Precalculus | New York Next Generation Mathematics Learning Standards Correlation to *Eureka Math*®

About *Eureka Math*

Created by Great Minds®, a mission-driven Public Benefit Corporation, *Eureka Math*® helps teachers deliver unparalleled math instruction that provides students with a deep understanding and fluency in math. Crafted by teachers and math scholars, the curriculum carefully sequences the mathematical progressions to maximize coherence from Prekindergarten through Precalculus—a principle tested and proven to be essential in students' mastery of math.

Teachers and students using *Eureka Math* find the trademark "Aha!" moments in *Eureka Math* to be a source of joy and inspiration, lesson after lesson, year after year.

Aligned

Great Minds offers detailed analyses that demonstrate how each grade of *Eureka Math* aligns with specific state standards. Access these free alignment studies at greatminds.org/state-studies.

Data

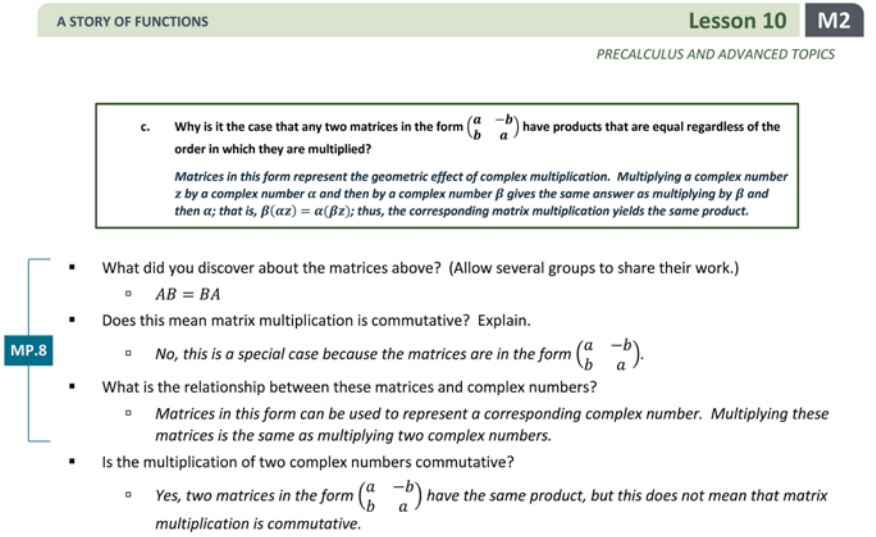
Schools and districts nationwide are experiencing student growth and impressive test scores after using *Eureka Math*. See their stories and data at greatminds.org/data.

Full Suite of Resources

Great Minds offers the *Eureka Math* curriculum as PDF downloads for free, noncommercial use. Access the free PDFs at greatminds.org/math/curriculum.

The teacher–writers who created the curriculum have also developed essential resources, available only from Great Minds, including the following:

- Printed material in English and Spanish
- Digital resources
- Professional development
- Classroom tools and manipulatives
- Teacher support materials
- Parent resources

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
MP.1 Make sense of problems and persevere in solving them.	Lessons in every module engage students in mathematical practices. These are designated in the Module Overview and labeled in lessons. For example: 
MP.2 Reason abstractly and quantitatively.	
MP.3 Construct viable arguments and critique the reasoning of others.	
MP.4 Model with mathematics.	
MP.5 Use appropriate tools strategically.	
MP.6 Attend to precision.	
MP.7 Look for and make use of structure.	
MP.8 Look for and express regularity in repeated reasoning.	

The Complex Number System

Perform arithmetic operations with complex numbers.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
N.CN.3 Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers.	Precalculus and Advanced Topics M1 Lesson 7: Complex Number Division Precalculus and Advanced Topics M1 Lesson 8: Complex Number Division Precalculus and Advanced Topics M1 Lesson 9: The Geometric Effect of Some Complex Arithmetic Precalculus and Advanced Topics M1 Lesson 17: The Geometric Effect of Multiplying by a Reciprocal

The Complex Number System

Represent complex numbers and their operations on the complex plane.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
N.CN.4a Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and convert between rectangular and polar forms of a given complex number.	Precalculus and Advanced Topics M1 Lesson 4: An Appearance of Complex Numbers Precalculus and Advanced Topics M1 Lesson 5: An Appearance of Complex Numbers Precalculus and Advanced Topics M1 Lesson 6: Complex Numbers as Vectors Precalculus and Advanced Topics M1 Lesson 8: Complex Number Division Precalculus and Advanced Topics M1 Topic B: Complex Number Operations and Transformations Precalculus and Advanced Topics M1 Lesson 18: Exploiting the Connection to Trigonometry Precalculus and Advanced Topics M1 Lesson 19: Exploiting the Connection to Trigonometry Precalculus and Advanced Topics M1 Lesson 20: Exploiting the Connection to Cartesian Coordinates
N.CN.4b Determine whether rectangular or polar form is more efficient given the context.	*Supplemental material is necessary to address this standard.*

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
N.CN.5 Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation.	Precalculus and Advanced Topics M1 Lesson 6: Complex Numbers as Vectors Precalculus and Advanced Topics M1 Lesson 9: The Geometric Effect of Some Complex Arithmetic Precalculus and Advanced Topics M1 Lesson 10: The Geometric Effect of Some Complex Arithmetic Precalculus and Advanced Topics M1 Lesson 14: Discovering the Geometric Effect of Complex Multiplication Precalculus and Advanced Topics M1 Lesson 15: Justifying the Geometric Effect of Complex Multiplication Precalculus and Advanced Topics M1 Lesson 16: Representing Reflections with Transformations Precalculus and Advanced Topics M1 Lesson 17: The Geometric Effect of Multiplying by a Reciprocal Precalculus and Advanced Topics M1 Lesson 18: Exploiting the Connection to Trigonometry Precalculus and Advanced Topics M1 Lesson 19: Exploiting the Connection to Trigonometry Precalculus and Advanced Topics M1 Lesson 20: Exploiting the Connection to Cartesian Coordinates
N.CN.6a Calculate the distance between two points in the complex plane.	Precalculus and Advanced Topics M1 Lesson 11: Distance and Complex Numbers Precalculus and Advanced Topics M1 Lesson 12: Distance and Complex Numbers
N.CN.6b Find the midpoint of the segment whose endpoints are in the complex plane.	Precalculus and Advanced Topics M1 Lesson 11: Distance and Complex Numbers Precalculus and Advanced Topics M1 Lesson 12: Distance and Complex Numbers

The Complex Number System

Use complex numbers in polynomial identities and equations.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
N.CN.8 Extend polynomial identities to the complex numbers.	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.9 State the Fundamental Theorem of Algebra and use it to find roots of polynomials.	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

Vector and Matrix Quantities

Represent and model with vector quantities.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
N.VM.1 Represent a vector analytically and geometrically.	Precalculus and Advanced Topics M2 Topic D: Vectors in Plane and Space
N.VM.2 Find the magnitude and direction of a given vector.	Precalculus and Advanced Topics M2 Lesson 17: Vectors in the Coordinate Plane Precalculus and Advanced Topics M2 Lesson 18: Vectors and Translation Maps Precalculus and Advanced Topics M2 Lesson 20: Vectors and Stone Bridges
N.VM.3 Solve problems using vectors analytically and geometrically.	Precalculus and Advanced Topics M2 Lesson 17: Vectors in the Coordinate Plane Precalculus and Advanced Topics M2 Lesson 20: Vectors and Stone Bridges Precalculus and Advanced Topics M2 Lesson 23: Why Are Vectors Useful?

Vector and Matrix Quantities

Perform operations on vectors.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
N.VM.4 Add and subtract vectors analytically and geometrically.	Precalculus and Advanced Topics M2 Lesson 5: Coordinates of Points in Space Precalculus and Advanced Topics M2 Lesson 6: Linear Transformations as Matrices Precalculus and Advanced Topics M2 Lesson 17: Vectors in the Coordinate Plane Precalculus and Advanced Topics M2 Lesson 18: Vectors and Translation Maps Precalculus and Advanced Topics M2 Lesson 19: Directed Line Segments and Vectors Precalculus and Advanced Topics M2 Lesson 20: Vectors and Stone Bridges Precalculus and Advanced Topics M2 Lesson 23: Why Are Vectors Useful? Precalculus and Advanced Topics M2 Lesson 24: Why Are Vectors Useful?
N.VM.5 Multiply a vector by a scalar analytically and geometrically.	Precalculus and Advanced Topics M2 Lesson 5: Coordinates of Points in Space Precalculus and Advanced Topics M2 Lesson 6: Linear Transformations as Matrices Precalculus and Advanced Topics M2 Lesson 17: Vectors in the Coordinate Plane Precalculus and Advanced Topics M2 Lesson 18: Vectors and Translation Maps Precalculus and Advanced Topics M2 Lesson 20: Vectors and Stone Bridges

Vector and Matrix Quantities

Perform operations on matrices and use matrices in applications.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
N.VM.6 Use matrices to represent and model real world situations.	Precalculus and Advanced Topics M2 Topic A: Networks and Matrices

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
N.VM.7 Multiply matrices by scalars.	Precalculus and Advanced Topics M2 Lesson 2: Networks and Matrix Arithmetic Precalculus and Advanced Topics M2 Lesson 3: Matrix Arithmetic in Its Own Right Precalculus and Advanced Topics M2 Lesson 4: Linear Transformations Review Precalculus and Advanced Topics M2 Lesson 5: Coordinates of Points in Space Precalculus and Advanced Topics M2 Lesson 6: Linear Transformations as Matrices Precalculus and Advanced Topics M2 Lesson 26: Projecting a 3-D Object onto a 2-D Plane Precalculus and Advanced Topics M2 Lesson 27: Designing Your Own Game
N.VM.8 Add, subtract, and multiply matrices.	Precalculus and Advanced Topics M1 Lesson 22: Modeling Video Game Motion with Matrices Precalculus and Advanced Topics M1 Lesson 24: Matrix Notation Encompasses New Transformations! Precalculus and Advanced Topics M1 Lesson 25: Matrix Multiplication and Addition Precalculus and Advanced Topics M2 Lesson 2: Networks and Matrix Arithmetic Precalculus and Advanced Topics M2 Lesson 3: Matrix Arithmetic in Its Own Right Precalculus and Advanced Topics M2 Topic B: Linear Transformations of Planes and Space Precalculus and Advanced Topics M2 Topic E: First-Person Video Games—Projection Matrices
N.VM.9 Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.	Precalculus and Advanced Topics M2 Lesson 10: Matrix Multiplication Is Not Commutative Precalculus and Advanced Topics M2 Lesson 12: Matrix Multiplication Is Distributive and Associative

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
N.VM.11 Use matrices to perform linear transformations in the plane.	Precalculus and Advanced Topics M1 Lesson 21: The Hunt for Better Notation Precalculus and Advanced Topics M1 Lesson 22: Modeling Video Game Motion with Matrices Precalculus and Advanced Topics M1 Lesson 23: Modeling Video Game Motion with Matrices Precalculus and Advanced Topics M1 Lesson 26: Getting a Handle on New Transformations Precalculus and Advanced Topics M1 Lesson 27: Getting a Handle on New Transformations Precalculus and Advanced Topics M1 Lesson 28: When Can We Reverse a Transformation? Precalculus and Advanced Topics M1 Lesson 29: When Can We Reverse a Transformation? Precalculus and Advanced Topics M1 Lesson 30: When Can We Reverse a Transformation? Precalculus and Advanced Topics M2 Lesson 8: Composition of Linear Transformations
N.VM.12 Calculate and interpret the determinant of a matrix.	Precalculus and Advanced Topics M1 Lesson 26: Getting a Handle on New Transformations Precalculus and Advanced Topics M1 Lesson 27: Getting a Handle on New Transformations Precalculus and Advanced Topics M1 Lesson 28: When Can We Reverse a Transformation? Precalculus and Advanced Topics M1 Lesson 29: When Can We Reverse a Transformation? Precalculus and Advanced Topics M1 Lesson 30: When Can We Reverse a Transformation?

Arithmetic with Polynomial and Rational Expressions

Use polynomial identities to solve problems.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
A.APR.4 Prove polynomial identities and use them to describe numerical relationships.	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

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
A.APR.5 Use the Binomial Theorem for the expansion of $(x + y)^n$ for a positive integer n.	Precalculus and Advanced Topics M3 Lesson 4: The Binomial Theorem Precalculus and Advanced Topics M3 Lesson 5: The Binomial Theorem

Arithmetic with Polynomial and Rational Expressions

Rewrite rational expressions.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
A.APR.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.	Precalculus and Advanced Topics M3 Lesson 10: The Structure of Rational Expressions Precalculus and Advanced Topics M3 Lesson 11: Rational Functions

Reasoning with Equations and Inequalities

Solve systems of equations.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
A.REI.6b Solve systems of linear equations in three variables.	Precalculus and Advanced Topics M2 Topic C: Systems of Linear Equations

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
A.REI.8 Represent a system of linear equations as a single matrix equation in a vector variable.	Precalculus and Advanced Topics M2 Topic C: Systems of Linear Equations
A.REI.9 Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension 3×3 or greater).	Precalculus and Advanced Topics M2 Topic C: Systems of Linear Equations

Interpreting Functions

Analyze functions using different representations.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
F.IF.7d Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available.	Precalculus and Advanced Topics M3 Lesson 12: End Behavior of Rational Functions Precalculus and Advanced Topics M3 Lesson 13: Horizontal and Vertical Asymptotes of Graphs of Rational Functions Precalculus and Advanced Topics M3 Lesson 14: Graphing Rational Functions Precalculus and Advanced Topics M3 Lesson 15: Transforming Rational Functions

Building Functions

Build a function that models a relationship between two quantities.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
F.BF.1c Compose functions and state resulting domain.	Precalculus and Advanced Topics M3 Lesson 16: Function Composition Precalculus and Advanced Topics M3 Lesson 17: Solving Problems by Functions Composition

Building Functions

Build new functions from existing functions.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
F.BF.3c Determine algebraically whether or not a function is even or odd.	Algebra II M1 Lesson 15: Structure in Graphs of Polynomial Functions Precalculus and Advanced Topics M3 Lesson 12: End Behavior of Rational Functions
F.BF.4b Verify by composition that one function is the inverse of another.	Precalculus and Advanced Topics M3 Lesson 19: Restricting the Domain Precalculus and Advanced Topics M3 Lesson 20: Inverses of Logarithmic and Exponential Functions
F.BF.4c Given the graph or table of an invertible function, determine coordinates of its inverse.	Precalculus and Advanced Topics M3 Lesson 18: Inverse Functions Precalculus and Advanced Topics M3 Lesson 19: Restricting the Domain Precalculus and Advanced Topics M3 Lesson 20: Inverses of Logarithmic and Exponential Functions
F.BF.4d Determine an invertible function from a non-invertible function by restricting the domain.	Precalculus and Advanced Topics M3 Lesson 19: Restricting the Domain

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
F.BF.5b Use inverse relationships to solve problems involving logarithms and exponents.	Precalculus and Advanced Topics M3 Lesson 20: Inverses of Logarithmic and Exponential Functions Precalculus and Advanced Topics M3 Lesson 21: Logarithmic and Exponential Problem Solving
F.BF.5c Apply the properties of logarithms to rewrite logarithmic expressions in equivalent forms and solve logarithmic equations.	Algebra II M3 Lesson 7: Bacteria and Exponential Growth Algebra II M3 Lesson 11: The Most Important Property of Logarithms Algebra II M3 Lesson 12: Properties of Logarithms Algebra II M3 Lesson 13: Changing the Base Algebra II M3 Lesson 14: Solving Logarithmic Equations Precalculus and Advanced Topics M3 Lesson 21: Logarithmic and Exponential Problem Solving

Trigonometric Functions

Extend the domain of trigonometric functions using the unit circle.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
F.TF.3 Use special triangles to determine geometrically the values of sine, cosine, tangent for $\frac{\pi}{3}$, $\frac{\pi}{4}$, and $\frac{\pi}{6}$, and use the unit circle to express the values of sine, cosines, and tangent for x, $\pi + x$, and $2\pi - x$ in terms of their values for x, where x is any real number.	Algebra II M2 Lesson 4: From Circle-ometry to Trigonometry Algebra II M2 Lesson 5: Extending the Domain of Sine and Cosine to All Real Numbers Algebra II M2 Lesson 6: Why Call It Tangent? Algebra II M2 Lesson 10: Basic Trigonometric Identities from Graphs Precalculus and Advanced Topics M4 Lesson 1: Special Triangles and the Unit Circle

Trigonometric Functions

Model periodic phenomena with trigonometric functions.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
F.TF.6 Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.	Precalculus and Advanced Topics M4 Lesson 12: Inverse Trigonometric Functions
F.TF.7 Solve trigonometric equations: • analytically with inverse functions and • graphically with technology and interpret solutions in terms of the context.	Precalculus and Advanced Topics M4 Lesson 12: Inverse Trigonometric Functions Precalculus and Advanced Topics M4 Lesson 13: Modeling with Inverse Trigonometric Functions Precalculus and Advanced Topics M4 Lesson 14: Modeling with Inverse Trigonometric Functions

Trigonometric Functions

Prove and apply trigonometric identities.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
F.TF.9 Prove the sum and difference formulas for sine, cosine, and tangent and use them to solve problems.	Precalculus and Advanced Topics M4 Lesson 3: Addition and Subtraction Formulas Precalculus and Advanced Topics M4 Lesson 4: Addition and Subtraction Formulas Precalculus and Advanced Topics M4 Lesson 6: Waves, Sinusoids, and Identities

Similarity, Right Triangles, and Trigonometry

Apply trigonometry to general triangles.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
G.SRT.10 Prove the Law of Sines and the Law of Cosines and apply in all cases, including the ambiguous case.	Precalculus and Advanced Topics M4 Lesson 8: Law of Sines Precalculus and Advanced Topics M4 Lesson 9: Law of Cosines
G.SRT.11 Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles.	Precalculus and Advanced Topics M4 Lesson 10: Putting the Law of Cosines and the Law of Sines to Use

Circles

Understand and apply theorems about circles.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
G.C.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

Expressing Geometric Properties with Equations

Translate between the geometric description and the equation for a conic section.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
G.GPE.2 Explore the relationship among the parabola, focus, and directrix and use the equation to model a real-life situation, using technology as appropriate.	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?
G.GPE.3a Derive the equations of ellipses and hyperbolas given the foci.	Precalculus and Advanced Topics M3 Lesson 6: Curves in the Complex Plane Precalculus and Advanced Topics M3 Lesson 7: Curves from Geometry Precalculus and Advanced Topics M3 Lesson 8: Curves from Geometry
G.GPE.3b Use these equations to model real life situations.	*Supplemental material is necessary to address this standard.*

Geometric Measurement and Dimension

Explain volume formulas and use them to solve problems.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
G.GMD.2 Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.	Geometry M3 Lesson 10: The Volume of Prisms and Cylinders and Cavalieri's Principle 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? Precalculus and Advanced Topics M3 Lesson 9: Volume and Cavalieri's Principle

Interpreting Categorical and Quantitative Data

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

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
S.ID.6b Informally assess the fit of a function by plotting and analyzing residuals.	*Supplemental material is necessary to address this standard.*

Conditional Probability and the Rules of Probability

Use the rules of probability to compute probabilities of compound events in a uniform probability model.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
S.CP.9 Solve problems using permutations and combinations to compute probabilities of compound events.	Precalculus and Advanced Topics M5 Lesson 2: Counting Rules—The Fundamental Counting Principle and Permutations Precalculus and Advanced Topics M5 Lesson 3: Counting Rules—Combinations Precalculus and Advanced Topics M5 Lesson 4: Using Permutations and Combinations to Compute Probabilities

Using Probability to Make Decisions

Calculate expected values and use them to solve problems.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
S.MD.1a Define a random variable for a quantity of interest.	Precalculus and Advanced Topics M5 Lesson 5: Discrete Random Variables Precalculus and Advanced Topics M5 Lesson 6: Probability Distribution of a Discrete Random Variable Precalculus and Advanced Topics M5 Lesson 13: Games of Chance and Expected Value Precalculus and Advanced Topics M5 Lesson 14: Games of Chance and Expected Value Precalculus and Advanced Topics M5 Lesson 15: Using Expected Values to Compare Strategies
S.MD.1b Graph a probability distribution for a discrete random variable based on either empirical or theoretical probabilities.	Precalculus and Advanced Topics M5 Lesson 9: Determining Discrete Probability Distributions Precalculus and Advanced Topics M5 Lesson 10: Determining Discrete Probability Distributions Precalculus and Advanced Topics M5 Lesson 11: Estimating Probability Distributions Empirically Precalculus and Advanced Topics M5 Lesson 12: Estimating Probability Distributions Empirically Precalculus and Advanced Topics M5 Lesson 13: Games of Chance and Expected Value Precalculus and Advanced Topics M5 Lesson 14: Games of Chance and Expected Value Precalculus and Advanced Topics M5 Lesson 15: Using Expected Values to Compare Strategies
S.MD.2 Calculate and interpret the expected value of a random variable.	Precalculus and Advanced Topics M5 Lesson 7: Expected Value of a Discrete Random Variable Precalculus and Advanced Topics M5 Lesson 8: Interpreting Expected Value Precalculus and Advanced Topics M5 Lesson 13: Games of Chance and Expected Value Precalculus and Advanced Topics M5 Lesson 14: Games of Chance and Expected Value Precalculus and Advanced Topics M5 Lesson 15: Using Expected Values to Compare Strategies

Using Probability to Make Decisions

Use probability to evaluate outcomes of decisions.

New York Next Generation Mathematics Learning Standards	Aligned Components of *Eureka Math*
S.MD.5 Use expected values from probability distributions to evaluate and compare the outcomes of decisions.	Precalculus and Advanced Topics M5 Lesson 13: Games of Chance and Expected Value Precalculus and Advanced Topics M5 Lesson 14: Games of Chance and Expected Value Precalculus and Advanced Topics M5 Lesson 15: Using Expected Values to Compare Strategies
S.MD.6 Use probabilities to make fair decisions.	Precalculus and Advanced Topics M5 Lesson 16: Making Fair Decisions Precalculus and Advanced Topics M5 Lesson 17: Fair Games
S.MD.7 Using probability concepts, evaluate decisions and strategies.	Precalculus and Advanced Topics M5 Lesson 15: Using Expected Values to Compare Strategies Precalculus and Advanced Topics M5 Lesson 18: Analyzing Decisions and Strategies Using Probability Precalculus and Advanced Topics M5 Lesson 19: Analyzing Decisions and Strategies Using Probability