

Wyoming Department of Education Required Virtual Education Course Syllabus

Niobrara County School District # 1

Program Name	Wyoming Virtual Academy	Content Area	MA
Course ID	D-MTH-403AV1-K	Grade Level	9-12
Course Name	Pre-Calculus/Trigonometry - Semester 1	# of Credits	0.5
SCED Code	02110E0.5012	Curriculum Type	K12 Inc

COURSE DESCRIPTION

Generally offered first semester. Pre-calculus weaves together previous study of algebra, geometry, and functions into a preparatory course for calculus. The course focuses on the mastery of critical skills and exposure to new skills necessary for success in subsequent math courses. Topics include linear, quadratic, exponential, logarithmic, radical, polynomial, and rational functions; systems of equations; and conic sections in the first semester. The second semester covers trigonometric ratios and functions; inverse trigonometric functions; applications of trigonometry, including vectors and laws of cosine and sine; polar functions and notation; and arithmetic of complex numbers. Cross-curricular connections are made throughout the course to calculus, art, history, and a variety of other fields related to mathematics.

WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD#	BENCHMARK (Standard/Indicator) Use the Standards and Benchmarks as Spreadsheets
A.APR.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 $p(x)$.
A.APR.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.
A.APR.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.
A.CED.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.*
A.CED.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.*
A.REI.10	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).
A.REI.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.*
A.REI.12	Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.
A.REI.4b	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 .
A.REI.5	Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.
A.REI.7	Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.
A.REI.8	(+)Represent a system of linear equations as a single matrix equation in a vector variable.
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).
A.SSE.1a	Interpret parts of an expression, such as terms, factors, and coefficients.*
A.SSE.1b	Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P .*
A.SSE.2	Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.
A.SSE.3a	Factor a quadratic expression to reveal the zeros of the function it defines.*
A.SSE.3c	Use the properties of exponents to transform expressions for exponential functions. For example the expression 1.15^t can be rewritten as $[1.15^{(1/12)}]^{(12t)} \approx 1.012^{(12t)}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.*
A.SSE.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. For example, calculate mortgage payments.*
F.BF.1a	Determine an explicit expression, a recursive process, or steps for calculation from a context.
F.BF.1b	Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.
F.BF.1c	(+)Compose functions. For example, if $T(y)$ is the temperature in the atmosphere as a function of height, and $h(t)$ is the height of a weather balloon as a function of time, then $T(h(t))$ is the temperature at the location of the weather balloon as a function of time.
F.BF.2	Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.*
F.BF.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. Include recognizing even and odd functions from their graphs and algebraic expressions for them.
F.BF.5	(+)Build new functions from existing functions. Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.
F.IF.1	Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . The graph of f is the graph of the equation $y = f(x)$.

F.IF.2	Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
F.IF.3	Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$ (n is greater than or equal to 1).
F.IF.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. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.*
F.IF.5	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.*
F.IF.7a	Graph linear and quadratic functions and show intercepts, maxima, and minima.*
F.IF.7b	Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.*
F.IF.7c	Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.*
F.IF.7d	(+)Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.*
F.IF.7e	Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.*
F.IF.8a	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.
F.IF.8b	Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)^{12t}$, $y = (1.2)^{t/10}$, and classify them as representing exponential growth and decay.
F.LE.1a	Prove that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals.*
F.LE.2	Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).*
F.LE.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.*
F.LE.5	Interpret the parameters in a linear or exponential function in terms of a context.*
F.LE.5	Interpret the parameters in a linear or exponential function in terms of a context.*
G.CO.1	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

G.GMD.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.
G.GPE.1	Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.
G.GPE.2	Derive the equation of a parabola given a focus and directrix.
G.GPE.3	(+)Derive the equations of ellipses and hyperbolas given the foci, using the fact that the sum or difference of distances from the foci is constant.
N.CN.7	Solve quadratic equations with real coefficients that have complex solutions.
N.CN.9	(+)Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.
N.NQ.2	(+)Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.
N.Q.2	Define appropriate quantities for the purpose of descriptive modeling.*
N.RN.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. For example, we define $5^{1/3}$ to be the cube root of 5 because we want $[5^{1/3}]^3 = 5^{(1/3) \times 3}$ to hold, so $[5^{1/3}]^3$ must equal 5.
N.RN.2	Rewrite expressions involving radicals and rational exponents using the properties of exponents.

SCOPE AND SEQUENCE

UNIT OUTLINE	STANDARD#	OUTCOMES OBJECTIVES/STUDENT CENTERED GOALS
Unit 1: Functions 1.01 What Is a Function? 1.01 Graded Assignment		Express and evaluate functions. Distinguish between relations and functions. Calculate domain and range of functions algebraically. Identify domain and range of functions graphically.
1.01 Quiz: What Is a Function?		0 0
1.02 Graphing Functions 1.02 Learn: Testing and Special Functions		Express and evaluate functions. 0

		Apply the horizontal line test to identify functions. Graph and interpret functions. Apply the vertical line test to identify functions.
1.02 Graded Assignment	0	0
1.02 Quiz: Graphing Functions	0	0
1.03 Linear Functions 1.03 Learn: Equations of Lines 1.03 Learn: Connecton to Art	0	Identify and interpret the equation of a line. Identify and interpret a linear function.
1.03 Learn: Connection to Calculus 1.03 Graded Assignment	0	0
1.03 Quiz: Linear Functions	0	0
1.04 Arithmetic Sequences and Series 1.04 Learn: Sequences	0	Identify an arithmetic sequence. Express an arithmetic sequence. Compute the sum of a finite arithmetic series. Identify uses of arithmetic sequence in ancient times.
1.04 Learn: Connection to History 1.04 Graded Assignment	0	0
1.04 Quiz: Arithmetic Sequences and Series 1.05 Linear Equations and Inequalities 1.05 Learn: On Equal Footing	0	Write the equation of a line. Graph a linear equation. Graph a linear inequality.
1.05 Graded Assignment 1.05 Quiz: Linear Equations and Inequalities	0	0
1.06 Linear Systems 1.06 Learn: System of Inequalities 1.06 Learn: Linear Programming Problem	0	Calculate the solution to a system of linear equations. Compute and graph the solutions to a system of linear

		<p>inequalities.</p> <p>Explore multiple techniques for determining the solution(s) to a system.</p> <p>Find the solution to a system of linear equations.</p> <p>Find the solution to a system of linear inequalities.</p> <p>Find the solution to a linear programming problem.</p>
<p>1.06 Graded Assignment 1.06 Quiz: Linear Systems</p>	0	0
<p>1.07 Arithmetic of Functions 1.07 Learn: Mixing and Matching 1.07 Graded Assignment</p>	0	<p>Add, subtract, multiply, and divide functions.</p> <p>Compose two or more functions to form a new function.</p> <p>Apply the arithmetic of functions to solve problems.</p> <p>Perform basic arithmetic operations on functions.</p> <p>Compose two or more functions to form a new function.</p>
<p>1.07 Quiz: Arithmetic of Functions 1.08 Functions Wrap-Up 1.08 Discuss: What Questions Do You Have?</p>	0	<p>Express and evaluate functions.</p> <p>Apply the horizontal line test to identify functions.</p> <p>Identify and interpret the equation of a line.</p> <p>Identify and interpret a linear function.</p> <p>Identify an arithmetic sequence.</p> <p>Express an arithmetic sequence.</p>

		<p>Identify uses of arithmetic sequence in ancient times.</p> <p>Write the equation of a line.</p> <p>Graph a linear equation.</p> <p>Graph a linear inequality.</p> <p>Find the solution to a system of linear equations.</p> <p>Find the solution to a system of linear inequalities.</p> <p>Find the solution to a linear programming problem.</p> <p>Perform basic arithmetic operations on functions.</p> <p>Distinguish between relations and functions.</p> <p>Calculate domain and range of functions algebraically.</p> <p>Identify domain and range of functions graphically.</p> <p>Graph and interpret functions.</p> <p>Apply the vertical line test to identify functions.</p> <p>Compute the sum of a finite arithmetic series.</p> <p>Compose two or more functions to form a new function.</p> <p>Use graphing calculator.</p>
<p>1.08 Unit Review 1: Functions 1.08 Review: Calculator Skills 1.08 Graded Assignment: Functions</p>	<p>0</p>	<p>0</p>

Review for test	0	0
Review for test, cont'd	0	0
1.08 Test, Part 1: Functions 1.08 Test, Part 2: Functions	A.CED.3; A.REI.5,8-12; F.IF.1-3,5,7a,7b; F.BF.1b, 1c, 2; F.LE. 1a,2,5; G.CO.1;	0
Unit 2: Quadratic Functions 2.01 Forms of Quadratic Functions 2.01 Learn: Quadratic Functions 2.01 Graded Assignment	0	Identify quadratic functions. Identify the features of the graphs of quadratic functions. Describe various forms of quadratic functions including standard, vertex, and intercept forms. Convert a quadratic function from one form to another.
2.01 Quiz: Forms of Quadratic Functions	0	0
2.02 Graphing Quadratic Functions 2.02 Learn: Graphing Quadratic Functions 2.02 Graded Assignment	0	Graph a quadratic equation.
2.02 Quiz: Graphing Quadratic Functions	0	0
2.03 Transformations 2.03 Learn: Transformations of Quadratic Functions 2.03 Graded Assignment	0	Describe the effects of horizontal and vertical reflections on graphs of quadratic functions. Describe the effects of horizontal and vertical translations on graphs of quadratic functions. Describe the effects of horizontal and vertical stretches on graphs of quadratic functions. Differentiate between rigid and non-rigid transformation of a function.
2.03 Quiz: Transformations	0	0
2.04 Solving Quadratic Functions 2.04 Learn: Solving Quadratic Functions	0	Find optimum value of a quadratic function.

		<p>Find the nature of the roots of a quadratic equation.</p> <p>Evaluate radical expressions.</p> <p>Solve a quadratic equation.</p>
<p>2.04 Learn: Connection to Calculus: Optimization 2.04 Graded Assignment</p>	0	0
<p>2.04 Quiz: Solving Quadratic Equations</p>	0	0
<p>2.05 Applications of Quadratic Functions 2.05 Learn: Applications of Quadratic Functions 2.05 Graded Assignment</p>	0	<p>Write quadratic equations that model problem situations.</p> <p>Solve quadratic functions that model problem situations.</p> <p>Interpret values of quadratic functions within the context of a problem.</p> <p>Write quadratic functions that model problem situations.</p>
<p>2.05 Quiz: Applications of Quadratic Functions 2.06 Quadratic Functions Wrap-Up 2.06 Discuss: What Questions Do You Have?</p>	0	0
<p>2.06 Unit Review: Quadratic Functions 2.06 Review: Calculator Skills 2.06 Graded Assignment: Quadratic Functions</p>	0	<p>Identify the features of the graphs of quadratic functions.</p> <p>Describe various forms of quadratic functions including standard, vertex, and intercept forms.</p> <p>Graph a quadratic equation.</p> <p>Identify quadratic functions.</p> <p>Describe the effects of horizontal and vertical reflections on graphs of quadratic functions.</p> <p>Describe the effects of horizontal and vertical translations on graphs of quadratic functions.</p> <p>Describe the effects of horizontal and vertical</p>

		<p>stretches on graphs of quadratic functions.</p> <p>Find the nature of the roots of a quadratic equation.</p> <p>Write quadratic equations that model problem situations.</p> <p>Evaluate radical expressions.</p> <p>Solve a quadratic equation.</p>
Review for test	0	0
Review for test, cont'd	0	0
2.06 Test, Part 1: Quadratic Functions 2.06 Test, Part 2: Quadratic Functions	N.Q.2; N.CN.7; A.SSE.1b,2,3a; A.CED.2; A.REI.4b; F.IF.4,7a,8a; F.BF.1a,3;	0
Unit 3: Polynomial and Rational Functions 3.01 Polynomial Expressions 3.01 Learn: What Is a Polynomial? 3.01 Graded Assignment		<p>Identify key characteristics of a polynomial.</p> <p>Predict behavior of the graph of a polynomial function.</p>
3.01 Quiz: Polynomial Expressions	0	0
3.02 Dividing Polynomials 3.02 Learn: Long-Division Review 3.02 Graded Assignment		<p>Divide a polynomial by another polynomial.</p> <p>Use the factor theorem to test for the factor of a polynomial.</p> <p>Use the remainder theorem to evaluate a polynomial.</p>
3.02 Quiz: Dividing Polynomials	0	0
3.03 Solving Polynomial Equations 3.03 Learn: The Rational Root Theorem 3.03 Learn: Fundamental Theorem of of Arithmetic and Algebra		<p>List the possible roots for a polynomial function.</p> <p>State the fundamental theorem of arithmetic.</p> <p>State the fundamental theorem of algebra.</p> <p>State the fundamental theorem of calculus.</p>
3.03 Graded Assignment	0	0
3.03 Quiz: Solving Polynomial Equations	0	0

<p>3.04 Graphing Polynomial Functions 3.04 Learn: Polynomial Functions and Graphs</p>	<p>0</p>	<p>Identify key characteristics of the graph of a polynomial function using algebraic and graphical approaches.</p> <p>Identify the relation between the graphs of a function and its derivatives.</p>
<p>3.04 Learn: Derivatives 3.04 Graded Assignment</p>	<p>0</p>	<p>0</p>
<p>3.04 Quiz: Graphing Polynomial Functions 3.05 Rational Functions 3.05 Learn: Asymptotes</p>	<p>0</p>	<p>Determine the domain and range of a rational function.</p> <p>Identify all asymptotes of a rational function.</p> <p>Locate removable discontinuities of a rational function.</p> <p>Determine limit of a function at infinity using table of values.</p>
<p>3.05 Learn: Infinity 3.05 Graded Assignment</p>	<p>0</p>	<p>0</p>
<p>3.05 Quiz: Rational Functions 3.06 Polynomial and Rational FunctionsWrap-Up 3.06 Discuss: What Questions Do You Have?</p>	<p>0</p>	<p>Identify key characteristics of a polynomial.</p> <p>Use graphic calculator to graph a function.</p> <p>Divide a polynomial by another polynomial.</p> <p>Use the factor theorem to test for the factor of a polynomial.</p> <p>List the possible roots for a polynomial function.</p> <p>State the fundamental theorem of algebra.</p> <p>Identify key characteristics of the graph of a polynomial function using algebraic and graphical approaches.</p> <p>Predict behavior of the graph</p>

		<p>of a polynomial function.</p> <p>Use the remainder theorem to evaluate a polynomial.</p> <p>Determine the domain and range of a rational function.</p> <p>Identify all asymptotes of a rational function.</p>
<p>3.06 Unit Review: Polynomial and Rational Functions</p> <p>3.06 Review: Calculator Skills</p> <p>3.06 Graded Assignment: Polynomial and Rational Functions</p>	0	0
<p>Review for test</p>	0	0
<p>Review for test, cont'd</p>	0	0
<p>3.06 Test, Part 1: Polynomial and Rational Functions</p> <p>3.06 Test, Part 2: Polynomial and Rational Functions</p>	<p>N.CN.9; A.SSE.1a, 1b, 2;</p> <p>A.APR.2, 3, 6; F.IF.5,7c, 7d</p>	0
<p>Unit 4: Exponential and Logarithmic Functions</p> <p>4.01 Exponents and Radicals</p> <p>4.01 Learn: Rational Exponents and Radical Expressions</p> <p>4.01 Graded Assignment</p>	0	<p>Express repeated multiplication problems using exponents.</p> <p>Simplify expressions involving rational exponents.</p> <p>Draw or describe the graph of radical functions.</p>
<p>4.01 Quiz: Exponents and Radicals</p> <p>4.02 Exponential Functions</p> <p>4.02 Learn: Exponential Functions and Their Graphs</p>	0	<p>Identify and use the algebraic rules for exponents to simplify expressions.</p> <p>Draw or describe exponential functions and their graphs.</p> <p>Determine the domain and range of exponential functions.</p> <p>Use exponential functions to model real-world problems.</p>
<p>4.02 Learn: Connection to Science: Nuclear Decay</p> <p>4.02 Graded Assignment</p>	0	0

4.02 Quiz: Exponential Functions	0	0
4.03 Geometric Sequences 4.03 Learn: Leaps and Bounds 4.03 Learn: Connection to History: Zeno's Paradox	0	Identify and describe the key characteristics of geometric sequences. Define geometric sequences. Apply geometric sequences to real-world problems.
4.03 Learn: Connection to Calculus: Infinity 4.03 Graded Assignment	0	0
4.03 Quiz: Geometric Sequences 4.04 Introduction to Logarithms 4.04 Learn: Logarithms	0	Evaluate expressions using uncommon bases using the change-of-base formula. Convert between exponential and logarithmic expressions. Evaluate common and natural logarithms. Apply the rules of logarithms to rewrite expressions.
4.04 Learn: Connecton to Science: Earthquakes and the Richter Scale 4.04 Graded Assignment	0	0
4.04 Quiz: Introduction to Logarithms 4.05 Graphs of Logarithmic Functions 4.05 Learn: Undoing What You Have Done	0	Find the inverse function algebraically. Describe how exponential functions and logarithmic functions are inverses of each other. Describe the graphical relationship between a function and its inverse. Describe how the graphs of logarithmic functions are translated horizontally and vertically. Use logarithms to solve an equation containing a variable exponent.

<p>4.05 Learn: Connection to Calculus: Inverse Functions 4.05 Graded Assignment</p>	<p>0</p>	<p>0</p>
<p>4.05 Quiz: Graphs of Logarithmic Functions 4.06 Applications of Logarithms 4.06 Learn: Exponential Decay Function 4.06 Learn: Logistic Growth</p>	<p>0</p>	<p>Use logarithms to solve exponential decay problems. Use logarithms to solve exponential growth problems.</p>
<p>4.06 Learn: Connection to Banking: Loans and Savings 4.06 Graded Assignment</p>	<p>0</p>	<p>0</p>
<p>4.06 Quiz: Applications of Logarithms 4.07 Exponential and Logarithmic Functions Wrap-Up 4.07 Discuss: What Questions Do You Have?</p>	<p>0</p>	<p>Identify and use the algebraic rules for exponents to simplify expressions.</p> <p>Draw or describe exponential functions and their graphs.</p> <p>Identify and describe the key characteristics of geometric sequences.</p> <p>Evaluate expressions using uncommon bases using the change-of-base formula.</p> <p>Describe how exponential functions and logarithmic functions are inverses of each other.</p> <p>Describe the graphical relationship between a function and its inverse.</p> <p>Describe how the graphs of logarithmic functions are translated horizontally and vertically.</p> <p>Use logarithms to solve an equation containing a variable exponent.</p> <p>Express repeated multiplication problems using exponents.</p> <p>Simplify expressions involving rational exponents.</p>

		<p>Determine the domain and range of exponential functions.</p> <p>Define geometric sequences.</p> <p>Convert between exponential and logarithmic expressions.</p> <p>Apply the rules of logarithms to rewrite expressions.</p> <p>Use logarithms to solve exponential decay problems.</p> <p>Use logarithms to solve exponential growth problems.</p> <p>Draw or describe the graph of radical functions.</p>
<p>4.07 Unit Review: Exponential and Logarithmic Functions</p> <p>4.07 Review: Calculator Skills</p> <p>4.07 Graded Assignment: Exponential and Logarithmic Functions</p>	0	0
Review for test	0	0
Review for test, cont'd	0	0
<p>4.07 Test, Part 1: Exponential and Logarithmic Functions</p> <p>4.07 Test, Part 2: Exponential and Logarithmic Functions</p>	N.RN.1,2; N.NQ.2; A.SSE.1a, 2, 3c, 4; F.IF.3,7e, 8b; F.BF.1a,2, 5; F.LE.1a,2,4,5	0
<p>Unit 5: Conic Sections</p> <p>5.01 Introduction to Conic Sections</p> <p>5.01 Learn: How Do You Cut a Cone?</p>	0	<p>Describe how conic sections are formed by slicing a cone.</p> <p>Graph a circle using its equation.</p> <p>Write the equation of a circle.</p> <p>Identify real life applications of concepts of conic sections.</p>
<p>5.01 Learn: GPS Technology at Work</p> <p>5.01 Graded Assignment</p>	0	0
<p>5.01 Quiz: Introduction to Conic Sections</p> <p>5.02 Ellipses</p> <p>5.02 Learn: Stretching Circles</p>	0	<p>Define ellipse mathematically.</p> <p>Write the equation of an</p>

		ellipse. Identify real life applications of concepts of conic sections.
5.02 Learn: Connection to History: Whispering about Kepler 5.02 Graded Assignment	0	0
5.02 Quiz: Ellipses 5.03 Hyperbolas 5.03 Learn: Hyperbolas	0	Write the equation of a hyperbola. Define hyperbola mathematically. Identify real life applications of concepts of conic sections.
5.03 Learn: Connection to Science: Celestial Mechanics 5.03 Graded Assignment	0	0
5.03 Quiz: Hyperbolas	0	0
5.04 Parabolas 5.04 Learn: Parabolas	0	Define parabola mathematically. Write the equation of a parabola. Identify real life applications of concepts of conic sections.
5.04 Learn: Connection to Art: Parabolic Art 5.04 Graded Assignment	0	0
5.04 Quiz: Parabolas	0	0
5.05 Systems of Conic Sections 5.05 Learn: Finding the Intersections 5.05 Learn: When Worlds Collide 5.05 Graded Assignment	0	Compute points of intersections of two conic sections using algebra.
5.05 Quiz: Systems of Conic Sections 5.06 Conic Sections Wrap-Up 5.06 Discuss: What Questions Do You Have?	0	Write the equation of a circle. Write the equation of an ellipse. Write the equation of a hyperbola. Write the equation of a parabola. Compute points of intersections of two conic sections using algebra.

		Use graphic calculator to graph a function.
5.06 Unit Review: Conic Sections 5.06 Review: Calculator Skills 5.06 Graded Assignment: Conic Sections	0	0
Review for test	0	0
Review for test, cont'd	0	0
5.06 Test, Part 1: Conic Sections 5.06 Test, Part 2: Conic Sections	A.REI.7, 11; G. CO. 1; G.GPE.1-3; G.GMD.4;	0
Unit 6: Semester Review 6.01 Semester Wrap-Up 6.01 Semester Review: Precalculus Semester 1 6.01 Discussion: Semester Wrap-Up	0	0
Review: Precalculus Semester 1, cont'd	0	0
Review: Precalculus Semester 1, cont'd	0	0
Review: Precalculus Semester 1, cont'd	0	0
Review: Precalculus Semester 1, cont'd	0	0
6.01 Exam: Semester Exam, Part 1 6.01 Exam: Semester Exam, Part 2	0	0
Unit 10: Honors Project 1 Lesson 1: Honors Project 1 Proposal		<p>Model problems using polynomial equations and solve them.</p> <p>Create labeled diagrams of three-dimensional solids.</p> <p>Write equations that represent the volumes of three-dimensional solids.</p> <p>Review the requirements for the project.</p>
Unit 10: Honors Project 1 Lesson 2: Honors Project 1 Outline		<p>Write polynomial functions to represent volumes and costs of three-dimensional solids.</p> <p>Draw and interpret graphs of polynomial functions.</p> <p>Model problems using polynomial equations and solve them.</p> <p>Interpret the graphs of</p>

		<p>polynomial functions.</p> <p>Write and solve a polynomial equation.</p> <p>Write and graph polynomial functions.</p>
<p>Unit 10: Honors Project 1 Lesson 3: Honors Project 1 Paper</p>		<p>Draw and interpret graphs of polynomial functions.</p> <p>Write constraints and an objective function to model profit.</p> <p>Determine a feasible profit region and find its minimum and maximum values.</p> <p>Use polynomial functions to make real-world recommendations.</p>