

[illegible]

	• (+)-G.C	and tangent for x , $\pi + x$, and $2\pi - x$ in terms of their values for x , where x is any real number. Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed. Solve trigonometric equations: • analytically with inverse functions and • graphically with technology and interpret solutions in terms of the context. Prove the sum and difference formulas for sine, cosine, and tangent and use them to solve problems.
<u>Unit 3: Polar Coordinates</u>	• MP1 • MP2	Identify a different way to write points on the plane and convert between cartesian and polar coordinates. Explain the general formula for all representations of a polar coordinate. Convert from rectangular to polar form. Graph limacons, circles, and rose curve.
<u>Unit 4: Vectors</u>	• (+)-N.VM	Write vectors in component form. Add vectors using the tip-to-tail and parallelogram methods. Finding the equilibrium vector given a contextual problem. Develop the law of sines and law of cosines. Solve for the ambiguous case. Derive and use the formula for the dot product. Find the angle between two vectors.
<u>Unit 5: Complex Numbers</u>	• (+)-N.CN	Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers. Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and convert between rectangular and polar forms of a given complex number. Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation. Find the roots of unity using De Moivre's Theorem. Find complex roots.
<u>Unit 6: Parametric Equations</u>	• MP1 • MP7	Explain the information that is gained by using a time parameter in specific examples. Eliminate the parameter in various types of equations. To solve contextual equations using elimination methods.
<u>Unit 7 Sequences and Series:</u>	• All-F.IF.3	Recognize that a sequence is a function whose domain is a subset of the integers. Write expressions using sigma notation. Derive the formula for the sum of an arithmetic and geometric series. Calculate partial sums. Determine whether a series is convergent or divergent.
<u>Unit 8: Exponentials and Logs</u>	• All-F.IF • All-F.BF	Use the properties of exponents to interpret exponential functions, and classify them as representing exponential growth or decay. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). Graph logarithm functions and identify key features. Use log rules to expand and condense expressions. Solve exponential and log equations using log rules and inverse properties.
<u>Unit 9: Rational Functions</u>	• (+)-A.APR	Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions. Graph rational functions and identify key features.
<u>Unit 10: Limits</u>	• MP1 • MP2	Identify limits graphically. Use limits to determine whether a function is continuous at a point. Use algebraic techniques to calculate limits. Work with limits in piecewise functions.
<u>Unit 11: Derivatives</u>	• MP1 • MP2 • MP6	Use the instantaneous rate of change to calculate the slope of a line tangent to a curve. Evaluate the derivative at a point. Write the equation of a line tangent to a curve. Use the power rule, product rule, quotient rule, and chain rule to evaluate derivatives. Find the derivative of exponential and logarithmic functions. Use implicit differentiation to solve various problems.
<u>Additional Notes</u>	Sequencing of topics may vary.	