TX-Advanced Math 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
Linear Expressions, Equations, and Inequalities: Part One		
	Expressions in One Variable	
		Identify parts of an expression.
		Interpret expressions that represent a quantity in terms of its context.
		Write expressions to represent scenarios.
		Evaluate one-variable expressions.
	Solving Linear Equations: Variable on One Side	
		Determine the input value that produces the same output value for two functions from a table or graph.
		Explain the steps used to solve a one-variable linear equation having the variable on one side only.
		Solve one-variable linear equations having the variable on one side only, pointing out solutions that are viable or not viable in a modeling context.
		Create one-variable linear equations, having the variable on one side only, to model and solve problems.
	Solving Linear Equations: Variables on Both Sides	
		Explain the steps used to solve a one-variable linear equation having the variable on both sides.
		Solve one-variable linear equations having the variable on both sides using tables, graphs, or algebra, pointing out solutions that are viable or not viable in a modeling context.
		Create one-variable linear equations, having the variable on both sides, to model and solve problems.
	Solving Linear Equations: Distributive Property	
		Solve one-variable linear equations involving the distributive property.
		Determine if a one-variable linear equation has zero, one, or infinite solutions.
		Create one-variable linear equations involving the distributive property to model and solve problems.

TX-Advanced Math 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
	Solving Mixture Problems	
		Use a table to organize information given in mixture problems.
		Write and solve one-variable linear equations to model and solve mixture problems.
	Solving Rate Problems	
		Use a table to organize information given in time-distance-rate and work problems.
		Write and solve one-variable linear equations to model and solve time-distance-rate and work problems.
	Unit Test	
Linear Expressions, Equations, and Inequalities: Part Two		
	Equations in One Variable	
		Explain the steps used to solve a two-step, one-variable linear equation.
		Create two-step, one-variable linear equations to model problems.
		Solve two-step, one-variable linear equations and simple absolute value equations, pointing out solutions that are viable or not viable in a modeling context.
	Performance Task: Tablet Time	
	Literal Equations	
		Rearrange a literal equation to highlight a quantity of interest and use it to solve problems.
	Solving One-Variable Inequalities	
		Explain the steps used to solve a multistep one-variable linear inequality.
		Solve multistep one-variable linear inequalities.
		Graph the solution sets of one-variable linear inequalities.
	Inequalities in One Variable	

TX-Advanced Math 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
		Explain the steps used to solve a two-step one-variable linear inequality.
		Solve two-step one-variable linear inequalities, and state the solution in set or interval notation or graph it on a number line.
		Create two-step one-variable linear inequalities to model and solve problems, pointing out solutions that are viable or not viable in the context.
	Introduction to Compound Inequalities	
		Write compound inequalities to model problems.
		Relate the solution set of a compound inequality to its graph.
	Solving Compound Inequalities	
		Solve one-variable compound inequalities, pointing out solutions that are viable or not viable in a modeling context, and graph the solutions.
		Create one-variable compound linear inequalities to model and solve problems.
	Unit Test	
Introduction to Functions		
	Introduction to Functions	
		Determine the domain and range of a functional relationship given in a mapping diagram, table, graph, or scenario.
		Analyze a mapping diagram, table, graph, or scenario to recognize functional relationships.
	Evaluating Functions	
		Analyze a function represented by an equation, table, or graph to determine the output when given the input, and vice versa.
		Find input and output values of two functions graphed in the same coordinate plane.
		Write the inverse of a given linear function.
	Using Function Notation	

TX-Advanced Math 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
		Identify the domain and range of a function.
		Use function notation to describe and evaluate a function.
	Writing and Graphing Equations in Two Variables	
		Construct a table of values and a graph for a two-variable linear equation that models a situation, pointing out solutions that are viable or not viable based on the context.
		Write a two-variable linear equation to model a quantitative relationship, describing the constraints of the model based on the context.
		Interpret graphs and rates by examining the quantities represented by each axis.
	Linear vs. Nonlinear Functions	
		Interpret the rate of change from a graph or table.
		Differentiate functions as either linear or nonlinear.
	Unit Test	
Investigation of Linear Functions and Inequalities: Part One		
	Introduction to Linear Functions	
		Calculate the rate of change of a function and, if constant, the initial value of the function.
		Determine if a relationship is linear by analyzing the rate of change.
		Calculate the rate of change of a function and, if constant, the initial value of the function.
	Constructing Linear Functions	
		Analyze linear functions to find the rate of change and initial value.
		Interpret the rate of change and initial value of a linear function in terms of the situation it models.
	Rate of Change and Introduction to Slope	
		Determine the positive slope of a line from a table and a graph.

TX-Advanced Math 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
		Compare positive slopes in a real-world situation.
	Exploring Slope	
		Recognize the difference between positive slope, negative slope, no slope, and zero slope.
		Determine the value of the slope of a line from a table or a graph.
	Proportional Relationships	
		Determine whether a linear function is a direct variation.
		Solve problems involving direct variation.
		Compare proportional and nonproportional linear functions in the form of a table, graph, and equation.
	Slope of a Line	
		Identify if the slope of a linear relationship is zero, positive, negative, or undefined.
		Determine the slope of a line from a graph, table of values, or ordered pairs.
		Interpret slope in the context of real-world scenarios.
	Unit Test	
Investigation of Linear Functions and Inequalities: Part Two		
	Slope-Intercept Form of a Line	
		Identify the slope and y-intercept of a linear function, and use them to graph the function.
		Write a linear function, in slope-intercept form, for a given relationship.
		Analyze how a change in a parameter of a linear function affects its graph or the scenario it represents.
	Point-Slope Form of a Line	
		Write the equation of a line given its slope and a point on the line in point-slope form, and express the relationship as a function.
		Graph a line given its equation in point-slope form, identifying the slope and intercepts.

TX-Advanced Math 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
	Standard Form of a Line	
		Write the equation of a line in standard form given a graph or scenario.
		Graph a line given its equation in standard form, identifying the slope and intercepts.
	Similar Triangles and Slope	
		Interpret similar triangles created by intersecting transversal and parallel lines.
		Find unknown measurements of similar triangles.
		Use similar triangles in the coordinate plane to write linear equations.
	Graphing Two-Variable Linear Inequalities	
		Relate the graph of a two-variable linear inequality to its algebraic representation.
	Modeling with Two-Variable Linear Inequalities	
		Create a two-variable linear inequality to model a problem.
		Graph the solutions to a two-variable linear inequality.
		Interpret the solutions of a two-variable linear inequality in a modeling context.
	Unit Test	
Application of Linear Functions		
	Writing and Solving Equations in Two Variables	
		Solve for an unknown quantity in a two-variable linear equation, given one of the values.
		Determine a two-variable linear equation that represents a scenario, identifying constraints on the variables in terms of the context.
	Writing Two-Variable Linear Equations	

TX-Advanced Math 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
		Create linear equations given information about points, slope, and intercepts.
		Solve problems by writing two-variable linear equations.
	Equations of Parallel and Perpendicular Lines	
		Determine the slope of a line that is parallel or perpendicular to a given line.
		Write the equation of a line that contains a given point and is parallel or perpendicular to a given line.
		Given two lines, verify mathematically that the lines are parallel or perpendicular.
	Line of Best Fit	
		Determine if a data set shows a correlation and, if so, the type of correlation.
		Use technology to determine the line of best fit for a data set, and interpret the parameters of the model in context.
		Use a line of best fit to make a prediction.
		Determine if a given linear function is a reasonable model for a set of data arising from a real-world situation
	Strength of Correlation	
		Calculate the correlation coefficient for a linear model using technology.
		Interpret the strength of a linear model based on the correlation coefficient.
		Analyze data to draw conclusions about correlation and causation.
	Unit Test	
Systems of Linear Equations and Inequalities		
	Introduction to Systems of Linear Equations	
		Create a system of linear equations to model a problem.
		Solve a system of linear equations graphically, using technology as a tool for finding the solution, when appropriate.

TX-Advanced Math 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
		Interpret the solution of a system of linear equations in a modeling context.
	Solving Systems of Linear Equations: Graphing	
		Use technology to find or approximate the solution of a system of linear equations graphically.
		Analyze a system of linear equations to determine if it has one solution, no solution, or infinitely many solutions.
	Solving Systems of Linear Equations: Substitution	
		Solve a system of linear equations using substitution.
		Interpret the solution of a system of linear equations in a modeling context.
	Solving Systems: Introduction to Linear Combinations	
		Solve systems of linear equations using linear combinations, limiting the systems to those that do not require multiples of both equations.
		Interpret the solution of a system of linear equations in a modeling context.
		Verify that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.
	Solving Systems of Linear Equations: Linear Combinations	
		Solve a system of linear equations using linear combinations.
		Interpret the solution of a system of linear equations in a modeling context.
	Modeling with Systems of Linear Equations	
		Create a system of linear equations to model a problem.

TX-Advanced Math 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
		Interpret the solution of a system of linear equations in a modeling context.
	Solving Systems of Linear Inequalities	
		Identify solutions of a system of two-variable linear inequalities.
		Graph a system of two-variable linear inequalities.
		Determine a system of two-variable linear inequalities given a solution set.
	Modeling with Systems of Linear Inequalities	
		Create a system of two-variable linear inequalities to model a problem.
		Graph the solutions to a system of two-variable linear inequalities.
		Interpret the solutions to a system of two-variable linear inequalities in a modeling context.
	Unit Test	
Cumulative Exam		
	Cumulative Exam Review	
	Cumulative Exam	
Laws of Exponents, Expressions, and Factoring: Part One		
	Adding and Subtracting Polynomials	
		Add and subtract polynomials, determining the degree and number of terms of the sum or difference.
		Find and evaluate polynomial sums or differences that model real-world situations.
	Laws of Exponents	
		Apply the properties of whole-number exponents to generate equivalent expressions.
	Rational Exponents	
		Evaluate numeric expressions using properties of rational exponents.
		Simplify algebraic expressions using properties of rational exponents.

TX-Advanced Math 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
	Multiplying Monomials and Binomials	
		Multiply a binomial by a monomial or binomial algebraically and by using geometric models.
		Identify a product that results in the difference of squares or a perfect square trinomial.
	Multiplying Polynomials and Simplifying Expressions	
		Multiply a binomial by a trinomial algebraically and by using geometric models.
		Interpret the structure of an expression involving addition, subtraction, and multiplication of polynomials in order to write it as a single polynomial in standard form.
	Polynomial Division	
		Divide a polynomial of degree one or two by a polynomial of equal or lower degree.
	Unit Test	
Laws of Exponents, Expressions, and Factoring: Part Two		
	Factoring Polynomials: GCF	
		Determine the greatest common monomial factor of two or more terms.
		Write a polynomial as the product of a monomial and polynomial having the same number of terms.
		Determine an appropriate way to factor a polynomial for a given context.
	Factoring Polynomials: Double Grouping	
		Factor a polynomial by double grouping or indicate that the polynomial is prime.
	Factoring Trinomials: a = 1	
		Determine if a trinomial with a leading coefficient of 1 and a positive constant is factorable and, if so, write it in factored form.
		Relate the factorization of a trinomial with a leading coefficient of 1 and a positive constant to a geometric model.

TX-Advanced Math 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
	Factoring Trinomials: a = 1 (Continued)	
		Determine if a trinomial with a leading coefficient of 1 and a negative constant is factorable and, if so, write it in factored form.
		Relate the factorization of a trinomial with a leading coefficient of 1 and a negative constant to a geometric model.
	Factoring Trinomials: a > 1	
		Determine if a trinomial with a leading coefficient greater than 1 is factorable and, if so, write it in factored form.
		Relate the factorization of a trinomial with a leading coefficient greater than 1 to a geometric model.
	Factoring Polynomials: Difference of Squares	
		Identify a monomial that is a perfect square and find the square root.
		Determine if a polynomial is factorable by recognizing that it is a difference of two squares and, if so, applying the identity.
	Unit Test	
Quadratic Equations and Simplification of Numerical Radical Expressions		
	Solving Quadratic Equations: Zero Product Property	
		Solve problems by factoring quadratic equations given in standard form.
		Write quadratic equations given rational solutions.
	Solving Quadratic Equations: Factoring	
		Write a quadratic equation that models a scenario.
		Solve problems by rewriting quadratic equations in standard form and factoring, pointing out the solutions that are viable or not viable in a modeling context.
	Solving Quadratic Equations: Square Root Property	
		Use the square root property to solve quadratic equations.

TX-Advanced Math 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
	Solving Quadratic Equations: Completing the Square	
		Solve a quadratic equation whose leading coefficient is 1 by completing the square.
	Solving Quadratic Equations: Completing the Square (Continued)	
		Solve a quadratic equation whose leading coefficient is greater than 1 by completing the square.
	Introduction to the Quadratic Formula	
		Justify the steps used to derive the quadratic formula by completing the square.
		Determine the values of a, b, and c from a given quadratic equation in standard form.
		Recognize an expression that uses the quadratic formula to find the solutions of a quadratic equation.
		Relate the discriminant in the quadratic formula to the types of solutions of a quadratic equation.
	Solving Quadratic Equations: Quadratic Formula	
		Solve a quadratic equation using the quadratic formula.
		Determine the number of real zeros of a quadratic function by finding the values of a, b, and c, and then calculating the discriminant.
	Modeling with Quadratic Equations	
		Write and solve quadratic equations to model real-world scenarios, estimating where appropriate and identifying solutions that are not viable in terms of the context.
	The Square Root Function	
		Simplify a square root whose radicand is a perfect square.
		Graph the square root function and reflections over the axes.
		State the domain and range of square root functions.

Unit	Lesson	Objectives
	Rewriting Expressions with Radicals	
		Use operations to rewrite expressions involving radicals.
	Unit Test	
Investigation and Application of Quadratic Functions		
	Introduction to Quadratic Functions	
		Identify a quadratic function and the values of the coefficients and constant from the standard form.
		Evaluate a quadratic function using tables, graphs, and equations.
		Calculate the rate of change of a quadratic function over an interval of its domain, and compare it to linear and exponential functions.
	Quadratic Functions: Standard Form	
		Graph a quadratic function given in standard form, identifying the key features of the graph.
	Quadratic Functions: Factored Form	
		Multiply a binomial by a monomial or binomial algebraically and by using geometric models.
		Identify a product that results in the difference of squares or a perfect square trinomial.
	Quadratic Functions: Vertex Form	
		Graph a quadratic function given in vertex form, identifying the key features of the graph.
		Relate the parameters of a quadratic function in vertex form to transformations of the graph y = x2.
	Completing the Square	
		Relate the geometric model of completing the square to the algebraic process.
		Write quadratic functions given in standard form and with a = 1 into vertex form by completing the square.
		Determine key aspects of the graph of a quadratic function given in standard form and with a = 1 by writing it in vertex form.

TX-Advanced Math 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
		Relate the parameters of a quadratic function in vertex form to transformations of the graph y = x2.
	Completing the Square (Continued)	
		Write quadratic functions given in standard form into vertex form by completing the square.
		Determine key aspects of the graph of a quadratic function given in standard form by writing it in vertex form.
		Relate the parameters of a quadratic function in vertex form to transformations of the graph y = x2.
	Modeling with Quadratic Functions	
		Write quadratic functions to model problems.
		Use quadratic functions to solve mathematical and real-world problems.
	Quadratic Equations and their Related Functions	
		Relate the solutions of a quadratic equation to the x-intercepts of the related quadratic function, and use the function's graph to solve the equation.
	Performance Task: Daredevil Danny	
	Unit Test	
Investigation and Application of Exponential Functions		
	Exponential Growth Functions	
		Identify an exponential growth function given tables, graphs, and function rules, determining the rate of change.
		Graph an exponential growth function, and state the domain and range.
		State the domain and range of an exponential growth function.
		Write an exponential growth function to model a real-world problem, pointing out constraints in the modeling context.
	Exponential Decay Functions	
		Identify an exponential decay function given tables, graphs, and function rules, determining the rate of change.
		Graph an exponential decay function, and state the domain and range.

TX-Advanced Math 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
		Write an exponential decay function to model a real-world problem, pointing out constraints in the modeling context.
		Relate exponential growth and decay functions using laws of exponents and reflections over the y-axis.
	Comparing Exponential, Linear, and Quadratic Growth	
		Use tables and graphs to compare the growth of an exponential function to the growth of a linear function over equal intervals.
		Use tables and graphs to compare the growth of an exponential function to the growth of a quadratic or a polynomial function over equal intervals.
		Use tables and graphs to show that exponential functions grow by equal factors over equal intervals.
	Introduction to Modeling with Functions	
		Analyze a data set to determine a linear, quadratic, or exponential function to model it.
		Write exponential functions and expressions in equivalent forms, using the properties of exponents to justify steps.
	Regression Models	
		Determine an exponential, quadratic, or linear model for a given data set using technology.
		Identify limitations of models in real-world contexts.
		Use a linear, quadratic, or exponential regression model to make a prediction.
		Interpret the graph of a regression model in the context of the problem.
	Unit Test	
Arithmetic and Geometric Sequences		
	Recognizing Patterns	
		Analyze a sequence of numbers to determine the pattern, and identify whether it is arithmetic or geometric.
		Use a recursive rule to calculate a term of a sequence.

TX-Advanced Math 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
		Write a recursive rule for a sequence.
	Special Linear Relationships	
		Determine if a relationship is a direct variation.
		Find the constant of variation in a direct variation.
		Write an equation for a direct variation.
		Write recursive and explicit rules for arithmetic sequences using function notation.
	Geometric Sequences	
		Write recursive and explicit rules for geometric sequences using function notation.
		Graph and analyze geometric sequences as a special case of exponential functions with the domain restricted to natural numbers.
	Unit Test	
Patterns in Bivariate Data		
	Constructing Scatterplots	
		Create a scatterplot using a table of values.
		Analyze a scatterplot.
		Classify dependent and independent variables.
	Interpreting Clusters and Outliers	
		Identify clusters and outliers in a scatterplot and table of values.
		Analyze the influence outliers and clusters have on the data set.
		Explain the meaning of clusters and outliers in context.
	Exploring Association	
		Analyze the correlation and association in scatterplots.

TX-Advanced Math 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
	Drawing Trend Lines	
		Use a graphing calculator to graph scatterplots and draw the trend line.
		Draw a line of best fit in scatterplots and identify its purpose.
	Using Equations to Represent Trend Lines	
		Find and interpret the slope of a trend line.
		Create the linear equation of the trend line.
	Making Predictions	
		Use a calculator to graph a scatterplot and create line of best fit.
		Substitute x- and y-values into the data to create predictions of a real-world scenario.
		Analyze data to determine interpolations and extrapolations.
	Comparing Data Sets	
		Compare and contrast sets of data.
		Analyze data sets using the trend line.
	Unit Test	
Cumulative Exam		
	Cumulative Exam Review	
	Cumulative Exam	