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 III

Eureka Math does not currently offer an integrated curriculum; however, the Integrated III Delaware Common Core State Standards: 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 Complex Number System**	**Cluster: Use complex numbers in polynomial identities and equations.**	
		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 Lesson 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?
		Cluster: Write expressions in equivalent forms to solve problems.	
		A-SSE.B.4 Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems.	Algebra II M3 Topic E: Geometric Series and Finance

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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
		Cluster: Understand the relationship between zeros and factors of polynomials.	
		A-APR.B.2 Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a, the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.	Algebra II M1 Lesson 19: The Remainder Theorem

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		A-APR.B.3 Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	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 11: The Special Role of Zero in Factoring Algebra II M1 Lesson 14: Graphing Factored Polynomials
		Cluster: Use polynomial identities to solve problems.	
		A-APR.C.4 Prove polynomial identities and use them to describe numerical relationships.	Algebra II M1 Topic A: Polynomials—From Base Ten to Base X
		A-APR.C.5 (+) Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n, where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.	Precalculus and Advanced Topics M3 Lessons 4–5: The Binomial Theorem

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		Cluster: Rewrite rational expressions.	
		A-APR.D.6 Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.	Algebra II M1 Lesson 4: Comparing Methods—Long Division, Again? 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 Algebra II M1 Lesson 24: Multiplying and Dividing Rational Expressions Algebra II M1 Lesson 25: Adding and Subtracting Rational Expressions
		A-APR.D.7 (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.	Algebra II M1 Lesson 22: Equivalent Rational Expressions Algebra II M1 Lesson 23: Comparing Rational Expressions Algebra II M1 Lesson 24: Multiplying and Dividing Rational Expressions Algebra II M1 Lesson 25: Adding and Subtracting Rational Expressions Precalculus and Advanced Topics M3 Lesson 10: The Structure of Rational Expressions Precalculus and Advanced Topics M3 Lesson 11: Rational Functions

Conceptual Category	Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	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

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		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

Conceptual Category	Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
		A-CED.A.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.	Algebra I M1 Lesson 15: Solution Sets of Two or More Equations (or Inequalities) Joined by "And" or "Or" 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 M1 Lesson 27: Recursive Challenge Problem—The Double and Add 5 Game Algebra I M3 Topic B: Functions and Their Graphs Algebra I M3 Lesson 24: Piecewise and Step Functions in Context Algebra II M1 Lessons 20–21: Modeling Riverbeds with Polynomials Algebra II M3 Topic E: Geometric Series and Finance
		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

Conceptual Category	Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	Reasoning with Equations and Inequalities	**Cluster: Understand solving equations as a process of reasoning and explain the reasoning.**	
		A-REI.A.2 Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	Algebra II M1 Lesson 22: Equivalent Rational Expressions Algebra II M1 Lesson 23: Comparing Rational Expressions Algebra II M1 Lesson 26: Solving Rational Equations Algebra II M1 Lesson 27: Word Problems Leading to Rational Equations Algebra II M1 Lesson 28: A Focus on Square Roots Algebra II M1 Lesson 29: Solving Radical Equations
		Cluster: Represent and solve equations and inequalities graphically.	
		A-REI.D.11 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, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.	Algebra I M3 Lesson 16: Graphs Can Solve Equations Too Algebra II M1 Lesson 36: Overcoming a Third Obstacle to Factoring—What If There Are No Real Number Solutions? Algebra II M3 Lesson 24: Solving Exponential 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.	
		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
		c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.	Algebra II M1 Lesson 14: Graphing Factored Polynomials Algebra II M1 Lesson 15: Structure in Graphs of Polynomial Functions Algebra II M1 Lesson 16: Modeling with Polynomials—An Introduction

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		e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.	Algebra II M2 Lesson 8: Graphing the Sine and Cosine Functions 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 16: Rational and Irrational Numbers 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 33: The Million Dollar Problem Precalculus and Advanced Topics M4 Lesson 11: Revisiting the Graphs of the Trigonometric Functions

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		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. 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
		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.4 For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.	Algebra II M3 Topic B: Logarithms Algebra II M3 Lesson 19: The Inverse Relationship Between Logarithmic and Exponential Functions Algebra II M3 Topic D: Using Logarithms in Modeling Situations Precalculus and Advanced Topics M3 Lesson 21: Logarithmic and Exponential Problem Solving

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	Trigonometric Functions	**Cluster: Extend the domain of trigonometric functions using the unit circle.**	
		F-TF.A.1 Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.	Algebra II M2 Lesson 9: Awkward! Who Chose the Number 360, Anyway?
		F-TF.A.2 Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.	Algebra II M2: Trigonometric Functions
		Cluster: Model periodic phenomena with trigonometric functions.	
		F-TF.B.5 Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.	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 M2 Lesson 13: Tides, Sound Waves, and Stock Markets Precalculus and Advanced Topics M4 Lesson 6: Waves, Sinusoids, and Identities

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Geometry	**Similarity, Right Triangles, and Trigonometry**	**Cluster: Apply trigonometry to general triangles.**	
		G-SRT.D.9 (+) Derive the formula $A = 1/2\ ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.	Geometry M2 Lesson 31: Using Trigonometry to Determine Area Precalculus and Advanced Topics M4 Lesson 7: An Area Formula for Triangles
		G-SRT.D.10 (+) Prove the Laws of Sines and Cosines and use them to solve problems.	Geometry M2 Lesson 32: Using Trigonometry to Find Side Lengths of an Acute Triangle Precalculus and Advanced Topics M4 Topic B: Trigonometry and Triangles
		G-SRT.D.11 (+) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).	Geometry M2 Lesson 33: Applying the Laws of Sines and Cosines Precalculus and Advanced Topics M4 Lesson 10: Putting the Law of Cosines and the Law of Sines to Use
	Geometric Measurement and Dimension	**Cluster: Visualize relationships between two-dimensional and three-dimensional objects.**	
		G-GMD.B.4 Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.	Geometry M3: Extending to Three Dimensions

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	Modeling with Geometry	**Cluster: Apply geometric concepts in modeling situations.**	
		G-MG.A.1 Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).	Geometry M2 Lesson 19: Families of Parallel Lines and the Circumference of the Earth Geometry M2 Lesson 20: How Far Away Is the Moon? Geometry M3 Lesson 5: Three-Dimensional Space Geometry M3 Lesson 6: General Prisms and Cylinders and Their Cross-Sections Geometry M3 Lesson 11: The Volume Formula of a Pyramid and Cone Geometry M3 Lesson 12: The Volume Formula of a Sphere
		G-MG.A.2 Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).	Geometry M3 Lesson 8: Definition and Properties of Volume Geometry M3 Lesson 11: The Volume Formula of a Pyramid and Cone
		G-MG.A.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).	Geometry M2 Lesson 2: Making Scale Drawings Using the Ratio Method Geometry M3 Lesson 11: The Volume Formula of a Pyramid and Cone Geometry M3 Lesson 12: The Volume Formula of a Sphere Geometry M3 Lesson 13: How Do 3D Printers Work?

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Statistics and Probability	**Interpreting Categorical and Quantitative Data**	**Cluster: Summarize, represent, and interpret data on a single count or measurement variable.**	
		S-ID.A.4 Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.	Algebra II M4 Topic B: Modeling Data Distributions
	Making Inferences and Justifying Conclusions	**Cluster: Understand and evaluate random processes underlying statistical experiments.**	
		S-IC.A.1 Understand statistics as a process for making inferences about population parameters based on a random sample from that population.	Algebra II M4 Topic C: Drawing Conclusions Using Data from a Sample
		S-IC.A.2 Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation.	Algebra II M4 Lesson 1: Chance Experiments, Sample Spaces, and Events

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		Cluster: Make inferences and justify conclusions from sample surveys, experiments, and observational studies.	
		S-IC.B.3 Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	Algebra II M4 Lesson 12: Types of Statistical Studies Algebra II M4 Topic D: Drawing Conclusions Using Data from an Experiment
		S-IC.B.4 Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.	Algebra II M4 Topic C: Drawing Conclusions Using Data from a Sample
		S-IC.B.5 Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.	Algebra II M4 Topic D: Drawing Conclusions Using Data from an Experiment
		S-IC.B.6 Evaluate reports based on data.	Algebra II M4 Lesson 22: Evaluating Reports Based on Data from a Sample Algebra II M4 Topic D: Drawing Conclusions Using Data from an Experiment

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	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