RENAISSANCE®

Core Progress Math: Integrated Pathway

The high school mathematics curriculum covers topics in algebra, functions, geometry, number and quantity, and statistics and probability. These high school topics may be taught using either a traditional or integrated pathway. Each pathway covers the same topics and skills; the difference is the order in which the skills are taught. In the traditional pathway, courses are separate so that one year a student focuses entirely on algebra, the next year entirely on geometry, followed by another year of algebra, and later more advanced studies.

The integrated-math approach is the style which integrates topics or strands of mathematics throughout each year of secondary school. Like the traditional pathway, the skills within each integrated-math pathway are presented in a coherent and continuous order, allowing students to move incrementally through states of learning.

The integrated pathway is used internationally and in some U.S. states and school districts. This pathway may provide value to users of the traditional math pathway because it shows the connections across math topics as they are accustomed to seeing in lower grades. The following is Renaissance's Core Progress Math learning progression as it could be taught with an integrated pathway.

Mathematics I		
Domain Group	Course	Skill
Functions	A1	Understand the definition of a function
Functions	A1	Determine whether a relation defines a function
Functions	A1	Evaluate a function for a given input
Functions	A1	Interpret a statement that uses function notation
Functions	A1	Determine the independent or dependent variable in a given situation
Algebra	A1	Solve a linear equation or inequality in one variable
Algebra	A1	Justify each step in solving a simple equation
Algebra	A1	Write a linear equation to represent a situation
Algebra	A1	Solve a problem involving a linear equation in one variable
Algebra	A1	Rearrange a formula to isolate a variable of interest where the formula is linear in that variable
Algebra	A1	Solve a 1-variable compound inequality
Algebra	A1	Solve an absolute value equation in one variable

Mathematics I		
Domain Group	Course	Skill
Algebra	A1	Solve an absolute value inequality in one variable
Algebra	A1	Determine the graph of a 1-variable absolute value inequality
Measurement and Data	A1	Interpret the meaning of the origin or scale for a graph or data display
Measurement and Data	A1	Choose the scale for a graph or data display
Measurement and Data	A1	Choose a level of precision appropriate to limitations on measurement
Measurement and Data	A1	Define appropriate quantities for the purpose of descriptive modeling
Measurement and Data	A1	Select or interpret the unit form of a quantity in a formula
Measurement and Data	A1	Determine the process for solving a multi-step problem using the units involved
Functions	A1	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane
Algebra	A1	Graph a linear equation using coordinate axes
Algebra	A1	Determine the *x*- or *y*-intercept of a line given an equation
Algebra	A1	Determine the slope of a line given an equation of the line
Algebra	A1	Determine the slope of a line given a graph, two points on the line, or a table of values
Functions	A1	Identify situations that can be modeled by a linear function
Algebra	A1	Solve a proportion that generates a linear equation
Algebra	A1	Interpret a linear expression by viewing one or more of its parts as a single entity
Functions	A1	Interpret features of a linear function that models a relationship between two quantities
Functions	A1	Compare the properties of two linear functions
Functions	A1	Interpret the parameters in a linear function
Functions	A1	Identify the effect of replacing $f(x)$ with $f(x) + k$, $f(x + k)$, $kf(x)$, or $f(kx)$ on the graph of a linear function
Functions	A1	Determine the linear function resulting from a transformation given the parent function and graphs of the parent and transformed functions
Functions	A1	Determine an equation of a linear function, using given information
Algebra	A1	Translate among equivalent forms of linear equations
Algebra	A1	Determine if two lines are perpendicular or parallel given the equations of the lines

Mathematics I		
Domain Group	**Course**	**Skill**
Algebra	A1	Determine an equation for a line that goes through a given point and is parallel or perpendicular to a given line
Functions	A1	Determine whether a graph or a table represents a linear or nonlinear function
Functions	A1	Determine if a function is linear or nonlinear
Statistics and Probability	A1	Represent data on two quantitative variables on a scatter plot
Statistics and Probability	A1	Interpret scatter plots of bivariate data
Statistics and Probability	A1	Determine the linear function of best fit for data on a scatter plot
Statistics and Probability	A1	Interpret the slope and intercept of a line of best fit involving bivariate measurement data
Statistics and Probability	A1	Compute the correlation coefficient of a linear fit
Statistics and Probability	A1	Interpret the correlation coefficient of a linear fit
Statistics and Probability	A1	Assess the fit of a function by plotting and analyzing residuals
Statistics and Probability	A1	Solve a problem using a linear function of best fit
Statistics and Probability	A1	Distinguish between correlation and causation
Algebra	A1	Solve a system of linear equations in two variables algebraically
Algebra	A1	Solve a system of linear equations in two variables using any method
Algebra	A1	Write a system of linear equations in two variables to represent a given situation
Algebra	A1	Solve a problem that can be represented by a system of two linear equations
Algebra	A1	Determine the number of solutions to a system of linear equations
Algebra	A1	Solve a 2-variable linear inequality for the dependent variable
Algebra	A1	Graph the solutions to a linear inequality in two variables
Algebra	A1	Graph the solutions to a problem that can be represented by a 2-variable linear inequality
Algebra	A1	Determine if an ordered pair is a solution to a 2-variable linear inequality
Algebra	A1	Graph the solution set to a system of linear inequalities in two variables
Algebra	A1	Write a system of two linear inequalities to represent a given situation
Algebra	A1	Solve a problem involving a system of linear inequalities
Algebra	A1	Determine if a given ordered pair is a solution to a system of linear inequalities

Mathematics I		
Domain Group	**Course**	**Skill**
Numbers and Operations	A1	Know and explain why rational numbers are closed under addition, subtraction, multiplication, and division by a nonzero rational number
Numbers and Operations	A1	Explain why the sum of an irrational number and a rational number or product of an irrational number and a nonzero rational number is irrational
Numbers and Operations	A1	Evaluate a numerical expression involving rational numbers
Numbers and Operations	A1	Explain the meaning of rational exponents using properties of integer exponents
Algebra	A1	Multiply monomial expressions
Algebra	A1	Rewrite an expression involving radicals and rational exponents using properties of exponents
Algebra	A1	Simplify a monomial numerical expression involving the square root of a whole number
Algebra	A1	Rationalize the denominator of a numerical radical expression
Algebra	A1	Rationalize the denominator of an algebraic radical expression
Algebra	A1	Simplify a monomial algebraic radical expression
Algebra	A1	Perform the four operations on numerical radical expressions
Algebra	A1	Perform the four operations on algebraic radical expressions
Algebra	A1	Solve a radical equation that leads to a linear equation
Functions	A1	Identify situations that can be modeled by an exponential function
Algebra	A1	Represent a situation, using an exponential equation in one variable
Functions	A1	Create an exponential equation to represent the relationship between quantities
Algebra	A1	Solve a problem involving an exponential equation in one variable
Algebra	A1	Interpret an exponential expression by viewing one or more of its parts as a single entity
Functions	A1	Use the properties of exponents to write an equivalent form of an exponential function
Algebra	A1	Use the structure of an expression to rewrite an exponential expression
Algebra	A1	Solve a problem involving exponential growth or exponential decay
Algebra	A1	Graph an exponential function showing intercepts and end behavior
Functions	A1	Determine the equation of an exponential function, using given information

Mathematics I		
Domain Group	**Course**	**Skill**
Functions	A1	Compare the properties of two exponential functions
Functions	A1	Identify the effect of replacing *f(x)* with *f(x + k)*, *f(x) + k*, *kf(x)*, or *f(kx)* on the graph of an exponential function
Functions	A1	Determine the exponential function resulting from a transformation given the parent function and graphs of the parent and transformed functions
Algebra	A2	Represent an arithmetic sequence recursively and/or by giving an explicit formula
Algebra	A2	Represent a geometric sequence recursively and/or by giving an explicit formula
Algebra	A1	Translate between the recursive and explicit forms of a sequence
Algebra	A1	Write an arithmetic or geometric sequence to model a situation
Algebra	A2	Find the sum of a finite geometric series
Algebra	A2	Solve a problem using the formula for the sum of a finite geometric series
Geometry	GM	Know the precise definition of a line segment
Geometry	GM	Know the precise definition of an angle
Geometry	GM	Know the precise definitions of parallel and perpendicular lines
Geometry	GM	Copy an angle or segment
Geometry	GM	Bisect an angle or segment
Geometry	GM	Determine a length or an angle measure using the segment addition postulate or the angle addition postulate
Geometry	GM	Solve a problem involving a bisected angle or a bisected segment
Geometry	GM	Construct perpendicular or parallel lines
Geometry	GM	Construct a square
Geometry	GM	Determine the distance between two points
Geometry	GM	Solve a problem involving the distance formula
Geometry	GM	Compute the perimeter of a polygon
Geometry	GM	Compute the area of a triangle or rectangle
Geometry	GM	Determine the point on a line segment that divides the segment into a given ratio
Geometry	GM	Solve a problem involving the midpoint formula
Geometry	GM	Prove the slope criteria for parallel and perpendicular lines

Mathematics I		
Domain Group	Course	Skill
Geometry	GM	Solve a problem involving the slope criteria for parallel and perpendicular lines
Geometry	GM	Transform a figure with rigid motions
Geometry	GM	Identify a sequence of transformations that will carry a given figure onto another figure
Geometry	GM	Determine the coordinates of the image of a figure after a series of transformations
Geometry	GM	Describe a transformation as a function
Geometry	GM	Represent a transformation in the plane
Geometry	GM	Determine if two figures are congruent using the definition of congruence in terms of rigid motions
Geometry	GM	Make conjectures about the criteria required for triangle congruence by investigating patterns
Geometry	GM	Identify corresponding parts of congruent triangles
Geometry	GM	Identify a geometric construction made with a variety of tools and methods

Mathematics II		
Domain Group	Course	Skill
Algebra	A1	Add or subtract linear and quadratic expressions
Algebra	A1	Square a binomial
Algebra	A1	Multiply two linear binomials
Algebra	A1	Multiply a trinomial by a binomial
Algebra	A1	Multiply two nonlinear binomials
Algebra	A1	Factor the difference of two squares
Algebra	A1	Factor a perfect-square trinomial
Algebra	A1	Factor trinomial expressions
Algebra	A1	Determine the solution(s) of a quadratic equation given in factored form
Algebra	A1	Solve a quadratic equation by inspection or by taking square roots

Mathematics II		
Domain Group	Course	Skill
Algebra	A1	Solve a quadratic equation by factoring
Algebra	A1	Solve a quadratic equation by completing the square
Algebra	A1	Derive the quadratic formula
Algebra	A1	Solve a quadratic equation by using the quadratic formula
Algebra	A1	Factor a quadratic function to identify properties of the function
Algebra	A1	Complete the square in a quadratic expression to find the maximum or minimum value of the function it defines
Algebra	A1	Use the discriminant to determine the number of real solutions of a quadratic equation
Algebra	A1	Write a quadratic equation in one variable to represent a situation
Algebra	A1	Solve a problem involving a quadratic equation in one variable
Algebra	A1	Graph a quadratic equation using coordinate axes
Algebra	A2	Complete the square of a quadratic function to identify properties of the function
Algebra	A1	Solve a quadratic equation by graphing the associated quadratic function
Algebra	A1	Interpret features of a quadratic function that models a relationship between two quantities
Algebra	A1	Interpret zeros, maxima or minima, and axis of symmetry of a quadratic function, given a context
Algebra	A1	Interpret a quadratic expression by viewing one or more of its parts as a single entity
Algebra	A2	Solve a problem involving a quadratic function
Algebra	A1	Compare the properties of two quadratic functions
Algebra	A2	Solve a linear programming problem
Algebra	A2	Write a system of three or more linear inequalities in two variables to represent a situation
Algebra	A2	Determine the graph of the solution set of a system of three or more linear inequalities in two variables
Algebra	A2	Write a system of inequalities consisting of a quadratic inequality and a linear or quadratic inequality to represent a situation
Algebra	A1	Determine the quadratic function resulting from a transformation given the parent function and graphs of the parent and transformed functions

Mathematics II		
Domain Group	**Course**	**Skill**
Algebra	A1	Explain the effects of transformations on the graph of a quadratic function
Algebra	A2	Solve a problem that can be represented by a system of equations, consisting of a quadratic equation and a linear or quadratic equation
Algebra	A1	Determine the graph of a 2-variable absolute value equation
Algebra	A1	Identify the effect of replacing $f(x)$ with $f(x + k)$, $f(x) + k$, $kf(x)$, or $f(kx)$ on the graph of an absolute value function
Algebra	A1	Determine the domain or range of a function
Functions	A1	Determine a reasonable domain or range for a function in a given situation
Functions	A1	Solve a problem involving a radical function
Functions	A1	Determine the graph of a radical function
Functions	A2	Determine the graph of a cube root function
Geometry	GM	Show two triangles are congruent if corresponding sides and angles are congruent
Geometry	GM	Show that the corresponding sides and angles of two triangles are congruent if the triangles are congruent
Geometry	GM	Identify congruent triangles using triangle congruence postulates or theorems
Geometry	GM	Identify a triangle congruence postulate or theorem that justifies a congruence statement
Geometry	GM	Prove vertical angles are congruent
Geometry	GM	Identify angle relationships formed by multiple lines and transversals
Geometry	GM	Prove corresponding angles are congruent when parallel lines are cut by a transversal
Geometry	GM	Prove alternate angles are congruent when parallel lines are cut by a transversal
Geometry	GM	Identify parallel lines using angle relationships
Geometry	GM	Prove whether two lines are parallel
Geometry	GM	Determine the measure of an angle formed by parallel lines and one or more transversals
Geometry	GM	Determine the measure of an angle in a figure involving parallel and/or perpendicular lines
Geometry	GM	Prove that the sum of the angles in a triangle is 180 degrees

Mathematics II		
Domain Group	Course	Skill
Geometry	GM	Determine the measure of an angle using angle relationships and the sum of the interior angles in a triangle
Geometry	GM	Determine the measure of an angle or the sum of the angles in a polygon
Geometry	GM	Prove that the base angles of an isosceles triangle are congruent
Geometry	GM	Solve a problem involving an isosceles triangle
Geometry	GM	Know the triangle inequality theorem
Geometry	GM	Solve a problem involving two triangles by using the hinge theorem and other triangle inequality relationships
Geometry	GM	Solve a problem using inequalities in a triangle
Geometry	GM	Prove geometric theorems algebraically
Geometry	GM	Prove the triangle midsegment theorem
Geometry	GM	Prove points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints
Geometry	GM	Prove that medians of a triangle are concurrent
Geometry	GM	Determine a length in a triangle using a median
Geometry	GM	Determine a length or an angle measure using triangle relationships
Geometry	GM	Determine a length in a triangle given the bisector of an angle and other lengths
Geometry	GM	Solve a problem using the properties of quadrilaterals
Geometry	GM	Solve a problem using the properties of angles and/or sides of polygons
Geometry	GM	Determine if two figures are similar by using similarity transformations
Geometry	GM	Establish the AA criterion for similar triangles using the properties of similarity transformations
Geometry	GM	Identify similar triangles using triangle similarity postulates or theorems
Geometry	GM	Identify a triangle similarity postulate or theorem that justifies a similarity statement
Geometry	GM	Prove that a line parallel to one side of a triangle that intersects the interior of the triangle divides the other two sides proportionally
Geometry	GM	Prove that a line that divides two sides of a triangle proportionally is parallel to the third side
Geometry	GM	Prove the Pythagorean Theorem using triangle similarity

Mathematics II		
Domain Group	Course	Skill
Geometry	GM	Solve a problem using congruence and similarity criteria
Geometry	GM	Determine a length using similar triangles formed by the altitude to the hypotenuse of a right triangle
Geometry	GM	Prove relationships in geometric figures using congruence and similarity criteria
Geometry	GM	Prove that opposite sides of a parallelogram are congruent
Geometry	GM	Prove that opposite angles in a parallelogram are congruent
Geometry	GM	Prove that the diagonals of a parallelogram bisect each other
Geometry	GM	Prove a parallelogram with congruent diagonals is a rectangle
Geometry	GM	Determine a length or an angle measure using general properties of parallelograms
Geometry	GM	Understand that the side ratios in similar right triangles define the trigonometric ratios
Geometry	GM	Determine a sine, cosine, or tangent ratio in a right triangle
Geometry	GM	Know the properties of a 45-45-90 degree triangle and a 30-60-90 degree triangle
Geometry	GM	Determine a length using the properties of a 45-45-90 degree triangle or a 30-60-90 degree triangle
Geometry	GM	Determine a length using a sine, cosine, or tangent ratio in a right triangle
Geometry	GM	Solve a problem using the properties of a 45-45-90 degree triangle or a 30-60-90 degree triangle
Geometry	GM	Solve a right triangle using trigonometric ratios and/or the Pythagorean Theorem
Geometry	GM	Solve a problem involving a right triangle using trigonometric ratios and/or the Pythagorean Theorem
Geometry	GM	Determine a length in a complex figure using the Pythagorean theorem
Geometry	GM	Solve a problem involving a complex figure using the Pythagorean theorem
Geometry	GM	Determine the area of a regular polygon
Geometry	GM	Solve a problem involving the area of a regular polygon
Geometry	GM	Solve a problem involving the area of a quadrilateral
Geometry	GM	Identify and describe relationships among inscribed angles, radii, chords, tangents, and secants
Geometry	GM	Apply relationships among inscribed angles, radii, and chords

Mathematics II		
Domain Group	Course	Skill
Geometry	GM	Solve a problem involving intersecting chords, tangents, and/or secants of a circle
Geometry	GM	Construct an equilateral triangle
Geometry	GM	Construct a regular hexagon inscribed in a circle
Geometry	GM	Construct the inscribed circle of a triangle
Geometry	GM	Construct the circumscribed circle of a triangle
Geometry	GM	Determine a length or an angle measure using properties of special quadrilaterals
Geometry	GM	Solve a problem involving the area of a complex shape formed by circles and polygons
Geometry	GM	Construct a tangent line from a point outside a circle to the circle
Geometry	GM	Derive the fact that the arc length of an angle is proportional to the radius
Geometry	GM	Determine the measure of an arc or a central angle using the relationship between the arc and the central angle
Geometry	GM	Find the length of an arc of a circle
Geometry	GM	Solve a problem involving the length of an arc
Geometry	GM	Derive the formula for the area of a sector
Geometry	GM	Find the area of a sector of a circle
Geometry	GM	Solve a problem involving a sector of a circle
Geometry	GM	Derive the equation of a circle using the Pythagorean Theorem
Geometry	GM	Relate the equation of a circle to its radius or center
Statistics and Probability	GM	Describe an event as a union, an intersection, or a complement of another event
Statistics and Probability	GM	Use a Venn diagram to represent the sample space of a compound event
Statistics and Probability	GM	Understand the meaning of independent events in terms of probability
Statistics and Probability	GM	Determine if two events are independent
Statistics and Probability	GM	Determine the probability of two independent events
Statistics and Probability	GM	Determine the probability of two dependent events
Statistics and Probability	GM	Understand the meaning of conditional probability
Statistics and Probability	GM	Recognize and explain the concept of independence in everyday situations using everyday language

Mathematics II		
Domain Group	Course	Skill
Statistics and Probability	GM	Determine the conditional probability of an event A given an event B
Statistics and Probability	GM	Interpret a conditional probability
Statistics and Probability	GM	Determine a probability using an area model
Statistics and Probability	GM	Determine a probability using permutations
Statistics and Probability	GM	Solve a problem using permutations
Statistics and Probability	GM	Determine a probability using combinations
Statistics and Probability	GM	Solve a problem using combinations
Statistics and Probability	GM	Analyze a decision or a strategy using simple probability concepts

Mathematics III		
Domain Group	Course	Skill
Geometry	GM	Determine the volume of a right pyramid or a right cone
Geometry	GM	Determine the volume of a sphere or hemisphere
Geometry	GM	Solve a problem involving the volume of a pyramid, cone, cylinder, and/or sphere
Geometry	GM	Solve a problem involving the volumes of similar solid figures
Geometry	GM	Determine the volume of a complex solid figure
Geometry	GM	Solve a problem involving the volume of a composite figure
Geometry	GM	Determine the surface area of a sphere
Geometry	GM	Solve a problem involving the surface area of a sphere
Geometry	GM	Solve a problem involving the surface area of a cone or a pyramid
Geometry	GM	Solve a problem involving the surface areas of similar solid figures
Geometry	GM	Identify the shape of a 2-dimensional cross-section of a 3-dimensional object
Geometry	GM	Identify the 3-dimensional object generated by a rotation of a 2-dimensional object
Geometry	GM	Model a real-world object using the measures and properties of a geometric shape

Mathematics III		
Domain Group	Course	Skill
Geometry	GM	Determine and describe how changes in the linear dimensions of a shape affect its perimeter, area, surface area, or volume
Geometry	GM	Solve a modeling problem involving concepts of density and volume
Geometry	GM	Solve a design problem by applying geometric methods
Geometry	GM	Derive the formula $A=(½)\ ab \sin C$ for the area of a triangle
Geometry	GM	Determine the area of an oblique triangle
Geometry	GM	Approximate the area of a right triangle using trigonometry
Geometry	GM	Prove the law of sines
Geometry	GM	Know and apply the law of sines
Geometry	GM	Prove the law of cosines
Geometry	GM	Know and apply the law of cosines
Geometry	GM	Solve a triangle using the law of sines or the law of cosines
Numbers and Operations	A2	Solve a problem using the law of sines and/or the law of cosines
Numbers and Operations	A2	Define the complex number *i*
Numbers and Operations	A2	Know the standard form of complex numbers
Numbers and Operations	A2	Simplify an expression containing complex numbers
Numbers and Operations	A2	Add and subtract complex numbers
Numbers and Operations	A2	Multiply complex numbers
Numbers and Operations	A2	Determine the conjugate of a complex number
Numbers and Operations	A2	Divide complex numbers
Numbers and Operations	A2	Extend polynomial identities to the complex numbers
Algebra	A2	Solve a quadratic equation that has complex solutions
Algebra	A2	Simplify a polynomial expression by combining like terms
Algebra	A2	Know and apply the Binomial theorem
Algebra	A1	Add or subtract polynomial expressions
Algebra	A1	Apply terminology related to polynomials
Algebra	A1	Determine the standard form of a given polynomial

Mathematics III		
Domain Group	Course	Skill
Algebra	A1	Multiply a polynomial by a monomial
Algebra	A1	Factor the GCF from a polynomial expression
Algebra	A1	Divide a polynomial expression by a monomial
Algebra	A2	Divide a polynomial expression by a binomial
Algebra	A2	Know and apply the Remainder theorem
Algebra	A2	Factor polynomials of degree 3 or higher
Algebra	A2	Factor a polynomial that has complex roots
Functions	A2	Identify zeros of a polynomial function
Functions	A2	Graph a polynomial function showing the end behavior and zeros where appropriate
Algebra	A2	Write an equivalent form of a rational expression
Algebra	A2	Simplify a rational expression
Algebra	A2	Add or subtract rational expressions with like denominators
Algebra	A2	Determine the LCD of two rational expressions
Algebra	A2	Add or subtract rational expressions with unlike denominators
Algebra	A2	Multiply or divide rational expressions
Algebra	A2	Represent a situation using a 1-variable rational equation
Algebra	A2	Solve a rational equation involving terms with monomial denominators
Algebra	A2	Solve a rational equation in one variable
Algebra	A2	Solve a radical equation in one variable
Algebra	A2	Identify an extraneous solution to a rational or radical equation and explain why it is extraneous
Functions	A2	Graph a rational function showing the end behavior
Functions	A2	Identify the zeros and asymptotes of a rational function
Algebra	A2	Explain why the x coordinate(s) of the intersection(s) of $f(x)$ and $g(x)$ are the solution(s) of the equation f $(x) = g(x)$
Algebra	A2	Write a system of nonlinear equations in two variables to represent a given situation
Algebra	A2	Approximate the solution(s) of the equation $f(x) = g(x)$

Mathematics III		
Domain Group	Course	Skill
Functions	A2	Understand radian measure of an angle and how it relates to arc length
Functions	A2	Convert between radians and degrees
Functions	A2	Determine the exact value of a sine, cosine, or tangent function given an angle in degrees or radians
Functions	A2	Explain how trigonometric functions can be extended to all real numbers using the unit circle
Functions	A2	Graph a trigonometric function showing period, midline, and amplitude
Functions	A2	Determine the graph of a trigonometric function that represents a specific context or situation
Functions	A2	Model a situation with a trigonometric function
Functions	A2	Prove the Pythagorean identity
Functions	A2	Use the Pythagorean identity to find trigonometric values
Algebra	A2	Solve a problem involving an equation in one variable
Algebra	A2	Write an equation in two or more variables to represent relationships between quantities
Algebra	A2	Solve a problem that can be represented by an exponential equation
Functions	A2	Interpret the parameters in an exponential function in terms of a context
Algebra	A2	Convert between the exponential form and the corresponding logarithmic form of an equation
Algebra	A2	Solve an exponential equation using logarithms
Algebra	A2	Evaluate a logarithm
Algebra	A2	Determine an equivalent form of a logarithmic expression
Functions	A2	Graph a logarithmic function showing intercepts and end behavior
Functions	A2	Determine a graph of an exponential or logarithmic function that represents a specific context or situation
Functions	A2	Calculate the average rate of change of a function over a specified interval
Functions	A2	Estimate the average rate of change of a function over a specified interval on a graph
Functions	A2	Identify the effect on the graph of the function $y = f(x)$ when $f(x)$ is replaced by $af(x)$, $f(x) + d$, $f(x - c)$, or $f(bx)$ for specific values of a, b, c, and d

Mathematics III		
Domain Group	Course	Skill
Functions	A2	Find the value of *k* given the graphs of *f(x)* and *f(x + k)*, *f(x) + k*, *kf(x)*, or ↔↗◣⇤
Functions	A2	Determine the function resulting from a transformation given the parent function and graphs of the parent and transformed functions
Functions	A2	Determine whether a function is even, odd, or neither
Functions	A2	Compare the properties of two functions each represented in a different way
Functions	A2	Combine standard function types using arithmetic operations
Functions	A2	Determine the results of a composition of two functions
Algebra	A2	Rearrange a formula to isolate a variable of interest
Algebra	A2	Justify each step in solving an equation
Functions	A1	Find the inverse of a linear function
Functions	A2	Find the inverse of a function
Functions	A2	Compose a function with its inverse to verify that the functions are inverses
Numbers and Operations	A2	Understand that a matrix is a way to organize data
Numbers and Operations	A2	Represent data in matrix form
Numbers and Operations	A2	Multiply a matrix by a scalar
Numbers and Operations	A2	Add or subtract matrices
Numbers and Operations	A2	Multiply a matrix by a matrix
Numbers and Operations	A2	Understand the roles the zero matrix and identity matrix play in matrix operations
Numbers and Operations	A2	Understand that matrix multiplication is associate and distributive, but not commutative
Numbers and Operations	A2	Understand the meaning of the inverse of a matrix
Numbers and Operations	A2	Find the inverse of a matrix if it exists
Numbers and Operations	A2	Understand the definition of a determinant of a matrix
Numbers and Operations	A2	Determine the determinant of a matrix
Numbers and Operations	A2	Write a system of linear equations as a matrix equation
Numbers and Operations	A2	Use the inverse of a matrix to solve systems of linear equations
Numbers and Operations	A2	Understand the significance of a nonzero determinant of a square matrix
Numbers and Operations	A2	Interpret, in terms of area, the absolute value of the determinant of a matrix

Mathematics III		
Domain Group	Course	Skill
Statistics and Probability	A2	Determine if a linear, quadratic, or exponential model best fits data on a scatter plot
Statistics and Probability	A2	Determine the function of best fit for data on a scatter plot
Statistics and Probability	A2	Compute the correlation coefficient of a function of best fit
Statistics and Probability	A2	Compute the correlation coefficient of a function of best fit
Statistics and Probability	A2	Interpret the correlation coefficient of a function of best fit
Statistics and Probability	A2	Solve a problem using a function of best fit
Statistics and Probability	A2	Determine if a discrete or continuous graphical representation is appropriate for a real-world context
Statistics and Probability	A2	Create a graphical representation of discrete or continuous data
Statistics and Probability	A2	Determine the standard deviation of a data set
Statistics and Probability	A2	Determine the *z*-score for a data point given the population mean and standard deviation
Statistics and Probability	A2	Fit a data set to a normal distribution
Statistics and Probability	A2	Understand the properties of a normal distribution
Statistics and Probability	A2	Estimate a population percentage in a normal distribution
Statistics and Probability	A2	Analyze the distribution of a data set using appropriate measures of central tendency and spread
Statistics and Probability	A2	Recognize and analyze distortions in data displays
Statistics and Probability	A2	Explain how data or data displays can be distorted to support different points of view
Statistics and Probability	A2	Analyze a set of data to determine whose interest the data might serve
Statistics and Probability	A2	Evaluate a report based on data

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