^3)^{\frac{1}{3}} = 2$).	Algebra II M3 Lesson 1: Integer Exponents Algebra II M3 Lesson 2: Base 10 and Scientific Notation Algebra II M3 Lesson 3: Rational Exponents Algebra II M3 Lesson 4: Properties of Exponents and Radicals

Equations and Inequalities

A.EI.1 The student will represent, solve, explain, and interpret the solution to multistep linear equations and inequalities in one variable and literal equations for a specified variable.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.EI.1.a Write a linear equation or inequality in one variable to represent a contextual situation.	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 14: Solving Inequalities Algebra I M1 Lesson 15: Solution Sets of Two or More Equations (or Inequalities) Joined by "And" or "Or" Algebra I M1 Lesson 16: Solving and Graphing Inequalities Joined by "And" or "Or" Algebra I M1 Lesson 25: Solving Problems in Two Ways—Rates and Algebra

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.EI.1.a *continued*	Algebra I M1 Lesson 26: Recursive Challenge Problem—The Double and Add 5 Game Algebra I M1 Lesson 27: Recursive Challenge Problem—The Double and Add 5 Game Algebra I M5 Lesson 6: Modeling a Context from Data Algebra I M5 Lesson 9: Modeling a Context from a Verbal Description
A.EI.1.b Solve multistep linear equations in one variable, including those in contextual situations, by applying the properties of real numbers and/or properties of equality.	G8 M4 Lesson 8: Linear Equations in Disguise 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 25: Solving Problems in Two Ways—Rates and Algebra Algebra I M1 Lesson 27: Recursive Challenge Problem—The Double and Add 5 Game
A.EI.1.c Solve multistep linear inequalities in one variable algebraically and graph the solution set on a number line, including those in contextual situations, by applying the properties of real numbers and/or properties of inequality.	Algebra I M1 Lesson 11: Solution Sets for Equations and Inequalities Algebra I M1 Lesson 14: Solving Inequalities Algebra I M1 Lesson 15: Solution Sets of Two or More Equations (or Inequalities) Joined by "And" or "Or" Algebra I M1 Lesson 16: Solving and Graphing Inequalities Joined by "And" or "Or"
A.EI.1.d Rearrange a formula or literal equation to solve for a specified variable by applying the properties of equality.	Algebra I M1 Lesson 19: Rearranging Formulas

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.EI.1.e Determine if a linear equation in one variable has one solution, no solution, or an infinite number of solutions.	G8 M4 Lesson 6: Solutions of a Linear Equation G8 M4 Lesson 7: Classification of Solutions
A.EI.1.f Verify possible solution(s) to multistep linear equations and inequalities in one variable algebraically, graphically, and with technology to justify the reasonableness of the answer(s). Explain the solution method and interpret solutions for problems given in context.	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 14: Solving Inequalities Algebra I M1 Lesson 15: Solution Sets of Two or More Equations (or Inequalities) Joined by "And" or "Or" Algebra I M1 Lesson 16: Solving and Graphing Inequalities Joined by "And" or "Or" Algebra I M1 Lesson 25: Solving Problems in Two Ways—Rates and Algebra Algebra I M1 Lesson 27: Recursive Challenge Problem—The Double and Add 5 Game

Equations and Inequalities

A.EI.2 The student will represent, solve, explain, and interpret the solution to a system of two linear equations, a linear inequality in two variables, or a system of two linear inequalities in two variables.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.EI.2.a Create a system of two linear equations in two variables to represent a contextual situation.	G8 M4 Lesson 29: Word Problems 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 M4 Lesson 24: Modeling with Quadratic Functions

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.EI.2.b Apply the properties of real numbers and/or properties of equality to solve a system of two linear equations in two variables, algebraically and graphically.	G8 M4 Lesson 25: Geometric Interpretation of the Solutions of a Linear System G8 M4 Lesson 27: Nature of Solutions of a System of Linear Equations G8 M4 Lesson 28: Another Computational Method of Solving a Linear System 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
A.EI.2.c Determine whether a system of two linear equations has one solution, no solution, or an infinite number of solutions.	G8 M4 Lesson 24: Introduction to Simultaneous Equations 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
A.EI.2.d Create a linear inequality in two variables to represent a contextual situation.	Algebra I M1 Lesson 21: Solution Sets to Inequalities with Two Variables Algebra I M1 Lesson 24: Applications of Systems of Equations and Inequalities
A.EI.2.e Represent the solution of a linear inequality in two variables graphically on a coordinate plane.	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 24: Applications of Systems of Equations and Inequalities
A.EI.2.f Create a system of two linear inequalities in two variables to represent a contextual situation.	Algebra I M1 Lesson 24: Applications of Systems of Equations and Inequalities

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.EI.2.g Represent the solution set of a system of two linear inequalities in two variables, graphically on a coordinate plane.	Algebra I M1 Lesson 22: Solution Sets to Simultaneous Equations Algebra I M1 Lesson 24: Applications of Systems of Equations and Inequalities
A.EI.2.h Verify possible solution(s) to a system of two linear equations, a linear inequality in two variables, or a system of two linear inequalities algebraically, graphically, and with technology to justify the reasonableness of the answer(s). Explain the solution method and interpret solutions for problems given in context.	G8 M4 Lesson 24: Introduction to Simultaneous Equations G8 M4 Lesson 25: Geometric Interpretation of the Solutions of a Linear System G8 M4 Lesson 27: Nature of Solutions of a System of Linear Equations G8 M4 Lesson 28: Another Computational Method of Solving a Linear System G8 M4 Lesson 29: Word Problems 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

Equations and Inequalities

A.EI.3 The student will represent, solve, and interpret the solution to a quadratic equation in one variable.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.EI.3.a Solve a quadratic equation in one variable over the set of real numbers with rational or irrational solutions, including those that can be used to solve contextual problems.	Algebra I M1 Lesson 17: Equations Involving Factored Expressions 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 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

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.EI.3.b Determine and justify if a quadratic equation in one variable has no real solutions, one real solution, or two real solutions.	Algebra I M4 Lesson 15: Using the Quadratic Formula
A.EI.3.c Verify possible solution(s) to a quadratic equation in one variable algebraically, graphically, and with technology to justify the reasonableness of answer(s). Explain the solution method and interpret solutions for problems given in context.	Algebra I M4 Lesson 9: Graphing Quadratic Functions from Factored Form, $f(x) = a(x - m)(x - n)$ Algebra I M4 Lesson 14: Deriving the Quadratic Formula Algebra I M4 Lesson 15: Using the Quadratic Formula Algebra I M4 Lesson 17: Graphing Quadratic Functions from the Standard Form, $f(x) = ax^2 + bx + c$

Functions

A.F.1 The student will investigate, analyze, and compare linear functions algebraically and graphically, and model linear relationships.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.F.1.a Determine and identify the domain, range, zeros, slope, and intercepts of a linear function, presented algebraically or graphically, including the interpretation of these characteristics in contextual situations.	G8 M6 Lesson 2: Interpreting Rate of Change and Initial Value 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 $y = f(x)$ 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 M5 Lesson 1: Analyzing a Graph Algebra I M5 Lesson 2: Analyzing a Data Set
A.F.1.b Investigate and explain how transformations to the parent function $y = x$ affect the rate of change (slope) and the y-intercept of a linear function.	Algebra I M4 Lesson 19: Translating Graphs of Functions *Supplemental material is necessary to fully address this standard.*
A.F.1.c Write equivalent algebraic forms of linear functions, including slope-intercept form, standard form, and point-slope form, and analyze and interpret the information revealed by each form.	G8 M4 Lesson 17: The Line Joining Two Distinct Points of the Graph $y = mx + b$ Has Slope m G8 M4 Lesson 18: There Is Only One Line Passing Through a Given Point with a Given Slope G8 M4 Lesson 20: Every Line Is a Graph of a Linear Equation G8 M4 Lesson 21: Some Facts About Graphs of Linear Equations in Two Variables G8 M4 Lesson 23: The Defining Equation of a Line

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.F.1.d Write the equation of a linear function to model a linear relationship between two quantities, including those that can represent contextual situations. Writing the equation of a linear function will include the following situations:	G8 M4 Lesson 22: Constant Rates Revisited Algebra I M1 Lesson 20: Solution Sets to Equations with Two Variables Algebra I M1 Lesson 23: Solution Sets to Simultaneous Equations Algebra I M1 Lesson 24: Applications of Systems of Equations and Inequalities Algebra I M5 Topic A: Elements of Modeling 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 8: Modeling a Context from a Verbal Description
A.F.1.d.i given the graph of a line;	G8 M4 Lesson 20: Every Line Is a Graph of a Linear Equation Algebra I M1 Lesson 20: Solution Sets to Equations with Two Variables Algebra I M5 Lesson 1: Analyzing a Graph Algebra I M5 Lesson 4: Modeling a Context from a Graph
A.F.1.d.ii given two points on the line whose coordinates are integers;	G8 M4 Lesson 21: Some Facts About Graphs of Linear Equations in Two Variables
A.F.1.d.iii given the slope and a point on the line whose coordinates are integers;	G8 M4 Lesson 21: Some Facts About Graphs of Linear Equations in Two Variables
A.F.1.d.iv vertical lines as $x = a$; and	G8 M4 Lesson 14: The Graph of a Linear Equation—Horizontal and Vertical Lines

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.F.1.d.v horizontal lines as $y = c$.	G8 M4 Lesson 14: The Graph of a Linear Equation—Horizontal and Vertical Lines
A.F.1.e Write the equation of a line parallel or perpendicular to a given line through a given point.	Geometry M4 Lesson 4: Designing a Search Robot to Find a Beacon Geometry M4 Topic B: Perpendicular and Parallel Lines in the Cartesian Plane
A.F.1.f Graph a linear function in two variables, with and without the use of technology, including those that can represent contextual situations.	G8 M4 Lesson 14: The Graph of a Linear Equation—Horizontal and Vertical Lines G8 M4 Lesson 18: There Is Only One Line Passing Through a Given Point with a Given Slope G8 M4 Lesson 19: The Graph of a Linear Equation in Two Variables Is a Line G8 M4 Lesson 22: Constant Rates Revisited G8 M4 Lesson 23: The Defining Equation of a Line Algebra I M1 Lesson 20: Solution Sets to Equations with Two Variables Algebra I M1 Lesson 24: Applications of Systems of Equations and Inequalities Algebra I M5 Lesson 6: Modeling a Context from Data Algebra I M5 Lesson 7: Modeling a Context from Data
A.F.1.g For any value, x, in the domain of f, determine $f(x)$, and determine x given any value $f(x)$ in the range of f, given an algebraic or graphical representation of a linear function.	Algebra I M3 Topic A: Linear and Exponential Sequences Algebra I M3 Lesson 8: Why Stay with Whole Numbers? 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

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.F.1.h Compare and contrast the characteristics of linear functions represented algebraically, graphically, in tables, and in contextual situations.	G8 M5 Lesson 7: Comparing Linear Functions and Graphs Algebra I M3 Topic A: Linear and Exponential Sequences Algebra I M3 Lesson 8: Why Stay with Whole Numbers? 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 $y = f(x)$ Algebra I M4 Lesson 19: Translating Graphs of Functions Algebra I M5 Lesson 2: Analyzing a Data Set

Functions

A.F.2 The student will investigate, analyze, and compare characteristics of functions, including quadratic, and exponential functions, and model quadratic and exponential relationships.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.F.2.a Determine whether a relation, represented by a set of ordered pairs, a table, a mapping, or a graph is a function; for relations that are functions, determine the domain and range.	Algebra I M3 Topic A: Linear and Exponential Sequences Algebra I M3 Lesson 8: Why Stay with Whole Numbers? 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 $y = f(x)$

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.F.2.b Given an equation or graph, determine key characteristics of a quadratic function including x-intercepts (zeros), y-intercept, vertex (maximum or minimum), and domain and range (including when restricted by context); interpret key characteristics as related to contextual situations, where applicable.	Algebra I M1 Lesson 2: Graphs of Quadratic Functions Algebra I M3 Lesson 13: Interpreting the Graph of a Function 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 12: Completing the Square Algebra I M4 Lesson 15: Using the Quadratic Formula 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 21: Transformations of the Quadratic Parent Function, $f(x) = x^2$ Algebra I M4 Lesson 22: Comparing Quadratic, Square Root, and Cube Root Functions Represented in Different Ways Algebra I M4 Lesson 23: Modeling with Quadratic Functions 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
A.F.2.c Graph a quadratic function, $f(x)$, in two variables using a variety of strategies, including transformations $f(x) + k$ and $kf(x)$, where k is limited to rational values.	Algebra I M1 Lesson 2: Graphs of Quadratic Functions Algebra I M3 Lesson 11: The Graph of a Function Algebra I M3 Lesson 12: The Graph of the Equation $y = f(x)$ Algebra I M3 Lesson 16: Graphs Can Solve Equations Too Algebra I M3 Lesson 17: Four Interesting Transformations of Functions Algebra I M3 Lesson 18: Four Interesting Transformations of Functions

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.F.2.c *continued*	Algebra I M3 Lesson 19: Four Interesting Transformations of Functions Algebra I M3 Lesson 20: Four Interesting Transformations of Functions 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 12: Completing the Square Algebra I M4 Lesson 15: Using the Quadratic Formula 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 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, $f(x) = x^2$ Algebra I M4 Lesson 23: Modeling with Quadratic Functions
A.F.2.d Make connections between the algebraic (standard and factored forms) and graphical representation of a quadratic function.	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 12: Completing the Square Algebra I M4 Lesson 15: Using the Quadratic Formula 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 21: Transformations of the Quadratic Parent Function, $f(x) = x^2$ Algebra I M4 Lesson 23: Modeling with Quadratic Functions

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.F.2.e Given an equation or graph of an exponential function in the form $y = ab^x$ (where b is limited to a natural number), interpret key characteristics, including y-intercepts and domain and range; interpret key characteristics as related to contextual situations, where applicable.	Algebra I M1 Lesson 3: Graphs of Exponential Functions Algebra I M3 Lesson 4: Why Do Banks Pay YOU to Provide Their Services? Algebra I M3 Lesson 5: The Power of Exponential Growth Algebra I M3 Lesson 6: Exponential Growth—U.S. Population and World Population Algebra I M3 Lesson 7: Exponential Decay Algebra I M5 Lesson 1: Analyzing a Graph Algebra I M5 Lesson 2: Analyzing a Data Set
A.F.2.f Graph an exponential function, $f(x)$, in two variables using a variety of strategies, including transformations $f(x) + k$ and $kf(x)$, where k is limited to rational values.	Algebra I M1 Lesson 3: Graphs of Exponential Functions Algebra I M3 Lesson 5: The Power of Exponential Growth 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 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
A.F.2.g For any value, x, in the domain of f, determine $f(x)$ of a quadratic or exponential function. Determine x given any value $f(x)$ in the range of f of a quadratic function. Explain the meaning of x and $f(x)$ in context.	Algebra I M3 Topic A: Linear and Exponential Sequences Algebra I M3 Lesson 8: Why Stay with Whole Numbers? 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

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.F.2.h Compare and contrast the key characteristics of linear functions ($f(x) = x$), quadratic functions ($f(x) = x^2$), and exponential functions ($f(x) = b^x$) using tables and graphs.	Algebra I M3 Lesson 6: Exponential Growth—U.S. Population and World Population Algebra I M3 Lesson 21: Comparing Linear and Exponential Models Again Algebra I M4 Lesson 22: Comparing Quadratic, Square Root, and Cube Root Functions Represented in Different Ways Algebra I M5 Lesson 1: Analyzing a Graph Algebra I M5 Lesson 2: Analyzing a Data Set

Statistics

A.ST.1 The student will apply the data cycle (formulate questions; collect or acquire data; organize and represent data; and analyze data and communicate results) with a focus on representing bivariate data in scatterplots and determining the curve of best fit using linear and quadratic functions.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.ST.1.a Formulate investigative questions that require the collection or acquisition of bivariate data.	Algebra I M2 Lesson 9: Summarizing Bivariate Categorical Data *Supplemental material is necessary to fully address this standard.*
A.ST.1.b Determine what variables could be used to explain a given contextual problem or situation or answer investigative questions.	G8 M6 Lesson 10: Linear Models G8 M6 Lesson 11: Using Linear Models in a Data Context *Supplemental material is necessary to fully address this standard.*

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.ST.1.c Determine an appropriate method to collect a representative sample, which could include a simple random sample, to answer an investigative question.	G8 M6 Lesson 13: Summarizing Bivariate Categorical Data in a Two-Way Table *Supplemental material is necessary to fully address this standard.*
A.ST.1.d Given a table of ordered pairs or a scatterplot representing no more than 30 data points, use available technology to determine whether a linear or quadratic function would represent the relationship, and if so, determine the equation of the curve of best fit.	Algebra I M2 Lesson 12: Relationships Between Two Numerical Variables Algebra I M2 Lesson 13: Relationships Between Two Numerical Variables Algebra I M2 Lesson 19: Interpreting Correlation Algebra I M5 Lesson 7: Modeling a Context from Data
A.ST.1.e Use linear and quadratic regression methods available through technology to write a linear or quadratic function that represents the data where appropriate and describe the strengths and weaknesses of the model.	Algebra I M2 Lesson 12: Relationships Between Two Numerical Variables Algebra I M2 Lesson 13: Relationships Between Two Numerical Variables Algebra I M2 Lesson 19: Interpreting Correlation Algebra I M5 Lesson 7: Modeling a Context from Data
A.ST.1.f Use a linear model to predict outcomes and evaluate the strength and validity of these predictions, including through the use of technology.	G8 M6 Lesson 8: Informally Fitting a Line G8 M6 Lesson 9: Determining the Equation of a Line Fit to Data Algebra I M2 Topic D: Numerical Data on Two Variables Algebra I M5 Lesson 7: Modeling a Context from Data

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math*
A.ST.1.g Investigate and explain the meaning of the rate of change (slope) and y-intercept (constant term) of a linear model in context.	Algebra I M2 Lesson 14: Modeling Relationships with a Line
A.ST.1.h Analyze relationships between two quantitative variables revealed in a scatterplot.	Algebra I M2 Topic D: Numerical Data on Two Variables Algebra I M5 Lesson 7: Modeling a Context from Data
A.ST.1.i Make conclusions based on the analysis of a set of bivariate data and communicate the results.	Algebra I M2 Lesson 11: Conditional Relative Frequencies and Association Algebra I M2 Lesson 12: Relationships Between Two Numerical Variables Algebra I M2 Lesson 13: Relationships Between Two Numerical Variables 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