



1st Quarter			
Resources:			
Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
1	Welcome, Introduction, Review, and Student Surveys.		
2	<p>UNIT 1: FUNCTIONS</p> <p>Lesson 1: What Is a Function?</p> <p>Lesson 2: Graphing Functions</p>	<ul style="list-style-type: none"> Distinguish between relations and functions. Calculate domain and range of functions algebraically. Identify domain and range of functions graphically. Graph and interpret functions. Apply the vertical line test to identify functions. Apply the horizontal line test to identify functions that are many-to-one. Express and evaluate functions in piecewise notation, including greatest integer and absolute value functions. 	<p>The student uses process standards in mathematics to explore, describe, and analyze the attributes of functions. The student makes connections between multiple representations of functions and algebraically constructs new functions. The student analyzes and uses functions to model real-world problems. The student is expected to:</p> <p>P.2A use the composition of two functions to model and solve real-world problems;</p> <p>P.2B demonstrate that function composition is not always commutative;</p> <p>P.2C represent a given function as a composite function of two or more functions;</p> <p>P.2D describe symmetry of graphs of even and odd functions;</p> <p>P.2E determine an inverse function, when it exists, for a given function over its domain or a subset of its domain and represent the inverse using multiple representations;</p>



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			<p>P.2F graph exponential, logarithmic, rational, polynomial, power, trigonometric, inverse trigonometric, and piecewise defined functions, including step functions</p> <p>P.2G graph functions, including exponential, logarithmic, sine, cosine, rational, polynomial, and power functions and their transformations, including $af(x)$, $f(x) + d$, $f(x - c)$, $f(bx)$ for specific values of a, b, c, and d, in mathematical and real-world problems</p> <p>P.2I determine and analyze the key features of exponential, logarithmic, rational, polynomial, power, trigonometric, inverse trigonometric, and piecewise defined functions, including step functions such as domain, range, symmetry, relative maximum, relative minimum, zeros, asymptotes, and intervals over which the function is increasing or decreasing;</p> <p>P.2J analyze and describe end behavior of functions, including exponential, logarithmic, rational, polynomial, and power functions, using infinity notation to communicate this characteristic in mathematical and real-world problems;</p>



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Resources:			
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			<p>P.2L determine various types of discontinuities in the interval $(-\infty, \infty)$ as they relate to functions and explore the limitations of the graphing calculator as it relates to the behavior of the function around discontinuities;</p>
3	<p>Lesson 3: Linear Functions</p> <p>Lesson 4: Arithmetic Sequences and Series</p>	<ul style="list-style-type: none"> Describe linear functions with words, graphically, with a table of values, or an algebraic expression. Identify and interpret the slope and intercept of a line. Write equations of lines. Identify arithmetic sequences by finding a common difference between terms. Express arithmetic sequences using explicit and recursive notation. Use sigma notation to express an arithmetic series. Compute the sum of a finite arithmetic series. 	<p>P.5A evaluate finite sums and geometric series, when possible, written in sigma notation</p> <p>P.5B represent arithmetic sequences and geometric sequences using recursive formulas</p> <p>P.5C calculate the n^{th} term and the n^{th} partial sum of an arithmetic series in mathematical and real-world problems</p> <p>P.5D represent arithmetic series and geometric series using sigma notation</p> <p>P.5E calculate the n^{th} term of a geometric series, the n^{th} partial sum of a geometric series, and sum of an infinite geometric series when it exists;</p>



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			P.5F apply the Binomial Theorem for the expansion of $(a + b)^n$ in powers of a and b for a positive integer n , where a and b are any numbers
4	Lesson 5: Linear Equations and Inequalities	<ul style="list-style-type: none"> Write the equation of a line in three forms. Identify key components of a line from a given equation. Express the solution to a linear inequality graphically. 	
5	Lesson 6: Linear Systems	<ul style="list-style-type: none"> Calculate the solution to a system of linear equations. Compute and graph the solutions to a system of linear inequalities. <p>Explore multiple techniques for determining the solution(s) to a system.</p>	
6	Lesson 7: Arithmetic of Functions Lesson 8: Functions Wrap-Up Lesson 9: Diagnostic	<ul style="list-style-type: none"> Add, subtract, multiply, and divide functions. Compose two or more functions to form a new function. 	



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Resources:			
Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
		<ul style="list-style-type: none"> Apply the arithmetic of functions to solve problems. 	
7	<p>UNIT 2: QUADRATIC FUNCTIONS</p> <p>Lesson 1: Forms of Quadratic Functions</p> <p>Lesson 2: Graphing Quadratic Functions</p>	<ul style="list-style-type: none"> Express quadratic functions in standard, vertex, and intercept forms. Identify important features of the function's graph. Convert from one form of the function to another. Locate key points on a graph by looking at the equation. Determine the orientation of the graph. Create a table of values to assist with more detailed sketches. Predict what the graph of a quadratic function will look like. 	
8	<p>Lesson 3: Transformations</p> <p>Lesson 4: Solving Quadratic Equations</p> <p>Lesson 5: Applications of Quadratic Functions</p>	<ul style="list-style-type: none"> Describe the effects of reflections on graphs of quadratic functions. Identify horizontal and vertical shifts of graphs of quadratic functions. 	



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		<ul style="list-style-type: none"> • Explore the effects of horizontal and vertical stretches on graphs of quadratic functions. • Evaluate radical expressions. • Solve quadratic equations by factoring. • Solve quadratic equations by using the quadratic formula. • Solve quadratic equations using graphical analysis. • Write and solve quadratic equations that model problem situations. • Interpret values of quadratic functions within the context of a problem. 	
9	Lesson 6: Quadratic Functions Wrap-Up Lesson 7: Diagnostic		



2nd Quarter

Resources:

Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
1	<p>UNIT 3: POLYNOMIAL AND RATIONAL FUNCTIONS</p> <p>Lesson 1: Polynomial Expressions</p> <p>Lesson 2: Dividing Polynomials</p>	<ul style="list-style-type: none"> Identify key characteristics of polynomials. Predict the number of turns in the graph of a polynomial function. Sketch and describe the behavior of the graph of a polynomial function. Divide a polynomial by a polynomial. Use the remainder theorem to evaluate a polynomial. Use the factor theorem to test for a factor. 	<p>P.1A apply mathematics to problems arising in everyday life, society, and the workplace;</p> <p>P.1G display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.</p> <p>P.2N analyze situations modeled by functions, including exponential, logarithmic, rational, polynomial, and power functions, to solve real-world problems;</p> <p>P.5J solve polynomial equations with real coefficients by applying a variety of techniques in mathematical and real-world problems;</p> <p>P.5K solve polynomial inequalities with real coefficients by applying a variety of techniques and write the solution set of the polynomial inequality in interval notation in mathematical and real-world problems</p>



2nd Quarter			
Resources:			
Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
2	Lesson 3: Solving Polynomial Equations Lesson 4: Graphing Polynomial Functions Lesson 5: Rational Functions	<ul style="list-style-type: none"> • List the possible rational roots for a polynomial function. • Use synthetic division to test for roots. • Express a polynomial function as a product of linear factors. • Solve a polynomial equation. • Connect x-intercepts on a graph with a polynomial equation's solutions. • Factor a polynomial completely over the complex numbers. • Construct a polynomial function to fit given specifications. • Describe the general behavior of a graph of a polynomial function, based on its degree. • Locate and interpret relative extrema of the graph of a polynomial function. • Identify critical points of a graph using algebraic and graphical approaches. 	<p>P.1D communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;</p> <p>P.1E create and use representations to organize, record, and communicate mathematical ideas</p> <p>P.1F analyze mathematical relationships to connect and communicate mathematical ideas</p> <p>P.2 D describe symmetry of graphs of even and odd functions</p> <p>P.2F graph exponential, logarithmic, rational, polynomial, power, trigonometric, inverse trigonometric, and piecewise defined functions, including step functions;</p> <p>P.2G graph functions, including exponential, logarithmic, sine, cosine, rational, polynomial, and power functions and their transformations, including $af(x)$, $f(x) + d$, $f(x - c)$, $f(bx)$ for specific values of a, b, c, and d, in mathematical and real-world problems</p>



2nd Quarter			
Resources:			
Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
		<ul style="list-style-type: none"> Identify key characteristics of rational functions. Determine the domain and range of a rational function. Identify all asymptotes of a rational function. Locate removable discontinuities of a rational function. 	<p>P.2I determine and analyze the key features of exponential, logarithmic, rational, polynomial, power, trigonometric, inverse trigonometric, and piecewise defined functions, including step functions such as domain, range, symmetry, relative maximum, relative minimum, zeros, asymptotes, and intervals over which the function is increasing or decreasing</p> <p>P.2J analyze and describe end behavior of functions, including exponential, logarithmic, rational, polynomial, and power functions, using infinity notation to communicate this characteristic in mathematical and real-world problems</p>
3	Lesson 6: Polynomial and Rational Functions Wrap-Up Lesson 7: Diagnostic UNIT 4: EXPONENTIAL AND LOGARITHMIC FUNCTIONS Lesson 1: Exponents and Radicals	<ul style="list-style-type: none"> Express repeated multiplication problems using exponents. Simplify expressions involving rational exponents. Explore radical functions and their graphs. 	<p>P.1C select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems</p> <p>P.1B use a problem-solving model that incorporates analyzing given information,</p>



2nd Quarter			
Resources:			
Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
	Lesson 2: Exponential Functions.	<ul style="list-style-type: none"> Know and apply the algebraic rules for exponents. Explore exponential functions and their graphs. Determine the domain and range of exponential functions. Use exponential functions to model real-world problems. 	<p>formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution</p> <p>P.2D describe symmetry of graphs of even and odd functions;</p> <p>P.2E determine an inverse function, when it exists, for a given function over its domain or a subset of its domain and represent the inverse using multiple representations</p> <p>P.2F graph exponential, logarithmic, rational, polynomial, power, trigonometric, inverse trigonometric, and piecewise defined functions, including step functions</p> <p>P.2G graph functions, including exponential, logarithmic, sine, cosine, rational, polynomial, and power functions and their transformations, including $af(x)$, $f(x) + d$, $f(x - c)$, $f(bx)$ for specific values of a, b, c, and d, in mathematical and real-world problems</p>
4	Lesson 3: Geometric Sequences Lesson 4: Introduction to Logarithms Lesson 5: Graphs of Logarithmic Functions	<ul style="list-style-type: none"> Define geometric sequences. Identify and describe key characteristics of geometric sequences. 	<p>P.2I determine and analyze the key features of exponential, logarithmic, rational, polynomial, power, trigonometric, inverse trigonometric, and piecewise defined</p>



2nd Quarter

Resources:

Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
	Lesson 6: Applications of Logarithms	<ul style="list-style-type: none"> • Apply geometric sequences to real-world problems. • Convert between exponential and logarithmic expressions. • Evaluate common and natural logarithms. • Apply the rules of logarithms to rewrite expressions. • Evaluate expressions using uncommon bases using the change-of-base formula. • Know how to find the inverse function algebraically. • Understand how exponential functions and logarithmic functions undo each other. • Understand the graphical relationship between a function and its inverse. • Know how the graphs of logarithmic functions are translated horizontally and vertically. • Use logarithms to solve for x in exponential functions. 	<p>functions, including step functions such as domain, range, symmetry, relative maximum, relative minimum, zeros, asymptotes, and intervals over which the function is increasing or decreasing</p> <p>P.5G use the properties of logarithms to evaluate or transform logarithmic expressions</p> <p>P.5H generate and solve logarithmic equations in mathematical and real-world problems</p> <p>P.5I generate and solve exponential equations in mathematical and real-world problems</p>



2nd Quarter			
Resources:			
Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
		<ul style="list-style-type: none"> Use logarithms to solve exponential decay problems. Use logarithms to solve exponential growth problems. 	
5	Lesson 7: Exponential and Logarithmic Functions Wrap-Up Lesson 8: Diagnostic UNIT 5: CONIC SECTIONS Lesson 1: Introduction to Conic Sections Lesson 2: Ellipses	<ul style="list-style-type: none"> Discover how conic sections are formed from a cone. Write the equation of a circle. Graph a circle, given its equation Formally define an ellipse. Write the equation of an ellipse. Sketch the graph of an ellipse. Identify key characteristics of an ellipse. 	<p>P.1B use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution</p> <p>P.1F analyze mathematical relationships to connect and communicate mathematical ideas</p> <p>P.3F determine the conic section formed when a plane intersects a double-napped cone</p> <p>P.3G make connections between the locus definition of conic sections and their equations in rectangular coordinates;</p> <p>P.3H use the characteristics of an ellipse to write the equation of an ellipse with center (h, k)</p>



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Resources:			
Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
			<p>P.3B convert parametric equations into rectangular relations and convert rectangular relations into parametric equations</p> <p>P.3C use parametric equations to model and solve mathematical and real-world problems</p>
6	<p>Lesson 3: Hyperbolas</p> <p>Lesson 4: Parabolas</p>	<ul style="list-style-type: none"> Learn how a hyperbola is a type of conic section and what the defining characteristics are. <ul style="list-style-type: none"> Graph a hyperbola given its equation or important characteristics. Write the equation of a hyperbola, given its graph or important characteristics. State the important characteristics of a hyperbola given its equation or graph. Define a parabola in terms of its focus and directrix. Write the equation of a parabola, given a list of characteristics or a graph. Sketch a parabola from its equation. Write the equation for a parabola in both standard and vertex forms. 	6



2nd Quarter			
Resources:			
Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
		<ul style="list-style-type: none"> Understand how shifting the position of a parabola changes its equation. 	
7	Lesson 5: Systems of Conic Sections Lesson 6: Conic Sections Wrap-Up Lesson 7: Diagnostic	<ul style="list-style-type: none"> Identify the possible number of solutions to a system of conic sections. Find solutions to a system of conic sections. Link equations of conic sections to their graphs. 	
8	UNIT 6: PRECALCULUS SEMESTER 1 REVIEW AND EXAM Lesson 1: Preparing for the Semester Exam		
9	Semester I Exams / DCA		



3rd Quarter			
Resources:			
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1	<p>UNIT 7: INTRODUCTION TO TRIGONOMETRY</p> <p>Lesson 1: Right Triangles</p> <p>Lesson 2: Angles and Radians</p>	<ul style="list-style-type: none"> • Explore the Pythagorean Theorem for right triangles. • Explore characteristics of special right triangles. • Evaluate key trigonometric ratios for right triangles. • Solve problems using right triangle trigonometry. • Identify and classify different types of angles by their measure. • Convert angles between degree-minute-second (DMS) and decimal forms. • Convert between degrees and radians. • Calculate arc lengths. 	<p>P. 1D communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate</p> <p>P.1E create and use representations to organize, record, and communicate mathematical ideas</p> <p>P.2P determine the values of the trigonometric functions at the special angles and relate them in mathematical and real-world problems</p> <p>P.4A determine the relationship between the unit circle and the definition of a periodic function to evaluate trigonometric functions in mathematical and real-world problems</p> <p>P.4B</p> <p>P.4C represent angles in radians or degrees based on the concept of rotation and find the measure of reference angles and angles in standard position</p> <p>P.4E determine the value of trigonometric ratios of angles and solve problems involving</p>



3rd Quarter			
Resources:			
Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
			trigonometric ratios in mathematical and real-world problems
2	Lesson 3: Trigonometric Ratios and the Unit Circle Lesson 4: Introduction to Trigonometry Wrap-Up Lesson 5: Diagnostic	<ul style="list-style-type: none"> Determine if a point is on the unit circle by using the Pythagorean Theorem. Know and apply the definitions of the six trigonometric functions based on the unit circle. Know the angles along the unit circle that correspond to 45-45-90 and 30-60-90 triangles (in both radians and degrees) and the coordinates of their corresponding terminal points. Solve trigonometric functions for these special angles within the first quadrant. Use reference angles to solve trigonometric functions for these special angles within the second, third, and fourth quadrants. 	
3	UNIT 8: TRIGONOMETRIC FUNCTIONS Lesson 1: Graphs of Sine and Cosine Lesson 2: Graphs of Other Functions	<ul style="list-style-type: none"> Use critical points to sketch the graphs of the functions sine and cosine. Describe the domain and range of the functions sine and cosine. 	P.2D describe symmetry of graphs of even and odd functions P.2F graph exponential, logarithmic, rational, polynomial, power, trigonometric, inverse trigonometric, and piecewise defined functions, including step functions



3rd Quarter

Resources:

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	Lesson 3: Simple Transformations of Sinusoids	<ul style="list-style-type: none"> • Understand and use the periodic nature of the functions sine and cosine to sketch complete graphs of these functions. • Recognize graphically if a function is even or odd. • Sketch the graphs of tangent, cotangent, secant, and cosecant. • Describe the domain and range of tangent, cotangent, secant, and cosecant. • Understand the asymptotes of tangent, cotangent, secant, and cosecant. • Identify the periods of tangent, cotangent, secant, and cosecant. • Understand how to translate a sinusoid horizontally and vertically. • Understand how to vary the amplitude and period of a sinusoid. • Determine the amplitude and period of a general sinusoid. • Know how to flip sinusoids and how such flips relate to the even and odd properties of sine and cosine. 	<p>P.2G graph functions, including exponential, logarithmic, sine, cosine, rational, polynomial, and power functions and their transformations, including $af(x)$, $f(x) + d$, $f(x - c)$, $f(bx)$ for specific values of a, b, c, and d, in mathematical and real-world problems</p> <p>P.2I determine and analyze the key features of exponential, logarithmic, rational, polynomial, power, trigonometric, inverse trigonometric, and piecewise defined functions, including step functions such as domain, range, symmetry, relative maximum, relative minimum, zeros, asymptotes, and intervals over which the function is increasing or decreasing</p> <p>P.2J analyze and describe end behavior of functions, including exponential, logarithmic, rational, polynomial, and power functions, using infinity notation to communicate this characteristic in mathematical and real-world problems;</p> <p>P.2O develop and use a sinusoidal function that models a situation in mathematical and real-world problems</p>



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			P.4A determine the relationship between the unit circle and the definition of a periodic function to evaluate trigonometric functions in mathematical and real-world problems
4	Lesson 4: General Transformations of Periodic Graphs Lesson 5: Trigonometric Functions Wrap-Up Lesson 6: Diagnostic	<ul style="list-style-type: none"> Identify the simple transformations that make up a general transformation. Sketch the graph of a general trigonometric function. Determine the closed-form expression from the graph of a transformed trigonometric function. 	
5	UNIT 9: WORKING WITH TRIGONOMETRIC FUNCTIONS Lesson 1: Inverse Trigonometric Functions Lesson 2: Solving Trigonometric Equations Lesson 3: Modeling Simple Harmonic Motion	<ul style="list-style-type: none"> Know the difference between inverse trigonometric relations and inverse trigonometric functions. Identify solutions to trigonometric equations graphically. Graph the six inverse trigonometric relations. Identify solutions to inverse trigonometric relations. 	P.1D communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate P.1G display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication. P.2A use the composition of two functions to model and solve real-world problems



3rd Quarter

Resources:

Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
		<ul style="list-style-type: none"> • Understand how to restrict the domain of each trigonometric function to get an inverse function. • Identify solutions to inverse trigonometric functions. • Graph the six inverse trigonometric functions. • Solve trigonometric equations by isolating the trigonometric term. • Solve trigonometric equations that have coefficients within the trigonometric term. • Use trigonometric identity substitution in solving trigonometric equations. • Use factoring and the zero product property in solving trigonometric equations. • Understand the assumptions that yield simple harmonic motion. • Explore the mass on a spring and the pendulum examples of simple harmonic motion. • Compute period and frequency for specific examples. 	<p>P.2B demonstrate that function composition is not always commutative</p> <p>P.2C represent a given function as a composite function of two or more functions</p> <p>P.2E determine an inverse function, when it exists, for a given function over its domain or a subset of its domain and represent the inverse using multiple representations</p> <p>P.2F graph exponential, logarithmic, rational, polynomial, power, trigonometric, inverse trigonometric, and piecewise defined functions, including step functions</p> <p>P.2H graph $\arcsin x$ and $\arccos x$ and describe the limitations on the domain</p> <p>P.2I determine and analyze the key features of exponential, logarithmic, rational, polynomial, power, trigonometric, inverse trigonometric, and piecewise defined functions, including step functions such as domain, range, symmetry, relative maximum, relative minimum, zeros, asymptotes, and intervals over which the function is increasing or decreasing.</p>



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Resources:			
Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
6	Lesson 4: Working with Trigonometric Functions Wrap-Up Lesson 5: Diagnostic		
7	UNIT 10: TRIGONOMETRIC IDENTITIES Lesson 1: Identities and Proof Lesson 2: Trigonometric Identities	<ul style="list-style-type: none"> Distinguish between a trigonometric identity and a trigonometric equation. Understand the general technique for proving identities. Review the Pythagorean identities. Derive and use the trigonometric sum and difference identities. Derive and use the double-angle identities. Derive and use the squared identities. Derive and use the half-angle identities. Derive and use the product-to-sum identities. 	<p>P.1C select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems</p> <p>P.1D communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate</p> <p>P.5M use trigonometric identities such as reciprocal, quotient, Pythagorean, cofunctions, even/odd, and sum and difference identities for cosine and sine to simplify trigonometric expressions</p> <p>P.5N generate and solve trigonometric equations in mathematical and real-world problems.</p>



3rd Quarter			
Resources:			
Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
8	Lesson 3: Applications of Identities Lesson 4: Trigonometric Identities Wrap-Up Lesson 5: Diagnostic	<ul style="list-style-type: none"> Use trigonometric identities to solve complex trigonometric equations. Use trigonometric identities to prove more complex trigonometric identities. Simplify trigonometric expressions. 	<p>P.1A apply mathematics to problems arising in everyday life, society, and the workplace</p> <p>P.1F analyze mathematical relationships to connect and communicate mathematical ideas</p> <p>P.2O develop and use a sinusoidal function that models a situation in mathematical and real-world problems</p> <p>P.2P determine the values of the trigonometric functions at the special angles and relate them in mathematical and real-world problems.</p>
9	<p>UNIT 11: APPLICATIONS OF TRIGONOMETRY</p> Lesson 1: Law of Cosines	<ul style="list-style-type: none"> Derive the law of cosines. Use the law of cosines to solve SSS- and SAS-type problems. Apply the law of cosines to real-world situations. 	<p>P.1A apply mathematics to problems arising in everyday life, society, and the workplace</p> <p>P.1F analyze mathematical relationships to connect and communicate mathematical ideas</p> <p>P.2O develop and use a sinusoidal function that models a situation in mathematical and real-world problems;</p> <p>P.2P determine the values of the trigonometric functions at the special angles and relate them in mathematical and real-world problems.</p>



4th Quarter

Resources:

Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
1	Lesson 2: Law of Sines Lesson 3: Vectors Lesson 4: Applications of Trigonometry Wrap-Up Lesson 5: Diagnostic	<ul style="list-style-type: none"> • Identify problems that can be solved using the law of sines. • Solve SAA- and ASA-type problems using the law of sines. • Solve for all zero, one, or two solutions to SSA-type problems. • Learn the notation for vectors. • Find the magnitude and direction of a vector. • Perform algebraic operations with vectors. • Understand how to find the trigonometric form of a vector. • Use dot products to compute projections. 	<p>P.4B describe the relationship between degree and radian measure on the unit circle</p> <p>P.4D represent angles in radians or degrees based on the concept of rotation in mathematical and real-world problems, including linear and angular velocity</p> <p>P.4E determine the value of trigonometric ratios of angles and solve problems involving trigonometric ratios in mathematical and real-world problems</p> <p>P.4F use trigonometry in mathematical and real-world problems, including directional bearing</p> <p>P.4G use the Law of Sines in mathematical and real-world problems</p> <p>P.4H use the Law of Cosines in mathematical and real-world problems</p> <p>P.4I use vectors to model situations involving magnitude and direction</p> <p>P.4J represent the addition of vectors and the multiplication of a vector by a scalar geometrically and symbolically</p>



4th Quarter			
Resources:			
Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
			<p>P.4K apply vector addition and multiplication of a vector by a scalar in mathematical and real-world problems</p> <p>P.4I use vectors to model situations involving magnitude and direction</p> <p>P.4J represent the addition of vectors and the multiplication of a vector by a scalar geometrically and symbolically</p> <p>P.4K apply vector addition and multiplication of a vector by a scalar in mathematical and real-world problems.</p>
2	Lesson 4: Applications of Trigonometry Wrap-Up Lesson 5: Diagnostic		
3	<p>UNIT 12: COMPLEX NUMBERS</p> Lesson 1: Polar Coordinates	<ul style="list-style-type: none"> Explore the polar coordinate plane. Plot points and express coordinates in the polar coordinate system. Write multiple sets of coordinates representing the same point in polar coordinates. 	<p>P.1D communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate</p> <p>P.1E create and use representations to organize, record, and communicate mathematical ideas</p>



4th Quarter			
Resources:			
Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
		<ul style="list-style-type: none"> Convert between polar and rectangular coordinates. 	
4	Lesson 2: Graphs of Polar Functions Lesson 3: Polar Form of Complex Numbers	<ul style="list-style-type: none"> Explore polar functions and their graphs. Identify various families of polar graphs. Use symmetry to graph polar equations. Review the complex plane and operations with complex numbers. Compute the modulus of a complex number. Express a complex number in polar form. Convert between the standard and polar form of a complex number. 	<p>P.3D graph points in the polar coordinate system and convert between rectangular coordinates and polar coordinates</p> <p>P.3E graph polar equations by plotting points and using technology</p> <p>P.1D communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate</p> <p>P.1E create and use representations to organize, record, and communicate mathematical ideas</p>
5	Lesson 4: Arithmetic of Complex Numbers	<ul style="list-style-type: none"> Add and subtract complex numbers in both polar and rectangular coordinate systems. Multiply and divide complex numbers in both polar and rectangular coordinate systems. Express answers to arithmetic problems in polar and rectangular coordinates. 	<p>P.3D graph points in the polar coordinate system and convert between rectangular coordinates and polar coordinates</p>
6	Lesson 5: Powers and Roots of Complex Numbers Lesson 6: Complex Numbers Wrap-Up	<ul style="list-style-type: none"> Calculate powers of complex numbers using De Moivre's theorem. 	<p>P.3E graph polar equations by plotting points and using technology</p>



4th Quarter			
Resources:			
Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
		<ul style="list-style-type: none"> Calculate roots of complex numbers. Understand roots of unity and their graphical interpretation. 	
7	Lesson 7: Diagnostic Make Up Days		
8	UNIT 13: PRECALCULUS SEMESTER 2 REVIEW AND EXAM Lesson 1: Preparing for the Semester Exam		
9	UNIT 13: PRECALCULUS SEMESTER 2 REVIEW AND EXAM Semester Exam Closing Activities / Award Ceremonies / Graduation		