

Current TEKS	Proposed TEKS
	<p>(b) Introduction.</p> <p>(1) The desire to achieve educational excellence is the driving force behind the Texas essential knowledge and skills for mathematics, guided by the college and career Readiness Standards. By embedding statistics, probability, and finance, while focusing on fluency and solid understanding, Texas will lead the way in mathematics education and prepare all Texas students for the challenges they will face in the 21st century.</p>
<p>(a) Basic understandings.</p> <p>(1) Foundation concepts for high school mathematics. As presented in Grades K-8, the basic understandings of number, operation, and quantitative reasoning; patterns, relationships, and algebraic thinking; geometry; measurement; and probability and statistics are essential foundations for all work in high school mathematics. Students continue to build on this foundation as they expand their understanding through other mathematical experiences.</p>	

Current TEKS	Proposed TEKS
<p>(a) Basic understandings.</p> <p>(2) Algebraic thinking and symbolic reasoning. Symbolic reasoning plays a critical role in algebra; symbols provide powerful ways to represent mathematical situations and to express generalizations. Students study algebraic concepts and the relationships among them to better understand the structure of algebra.</p>	<p>(b) Introduction.</p> <p>(2) The process standards describe ways in which students are expected to engage in the content. The placement of the process standards at the beginning of the knowledge and skills listed for each grade and course is intentional. The process standards weave the other knowledge and skills together so that students may be successful problem solvers and use mathematics efficiently and effectively in daily life. The process standards are integrated at every grade level and course. When possible, students will apply mathematics to problems arising in everyday life, society, and the workplace. Students will use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Students will select appropriate tools such as real objects, manipulatives, paper and pencil, and technology and techniques such as mental math, estimation, and number sense to solve problems. Students will effectively communicate mathematical ideas, reasoning, and their implications using multiple representations such as symbols, diagrams, graphs, and language. Students will use mathematical relationships to generate solutions and make connections and predictions. Students will analyze mathematical relationships to connect and communicate mathematical ideas. Students will display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.</p>
<p>(a) Basic understandings.</p> <p>(3) Functions, equations, and their relationship. The study of functions, equations, and their relationship is central to all of mathematics. Students perceive functions and equations as means for analyzing and understanding a broad variety of relationships and as a useful tool for expressing generalizations.</p>	<p>(b) Introduction.</p> <p>(3) In Algebra II students build on the foundations from Kindergarten - Grade 8 and Algebra I. Students broaden their knowledge of quadratic functions, exponential functions, and systems of equations. They study logarithmic, square root, cubic, cube root, absolute value, rational functions, and their related equations. Students connect functions to their inverses and to their associated equations and solutions in both mathematical and real-world situations. In addition, students extend their knowledge of data analysis and numeric and algebraic methods.</p>
<p>(a) Basic understandings.</p> <p>(4) Relationship between algebra and geometry. Equations and functions are algebraic tools that can be used to represent geometric curves and figures; similarly, geometric figures can illustrate algebraic relationships. Students perceive the connections between algebra and geometry and use the tools of one to help solve problems in the other.</p>	

Current TEKS	Proposed TEKS
<p>(a) Basic understandings.</p> <p>(5) Tools for algebraic thinking. Techniques for working with functions and equations are essential in understanding underlying relationships. Students use a variety of representations (concrete, pictorial, numerical, symbolic, graphical, and verbal), tools, and technology (including, but not limited to, calculators with graphing capabilities, data collection devices, and computers) to model mathematical situations to solve meaningful problems.</p>	
<p>(a) Basic understandings.</p> <p>(6) Underlying mathematical processes. Many processes underlie all content areas in mathematics. As they do mathematics, students continually use problem-solving, language and communication, and reasoning (justification and proof) to make connections within and outside mathematics. Students also use multiple representations, technology, applications and modeling, and numerical fluency in problem-solving contexts.</p>	
	<p>(4) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.</p>

Current TEKS	Proposed TEKS: Mathematical Process Standards
	<p>(1) <b>Mathematical Process Standards.</b> The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <p><b>(A) apply mathematics to problems arising in everyday life, society, and the workplace</b></p>
	<p>(1) <b>Mathematical Process Standards.</b> The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <p><b>(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution</b></p>

	(1) <b>Mathematical Process Standards.</b> The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to: <b>(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems</b>
	(1) <b>Mathematical Process Standards.</b> The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to: <b>(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate</b>
	(1) <b>Mathematical Process Standards.</b> The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to: <b>(E) create and use representations to organize, record, and communicate mathematical ideas</b>
	(1) <b>Mathematical Process Standards.</b> The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to: <b>(F) analyze mathematical relationships to connect and communicate mathematical ideas</b>
	(1) <b>Mathematical Process Standards.</b> The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to: <b>(G) display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication</b>

Current TEKS: Foundations for functions	Proposed TEKS
<p>(2A.1) <b>Foundations for functions.</b> The student uses properties and attributes of functions and applies functions to problem situations.</p> <p><b>(A) identify the mathematical domains and ranges of functions and determine reasonable domain and range values for continuous and discrete situations;</b></p>	<p>(7) <b>Number and Algebraic Methods.</b> The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <p><b>(I) write the domain and range of a function in interval notation, inequalities and set notation</b></p>
<p>(2A.1) <b>Foundations for functions.</b> The student uses properties and attributes of functions and applies functions to problem situations.</p> <p><b>(B) collect and organize data, make and interpret scatterplots, fit the graph of a function to the data, interpret the results, and proceed to model, predict, and make decisions and critical judgments.</b></p>	<p>(8) <b>Data.</b> The student applies mathematical processes to analyze data, select appropriate models, write corresponding functions, and make predictions. The student is expected to:</p> <p><b>(A) analyze data to select the appropriate model from among linear, quadratic, and exponential models;</b></p>
	<p>(8) <b>Data.</b> The student applies mathematical processes to analyze data, select appropriate models, write corresponding functions, and make predictions. The student is expected to:</p> <p><b>(B) use regression methods available through technology to write a linear function, a quadratic function, and an exponential function from a given set of data</b></p>
	<p>(8) <b>Data.</b> The student applies mathematical processes to analyze data, select appropriate models, write corresponding functions, and make predictions. The student is expected to:</p> <p><b>(C) predict and make decisions and critical judgments from a given set of data using linear, quadratic, and exponential models</b></p>
<p>(2A.2) <b>Foundations for functions.</b> The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations.</p> <p><b>(A) use tools including factoring and properties of exponents to simplify expressions and to transform and solve equations; and</b></p>	

Current TEKS: Foundations for functions	Proposed TEKS
<p>(2A.2) <b>Foundations for functions.</b> The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations.</p> <p><b>(B) use complex numbers to describe the solutions of quadratic equations.</b></p>	<p><b>(7) Number and Algebraic Methods.</b> The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <p><b>(A) add, subtract, and multiply complex numbers;</b></p>
<p>(2A.3) <b>Foundations for functions.</b> The student formulates systems of equations and inequalities from problem situations, uses a variety of methods to solve them, and analyzes the solutions in terms of the situations.</p> <p><b>(A) analyze situations and formulate systems of equations in two or more unknowns or inequalities in two unknowns to solve problems;</b></p>	<p><b>(3) Systems of Equations and Inequalities.</b> The student applies mathematical processes to formulate systems of equations and inequalities, to use a variety of methods to solve, and to analyze reasonableness of solutions. The student is expected to:</p> <p><b>(A) formulate systems of equations, including systems consisting of three linear equations in three variables and systems consisting of two equations, the first linear and the second quadratic</b></p> <p><b>(3) Systems of Equations and Inequalities.</b> The student applies mathematical processes to formulate systems of equations and inequalities, to use a variety of methods to solve, and to analyze reasonableness of solutions. The student is expected to:</p> <p><b>(E) formulate systems of at least two linear inequalities in two variables</b></p>

Current TEKS: Foundations for functions	Proposed TEKS
<p>(2A.3) <b>Foundations for functions.</b> The student formulates systems of equations and inequalities from problem situations, uses a variety of methods to solve them, and analyzes the solutions in terms of the situations.</p> <p><b>(B) use algebraic methods, graphs, tables, or matrices, to solve systems of equations or inequalities;</b></p>	<p>(3) <b>Systems of Equations and Inequalities.</b> The student applies mathematical processes to formulate systems of equations and inequalities, to use a variety of methods to solve, and to analyze reasonableness of solutions. The student is expected to:</p> <p><b>(B) solve systems of three linear equations in three variables by using Gaussian elimination, technology with matrices, and substitution</b></p> <p>(3) <b>Systems of Equations and Inequalities.</b> The student applies mathematical processes to formulate systems of equations and inequalities, to use a variety of methods to solve, and to analyze reasonableness of solutions. The student is expected to:</p> <p><b>(C) solve, algebraically, systems of two equations in two variables consisting of a linear equation and a quadratic equation</b></p> <p>(3) <b>Systems of Equations and Inequalities.</b> The student applies mathematical processes to formulate systems of equations and inequalities, to use a variety of methods to solve, and to analyze reasonableness of solutions. The student is expected to:</p> <p><b>(F) solve systems of two or more linear inequalities in two variables</b></p>
<p>(2A.3) <b>Foundations for functions.</b> The student formulates systems of equations and inequalities from problem situations, uses a variety of methods to solve them, and analyzes the solutions in terms of the situations.</p> <p><b>(C) interpret and determine the reasonableness of solutions to systems of equations or inequalities for given contexts.</b></p>	<p>(3) <b>Systems of Equations and Inequalities.</b> The student applies mathematical processes to formulate systems of equations and inequalities, to use a variety of methods to solve, and to analyze reasonableness of solutions. The student is expected to:</p> <p><b>(D) determine the reasonableness of solutions to systems of a linear equation and a quadratic equation in two variables</b></p> <p>(3) <b>Systems of Equations and Inequalities.</b> The student applies mathematical processes to formulate systems of equations and inequalities, to use a variety of methods to solve, and to analyze reasonableness of solutions. The student is expected to:</p> <p><b>(G) determine possible solutions in the solution set of systems of two or more linear inequalities in two variables</b></p>

Current TEKS: Algebra and geometry	Proposed TEKS
<p>(2A.4) <b>Algebra and geometry.</b> The student connects algebraic and geometric representations of functions.</p> <p><b>(A) identify and sketch graphs of parent functions, including linear (<math>f(x) = x</math>), quadratic (<math>f(x) = x^2</math>), exponential (<math>f(x) = a^x</math>), and logarithmic (<math>f(x) = \log_a x</math>) functions, absolute value of <math>x</math> (<math>f(x) =  x </math>), square root of <math>x</math> (<math>f(x) = \sqrt{x}</math>), and reciprocal of <math>x</math> (<math>f(x) = 1/x</math>);</b></p>	<p>(2) <b>Attributes of Functions and their Inverses.</b> The student applies mathematical processes to understand that functions have distinct key attributes and to understand the relationship between a function and its inverse. The student is expected to</p> <p><b>(A) graph the functions, <math>f(x) = \sqrt{x}</math>, <math>f(x) = \frac{1}{x}</math>, <math>f(x) = x^3</math>, <math>f(x) = \sqrt[3]{x}</math>, <math>f(x) = b^x</math>, <math>f(x) = x</math>, and <math>f(x) = \log_b x</math> where <math>b</math> is 2, 10 and <math>e</math> and when applicable analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum</b></p>
<p>(2A.4) <b>Algebra and geometry.</b> The student connects algebraic and geometric representations of functions.</p> <p><b>(B) extend parent functions with parameters such as <math>a</math> in <math>f(x) = a/x</math> and describe the effects of the parameter changes on the graph of parent functions;</b></p>	<p><i>Parameter Changes TEKS for each focus function exist</i></p>
<p>(2A.4) <b>Algebra and geometry.</b> The student connects algebraic and geometric representations of functions.</p> <p><b>(C) describe and analyze the relationship between a function and its inverse.</b></p>	<p>(2) <b>Attributes of Functions and their Inverses.</b> The student applies mathematical processes to understand that functions have distinct key attributes and to understand the relationship between a function and its inverse. The student is expected to</p> <p><b>(B) graph and write the inverse of a function using notation such as <math>f^{-1}(x)</math></b></p> <p>(2) <b>Attributes of Functions and their Inverses.</b> The student applies mathematical processes to understand that functions have distinct key attributes and to understand the relationship between a function and its inverse. The student is expected to</p> <p><b>(C) describe and analyze the relationship between a function and its inverse (quadratic and square root, logarithmic and exponential), including the restriction(s) on domain and which will restrict its range</b></p> <p>(2) <b>Attributes of Functions and their Inverses.</b> The student applies mathematical processes to understand that functions have distinct key attributes and to understand the relationship between a function and its inverse. The student is expected to</p> <p><b>(D) use the composition of two functions, including the necessary restrictions on the domain, to determine if the functions are inverses of each other</b></p>
<p>(2A.5) <b>Algebra and geometry.</b> The student knows the relationship between the geometric and algebraic descriptions of conic sections.</p> <p><b>(A) describe a conic section as the intersection of a plane and a cone</b></p>	<p><i>Moved to Pre-calculus</i></p>



Current TEKS: Algebra and geometry	Proposed TEKS
<p>(2A.5) <b>Algebra and geometry.</b> The student knows the relationship between the geometric and algebraic descriptions of conic sections.</p> <p><b>(B) sketch graphs of conic sections to relate simple parameter changes in the equation to corresponding changes in the graph</b></p>	<p><i>Moved to Pre-calculus</i></p>
<p>(2A.5) <b>Algebra and geometry.</b> The student knows the relationship between the geometric and algebraic descriptions of conic sections.</p> <p><b>(C) identify symmetries from graphs of conic sections;</b></p>	<p><i>Moved to Pre-calculus</i></p>
<p>(2A.5) <b>Algebra and geometry.</b> The student knows the relationship between the geometric and algebraic descriptions of conic sections.</p> <p><b>(D) identify the conic section from a given equation</b></p>	<p><i>Moved to Pre-calculus</i></p>
<p>(2A.5) <b>Algebra and geometry.</b> The student knows the relationship between the geometric and algebraic descriptions of conic sections.</p> <p><b>(E) use the method of completing the square.</b></p>	<p><i>Moved to Algebra I (A.8A)</i></p>
<p>(2A.6) <b>Quadratic and square root functions.</b> The student understands that quadratic functions can be represented in different ways and translates among their various representations.</p> <p><b>(A) determine the reasonable domain and range values of quadratic functions, as well as interpret and determine the reasonableness of solutions to quadratic equations and inequalities</b></p>	<p><i>Moved to Algebra I (A.6A)</i></p>
<p>(2A.6) <b>Quadratic and square root functions.</b> The student understands that quadratic functions can be represented in different ways and translates among their various representations.</p> <p><b>(B) relate representations of quadratic functions, such as algebraic, tabular, graphical, and verbal descriptions</b></p>	

Current TEKS: Algebra and geometry	Proposed TEKS
<p>(2A.6) <b>Quadratic and square root functions.</b> The student understands that quadratic functions can be represented in different ways and translates among their various representations.</p> <p><b>(C) determine a quadratic function from its roots or a graph.</b></p>	<p><i>Moved to Algebra I (A.6C)</i></p>
	<p><b>(4) Quadratic and Square Root Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that quadratic and square root functions, equations, and quadratic inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(A) write the quadratic function given three specified points in the plane</b></p> <p><b>(4) Quadratic and Square Root Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that quadratic and square root functions, equations, and quadratic inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(B) write the equation of a parabola using given attributes, including vertex, focus, directrix, axis of symmetry, and direction of opening</b></p>

Current TEKS: Quadratic and square root functions	Proposed TEKS
<p>(2A.7) <b>Quadratic and square root functions.</b> The student interprets and describes the effects of changes in the parameters of quadratic functions in applied and mathematical situations.</p> <p><b>(A) use characteristics of the quadratic parent function to sketch the related graphs and connect between the <math>y = ax^2 + bx + c</math> and the <math>y = a(x - h)^2 + k</math> symbolic representations of quadratic functions</b></p>	<p><b>(4) Quadratic and Square Root Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that quadratic and square root functions, equations, and quadratic inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(D) transform a quadratic function <math>f(x) = ax^2 + bx + c</math> to the form <math>f(x) = a(x - h)^2 + k</math> to identify the different attributes of <math>f(x)</math></b></p>
<p>(2A.7) <b>Quadratic and square root functions.</b> The student interprets and describes the effects of changes in the parameters of quadratic functions in applied and mathematical situations.</p> <p><b>(B) use the parent function to investigate, describe, and predict the effects of changes in <math>a</math>, <math>h</math>, and <math>k</math> on the graphs of <math>y = a(x - h)^2 + k</math> form of a function in applied and purely mathematical situations.</b></p>	<p><i>Moved to Algebra I (A.7C)</i></p>
<p>(2A.8) <b>Quadratic and square root functions.</b> The student formulates equations and inequalities based on quadratic functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(A) analyze situations involving quadratic functions and formulate quadratic equations or inequalities to solve problems</b></p>	<p><i>Moved to Algebra I (A.8B)</i></p>
<p>(2A.8) <b>Quadratic and square root functions.</b> The student formulates equations and inequalities based on quadratic functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(B) analyze and interpret the solutions of quadratic equations using discriminants and solve quadratic equations using the quadratic formula</b></p>	<p><b>(4) Quadratic and Square Root Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that quadratic and square root functions, equations, and quadratic inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(F) solve quadratic and square root equations</b></p>
<p>(2A.8) <b>Quadratic and square root functions.</b> The student formulates equations and inequalities based on quadratic functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(C) compare and translate between algebraic and graphical solutions of quadratic equations</b></p>	<p><i>Moved to Algebra I (A.7B)</i></p>

Current TEKS: Quadratic and square root functions	Proposed TEKS
<p>(2A.8) <b>Quadratic and square root functions.</b> The student formulates equations and inequalities based on quadratic functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(D) solve quadratic equations and inequalities using graphs, tables, and algebraic methods.</b></p>	<p><b>(4) Quadratic and Square Root Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that quadratic and square root functions, equations, and quadratic inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(F) solve quadratic and square root equations</b></p> <p><b>(4) Quadratic and Square Root Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that quadratic and square root functions, equations, and quadratic inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(H) solve quadratic inequalities</b></p>
<p>(2A.9) <b>Quadratic and square root functions.</b> The student formulates equations and inequalities based on square root functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(A) use the parent function to investigate, describe, and predict the effects of parameter changes on the graphs of square root functions and describe limitations on the domains and ranges</b></p>	<p><b>(4) Quadratic and Square Root Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that quadratic and square root functions, equations, and quadratic inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(C) determine the effect on the graph of <math>f(x) = \sqrt{x}</math> when <math>f(x)</math> is replaced by <math>a f(x)</math>, <math>f(x) + d</math>, <math>f(bx)</math>, and <math>f(x-c)</math> for specific positive and negative values of <math>a, b, c</math>, and <math>d</math></b></p>
<p>(2A.9) <b>Quadratic and square root functions.</b> The student formulates equations and inequalities based on square root functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(B) relate representations of square root functions, such as algebraic, tabular, graphical, and verbal descriptions</b></p>	
<p>(2A.9) <b>Quadratic and square root functions.</b> The student formulates equations and inequalities based on square root functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(C) determine the reasonable domain and range values of square root functions, as well as interpret and determine the reasonableness of solutions to square root equations and inequalities</b></p>	<p><b>(4) Quadratic and Square Root Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that quadratic and square root functions, equations, and quadratic inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(G) identify extraneous solutions of square root equations</b></p>

Current TEKS: Quadratic and square root functions	Proposed TEKS
<p>(2A.9) <b>Quadratic and square root functions.</b> The student formulates equations and inequalities based on square root functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(D) determine solutions of square root equations using graphs, tables, and algebraic methods</b></p>	<p>(4) <b>Quadratic and Square Root Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that quadratic and square root functions, equations, and quadratic inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(F) solve quadratic and square root equations</b></p>
<p>(2A.9) <b>Quadratic and square root functions.</b> The student formulates equations and inequalities based on square root functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(E) determine solutions of square root inequalities using graphs and tables</b></p>	
<p>(2A.9) <b>Quadratic and square root functions.</b> The student formulates equations and inequalities based on square root functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(F) analyze situations modeled by square root functions, formulate equations or inequalities, select a method, and solve problems</b></p>	<p>(4) <b>Quadratic and Square Root Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that quadratic and square root functions, equations, and quadratic inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(E) formulate quadratic and square root equations using technology given a table of data</b></p>
<p>(2A.9) <b>Quadratic and square root functions.</b> The student formulates equations and inequalities based on square root functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(G) connect inverses of square root functions with quadratic functions.</b></p>	<p>(2) <b>Attributes of Functions and their Inverses.</b> The student applies mathematical processes to understand that functions have distinct key attributes and to understand the relationship between a function and its inverse. The student is expected to</p> <p><b>(C) describe and analyze the relationship between a function and its inverse (quadratic and square root, logarithmic and exponential), including the restrictions on domains and ranges</b></p>

Current TEKS: Rational functions	Proposed TEKS
<p>(2A.10) <b>Rational functions.</b> The student formulates equations and inequalities based on rational functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(A) use quotients of polynomials to describe the graphs of rational functions, predict the effects of parameter changes, describe limitations on the domains and ranges, and examine asymptotic behavior</b></p>	<p><b>(6) Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that cubic, cube root, rational, and absolute value functions and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(G) analyze the effect on the graphs of <math>f(x) = \frac{1}{x}</math>, when <math>f(x)</math> is replaced by <math>a \cdot f(x)</math>, <math>f(bx)</math>, <math>f(x-c)</math>, and <math>f(x) + d</math> for specific positive and negative real values of <math>a</math>, <math>b</math>, <math>c</math>, and <math>d</math></b></p>
<p>(2A.10) <b>Rational functions.</b> The student formulates equations and inequalities based on rational functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(B) analyze various representations of rational functions with respect to problem situations</b></p>	
<p>(2A.10) <b>Rational functions.</b> The student formulates equations and inequalities based on rational functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(C) determine the reasonable domain and range values of rational functions, as well as interpret and determine the reasonableness of solutions to rational equations and inequalities</b></p>	<p><b>(6) Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that cubic, cube root, rational, and absolute value functions and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(J) determine the reasonableness-of a solution to a rational equation</b></p> <p><b>(6) Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that cubic, cube root, rational, and absolute value functions and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(K) determine the asymptotic restrictions on the domain of a rational function and represent domain and range using interval notation, inequalities, and set notation</b></p>
<p>(2A.10) <b>Rational functions.</b> The student formulates equations and inequalities based on rational functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(D) determine the solutions of rational equations using graphs, tables, and algebraic methods</b></p>	<p><b>(6) Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that cubic, cube root, rational, and absolute value functions and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(I) solve rational equations that have real solutions</b></p>

Current TEKS: Rational functions	Proposed TEKS
<p>(2A.10) <b>Rational functions.</b> The student formulates equations and inequalities based on rational functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(E) determine solutions of rational inequalities using graphs and tables</b></p>	<p><i>Moved to Pre-calculus (PC.5M)</i></p>
<p>(2A.10) <b>Rational functions.</b> The student formulates equations and inequalities based on rational functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(F) analyze a situation modeled by a rational function, formulate an equation or inequality composed of a linear or quadratic function, and solve the problem</b></p>	<p><b>(6) Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that cubic, cube root, rational, and absolute value functions and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(H) formulate rational equations that model real-world situations</b></p>
<p>(2A.10) <b>Rational functions.</b> The student formulates equations and inequalities based on rational functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(G) use functions to model and make predictions in problem situations involving direct and inverse variation.</b></p>	<p><b>(6) Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that cubic, cube root, rational, and absolute value functions and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(L) formulate and solve equations involving inverse variation</b></p>

Current TEKS: Exponential and logarithmic functions	Proposed TEKS
<p>(2A.11) <b>Exponential and logarithmic functions.</b> The student formulates equations and inequalities based on exponential and logarithmic functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(A) develop the definition of logarithms by exploring and describing the relationship between exponential functions and their inverses</b></p>	<p>(2) <b>Attributes of Functions and their Inverses.</b> The student applies mathematical processes to understand that functions have distinct key attributes and to understand the relationship between a function and its inverse. The student is expected to:</p> <p><b>(C) describe and analyze the relationship between a function and its inverse (quadratic and square root, logarithmic and exponential), including the restrictions on domains and ranges</b></p> <p>(5) <b>Exponential and Logarithmic Functions and Equations.</b> The student applies mathematical processes to understand that exponential and logarithmic functions can be used to model situations and solve problems. The student is expected to:</p> <p><b>(C) rewrite exponential equations as their corresponding logarithmic equations and logarithmic equations as their corresponding exponential equations</b></p>
<p>(2A.11) <b>Exponential and logarithmic functions.</b> The student formulates equations and inequalities based on exponential and logarithmic functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(B) use the parent functions to investigate, describe, and predict the effects of parameter changes on the graphs of exponential and logarithmic functions, describe limitations on the domains and ranges, and examine asymptotic behavior</b></p>	<p>(5) <b>Exponential and Logarithmic Functions and Equations.</b> The student applies mathematical processes to understand that exponential and logarithmic functions can be used to model situations and solve problems. The student is expected to:</p> <p><b>(A) determine the effects on the key attributes on the graphs of <math>f(x) = b^x</math> and <math>f(x) = \log_b(x)</math> where <math>b</math> is 2, 10 and <math>e</math> when <math>f(x)</math> is replaced by <math>a f(x)</math>, <math>f(x) + d</math>, and <math>f(x-c)</math> for specific positive and negative real values of <math>a, c</math> and <math>d</math></b></p>
<p>(2A.11) <b>Exponential and logarithmic functions.</b> The student formulates equations and inequalities based on exponential and logarithmic functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(C) determine the reasonable domain and range values of exponential and logarithmic functions, as well as interpret and determine the reasonableness of solutions to exponential and logarithmic equations and inequalities</b></p>	<p>(5) <b>Exponential and Logarithmic Functions and Equations.</b> The student applies mathematical processes to understand that exponential and logarithmic functions can be used to model situations and solve problems. The student is expected to:</p> <p><b>(E) determine the reasonableness of a solution to a logarithmic equation</b></p>
<p>(2A.11) <b>Exponential and logarithmic functions.</b> The student formulates equations and inequalities based on exponential and logarithmic functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(D) determine solutions of exponential and logarithmic equations using graphs, tables, and algebraic methods</b></p>	<p>(5) <b>Exponential and Logarithmic Functions and Equations.</b> The student applies mathematical processes to understand that exponential and logarithmic functions can be used to model situations and solve problems. The student is expected to:</p> <p><b>(D) solve exponential equations of the form <math>y = a \cdot b^x</math> where <math>a</math> is a nonzero real number and <math>b</math> is greater than zero and not equal to one and single logarithmic equations having real solutions</b></p>



Current TEKS: Exponential and logarithmic functions	Proposed TEKS
<p>(2A.11) <b>Exponential and logarithmic functions.</b> The student formulates equations and inequalities based on exponential and logarithmic functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(E) determine solutions of exponential and logarithmic inequalities using graphs and tables</b></p>	
<p>(2A.11) <b>Exponential and logarithmic functions.</b> The student formulates equations and inequalities based on exponential and logarithmic functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><b>(F) analyze a situation modeled by an exponential function, formulate an equation or inequality, and solve the problem.</b></p>	<p><b>(5) Exponential and Logarithmic Functions and Equations.</b> The student applies mathematical processes to understand that exponential and logarithmic functions can be used to model situations and solve problems. The student is expected to:</p> <p><b>(B) formulate exponential and logarithmic equations that model real-world situations including exponential relationships written in recursive notation</b></p>

Current TEKS	Proposed TEKS
	<p><b>(6) Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that cubic, cube root, rational, and absolute value functions and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(A) analyze the effect on the graphs of <math>f(x) = x^3</math> and <math>f(x) = \sqrt[3]{x}</math> when <math>f(x)</math> is replaced by <math>a \cdot f(x)</math>, <math>f(bx)</math>, <math>f(x-c)</math>, and <math>f(x) + d</math> for specific positive and negative real values of <math>a</math>, <math>b</math>, <math>c</math>, and <math>d</math></b></p>
	<p><b>(6) Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that cubic, cube root, rational, and absolute value functions and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(B) solve cube root equations that have real roots</b></p>
	<p><b>(6) Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that cubic, cube root, rational, and absolute value functions and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(C) analyze the effect on the graphs of <math>f(x) =  x </math> when <math>f(x)</math> is replaced by <math>a \cdot f(x)</math>, <math>f(bx)</math>, <math>f(x-c)</math>, and <math>f(x) + d</math> for specific positive and negative real values of <math>a</math>, <math>b</math>, <math>c</math> and <math>d</math></b></p>
	<p><b>(6) Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that cubic, cube root, rational, and absolute value functions and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(D) formulate absolute value linear equations</b></p>
	<p><b>(6) Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that cubic, cube root, rational, and absolute value functions and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(E) solve absolute value linear equations</b></p>

Current TEKS	Proposed TEKS
	<p>(6) <b>Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities.</b> The student applies mathematical processes to understand that cubic, cube root, rational, and absolute value functions and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p><b>(F) solve absolute value linear inequalities</b></p>
	<p>(7) <b>Number and Algebraic Methods.</b> The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <p><b>(B) add, subtract, and multiply polynomials</b></p>
	<p>(7) <b>Number and Algebraic Methods.</b> The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <p><b>(C) determine the quotient of a polynomial of degree three and of degree four when divided by a polynomial of degree one and of degree two</b></p>
	<p>(7) <b>Number and Algebraic Methods.</b> The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <p><b>(D) determine the linear factors of a polynomial function of degree three and of degree four using algebraic methods</b></p>
	<p>(7) <b>Number and Algebraic Methods.</b> The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <p><b>(E) determine linear and quadratic factors of a polynomial expression of degree three and of degree four, including factoring the sum and difference of two cubes and factoring by grouping</b></p>

Current TEKS	Proposed TEKS
	<p>(7) <b>Number and Algebraic Methods.</b> The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <p><b>(F) determine the sum, difference, product, and quotient of rational expressions with integral exponents of degree one and degree two</b></p>
	<p>(7) <b>Number and Algebraic Methods.</b> The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <p><b>(G) rewrite radical expressions that contain variables to equivalent forms</b></p>
	<p>(7) <b>Number and Algebraic Methods.</b> The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <p><b>(H) solve equations involving rational exponents</b></p>