Unit	Lesson	Lesson Objectives
Expressions and Equations		
	Real Numbers	
		Classify real numbers.
		Identify the field properties of real numbers.
		Represent real numbers with variables.
	Simplifying Expressions	
		Evaluate expressions using the order of operations and the field properties of real numbers.
		Identify parts of an algebraic expression
		Simplify expressions using the order of operations and the field properties of real numbers.
	Properties of Equality	
		Create one- and two-step equations in one variable and use them to solve problems.
		Solve one- and two-step equations using the properties of equality.
	Solving Equations	
		Create multistep equations in one variable and use them to solve problems.
		Simplify and solve multistep equations
	Literal Equations	
		Determine if expressions are equivalent.
		Solve a literal equation in terms of a given variable.
	Inequalities	
		Create one-variable linear inequalities in one variable and use them to solve problems.
		Solve one-variable linear inequalities, including compound inequalities, and represent the solution sets graphically and algebraically.
	Problem Solving	
		Apply problem solving strategies to analyze problems and construct equations.
		Solve equations and interpret the solutions in context.
	Word Problems	
		Create equations to solve a variety of word problems such as mixture, time-distance-rate, and work.
		Solve a variety of word problems, and interpret the solutions in context.
	Exploration of the Graphing Calculator	
		Identify the basic features of the graphing calculator.
		Use the graphing calculator to investigate graphs.
		Use the graphing calculator to perform basic calculations.
	Performance Task: Going on a Round Trip	

Unit	Lesson	Lesson Objectives
Introduction to Functions		
	Relations and Functions	
		Determine if a relation is a function.
		Determine if the function is one-to-one.
		Determine the domain and range of a relation.
		Evaluate function rules.
		Represent a relation in multiple ways, including equations, graphs, words, and tables of values.
	Function Operations	
		Combine functions using arithmetic operations, expressing the results both algebraically and graphically.
		Evaluate sums, differences, products, and quotients of functions.
	Composition of Functions	
		Evaluate the composition of functions.
		Find the domain of the composition of functions.
		Write an expression for the composition of functions.
	Symmetry	
		Determine the symmetry of a function algebraically.
		Determine the symmetry of a relation from a graph.
	Function Inverses	
		Find the inverse of a function.
		Use composition to verify that functions are inverses.
	Rate of Change	
		Calculate the average rate of change of a function over a specified interval.
		Interpret the average rate of change of a function over a specified interval.
		Solve problems involving direct variation.
	Linear Functions	
		Determine if a function is linear.
		Represent a linear relationship numerically, algebraically, and graphically.
	Writing Two-Variable Linear Equations	
		Create linear equations given information about points, slope, and intercepts.
		Solve problems by writing two-variable linear equations.
	Scatterplots	
		Determine the reasonableness of a model and the goodness of fit.
		Use linear models to approximate data sets and make predictions.

Unit	Lesson	Lesson Objectives
	Two-Variable Linear Inequalities	
		Graph two-variable linear inequalities.
		Interpret the solution set of a two-variable linear inequality.
		Write a linear inequality to model a relationship between two quantities.
Quadratics and Complex Numbers		
	Quadratic Functions	
		Find the line of symmetry and vertex of a parabola given its function rule.
		Identify a quadratic function from the function rule.
		Use key attributes of a quadratic function to solve word problems.
	Solving Quadratic Equations by Factoring	
		Find real solutions for quadratic equations using the zero product property.
		Use key attributes of a quadratic function to solve word problems.
	Quadratic Inequalities	
		Create quadratic inequalities in one variable and use them to solve problems.
		Find real solutions of quadratic inequalities algebraically and graphically.
	Complex Numbers	
		Determine the absolute value of a complex number.
		Represent complex numbers in the form a + bi or in the complex plane.
		Represent square roots of negative numbers as multiples of i.
		Simplify powers of i using their cyclic nature.
	Operations with Complex Numbers	
		Identify the field properties of complex numbers.
		Perform addition, subtraction, and multiplication of complex numbers.
	Completing the Square	
		Find complex solutions to quadratic equations by completing the square.
		Recognize the pattern of a perfect-square trinomial as the square of a binomial.
		Use the square root property to solve equations.
	The Quadratic Formula	
		Find real and complex solutions of quadratic equations using the quadratic formula.
		Use the discriminant to determine the number and type of roots of a quadratic equation.
	Modeling with Quadratic Equations	
		Use quadratic equations to model and solve real-world problems.

Unit	Lesson	Lesson Objectives
	Transformations of Quadratic Functions	
		Describe the effects of changes in a, h, and k to the graph of a function in the form y = a(x - h)2 + k.
		Use completing the square to write quadratic functions in the form y = a(x - h)2 + k.
	Square Root Functions	
		Find the domain of a square root function.
		Find the inverse of a quadratic function.
Inequalities and Systems		
	Solving Linear Systems Graphically	
		Classify systems of two-variable equations as dependent, independent, consistent, or inconsistent.
		Solve systems of two-variable linear equations graphically.
		Solve systems of two-variable linear inequalities.
	Solving Linear Systems by Elimination	
		Solve systems of two-variable linear equations using elimination.
	Solving Linear Systems by Substitution	
		Solve systems of two-variable linear equations using substitution.
	Solving 3 x 3 Linear Systems	
		Classify systems of three-variable equations as dependent, independent, consistent, or inconsistent.
		Solve 3 × 3 linear systems algebraically.
	Modeling with Linear Systems	
		Model and solve real-world problems using systems of linear equations and inequalities.
	Linear Programming	
		Maximize a function given constraints.
		Represent and solve real-world problems using linear programming.
	Mixed Degree Systems	
		Solve linear-quadratic systems of equations.
		Solve quadratic-quadratic systems of equations.
	Solving One-Variable Equations with Systems	
		Solve a one-variable linear or quadratic equation by graphing a related system of equations.
	Modeling with Systems	
		Model and solve real-world problems using linear-quadratic or quadratic-quadratic systems of equations.
	Performance Task: Annual Salaries and Gender	

Unit	Lesson	Lesson Objectives
Polynomial Operations		
	Introduction to Polynomials	
		Identify and classify polynomials.
		Write polynomials in standard form.
	Addition and Subtraction of Polynomials	
		Perform addition and subtraction of polynomials.
	Laws of Exponents	
		Apply the properties of whole-number exponents to generate equivalent expressions.
	Multiplication of Polynomials	
		Perform multiplication of polynomials.
	Sum and Difference of Two Cubes	
		Factor the sum or difference of two cubes.
		Recognize a perfect cube and find its cube root.
	Factoring Polynomials Completely	
		Analyze polynomial expressions to factor them completely.
	Division of Polynomials	
		Use inverse operations to check the result of polynomial division
		Use long division to find quotients of polynomials
	The Binomial Theorem	
		Use the Binomial theorem to expand binomials.
		Use the Binomial theorem to find a specific term in an expansion.
	Simplifying Polynomial Expressions	
		Simplify expressions involving operations with polynomials.
	Composition of Polynomial Functions	
		Evaluate the composition of polynomial functions.
		Write the composition of polynomial functions.
Polynomial Functions		
	Monomial Functions	
		Analyze the key attributes of monomial functions.
	Graphs of Polynomial Functions	
		Describe the key features of a polynomial function.
		Identify the key features of a polynomial function from a given graph.

Unit	Lesson	Lesson Objectives
	Synthetic Division and the Remainder Theorem	
		Apply the remainder theorem.
		Use synthetic division to divide a polynomial by a linear factor.
	The Rational Roots Theorem	
		Determine the roots of and factor a polynomial function.
		Use the rational root theorem to determine possible roots of a polynomial function.
	The Fundamental Theorem of Algebra	
		Apply the fundamental theorem of algebra to determine the number of roots of a polynomial function.
		Use the complex conjugate theorem to factor and solve polynomial equations.
	Writing Polynomial Functions from Complex Roots	
		Write polynomial functions from complex roots.
	Quadratic in Form Polynomials	
		Identify fourth degree equations that are quadratic in form and use an appropriate u -substitution.
		Solve fourth degree equations that are quadratic in form.
	Graphing Polynomial Functions	
		Graph polynomial functions using key features.
	Solving Polynomial Equations using Technology	
		Use technology to solve or approximate solutions of one-variable polynomial equations.
	Geometric Series	
		Apply geometric series to solve mathematical and real-world problems.
		Find sums of finite and infinite geometric series.
Rational Functions		
	Negative Exponents	
		Evaluate numeric expressions using laws of integer exponents.
		Simplify single-variable expressions using laws of integer exponents.
	Simplifying Rational Expressions	
		Determine excluded values of rational expressions.
		Simplify rational expressions using factoring techniques.
	Simplifying Rational Expressions by Factoring	
		Determine excluded values of rational expressions.
		Simplify rational expressions using factoring techniques.
	Multiplying and Dividing Rational Expressions	
		Perform multiplication and division of rational expressions.

Unit	Lesson	Lesson Objectives
	Adding and Subtracting Rational Expressions	
		Perform addition and subtraction of rational expressions.
		Simplify complex rational expressions containing sums or differences.
	Rational Equations	
		Solve rational equations and determine extraneous solutions.
		Use rational equations to model and solve real-world problems.
	Vertical Asymptotes of Rational Functions	
		Determine the vertical asymptotes and holes in the graph of a rational function having the x-axis as its only horizontal asymptote.
		Solve problems involving inverse variation.
	Graphing Rational Functions	
		Determine the horizontal asymptotes of a rational function.
		Graph rational functions that have only vertical or horizontal asymptotes.
	Rational Inequalities	
		Solve rational inequalities algebraically and determine extraneous solutions.
	Modeling with Rational Functions	
		Model and solve real-world problems using rational functions.
Radical Functions		
	Graphing Radical Functions	
		Determine the domain and range of square root and cube root functions.
		Relate transformations to the graphs of square root and cube root functions to their parent function.
	Simplifying Perfect Roots	
		Identify numbers and variable expressions that are perfect powers.
		Simplify perfect roots.
	Simplifying Nonperfect Roots	
		Simplify nonperfect roots without rationalizing.
	Rational Exponents	
		Evaluate numeric expressions using properties of rational exponents.
		Simplify algebraic expressions using properties of rational exponents.
	Adding and Subtracting Radicals	
		Add and subtract radical expressions.
		Identify like radicals.
	Multiplying Radicals	
		Perform multiplication of radical expressions.

Unit	Lesson	Lesson Objectives
	Dividing Radicals	
		Perform division of radical expressions, rationalizing the denominator when necessary.
	Radical Equations and Extraneous Roots	
		Model and solve mathematical and real-world problems using radical equations, and determine extraneous roots.
	Solving Equations Containing Two Radicals	
		Solve equations containing two radicals, and determine extraneous solutions.
	Performance Task: Roller Coaster Design	
		Solve one-variable radical inequalities
		Write one-variable radical inequalities to model problems
Exponential and Logarithmic Functions		
	Graphing Exponential Functions	
		Determine the domain and range of exponential functions.
		Graph exponential functions.
		Identify exponential functions.
	Solving Exponential Equations by Rewriting the Base	
		Solve exponential equations by rewriting bases.
	Graphing Logarithmic Functions	
		Determine the domain and range of logarithmic functions.
		Identify and analyze the graphs of logarithmic functions.
		Identify logarithmic functions.
	Evaluating Logarithmic Expressions	
		Evaluate common logarithms using a calculator.
		Evaluate logarithmic expressions by converting between logarithmic and exponential forms.
		Solve logarithmic equations by converting between logarithmic and exponential forms.
	Solving Logarithmic Equations using Technology	
		Rewrite logarithmic expressions using the change of base algorithm.
		Solve a one-variable equation containing logarithms by transforming it into a system of equations.
	Properties of Logarithms	
		Evaluate, expand, and simplify logarithmic expressions using properties of logarithms.
	Solving Equations using Properties of Logarithms	
		Apply properties of logarithms to solve logarithmic equations.
		Determine extraneous solutions of logarithmic equations.

Unit	Lesson	Lesson Objectives
	Base e	
		Analyze exponential and logarithmic functions in base e to determine key features of the graph.
		Apply properties of logarithms and exponents to solve exponential and logarithmic equations having base e.
		Determine the domain and range of exponential and logarithmic functions in base e.
	Solving Exponential and Logarithmic Equations	
		Solve exponential and logarithmic equations using inverses, properties, and algorithms.
	Modeling with Exponential and Logarithmic Equations	
		Model and solve real-world problems using exponential and logarithmic functions.
More with Relations and Functions		
	Absolute Value Functions	
		Analyze absolute value functions to determine key features of the graph.
		Model and solve mathematical and real-world problems with absolute value functions.
	Absolute Value Inequalities	
		Rewrite absolute value inequalities as compound inequalities.
		Solve absolute value inequalities graphically and algebraically.
	Piecewise Defined Functions	
		Determine the domain, range, and continuity of piecewise defined functions.
		Evaluate piecewise defined functions.
		Graph piecewise defined functions.
	Step Functions	
		Analyze step functions to determine key features of the graph.
		Evaluate step functions.
		Use step functions to model real-world problems.
	Joint and Combined Variation	
		Find constants of variation.
		Model and solve problems involving joint and combined variation.
	Transformations of Functions	
		Analyze a function rule or graph to determine transformations of the parent function.
		Identify a function as belonging to a family of functions.
	Domain and Range	
		Determine the domain and range of a function in both mathematical and real-world contexts.
	Analyzing Compositions of Functions	
		Determine the domain and range of the composition of functions.
		Find compositions of functions from a variety of function families.

Unit	Lesson	Lesson Objectives
	Modeling with Functions	
		Find the equation of a function that best models a data set.
		Use function models to solve problems.
	Performance Task: Production Schemes	
		Determine the reasonableness of a function model.
		Use an appropriate function model to describe random data.
		Use function models to make predictions about situations.
Statistics and Probability		
	Designing a Study	
		Analyze study types and sampling methods.
		Classify sampling methods.
		Classify study types.
		Determine if a sample is biased.
	Representing Data	
		Describe a data set using measures of central tendency and range.
		Determine if a representation of data is misleading.
	Standard Deviation	
		Calculate variance and standard deviation of a sample or population.
		Determine if a value is within a given z-score.
		Interpret standard deviation as it pertains to the spread of a graph.
	Properties of Probability Distributions	
		Create probability distributions from a data set.
		Identify properties of a probability distribution.
		Solve problems using probability distributions.
	Expected Value	
		Calculate expected values.
		Use expected values to make decisions.
	Binomial Distribution	
		Calculate binomial probabilities.
		Identify a binomial experiment.
		Identify the probability of success, probability of failure, and number of trials for a binomial experiment.

Unit	Lesson	Lesson Objectives
	Introduction to Normal Distributions	
		Apply the z-score formula to solve problems.
		Describe normal distributions using the mean and standard deviation.
		Solve problems using the empirical rule.
	Applications with Standard Normal Distribution	
		Solve problems using the standard normal table.
	Statistical Inferences	
		Make inferences about a population from a sample.
	Hypothesis Testing	
		Determine if a result is statistically significant.
		Perform hypothesis tests on normally distributed data.
Trigonometric Functions		
	Angles in Standard Position	
		Determine angles that are coterminal.
		Identify characteristics of angles in standard position.
	Radian Measure	
		Convert between degree and radian measure.
		Use the definition of radian measure to calculate arc lengths, radii, and angle measures.
	Right Triangle Trigonometry	
		Use special right triangle relationships to solve right triangles.
		Use the Pythagorean theorem, and the trigonometric functions and their inverses to solve right triangles.
	The Unit Circle	
		Compare sine, cosine, and tangent values for angles having the same reference angle.
		Find the sine, cosine, and tangent values of angle measures using the unit circle.
	Reciprocal Trigonometric Functions	
		Evaluate the six trigonometric functions for special angles.
		Simplify expressions involving the six trigonometric functions using reciprocal relationships.
		Solve right triangle trigonometry problems involving reciprocal trigonometric functions.
	Evaluating the Six Trigonometric Functions	
		Evaluate the six trigonometric functions for angles in degrees or radians based on one or more given trigonometric function values.
		Evaluate the six trigonometric functions for angles in degrees or radians given a point on the terminal ray.
	Graphing Sine and Cosine	
		Analyze key features of sine and cosine functions from equations and graphs.

Unit	Lesson	Lesson Objectives
	Changes in Period and Phase Shift of Sine and Cosine Functions	
		Relate transformations of the graphs of the sine and cosine functions to the equation.
	Solving Trigonometric Equations	
		Analyze key features of inverse trigonometric functions from equations and graphs.
		Evaluate inverse trigonometric functions over a specified domain.
		Solve trigonometric equations over a specified domain.
	Modeling with Periodic Functions	
		Model and solve real-world problems using periodic functions.