Algebra I | West Virginia College- and Career-Readiness Standards for Mathematics Correlation to *Eureka Math²®*

When the original *Eureka Math®* curriculum was released, it quickly became the most widely used K–5 mathematics curriculum in the country. Now, the Great Minds® teacher–writers have created *Eureka Math²®*, a groundbreaking new curriculum that helps teachers deliver exponentially better math instruction while still providing students with the same deep understanding of and fluency in math. *Eureka Math²* carefully sequences mathematical content to maximize vertical alignment—a principle tested and proven to be essential in students' mastery of math—from kindergarten through high school.

While this innovative new curriculum includes all the trademark *Eureka Math* aha moments that have been delighting students and teachers for years, it also boasts these exciting new features:

Teachability

Eureka Math² 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 right into the teacher materials.

Accessibility

Eureka Math² incorporates Universal Design for Learning principles so all learners can access the mathematics and take on challenging math concepts. Student supports are built into the instructional design and are clearly identified in the *Teach* book. Further, the curriculum carries a focus on readability. By eliminating unnecessary words and using simple, clear sentences, the *Eureka Math²* 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.

Digital Engagement

The digital elements of *Eureka Math²* add to students' engagement with the math. The curriculum provides teachers with digital slides for each lesson. In addition, each grade level includes wordless videos that spark students' interest and curiosity. Students at all levels work through mathematical explorations that help lead to their own mathematical discoveries. Digital lessons and videos provide opportunities for students to wonder, explore, and make sense of mathematics, which contributes to the development of a strong, positive mathematical identity.

Mathematical Habits of Mind	Aligned Components of *Eureka Math²*
MHM1. Make sense of problems and persevere in solving them.	Lessons in every module engage students in mathematical habits of mind. These are indicated in margin notes included with every lesson.
MHM2. Reason abstractly and quantitatively.	Lessons in every module engage students in mathematical habits of mind. These are indicated in margin notes included with every lesson.
MHM3. Construct viable arguments and critique the reasoning of others.	Lessons in every module engage students in mathematical habits of mind. These are indicated in margin notes included with every lesson.
MHM4. Model with mathematics.	Lessons in every module engage students in mathematical habits of mind. These are indicated in margin notes included with every lesson.
MHM5. Use appropriate tools strategically.	Lessons in every module engage students in mathematical habits of mind. These are indicated in margin notes included with every lesson.
MHM6. Attend to precision.	Lessons in every module engage students in mathematical habits of mind. These are indicated in margin notes included with every lesson.
MHM7. Look for and make use of structure.	Lessons in every module engage students in mathematical habits of mind. These are indicated in margin notes included with every lesson.
MHM8. Look for and express regularity in repeated reasoning.	Lessons in every module engage students in mathematical habits of mind. These are indicated in margin notes included with every lesson.

Relationships between Quantities and Reasoning with Equations

Reason quantitatively and use units to solve problems.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.	A1 M6 Lesson 5: Solar System Models
M.A1HS.2 Define appropriate quantities for the purpose of descriptive modeling.	A1 M4 Lesson 25: Maximizing Area A1 M6 Lesson 5: Solar System Models
M.A1HS.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	A1 M6 Lesson 5: Solar System Models

Relationships between Quantities and Reasoning with Equations

Interpret the structure of expressions.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.4 Interpret expressions that represent a quantity in terms of its context.	*This standard is fully addressed by the lessons aligned to its subsections.*
M.A1HS.4.a Interpret parts of an expression, such as terms, factors, and coefficients.	A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion
M.A1HS.4.b Interpret complicated expressions by viewing one or more of their parts as a single entity.	A1 M5 Lesson 8: Exponential Functions A1 M5 Lesson 16: Exponential Growth A1 M5 Lesson 17: Exponential Decay A1 M5 Lesson 18: Modeling Populations A1 M5 Lesson 23: Modeling the Temperature of Objects Cooling Over Time

Relationships between Quantities and Reasoning with Equations

Create equations that describe numbers or relationships.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.5 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.	A1 M1 Lesson 7: Printing Presses A1 M1 Lesson 11: Writing and Solving Equations in One Variable A1 M1 Lesson 13: Solving Linear Inequalities in One Variable A1 M1 Lesson 15: Solving and Graphing Compound Inequalities *Supplementary material is needed to address equations and inequalities involving simple rational and exponential functions.*
M.A1HS.6 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	A1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables A1 M2 Lesson 2: Graphing Linear Equations in Two Variables A1 M2 Lesson 3: Creating Linear Equations in Two Variables A1 M2 Lesson 6: Applications of Linear Equations and Inequalities *Supplementary material is needed to address equations involving simple rational and exponential functions.*
M.A1HS.7 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.	A1 M1 Lesson 11: Writing and Solving Equations in One Variable A1 M1 Lesson 14: Solution Sets of Compound Statements A1 M1 Lesson 15: Solving and Graphing Compound Inequalities A1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables A1 M2 Lesson 6: Applications of Linear Equations and Inequalities A1 M6 Lesson 5: Solar System Models

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.8 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	A1 M1 Lesson 12: Rearranging Formulas

Relationships between Quantities and Reasoning with Equations

Understand solving equations as a process of reasoning and explain the reasoning.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.9 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.	A1 M1 Lesson 9: Solving Linear Equations in One Variable A1 M1 Lesson 10: Some Potential Dangers When Solving Equations A1 M1 Lesson 11: Writing and Solving Equations in One Variable

Relationships between Quantities and Reasoning with Equations

Solve equations and inequalities in one variable.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.10 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	A1 M1 Lesson 7: Printing Presses A1 M1 Lesson 8: Solution Sets for Equations and Inequalities in One Variable A1 M1 Lesson 9: Solving Linear Equations in One Variable A1 M1 Lesson 10: Some Potential Dangers When Solving Equations A1 M1 Lesson 11: Writing and Solving Equations in One Variable A1 M1 Lesson 13: Solving Linear Inequalities in One Variable A1 M1 Lesson 15: Solving and Graphing Compound Inequalities A1 M1 Lesson 16: Solving Absolute Value Equations A1 M1 Lesson 17: Solving Absolute Value Inequalities

Linear and Exponential Relationships

Extend the properties of exponents to rational exponents.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.11 Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents.	A1 M5 Lesson 9: Unit Fraction Exponents A1 M5 Lesson 10: Rational Exponents

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.12 Rewrite expressions involving radicals and rational exponents using the properties of exponents.	A1 M5 Lesson 9: Unit Fraction Exponents A1 M5 Lesson 10: Rational Exponents

Linear and Exponential Relationships

Solve systems of equations.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.13 Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.	A1 M2 Lesson 9: A New Way to Solve Systems
M.A1HS.14 Solve systems of linear equations exactly and approximately, focusing on pairs of linear equations in two variables.	A1 M2 Lesson 7: Low-Flow Showerhead A1 M2 Lesson 8: Systems of Linear Equations in Two Variables A1 M2 Lesson 9: A New Way to Solve Systems A1 M2 Lesson 10: The Elimination Method A1 M2 Lesson 11: Applications of Systems of Equations

Linear and Exponential Relationships

Represent and solve equations and inequalities graphically.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.15 Recognize that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).	A1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables A1 M2 Lesson 2: Graphing Linear Equations in Two Variables
M.A1HS.16 Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential and logarithmic functions.	A1 M3 Lesson 10: Using Graphs to Solve Equations A1 M3 Lesson 15: The Absolute Value Function A1 M5 Lesson 13: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1) A1 M5 Lesson 20: Comparing Growth of Functions
M.A1HS.17 Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	A1 M2 Lesson 4: Solution Sets of Linear Inequalities in Two Variables A1 M2 Lesson 5: Graphing Linear Inequalities in Two Variables A1 M2 Lesson 12: Solution Sets of Systems of Linear Inequalities A1 M2 Lesson 13: Graphing Solution Sets of Systems of Linear Inequalities A1 M2 Lesson 14: Applications of Systems of Linear Inequalities A1 M6 Lesson 5: Solar System Models

Linear and Exponential Relationships

Understand the concept of a function and use function notation.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.18 Recognize that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$.	A1 M3 Topic A: Functions and Their Graphs
M.A1HS.19 Use function notation, evaluate functions for inputs in their domains and interpret statements that use function notation in terms of a context.	A1 M3 Lesson 1: The Definition of a Function A1 M3 Lesson 2: Representing, Naming, and Evaluating Functions A1 M3 Lesson 6: Representations of Functions A1 M3 Lesson 16: Step Functions A1 M5 Lesson 1: Exploring Patterns A1 M5 Lesson 2: The Recursive Challenge A1 M5 Lesson 3: Recursive Formulas for Sequences A1 M5 Lesson 4: Explicit Formulas for Sequences A1 M5 Lesson 7: Sierpinski Triangle

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.20 Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers.	A1 M5 Lesson 1: Exploring Patterns A1 M5 Lesson 2: The Recursive Challenge A1 M5 Lesson 3: Recursive Formulas for Sequences A1 M5 Lesson 4: Explicit Formulas for Sequences A1 M5 Lesson 5: Arithmetic and Geometric Sequences A1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences

Linear and Exponential Relationships

Interpret functions that arise in applications in terms of a context.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.21 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.	A1 M3 Lesson 7: Exploring Key Features of a Function and Its Graph A1 M3 Lesson 8: Identifying Key Features of a Function and Its Graph A1 M3 Lesson 9: Representing Functions from Verbal Descriptions A1 M3 Lesson 11: Comparing Functions A1 M3 Lesson 12: Mars Curiosity Rover A1 M3 Lesson 13: Modeling Elevation as a Function of Time

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.22 Relate the domain of a function to its graph and where applicable, to the quantitative relationship it describes.	A1 M3 Lesson 3: The Graph of a Function A1 M3 Lesson 13: Modeling Elevation as a Function of Time A1 M3 Lesson 16: Step Functions
M.A1HS.23 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.	A1 M5 Lesson 19: Analyzing Exponential Growth A1 M5 Lesson 20: Comparing Growth of Functions A1 M5 Lesson 24: Modeling an Invasive Species Population

Linear and Exponential Relationships

Analyze functions using different representations.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.24 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.	*This standard is fully addressed by the lessons aligned to its subsections.*
M.A1HS.24.a Graph linear and quadratic functions and show intercepts, maxima, and minima.	A1 M3 Lesson 4: The Graph of the Equation $y = f(x)$ A1 M3 Lesson 5: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations A1 M3 Lesson 6: Representations of Functions

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.24.b Graph exponential and logarithmic functions, showing intercepts and end behavior and trigonometric functions, showing period, midline and amplitude.	A1 M5 Lesson 11: Graphing Exponential Functions A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) A1 M5 Lesson 13: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1)
M.A1HS.25 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	A1 M3 Lesson 11: Comparing Functions

Linear and Exponential Relationships

Build a function that models a relationship between two quantities.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.26 Write a function that describes a relationship between two quantities.	*This standard is fully addressed by the lessons aligned to its subsections.*

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.26.a Determine an explicit expression, a recursive process, or steps for calculation from a context.	A1 M3 Lesson 17: Piecewise Linear Functions in Context A1 M5 Topic A: Arithmetic and Geometric Sequences A1 M5 Lesson 8: Exponential Functions A1 M5 Lesson 15: Calculating Interest A1 M6 Lesson 4: The Deal A1 M6 Lesson 6: Designing a Fundraiser
M.A1HS.26.b Combine standard function types using arithmetic operations.	A1 M6 Lesson 4: The Deal A1 M6 Lesson 5: Solar System Models A1 M6 Lesson 6: Designing a Fundraiser
M.A1HS.27 Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.	A1 M5 Lesson 5: Arithmetic and Geometric Sequences A1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences A1 M5 Lesson 7: Sierpinski Triangle

Linear and Exponential Relationships

Build new functions from existing functions.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.28 Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	A1 M3 Topic D: Transformations of Functions A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) A1 M5 Lesson 13: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1) A1 M5 Lesson 14: Writing Equations for Exponential Functions from Tables or Graphs A1 M5 Lesson 23: Modeling the Temperature of Objects Cooling Over Time

Linear and Exponential Relationships

Construct and compare linear, quadratic, and exponential models and solve problems.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.29 Distinguish between situations that can be modeled with linear functions and with exponential functions.	A1 M5 Lesson 15: Calculating Interest A1 M5 Lesson 18: Modeling Populations A1 M5 Lesson 21: World Population Prediction A1 M5 Lesson 22: A Closer Look at Populations A1 M5 Lesson 24: Modeling an Invasive Species Population A1 M6 Topic A: Modeling Bivariate Quantitative Data

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.29.a Prove that linear functions grow by equal differences over equal intervals; exponential functions grow by equal factors over equal intervals.	A1 M5 Lesson 19: Analyzing Exponential Growth
M.A1HS.29.b Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.	A1 M5 Lesson 15: Calculating Interest A1 M5 Lesson 18: Modeling Populations A1 M5 Lesson 21: World Population Prediction A1 M5 Lesson 22: A Closer Look at Populations A1 M5 Lesson 24: Modeling an Invasive Species Population
M.A1HS.29.c Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.	A1 M5 Lesson 15: Calculating Interest A1 M5 Lesson 18: Modeling Populations A1 M5 Lesson 21: World Population Prediction A1 M5 Lesson 22: A Closer Look at Populations A1 M5 Lesson 24: Modeling an Invasive Species Population
M.A1HS.30 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship or two input-output pairs (include reading these from a table).	A1 M5 Lesson 8: Exponential Functions A1 M5 Lesson 14: Writing Equations for Exponential Functions from Tables or Graphs A1 M5 Lesson 16: Exponential Growth A1 M5 Lesson 17: Exponential Decay A1 M5 Topic D: Comparing Linear and Exponential Models A1 M6 Topic B: Developing Models for Contexts

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.31 Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	A1 M5 Lesson 20: Comparing Growth of Functions

Linear and Exponential Relationships

Interpret expressions for functions in terms of the situation they model.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.32 Interpret the parameters in a linear or exponential function in terms of a context.	A1 M5 Lesson 18: Modeling Populations A1 M5 Lesson 19: Analyzing Exponential Growth A1 M5 Lesson 23: Modeling the Temperature of Objects Cooling Over Time A1 M5 Lesson 24: Modeling an Invasive Species Population

Descriptive Statistics

Summarize, represent, and interpret data on a single count or measurement variable.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.33 Represent data with plots on the real number line (dot plots, histograms, and box plots).	A1 M1 Lesson 18: Distributions and Their Shapes A1 M1 Lesson 19: Describing the Center of a Distribution A1 M1 Lesson 20: Using Center to Compare Data Distributions
M.A1HS.34 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.	A1 M1 Topic D: Univariate Data
M.A1HS.35 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	A1 M1 Topic D: Univariate Data

Descriptive Statistics

Summarize, represent, and interpret data on two categorical and quantitative variables.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.36 Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal and conditional relative frequencies). Recognize possible associations and trends in the data.	A1 M2 Topic D: Categorical Data on Two Variables
M.A1HS.37 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.	A1 M2 Lesson 15: Relationships Between Quantitative Variables A1 M2 Lesson 21: Analyzing Bivariate Quantitative Data
M.A1HS.37.a Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear and exponential models.	A1 M2 Lesson 16: Using Lines to Model Bivariate Quantitative Data A1 M2 Lesson 17: Modeling Relationships with a Line A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts A1 M4 Lesson 26: Modeling Data with Quadratic Functions A1 M4 Lesson 27: Search and Rescue Helicopter A1 M6 Topic A: Modeling Bivariate Quantitative Data
M.A1HS.37.b Informally assess the fit of a function by plotting and analyzing residuals.	A1 M2 Lesson 18: Calculating and Analyzing Residuals A1 M2 Lesson 19: Analyzing Residuals A1 M6 Topic A: Modeling Bivariate Quantitative Data

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.37.c Fit a linear function for scatter plots that suggest a linear association.	A1 M2 Lesson 17: Modeling Relationships with a Line A1 M2 Lesson 18: Calculating and Analyzing Residuals A1 M2 Lesson 20: Interpreting Correlation A1 M6 Topic A: Modeling Bivariate Quantitative Data

Descriptive Statistics

Interpret linear models.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.38 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	A1 M2 Lesson 16: Using Lines to Model Bivariate Quantitative Data A1 M2 Lesson 21: Analyzing Bivariate Quantitative Data
M.A1HS.39 Compute (using technology) and interpret the correlation coefficient of a linear fit.	A1 M2 Lesson 20: Interpreting Correlation A1 M2 Lesson 21: Analyzing Bivariate Quantitative Data
M.A1HS.40 Distinguish between correlation and causation.	A1 M2 Lesson 20: Interpreting Correlation A1 M2 Lesson 21: Analyzing Bivariate Quantitative Data

Expressions and Equations

Interpret the structure of equations.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.41 Interpret expressions that represent a quantity in terms of its context.	*This standard is fully addressed by the lessons aligned to its subsections.*
M.A1HS.41.a Interpret parts of an expression, such as terms, factors, and coefficients.	A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion
M.A1HS.41.b Interpret complicated expressions by viewing one or more of their parts as a single entity.	A1 M5 Lesson 8: Exponential Functions A1 M5 Lesson 16: Exponential Growth A1 M5 Lesson 17: Exponential Decay A1 M5 Lesson 18: Modeling Populations A1 M5 Lesson 23: Modeling the Temperature of Objects Cooling Over Time
M.A1HS.42 Use the structure of an expression to identify ways to rewrite it.	A1 M1 Lesson 1: The Growing Pattern of Ducks A1 M1 Lesson 2: The Commutative, Associative, and Distributive Properties A1 M1 Lesson 3: Polynomial Expressions A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion A1 M4 Topic B: Factoring A1 M4 Lesson 14: Solving Quadratic Equations by Completing the Square A1 M4 Lesson 15: Deriving the Quadratic Formula A1 M5 Lesson 11: Graphing Exponential Functions A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) A1 M5 Lesson 18: Modeling Populations

Expressions and Equations

Write expressions in equivalent forms to solve problems.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.43 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.	*This standard is fully addressed by the lessons aligned to its subsections.*
M.A1HS.43.a Factor a quadratic expression to reveal the zeros of the function it defines.	A1 M4 Lesson 10: Zeros of Functions A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions
M.A1HS.43.b Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.	A1 M4 Lesson 21: Completing the Square to Graph Quadratic Functions A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions
M.A1HS.43.c Use the properties of exponents to transform expressions for exponential functions.	A1 M5 Lesson 11: Graphing Exponential Functions A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) A1 M5 Lesson 18: Modeling Populations

Expressions and Equations

Perform arithmetic operations on polynomials.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.44 Recognize that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	A1 M1 Lesson 3: Polynomial Expressions A1 M1 Lesson 4: Adding and Subtracting Polynomial Expressions A1 M1 Lesson 5: Multiplying Polynomial Expressions A1 M1 Lesson 6: Polynomial Identities

Expressions and Equations

Create equations that describe numbers or relationships.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.45 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.	A1 M4 Lesson 9: Creating and Solving Quadratic Equations in One Variable

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.46 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	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 23: Creating Equations of Quadratic Functions to Model Contexts A1 M4 Lesson 25: Maximizing Area A1 M4 Lesson 26: Modeling Data with Quadratic Functions A1 M4 Lesson 27: Search and Rescue Helicopter
M.A1HS.47 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	A1 M4 Lesson 13: Using Square Roots to Solve Quadratic Equations

Expressions and Equations

Solve equations and inequalities in one variable.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.48 Solve quadratic equations in one variable.	*This standard is fully addressed by the lessons aligned to its subsections.*

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.48.a Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.	A1 M4 Lesson 14: Solving Quadratic Equations by Completing the Square A1 M4 Lesson 15: Deriving the Quadratic Formula
M.A1HS.48.b Solve quadratic equations by inspection, taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.	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 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 18: The Quadratic Formula and Zeros of a Function

Expressions and Equations

Solve systems of equations.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.49 Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically.	A1 M4 Lesson 24: Another Look at Systems of Equations

Quadratic Functions and Modeling

Use properties of rational and irrational numbers.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.50 Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.	A1 M4 Lesson 13: Using Square Roots to Solve Quadratic Equations A1 M4 Lesson 17: Rewriting Square Roots

Quadratic Functions and Modeling

Interpret functions that arise in applications in terms of a context.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.51 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.	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 11: Graphing Quadratic Functions from Factored Form A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form A1 M4 Lesson 21: Completing the Square to Graph Quadratic Functions A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts A1 M4 Lesson 25: Maximizing Area
M.A1HS.52 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.	A1 M4 Lesson 2: Projectile Motion A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts
M.A1HS.53 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.	A1 M4 Lesson 1: Falling Objects A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form

Quadratic Functions and Modeling

Analyze functions using different representations.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.54 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.	*This standard is fully addressed by the lessons aligned to its subsections.*
M.A1HS.54.a Graph linear and quadratic functions and show intercepts, maxima, and minima.	A1 M4 Lesson 4: Graphs of Quadratic 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 19: Transforming the Graphs of Quadratic Functions A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts
M.A1HS.54.b Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	A1 M3 Topic C: Piecewise-Defined Linear Functions A1 M3 Lesson 19: Building New Functions—Translations A1 M3 Lesson 23: A Summary of Transforming the Graph of a Function *Supplemental material is needed to address graphing square root and cube root functions.*
M.A1HS.55 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.	*This standard is fully addressed by the lessons aligned to its subsections.*

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.55.a Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.	A1 M4 Lesson 10: Zeros of Functions A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions
M.A1HS.55.b Use the properties of exponents to interpret expressions for exponential functions.	A1 M5 Lesson 11: Graphing Exponential Functions A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) A1 M5 Lesson 18: Modeling Populations
M.A1HS.56 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form A1 M4 Lesson 21: Completing the Square to Graph Quadratic Functions

Quadratic Functions and Modeling

Build a function that models a relationship between two quantities.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.57 Write a function that describes a relationship between two quantities.	*This standard is fully addressed by the lessons aligned to its subsections.*
M.A1HS.57.a Determine an explicit expression, a recursive process, or steps for calculation from a context.	A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts A1 M4 Lesson 25: Maximizing Area A1 M4 Lesson 26: Modeling Data with Quadratic Functions A1 M4 Lesson 27: Search and Rescue Helicopter
M.A1HS.57.b Combine standard function types using arithmetic operations.	A1 M6 Lesson 7: World Record Doughnut

Quadratic Functions and Modeling

Build new functions from existing functions.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.58 Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	A1 M4 Lesson 20: Art with Transformations
M.A1HS.59 Find inverse functions. Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse.	*Supplemental material is necessary to address this standard.*

Quadratic Functions and Modeling

Construct and compare linear, quadratic and exponential models and solve problems.

West Virginia College- and Career-Readiness Standards for Mathematics	Aligned Components of *Eureka Math²*
M.A1HS.60 Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	A1 M5 Lesson 20: Comparing Growth of Functions