Unit	Topic	Lesson	Lesson Objectives
Equations and Inequalities			
	Equations and Inequalities		
		Writing Linear Equations	
			Write linear equations
		Writing Equations of Parallel and Perpendicular Lines	
			Write equations of parallel and perpendicular lines
		Solving Equations Graphically	
			Solve equations using the intersect method
			Solve equations using the x-intercept method
		Applications of Equations	
			Solve application problems
		Inequalities	
			Find exact solution of quadratic and factorable inequalities
			Solve linear inequalities and compound linear inequalities
			Use interval notation
		Graphing Linear Inequalities	
			Graph linear inequalities
	Systems of Equations and Inequalities		
		Solving Systems of Equations in Two Variables	
			Solve systems of equations algebraically
			Solve systems of equations graphically
		Solving Systems of Equations in Three Variables	
			Solve systems of equations involving three variables algebraically
		Solving Systems of Linear Inequalities	
			Find the maximum or minimum value of a function defined for a polygonal convex set
			Graph systems of inequalities
		Linear Programming	
			Recognize situations where exactly one solution to a linear programming application may not exist
			Use linear programming procedures to solve applications

Unit	Topic	Lesson	Lesson Objectives
Functions			
	Functions and Graphs		
		Graphing Linear Equations	
			Find the slope of a line through two points
			Find the x- and y-intercepts of a line
			Find zeros of linear functions
			Graph linear equations
		Operations with Functions	
			Find composite functions
			Iterate functions using real numbers
			Perform operations with functions
		Twelve Basic Functions	
			Recognize graphs of twelve basic functions, determine domains of functions related to the twelve basic functions and combine the twelve basic functions in various ways to create new functions
		Piecewise Functions	
			Identify and graph piecewise functions including greatest integer, step, and absolute value functions
		Graphs and Transformations	
			Define parent functions
			Transform graphs of parent functions
	The Nature of Graphs		
		Families of Graphs	
			Identify transformations of simple graphs
			Sketch graphs of related functions
		Graphs of Nonlinear Inequalities	
			Graph polynomial, absolute value, and radical inequalities in two variables
			Solve absolute value inequalities
		Inverse Functions and Relations	
			Determine inverses of relations and functions
			Graph functions and their inverses
		Direct, Inverse, and Joint Variation	
			Solve problems involving direct, inverse and joint variations.
	Polynomial, Rational, and Exponential Functions		
		Solving Quadratic Equations Algebraically	
			Solve equations by: factoring, square root of both sides, completing the square, quadratic formula
			Solve equations in quadratic form

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		Graphs of Rational Functions	
			Determine vertical, horizontal, and slant asymptotes.
			Graph rational functions.
		Fundamental Polynomial Connections	
			Find the factors of polynomials using the Remainder and Factor Theorems
		Locating Zeros of Polynomial Function	
			Approximate the real zeros of a polynomial function
		Exponential and Logistic Functions	
			Evaluate exponential expressions and identify and graph exponential and logistic functions
		The Number e	
			Use the exponential function y = ex.
		Logarithmic Functions and Their Graphs	
			Convert equations between logarithmic form and exponential form, evaluate common and natural logarithms, and graph common and natural logarithmic functions
Conics			
	Conic Sections		
		Circles and Parabolas	
			Find the standard form equation, focus, and directrix of a parabola.
		Ellipses	
			Given an equation of an ellipse, graph it and label the center, vertices, co-vertices, and foci.
			Write the standard equation for an ellipse given sufficient information.
		Ellipses	
			Define an ellipse
			Graph ellipses
			Identify important characteristics of ellipses
			Write the equation of an ellipse
		Hyperbolas	
			Graph hyperbolas.
			Write equations of hyperbolas.
		Hyperbolas	
			Define a hyperbola
			Graph hyperbolas
			Identify important characteristics of hyperbolas
			Write the equation of a hyperbola

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Trigonometric Functions			
	Trigonometric Functions		
		Circular Functions	
			Define and use the trigonometric functions based on the unit circle.
			Find the exact values of trigonometric functions of angles.
		Angles and Radian Measure	
			Change from radian measure to degree measure, and vice versa
			Find the area of a sector
			Find the length of an arc given the measure of the central angle
		Applying Trigonometric Functions	
			Use trigonometry to find the measures of the sides of right triangles
		Amplitude and Period	
			Determine the amplitude of the graph of y = a sin(bx) and y = a cos(bx) using a formula
			Determine the period of the graph of y = a sin(bx) and y = a cos(bx) using a formula
		The Sine Function	
			Graph sine curves.
			Identify properties of the sine function.
		The Cosine Function	
			Graph and write cosine functions.
			Solve trigonometric equations.
		Trigonometric Inverses and Their Graphs	
			Find principal values of inverse trigonometric functions
			Graph inverse trigonometric functions
		Inverse Functions	
			Determine the inverse sine and cosine of a number using technology
			Determine the inverse tangent of a number
Trigonometry of General Triangles			
	Law of Sines and Cosines		
		Area and The Law of Sines	
			Find the area of any triangle.
			Use the Law of Sines.
		The Law of Sines	
			Find the area of a triangle if the measures of two sides and the included angle or the measures of two angles and a side are given
			Solve triangles by using the Law of Sines if the measures of two angles and a side are given

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		The Ambiguous Case for the Law of Sines	
			Determine whether a triangle has zero, one, or two solutions
			Solve triangles using the Law of Sines
		The Law of Cosines	
			Find the area of triangles if the measures of the three sides are given
			Solve triangles by using the Law of Cosines
		Law of Sines and Law of Cosines — a Deeper Look	
			Use right triangle trigonometry to develop and prove the Law of Cosines.
			Use right triangle trigonometry to develop and prove the Law of Sines.
			Use the Law of Cosines to solve problems.
			Use the Law of Sines to solve problems.
		Sum and Difference Identities	
			Evaluate expressions by using the sum and difference identities.
			Use matrix multiplication with sum and difference identities to perform rotations.
		Sum and Difference Identities	
			Use the sum and difference identities for the sine, cosine, and tangent functions
Matrices			
	Matrix Operations		
		Matrices	
			Represent systems of equations by augmented matrices
			Solve applications by using matrices
			Solve systems by using a calculator to obtain reduced row echelon form matrices
			Solve systems of equations by row reduction
		Networks	
			Develop mathematical models using matrices
			Use matrices to describe finite graphs
		Organizing Data Into Matrices	
			Identify matrices and their elements.
			Organize data into matrices.
		Adding and Subtracting Matrices	
			Add and subtract matrices.
			Solve certain matrix equations.

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		Multiplication Matrix	
			Multiply a matrix by a scalar.
			Multiply two matrices.
	Modeling with Matrices		
		Identity and Inverse Matrices	
			Determine whether two matrices are inverses.
			Find the inverse of a 2 X 2 matrix.
		Determinants	
			Evaluate the determinant of a 2 X 2 matrix.
			Evaluate the determinant of a 3 X 3 matrix.
		Geometric Transformations with Matrices	
			Represent reflections and rotations with matrices.
			Represent translations and dilations with matrices.
		Modeling Motion with Matrices	
			Use Matrices to determine the coordinates of polygons under a given transformation
		Solving Systems with Matrix Equations	
			Use matrices to solve systems of linear equations in mathematical and real-world situations.
Vectors			
	Vector Operations		
		Complex Numbers	
			Add, subtract, multiply, and divide complex numbers; and find complex zeros of quadratic functions
		Distance and Midpoints in the Complex Plane	
			Calculate the modulus of a complex number.
			Solve problems involving distances and midpoints in the complex plane.
			Use the average to find the midpoint of a segment in the complex plane.
			Use the modulus to find the distance between any two complex numbers in the plane.
		Geometric Vectors	
			Add and subtract vectors geometrically
			Find equal, opposite, and parallel vectors
		Algebraic Vectors	
			Add, subtract, multiply, and find the magnitude of vectors algebraically.
			Find ordered pairs that represent vectors

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		Vectors in Geometry	
			Calculate the magnitude and direction of a vector given its component form
			Perform operations on vectors
			Solve problems involving vectors in modeling situations
		Vector Multiplication Using Matrices	
			Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector.
			Solve problems involving transformations of vectors using matrices.
		Dot Products of Vectors	
			Calculate dot products and projections of vectors
		Polar Coordinates	
			Convert points and equations from polar to rectangular coordinates and vice versa
Probability			
	Probability		
		Probability	
			Create and use graphs of probability distributions.
			Find the probability and odds of events.
		Multiplying Probabilities	
			Find the probability of dependent events.
			Find the probability of two independent events.
		Probability with Combinations or Permutations	
			Find the theoretical probability of a favorable outcome
			Use combinations or permutations to determine the number of ways an event can occur
		Probability with Combinations and Permutations	
			Quantify outcomes using combinations and permutations
			Use combinations and permutations to compute probabilities of compound events
		Decision Making Using Probability	
			Calculate probabilities and make decisions in modeling situations
			Construct a theoretical probability model from all possible outcomes
		Basic Statistics	
			Create displays of qualitative and quantitative data
			Describe the shape of a distribution
			Identify data types
		Normal Distributions	
			Calculate the probability of a binomial experiment