Approximate Duration	Unit Theme	Student Learning Outcomes
1-2 weeks	Chapter 1: Graphs	• Use the distance and midpoint formulas. • Find intercepts from a graph/equation. • Test an Equation for symmetry. • Calculate and interpret the slope of a line. • Use the all form of a line to graph and solve problems. • Find equations of lines with given attributes. • Derive the standard form of the equation of a circle. • Graph a circle. • Work with the general form of the equation of a circle.
2-3 weeks	Chapter 2: Functions & Graphs	• Determine whether a relation represents a function. • Find the value of a function. • Find the domain of a function defined by an equation. • Form the sum/difference/product/quotient of two functions. • Find the domain of combined functions. • Identify the graph of a function. • Obtain information from a graph or about the graph of a function. • Identify even/odd functions from an equation. • Use a graph to determine where a function is increasing, decreasing, or constant. • Use a graph to locate local extrema and absolute extrema. • Use a graphing calculator to determine extrema and intervals where a function increases/decreases. • Find the average rate of change of a function. • Graph the functions listed in the library of functions. • Graph piecewise-defined functions. • Graph functions using vertical and horizontal shifts. • Graph functions using compressions and stretches.

		• Graph functions using reflections about the x-axis and y-axis. • Build and analyze functions. • Using technology to identify extrema.
1-2 weeks	Chapter 3: Linear & Quadratic Functions	• Graph linear functions. • Use the average rate of change to identify linear functions. • Know whether a linear function is increasing, decreasing, or constant. • Build linear models from verbal descriptions. • Graph a quadratic function using transformations. • Identify the vertex and axis of symmetry of a quadratic function. • Graph a quadratic function using its vertex, axis of symmetry and intercepts. • Find a quadratic function given its vertex and one other point. • Find the maximum and minimum value of a quadratic function. • Build quadratic models from verbal descriptions. • Optimize a quadratic function.
3-4 weeks	Chapter 4: Polynomial & Rational Functions	• Identify Polynomial Functions and their degree. • Graph Polynomial Functions Using Transformations. • Identify the real zeros of a polynomial function and their multiplicity. • Analyze the graph of a polynomial function. • Find the domain and range of a rational function. • Find the vertical asymptotes of a rational function. • Find the horizontal or oblique asymptotes of a rational function. • Graph a rational function using transformations. • Find the domain and range of a rational function. • Find the vertical asymptotes of a rational function.

		• Find the horizontal or oblique asymptotes of a rational function. • Graph a rational function without transformations. • Solve a rational inequality graphically and Algebraically. • Solve polynomial inequalities graphically and Algebraically. • Solve rational inequalities graphically and Algebraically. • Use the remainder and factor theorems. • Use the rational zeros theorem to list the potential rational zeros of a polynomial. • Find the real zeros of a polynomial function. • Solve polynomial equations. • Use the intermediate value theorem. • Use the Conjugate Pairs Theorem. • Find a Polynomial Function with Specified Zeros. • Find the Complex Zeros of a Polynomial Function.
3-4 weeks	Chapter 5: Exponential & Logarithmic Functions	• Form a composite function. • Find the domain of a composite function. • Determine whether a function is one-to-one . • Determine the inverse of a function from a mapping/ordered pairs. • Obtain the graph of the inverse function from the graph of the function. • Find the inverse of a function defined by an equation. • Evaluate exponential functions. • Graph exponential functions using transformations. • Define the number “e”. • Convert between exponential and log statements. • Evaluate logarithmic expressions. • Determine the domain of a logarithmic function. • Graph logarithmic functions. • Solve logarithmic equations. • Work with the properties of logarithms. • Write a logarithmic expression as a sum/difference of

		logarithms. • Write a logarithmic expression as a single logarithm. • Evaluate logarithms whose base is neither 10 nor e. • Work with the properties of logarithms. • Determine the future value of a lump sum of money. • Calculate effective rates of return. • Determine the present value of a lump sum of money. • Determine the rate of interest or time required to multiply a lump sum of money. • Find eq. of populations that follow uninhibited growth. • Find eq. of populations that obey the law of decay. • Use logistic models.
1-2 weeks	Chapter 12: Sequences	• Write the first several terms of a sequence. • Write the terms of a sequence defined by a recursive formula. • Use summation notation. • Find the sum of a sequence. • Determine whether a sequence is arithmetic. • Find a formula for an arithmetic sequence. • Find the sum of an arithmetic sequence. • Determine whether a sequence is geometric. • Find a formula for a geometric sequence. • Determine whether a geometric series converges or diverges.

Approximate Duration	**Unit Theme**	**Student Learning Outcomes**

3-4 weeks	Trigonometric Functions (Chapter 6)	• Convert between decimals and degrees/minutes/seconds. • Find the length of an arc of a circle. • Convert between degrees and radians. • Find the area of a sector of a circle. • Find the exact values of the trigonometric functions using a point on the unit circle. • Find the exact values of the trigonometric functions of quadrantal angles. • Find the exact values of the trigonometric functions $\theta = \frac{\pi}{6}, \frac{\pi}{3}, \frac{\pi}{4}$ • Find the exact values of the trigonometric functions for integer multiples of $\theta = \frac{\pi}{6}, \frac{\pi}{3}, \frac{\pi}{4}$ • Use a circle of radius r to evaluate the trigonometric functions. • Determine the period of the trigonometric functions. • Determine the signs of trig functions in a given quadrant. • Find the exact values of trig functions using given information. • Find the values of trig functions using identities. • Determine the domain and range of trig functions. • If is a trigonometric function, graph y=af(b(x-h))+k. • Determine amplitude and period of sinusoidal functions. • Find the equation of a sinusoidal graph.
4-5 weeks	Analytic Trigonometry (Chapter 7)	• Find the exact value of an inverse trigonometric function. • Use properties of inverse functions to find exact values of composite functions. • Find the inverse function of a trigonometric function. • Solve equations involving inverse trigonometric functions.

		• Find the exact value of an inverse trigonometric function. • Use properties of inverse functions to find exact values of composite functions. • Write a trig expression as an algebraic expression. • Solve Equations involving a single trig function. • Solve trig equations using a calculator. • Solve trig equations in quadratic form. • Solve trig equations using identities. • Use Algebra to Simplify Trigonometric Expressions. • Establish Identities. • Prove the sum/difference formulas. • Use sum/difference formulas to find exact values. • Use sum/difference formulas with inverse trig functions. • Solve trig equations. • Establish Double/Half Angle Formulas. • Use Double/Half Angle Formulas to find exact values.
2-3 weeks	Applications of Trigonometric Functions (Chapter 8)	• Use the complementary angle theorem. • Find the value of all six trig functions of an acute angle. • Solve a right triangle. • Solve applied problems. • Solve an AAS and ASA Triangle. • Solve a SSA Triangle. • Solve applied problems. • Solve a SAS Triangle. • Solve a SSS Triangle. • Solve applied problems. • Find the area of SAS Triangles. • Find the area of SSS Triangles.
3-4 weeks	Polar Coordinates and Vectors (Chapter 9)	• Plot points using polar coordinates. • Convert between polar and rectangular coordinates. • Convert between polar and rectangular equations. • Identify and graph polar equations by

		converting to rectangular equations. • Test polar coordinates for symmetry. • Graph polar equations by plotting points. • Plot points in the complex plane. • Convert a complex number between rectangular and polar form. • Find products and quotients of complex numbers in polar form. • Use DeMoivre's Theorem. • Find Complex Roots (of an equation). • Graph vectors. • Find a position vector. • Add and subtract vectors algebraically. • Find a scalar multiple and magnitude of a vector . • Find a unit vector. • Find a vector from its direction and magnitude. • Model with vectors. • Find the dot product of two vectors. • Find the angle between two vectors. • Determine whether two vectors are parallel. • Determine whether two vectors are orthogonal. • Compute work.
3 weeks	Analytic Geometry (Chapter 10)	• Analyze parabolas with vertex at the origin. • Analyze parabolas with vertex at (h, k). • Solve applied problems involving parabolas. • Analyze ellipses with center at the origin. • Solve applied problems involving ellipses. • Analyze hyperbolas with center at the origin. • Find the asymptotes of a hyperbola. • Identify a conic (no xy-term). • Use a rotation of axes to transform

		equations. • Analyze an equation using a rotation of axes. • Identify conics without a rotation of axes (xy-term). • Identify a conic (with xy-term). • Use a rotation of axes to transform equations. • Analyze an equation using a rotation of axes.