EUREKA MATH™

GREAT MINDS

ABOUT *EUREKA MATH*

Created by the nonprofit Great Minds, *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

Eureka Math is the only curriculum found by EdReports.org to align fully with the Common Core State Standards for Mathematics for all grades, Kindergarten through Grade 8. Great Minds offers detailed analyses which 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

As a nonprofit, 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

INTEGRATED II

Eureka Math does not currently offer an integrated curriculum; however, the Integrated II Washington Learning Standards in Mathematics are fully covered by the *Eureka Math* curriculum. Standards from this pathway will require the use of *Eureka Math* content from multiple high school courses. A detailed analysis of alignment is provided in the table below.

Conceptual Category	Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
Number and Quantity	**The Real Number System**	**Cluster: Extend the properties of exponents to rational exponents.**	
		N-RN.A.1 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.	Algebra II Module 3 Topic A: Real Numbers
		N-RN.A.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents.	Algebra II Module 3 Topic A: Real Numbers
		Cluster: Use properties of rational and irrational numbers.	
		N-RN.B.3 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.	Algebra I M4 Lesson 13: Solving Quadratic Equations by Completing the Square

Conceptual Category	Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	The Complex Number System	**Cluster: Perform arithmetic operations with complex numbers.**	
		N-CN.A.1 Know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.	Algebra II M1 Lesson 37: A Surprising Boost from Geometry
		N-CN.A.2 Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	Algebra II M1 Lesson 37: A Surprising Boost from Geometry Precalculus and Advanced Topics M1 Lesson 5: An Appearance of Complex Numbers
		Cluster: Use complex numbers in polynomial identities and equations.	
		N-CN.C.7 Solve quadratic equations with real coefficients that have complex solutions.	Algebra II M1 Lesson 38: Complex Numbers as Solutions to Equations Algebra II M1 Lesson 39: Factoring Extended to the Complex Realm

Conceptual Category	Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
		N-CN.C.8 (+) Extend polynomial identities to the complex numbers.	Algebra II M1 Lesson 39: Factoring Extended to the Complex Realm Algebra II M1 Lesson 40: Obstacles Resolved—A Surprising Result Precalculus and Advanced Topics M3 Lesson 1: Solutions to Polynomial Equations Precalculus and Advanced Topics M3 Lesson 2: Does Every Complex Number Have a Square Root? Precalculus and Advanced Topics M3 Lesson 3: Roots of Unity
		N-CN.C.9 (+) Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.	Algebra II M1 Lesson 40: Obstacles Resolved—A Surprising Result Precalculus and Advanced Topics M3 Lesson 1: Solutions to Polynomial Equations Precalculus and Advanced Topics M3 Lesson 2: Does Every Complex Number Have a Square Root? Precalculus and Advanced Topics M3 Lesson 3: Roots of Unity

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Algebra	**Seeing Structure in Expressions**	**Cluster: Interpret the structure of expressions.**	
		A-SSE.A.1 Interpret expressions that represent a quantity in terms of its context.	
		a. Interpret parts of an expression, such as terms, factors, and coefficients.	Algebra I M4 Lessons 1–2: Multiplying and Factoring Polynomial Expressions Algebra I M4 Lessons 3–4: Advanced Factoring Strategies for Quadratic Expressions Algebra II M1 Lesson 14: Graphing Factored Polynomials Algebra II M1 Lesson 15: Structure in Graphs of Polynomial Functions
		b. Interpret complicated expressions by viewing one or more of their parts as a single entity.	Algebra I M1 Topic D: Creating Equations to Solve Problems Algebra I M3 Topic A: Linear and Exponential Sequences Algebra I M4 Lesson 6: Solving Basic One-Variable Quadratic Equations Algebra I M4 Lesson 12: Completing the Square Algebra I M4 Lesson 17: Graphing Quadratic Functions from the Standard Form, $f(x) = ax^2 + bx + c$ Algebra II M3 Topic D: Using Logarithms in Modeling Situations

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		A-SSE.A.2 Use the structure of an expression to identify ways to rewrite it.	Algebra I M1 Topic B: The Structure of Expressions Algebra I M1 Lesson 17: Equations Involving Factored Expressions Algebra I M4 Topic A: Quadratic Expressions, Equations, Functions, and Their Connection to Rectangles Algebra I M4 Lessons 11–12: Completing the Square Algebra II M1 Topic A: Polynomials—From Base Ten to Base X Algebra II M1 Lesson 12: Overcoming Obstacles in Factoring Algebra II M1 Lesson 13: Mastering Factoring Algebra II M3 Lesson 12: Properties of Logarithms Algebra II M3 Lesson 14: Solving Logarithmic Equations Algebra II M3 Lesson 15: Why Were Logarithms Developed?

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		Cluster: Write expressions in equivalent forms to solve problems.	
		A-SSE.B.3 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.	
		a. Factor a quadratic expression to reveal the zeros of the function it defines.	Algebra I M4 Lesson 9: Graphing Quadratic Functions from Factored Form, $f(x) = a(x - m)(x - n)$ Algebra I M4 Lesson 15: Using the Quadratic Formula Algebra II M1 Lesson 14: Graphing Factored Polynomials
		b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.	Algebra I M4 Lesson 12: Completing the Square Algebra I M4 Lesson 17: Graphing Quadratic Functions from the Standard Form, $f(x) = ax^2 + bx + c$
		c. Use the properties of exponents to transform expressions for exponential functions.	Algebra I M3 Lesson 23: Newton's Law of Cooling Algebra II M3 Lesson 26: Percent Rate of Change

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	Arithmetic with Polynomials and Rational Expressions	**Cluster: Perform arithmetic operations on polynomials.**	
		A-APR.A.1 Understand 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.	Algebra I M1 Topic B: The Structure of Expressions Algebra I M4 Lessons 1–2: Multiplying and Factoring Polynomial Expressions Algebra I M4 Lessons 3–4: Advanced Factoring Strategies for Quadratic Expressions
	Creating Equations	**Cluster: Create equations that describe numbers or relationships.**	
		A-CED.A.1 Create equations and inequalities in one variable and use them to solve problems.	Algebra I M1 Lesson 18: Equations Involving a Variable Expression in the Denominator Algebra I M1 Topic D: Creating Equations to Solve Problems 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 Algebra II M1 Lesson 27: Word Problems Leading to Rational Equations Algebra II M3 Lesson 7: Bacteria and Exponential Growth Algebra II M3 Lesson 26: Percent Rate of Change Algebra II M3 Lesson 27: Modeling with Exponential Functions

Conceptual Category	Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
		A-CED.A.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	Algebra I M1 Lesson 5: Two Graphing Stories 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 M1 Lesson 28: Federal Income Tax Algebra I M4 Lesson 9: Graphing Quadratic Functions from Factored Form, $f(x) = a(x - m)(x - n)$ Algebra I M4 Lesson 12: Completing the Square Algebra I M4 Lesson 16: Graphing Quadratic Equations from the Vertex Form, $y = a(x - h)^2 + k$ Algebra I M4 Lessons 23–24: Modeling with Quadratic Functions Algebra I M5: A Synthesis of Modeling with Equations and Functions Algebra II M1 Lesson 1: Successive Differences in Polynomials Algebra II M1 Lessons 16–17: Modeling with Polynomials—An Introduction Algebra II M1 Lessons 20–21: Modeling Riverbeds with Polynomials Algebra II M2 Lesson 12: Ferris Wheels—Using Trigonometric Functions to Model Cyclical Behavior Algebra II M2 Lesson 13: Tides, Sound Waves, and Stock Markets

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		A-CED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	Algebra I M1 Lesson 19: Rearranging Formulas
	Reasoning with Equations and Inequalities	**Cluster: Solve equations and inequalities in one variable.**	
		A-REI.B.4 Solve quadratic equations in one variable.	
		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.	Algebra I M4 Lesson 13: Solving Quadratic Equations by Completing the Square Algebra I M4 Lesson 14: Deriving the Quadratic Formula

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		b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), 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.	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 Algebra II M1 Lesson 31: Systems of Equations Algebra II M1 Lesson 38: Complex Numbers as Solutions to Equations
		Cluster: Solve systems of equations.	
		A-REI.C.7 Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically.	Algebra II M1 Lesson 31: Systems of Equations Algebra II M1 Lesson 32: Graphing Systems of Equations

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Functions	**Interpreting Functions**	**Cluster: Interpret functions that arise in applications in terms of the context.**	
		F-IF.B.4 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.	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 Topic D: Using Functions and Graphs to Solve Problems Algebra I M4 Lesson 8: Exploring the Symmetry in Graphs of Quadratic Functions Algebra I M4 Lesson 9: Graphing Quadratic Functions from Factored Form, $f(x) = a(x - m)(x - n)$ Algebra I M4 Lesson 10: Interpreting Quadratic Functions from Graphs and Tables Algebra I M4 Lesson 17: Graphing Quadratic Functions from the Standard Form, $f(x) = ax^2 + bx + c$ Algebra I M4 Lesson 22: Comparing Quadratic, Square Root, and Cube Root Functions Represented in Different Ways Algebra I M5: A Synthesis of Modeling with Equations and Functions Algebra II M1 Lessons 16–17: Modeling with Polynomials—An Introduction Algebra II M2 Lesson 12: Ferris Wheels—Using Trigonometric Functions to Model Cyclical Behavior Algebra II M2 Lesson 13: Tides, Sound Waves, and Stock Markets Algebra II M3 Lesson 18: Graphs of Exponential Functions and Logarithmic Functions Algebra II M3 Lesson 20: Transformations of the Graphs of Logarithmic and Exponential Functions Algebra II M3 Lesson 21: The Graph of the Natural Logarithm Function

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		F-IF.B.5 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.	Algebra I M3 Topic B: Functions and Their Graphs Algebra I M4 Lesson 9: Graphing Quadratic Functions from Factored Form, $f(x) = a(x - m)(x - n)$ Algebra I M5 Lesson 1: Analyzing a Graph Algebra I M5 Lesson 4: Modeling a Context from a Graph Algebra II M1 Lessons 16–17: Modeling with Polynomials—An Introduction Algebra II M3 Lesson 17: Graphing the Logarithm Function
		F-IF.B.6 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.	Algebra I M3 Lesson 6: Exponential Growth—U.S. Population and World Population Algebra I M3 Topic D: Using Functions and Graphs to Solve Problems Algebra I M4 Lesson 8: Exploring the Symmetry in Graphs of Quadratic Functions Algebra I M4 Lesson 10: Interpreting Quadratic Functions from Graphs and Tables Algebra I M4 Lesson 17: Graphing Quadratic Functions from the Standard Form, $f(x) = ax^2 + bx + c$ Algebra I M4 Lesson 22: Comparing Quadratic, Square Root, and Cube Root Functions Represented in Different Ways Algebra I M5 Lesson 4: Modeling a Context from a Graph Algebra II M3 Lesson 6: Euler's Number, e Algebra II M3 Lesson 27: Modeling with Exponential Functions

Conceptual Category	Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
		Cluster: Analyze functions using different representations.	
		F-IF.C.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.	
		a. Graph linear and quadratic functions and show intercepts, maxima, and minima.	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 19: 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 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 Topic C: Function Transformations and Modeling Algebra II M1 Lesson 14: Graphing Factored Polynomials

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		b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	Algebra I M3 Topic C: Transformations of Functions Algebra I M4 Lesson 18: Graphing Cubic, Square Root, and Cube Root Functions Algebra I M4 Lesson 19: Translating Graphs of Functions Algebra I M4 Lesson 20: Stretching and Shrinking Graphs of Functions
		F-IF.C.8 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.	
		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.	Algebra I M4 Lesson 9: Graphing Quadratic Functions from Factored Form, $f(x) = a(x - m)(x - n)$ Algebra I M4 Topic B: Using Different Forms for Quadratic 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

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		b. Use the properties of exponents to interpret expressions for exponential functions.	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 M3 Topic D: Using Functions and Graphs to Solve Problems Algebra II M3 Lesson 23: Bean Counting Algebra II M3 Lesson 27: Modeling with Exponential Functions Algebra II M3 Topic E: Geometric Series and Finance
		F-IF.C.9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	Algebra I M4 Lesson 22: Comparing Quadratic, Square Root, and Cube Root Functions Represented in Different Ways Algebra II M3 Lesson 27: Modeling with Exponential Functions Algebra II M3 Lesson 28: Newton's Law of Cooling, Revisited Algebra II M3 Topic E: Geometric Series and Finance

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	Building Functions	**Cluster: Build a function that models a relationship between two quantities.**	
		F-BF.A.1 Write a function that describes a relationship between two quantities.	
		a. Determine an explicit expression, a recursive process, or steps for calculation from a context.	Algebra I M3: Linear and Exponential Functions Algebra I M5: A Synthesis of Modeling with Equations and Functions Algebra II M1 Lesson 1: Successive Differences in Polynomials Algebra II M2 Lesson 12: Ferris Wheels—Using Trigonometric Functions to Model Cyclical Behavior Algebra II M3 Lesson 5: Irrational Exponents—What are $2^{\sqrt{2}}$ and 2^{π}? Algebra II M3 Lesson 6: Euler's Number, *e* Algebra II M3 Lesson 7: Bacteria and Exponential Growth Algebra II M3 Lesson 22: Choosing a Model Algebra II M3 Lesson 26: Percent Rate of Change Algebra II M3 Lesson 27: Modeling with Exponential Functions
		b. Combine standard function types using arithmetic operations.	Algebra II M2 Lesson 12: Ferris Wheels—Using Trigonometric Functions to Model Cyclical Behavior Algebra II M3 Lesson 28: Newton's Law of Cooling, Revisited Algebra II M3 Lesson 30: Buying a Car Algebra II M3 Lesson 33: The Million Dollar Problem Precalculus and Advanced Topics M4 Lesson 6: Waves, Sinusoids, and Identities

Conceptual Category	Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
		Cluster: Build new functions from existing functions.	
		F-BF.B.3 Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k\,f(x)$, $f(kx)$, 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.	Algebra I M3 Topic C: Transformations of Functions Algebra I M4 Lesson 19: Translating Graphs of Functions Algebra I M4 Lesson 20: Stretching and Shrinking Graphs of Functions Algebra I M4 Lesson 21: Transformations of the Quadratic Parent Function, $f(x) = x^2$ Algebra II M2 Lesson 11: Transforming the Graph of the Sine Function Algebra II M2 Lesson 12: Ferris Wheels—Using Trigonometric Functions to Model Cyclical Behavior Algebra II M3 Lesson 20: Transformations of the Graphs of Logarithmic and Exponential Functions Precalculus and Advanced Topics M3 Lesson 15: Transforming Rational Functions

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		F-BF.B.4 Find inverse functions.	
		a. 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.	Algebra II M3 Lesson 7: Bacteria and Exponential Growth Algebra II M3 Lesson 8: The "WhatPower" Function Algebra II M3 Lesson 19: The Inverse Relationship Between Logarithmic and Exponential Functions Algebra II M3 Lesson 24: Solving Exponential Equations Precalculus and Advanced Topics M3 Topic C: Inverse Functions
	Linear, Quadratic, and Exponential Models	**Cluster: Construct and compare linear, quadratic, and exponential models and solve problems.**	
		F-LE.A.3 Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	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 14: Linear and Exponential Models—Comparing Growth Rates Algebra I M3 Lesson 21: Comparing Linear and Exponential Models Again

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	Trigonometric Functions	**Cluster: Prove and apply trigonometric identities.**	
		F-TF.C.8 Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to find $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ given $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ and the quadrant of the angle.	Algebra II M2 Lesson 15: What Is a Trigonometric Identity?
Geometry	**Congruence**	**Cluster: Prove geometric theorems.**	
		G-CO.C.9 Prove theorems about lines and angles.	Geometry M1 Topic B: Unknown Angles Geometry M1 Lesson 18: Looking More Carefully at Parallel Lines Geometry M1 Topic G: Axiomatic Systems
		G-CO.C.10 Prove theorems about triangles.	Geometry M1 Lesson 23: Base Angles of Isosceles Triangles Geometry M1 Topic E: Proving Properties of Geometric Figures Geometry M1 Topic G: Axiomatic Systems
		G-CO.C.11 Prove theorems about parallelograms.	Geometry M1 Lesson 28: Properties of Parallelograms Geometry M1 Topic G: Axiomatic Systems

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	Similarity, Right Triangles, and Trigonometry	**Cluster: Understand similarity in terms of similarity transformations.**	
		G-SRT.A.1 Verify experimentally the properties of dilations given by a center and a scale factor:	
		a. A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.	Geometry M2 Lesson 3: Making Scale Drawings Using the Parallel Method Geometry M2 Lesson 5: Scale Factors Geometry M2 Topic B: Dilations
		b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.	Geometry M2 Topic A: Scale Drawings Geometry M2 Topic B: Dilations
		G-SRT.A.2 Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.	Geometry M2 Lesson 12: What Are Similarity Transformations, and Why Do We Need Them? Geometry M2 Lesson 13: Properties of Similarity Transformations Geometry M2 Lesson 14: Similarity

Conceptual Category	Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
		G-SRT.A.3 Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.	Geometry M2 Lesson 15: The Angle-Angle (AA) Criterion for Two Triangles to Be Similar Geometry M2 Lesson 17: The Side-Angle-Side (SAS) and Side-Side-Side (SSS) Criteria for Two Triangles to Be Similar
		Cluster: Prove theorems involving similarity.	
		G-SRT.B.4 Prove theorems about triangles.	Geometry M2 Lesson 4: Comparing the Ratio Method with the Parallel Method Geometry M2 Lesson 5: Scale Factors Geometry M2 Topic B: Dilations Geometry M2 Lesson 17: The Side-Angle-Side (SAS) and Side-Side-Side (SSS) Criteria for Two Triangles to Be Similar Geometry M2 Lesson 18: Similarity and the Angle Bisector Theorem Geometry M2 Lesson 19: Families of Parallel Lines and the Circumference of the Earth Geometry M2 Topic D: Applying Similarity to Right Triangles
		G-SRT.B.5 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.	Geometry M2 Lesson 16: Between-Figure and Within-Figure Ratios Geometry M2 Lesson 17: The Side-Angle-Side (SAS) and Side-Side-Side (SSS) Criteria for Two Triangles to Be Similar Geometry M2 Lesson 18: Similarity and the Angle Bisector Theorem Geometry M2 Topic D: Applying Similarity to Right Triangles

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		Cluster: Define trigonometric ratios and solve problems involving right triangles.	
		G-SRT.C.6 Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.	Geometry M2 Lesson 25: Incredibly Useful Ratio Geometry M2 Lesson 26: The Definition of Sine, Cosine, and Tangent
		G-SRT.C.7 Explain and use the relationship between the sine and cosine of complementary angles.	Geometry M2 Lesson 27: Sine and Cosine of Complementary Angles and Special Angles Geometry M2 Lesson 28: Solving Problems Using Sine and Cosine Geometry M2 Lesson 29: Applying Tangents
		G-SRT.C.8 Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.	Geometry M2 Topic E: Trigonometry

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	Circles	**Cluster: Understand and apply theorems about circles.**	
		G-C.A.1 Prove that all circles are similar.	Geometry M5 Lesson 7: The Angle Measure of an Arc
		G-C.A.2 Identify and describe relationships among inscribed angles, radii, and chords.	Geometry M5: Circles With and Without Coordinates
		G-C.A.3 Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.	Geometry M5 Lesson 1: Thales' Theorem Geometry M5 Lesson 3: Rectangles Inscribed in Circles Geometry M5 Lesson 12: Tangent Segments Geometry M5 Topic E: Cyclic Quadrilaterals and Ptolemy's Theorem
		G-C.A.4 Construct a tangent line from a point outside a given circle to the circle.	Precalculus and Advanced Topics M4 Lesson 5: Tangent Lines and the Tangent Function
		Cluster: Find arc lengths and areas of sectors of circles.	
		G-C.B.5 Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.	Geometry M5 Topic B: Arcs and Sectors

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	Expressing Geometric Properties with Equations	**Cluster: Translate between the geometric description and the equation for a conic section.**	
		G-GPE.A.1 Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.	Geometry M5 Topic D: Equations for Circles and Their Tangents
		G-GPE.A.2 Derive the equation of a parabola given a focus and directrix.	Algebra II M1 Lesson 33: The Definition of a Parabola Algebra II M1 Lesson 34: Are All Parabolas Congruent? Algebra II M1 Lesson 35: Are All Parabolas Similar?
		Cluster: Use coordinates to prove simple geometric theorems algebraically.	
		G-GPE.B.4 Use coordinates to prove simple geometric theorems algebraically.	Geometry M4: Connecting Algebra and Geometry Through Coordinates Geometry M5 Lesson 19: Equations for Tangent Lines to Circles

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	Geometric Measurement and Dimension	**Cluster: Explain volume formulas and use them to solve problems.**	
		G-GMD.A.1 Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.	Geometry M3: Extending to Three Dimensions
		G-GMD.A.3 Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.	Geometry M3: Extending to Three Dimensions
Statistics and Probability	**Conditional Probability and the Rules of Probability**	**Cluster: Understand independence and conditional probability and use them to interpret data.**	
		S-CP.A.1 Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").	Algebra II M4 Topic A: Probability
		S-CP.A.2 Understand that two events *A* and *B* are independent if the probability of *A* and *B* occurring together is the product of their probabilities, and use this characterization to determine if they are independent.	Algebra II M4 Lesson 6: Probability Rules

Conceptual Category	Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
		S-CP.A.3 Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.	Algebra II M4 Lesson 4: Calculating Conditional Probabilities and Evaluating Independence Using Two-Way Tables Algebra II M4 Lesson 6: Probability Rules
		S-CP.A.4 Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities.	Algebra II M4 Lesson 2: Calculating Probabilities of Events Using Two-Way Tables Algebra II M4 Lessons 3–4: Calculating Conditional Probabilities and Evaluating Independence Using Two-Way Tables
		S-CP.A.5 Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.	Algebra II M4 Topic A: Probability

Conceptual Category	Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
		Cluster: Use the rules of probability to compute probabilities of compound events in a uniform probability model.	
		S-CP.B.6 Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model.	Algebra II M4 Lessons 3–4: Calculating Conditional Probabilities and Evaluating Independence Using Two-Way Tables
		S-CP.B.7 Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.	Algebra II M4 Lesson 7: Probability Rules
		S-CP.B.8 (+) Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B\|A) = P(B)P(A\|B)$, and interpret the answer in terms of the model.	Precalculus and Advanced Topics M5 Lesson 1: The General Multiplication Rule Precalculus and Advanced Topics M5 Topic C: Using Probability to Make Decisions
		S-CP.B.9 (+) Use permutations and combinations to compute probabilities of compound events and solve problems.	Precalculus and Advanced Topics M5: Probability and Statistics

Conceptual Category	Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	Using Probability to Make Decisions	**Cluster: Use probability to evaluate outcomes of decisions.**	
		S-MD.B.6 (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).	Precalculus and Advanced Topics M5 Lessons 13–14: Games of Chance and Expected Value Precalculus and Advanced Topics M5 Lesson 15: Using Expected Values to Compare Strategies
		S-MD.B.7 (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).	Precalculus and Advanced Topics M5 Lessons 13–14: Games of Chance and Expected Value Precalculus and Advanced Topics M5 Lesson 15: Using Expected Values to Compare Strategies