

Cycle 1	27 Days	<i>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i>
Unit	# Class Periods	
		<p>Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:</p> <p><i>The Mathematical Process Standards are integrated throughout the course in all activities and lessons. Teachers should refer to these standards for instructional strategies and depth of rigor. Specific process standards have been highlighted for each unit, but these process standards should not be the only process standards associated with the daily lessons.</i></p> <p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1A Apply mathematics to problems arising in everyday life, society, and the workplace. Ⓟ ALGII.1B 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. Ⓟ ALGII.1C 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. Ⓟ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. Ⓟ ALGII.1E Create and use representations to organize, record, and communicate mathematical ideas. Ⓟ ALGII.1F Analyze mathematical relationships to connect and communicate mathematical ideas. Ⓟ ALGII.1G Display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

Cycle 1	27 Days	<p>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</p>
	Aug. 23 - Oct. 1, 2021	
Unit	# Class Periods	<p>Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:</p>
<p>Unit 1: Parent Functions and Data Regression Students survey functions studied in this course, identify their attributes, and use data regression to connect real world data to selected functions.</p>	<p>4 class periods (90-min. each) or 8 class periods (45-min. each)</p> <p><i>Enrichment Opportunities</i> Aug. 2-13</p> <p><i>Teachers Report to Work</i> Aug. 16</p> <p><i>Teacher Service Days</i> Aug. 16-17, Aug. 19-20</p> <p><i>Teacher Prep Day</i> (no students) Aug. 18</p> <p><i>Labor Day</i> Sept. 6</p> <p><i>Fall Holiday</i> Sept. 16</p> <p><i>Teacher Service Day</i> (no students) Sept. 17</p>	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.1A Apply mathematics to problems arising in everyday life, society, and the workplace. Ⓢ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. <p>Attributes of Functions and Their Inverses. 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> <ul style="list-style-type: none"> Ⓢ ALGII.2A Graph the functions, $f(x) = \sqrt{x}$, $f(x) = \frac{1}{x}$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = x$, and $f(x) = \log_b x$ where b is 2, 10, and <i>e</i> and when applicable analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum. <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation. <p>Data. The student applies mathematical processes to analyze data, select appropriate models, write corresponding functions, and make predictions. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.8A Analyze data to select the appropriate model from among linear, quadratic, and exponential models. Ⓢ ALGII.8B Use regression methods available through technology to write a linear function, a quadratic function, and an exponential function from a given set of data. Ⓢ ALGII.8C Predict and make decisions and critical judgments from a given set of data using linear, quadratic, and exponential models.

Cycle 1	27 Days Aug. 23 - Oct. 1, 2021	The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:
Unit 2: Transformation of Functions Students apply the properties of functions to their graphs and transformations using multiple representations.	3 class periods (90-min. each) or 6 class periods (45-min. each)	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓡ ALGII.1C 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. Ⓡ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. <p>Quadratic and Square Root Functions, Equations, and Inequalities. 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> <ul style="list-style-type: none"> Ⓡ ALGII.4C Determine the effect on the graph of $f(x) = \sqrt{x}$ when $f(x)$ is replaced by $a f(x)$, $f(x) + d$, $f(bx)$, and $f(x - c)$ for specific positive and negative values of a, b, c, and d. <p>Exponential and Logarithmic Functions and Equations. 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> <ul style="list-style-type: none"> Ⓡ ALGII.5A Determine the effects on the key attributes on the graphs of $f(x) = b^x$ and $f(x) = \log_b(x)$, where b is 2, 10 and e when $f(x)$ is replaced by $a f(x)$, $f(x) + d$, and $f(x - c)$ for specific positive and negative real values of a, c, and d. <p>Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities. 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> <ul style="list-style-type: none"> Ⓡ ALGII.6A Analyze the effect on the graphs of $f(x) = x^3$ and $f(x) = \sqrt[3]{x}$ when $f(x)$ is replaced by $a \cdot f(x)$, $f(bx)$, $f(x - c)$, and $f(x) + d$ for specific positive and negative real values of a, b, c, and d. Ⓡ ALGII.6G Analyze the effect on the graphs of $f(x) = \frac{1}{x}$, when $f(x)$ is replaced by $a \cdot f(x)$, $f(bx)$, $f(x - c)$, and $f(x) + d$ for specific positive and negative real values of a, b, c, and d. <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p>

Cycle 1	27 Days	<p><i>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i></p>
	Aug. 23 - Oct. 1, 2021	
Unit	# Class Periods	<p>Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:</p>
		<p>Ⓢ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.</p>
<p>Unit 3: Composition and Inverse of Functions Students connect the relationship between a function and its inverse and use composition of functions to determine if functions are inverses of each other.</p>	<p>2 class periods (90-min. each) or 4 class periods (45-min. each)</p>	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <p>Ⓢ ALGII.1C 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.</p> <p>Ⓢ ALGII.1F Analyze mathematical relationships to connect and communicate mathematical ideas.</p> <p>Attributes of Functions and Their Inverses. 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>Ⓢ ALGII.2A Graph the functions, $f(x) = \sqrt{x}$, $f(x) = \frac{1}{x}$, $f(x)=x^3$, $f(x) = \sqrt[3]{x}$, $f(x)=b^x$, $f(x) = x$, and $f(x)=\log_b x$ where b is 2, 10, and e and when applicable analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum.</p> <p>Ⓢ ALGII.2B Graph and write the inverse of a function using notation such as $f^{-1}(x)$.</p> <p>Ⓢ ALGII.2C 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.</p> <p>Ⓢ ALGII.2D Use the composition of two functions, including the necessary restrictions on the domain, to determine if the functions are inverses of each other.</p>
<p>Unit 4: Absolute Value Functions Students solve absolute value equations and inequalities and apply attributes of transformations to absolute value functions.</p>	<p>4 class periods (90-min. each) or 8 class periods (45-min. each)</p>	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <p>Ⓢ ALGII.1B 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.</p> <p>Ⓢ ALGII.1F Analyze mathematical relationships to connect and communicate mathematical ideas.</p>

Cycle 1	27 Days	The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
Unit	# Class Periods	
(continues in cycle 2)		<p>Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:</p> <p>Attributes of Functions and Their Inverses. 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>Ⓡ ALGII.2A Graph the functions, $f(x) = \sqrt{x}$, $f(x) = \frac{1}{x}$, $f(x)=x^3$, $f(x) = \sqrt[3]{x}$, $f(x)=b^x$, $f(x) = x$, and $f(x)=\log_b x$ where b is 2, 10, and e and when applicable analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum.</p> <p>Ⓢ ALGII.2B Graph and write the inverse of a function using notation such as $f^{-1}(x)$.</p> <p>Ⓡ ALGII.2C 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.</p> <p>Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities. 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>Ⓢ ALGII.6C Analyze the effect on the graphs of $f(x) = x$ when $f(x)$ is replaced by $a \cdot f(x)$, $f(bx)$, $f(x - c)$, and $f(x) + d$ for specific positive and negative real values of a, b, c, and d.</p> <p>Ⓢ ALGII.6D Formulate absolute value linear equations.</p> <p>Ⓡ ALGII.6E Solve absolute value linear equations.</p> <p>Ⓢ ALGII.6F Solve absolute value linear inequalities</p> <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <p>Ⓢ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.</p>

Cycle 2	29 Days	<i>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i>
	Oct. 5 - Nov. 12, 2021	
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:
Unit 4: Absolute Value Functions Students solve absolute value equations and inequalities and apply attributes of transformations to absolute value functions. (continued from cycle 1)	4 class periods (90-min. each) or 8 class periods (45-min. each) <i>Teacher Service Day (no students)</i> Oct. 4	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.1B 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. Ⓢ ALGII.1F Analyze mathematical relationships to connect and communicate mathematical ideas. <p>Attributes of Functions and Their Inverses. 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> <ul style="list-style-type: none"> Ⓡ ALGII.2A Graph the functions, $f(x) = \sqrt{x}$, $f(x) = \frac{1}{x}$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = x$, and $f(x) = \log_b x$ where b is 2, 10, and e and when applicable analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum. Ⓢ ALGII.2B Graph and write the inverse of a function using notation such as $f^{-1}(x)$. Ⓡ ALGII.2C 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. <p>Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities. 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> <ul style="list-style-type: none"> Ⓢ ALGII.6C Analyze the effect on the graphs of $f(x) = x$ when $f(x)$ is replaced by $a \cdot f(x)$, $f(bx)$, $f(x - c)$, and $f(x) + d$ for specific positive and negative real values of a, b, c, and d. Ⓢ ALGII.6D Formulate absolute value linear equations. Ⓡ ALGII.6E Solve absolute value linear equations. Ⓢ ALGII.6F Solve absolute value linear inequalities <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.

Cycle 2	29 Days	
	Oct. 5 - Nov. 12, 2021	
<p><i>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i></p>		
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:
<p>Unit 5: Matrices & Systems of Equations and Inequalities In real-world situations, students solve and analyze systems of linear equations with two or more variables using graphs, tables, matrices, and algebraic methods.</p>	<p>7 class periods (90-min. each) or 14 class periods (45-min. each)</p>	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1A Apply mathematics to problems arising in everyday life, society, and the workplace. Ⓟ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. <p>Systems of Equations and Inequalities. 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> <ul style="list-style-type: none"> Ⓡ ALGII.3A 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. Ⓡ ALGII.3B Solve systems of three linear equations in three variables by using Gaussian elimination, technology with matrices, and substitution (<i>including inverse matrices</i>). Ⓢ ALGII.3E Formulate systems of at least two linear inequalities in two variables. Ⓢ ALGII.3F Solve systems of two or more linear inequalities in two variables. Ⓢ ALGII.3G Determine possible solutions in the solution set of systems of two or more linear inequalities in two variables.
<p>Unit 6: Transformations and Attributes of Quadratic Functions Students analyze the transformation of a quadratic function through multiple representations.</p> <p>(continues in cycle 3)</p>	<p>4 class periods (90-min. each) or 8 class periods (45-min. each)</p>	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1C 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. Ⓟ ALGII.1F Analyze mathematical relationships to connect and communicate mathematical ideas. <p>Quadratic and Square Root Functions, Equations, and Inequalities. 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> <ul style="list-style-type: none"> Ⓡ ALGII.4B Write the equation of a parabola using given attributes, including vertex, focus, directrix, axis of symmetry, and direction of opening.

Cycle 2	29 Days	<i>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i>
	Oct. 5 - Nov. 12, 2021	
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:
		<p>Ⓢ ALGII.4D Transform a quadratic function $f(x) = ax^2 + bx + c$ to the form $f(x) = a(x - h)^2 + k$ to identify the different attributes of $f(x)$, [such as domain, range, intercepts, symmetries, and maximum and minimum.]</p> <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <p>Ⓢ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.</p>

Cycle 3	30 Days	<p><i>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i></p>
	Nov. 15, 2021 - Jan. 14, 2022	
Unit	# Class Periods	<p>Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:</p>
<p>Unit 6: Transformations and Attributes of Quadratic Functions Students analyze the transformation of a quadratic function through multiple representations.</p> <p>(continued from cycle 2)</p>	<p>4 class periods (90-min. each) or 8 class periods (45-min. each)</p> <p><i>Thanksgiving Break</i> Nov. 22-26</p> <p><i>Enrichment Opportunities</i> Dec. 20-21</p> <p><i>Winter Break</i> Dec. 20-31</p> <p><i>MLK Jr. Day</i> Jan. 17</p> <p><i>Teacher Prep Day (no students)</i> Jan. 18</p>	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <p>Ⓟ ALGII.1C 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.</p> <p>Ⓟ ALGII.1F Analyze mathematical relationships to connect and communicate mathematical ideas.</p> <p>Quadratic and Square Root Functions, Equations, and Inequalities. 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>Ⓟ ALGII.4B Write the equation of a parabola using given attributes, including vertex, focus, directrix, axis of symmetry, and direction of opening.</p> <p>Ⓟ ALGII.4D Transform a quadratic function $f(x) = ax^2 + bx + c$ to the form $f(x) = a(x - h)^2 + k$ to identify the different attributes of $f(x)$, [such as domain, range, intercepts, symmetries, and maximum and minimum.]</p> <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <p>Ⓟ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.</p>
<p>Unit 7: Factoring and Complex Numbers Students explore various methods of factoring polynomials and introduction of complex numbers.</p>	<p>3 class periods (90-min. each) or 6 class periods (45-min. each)</p>	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <p>Ⓟ ALGII.1C 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.</p> <p>Ⓟ ALGII.1F Analyze mathematical relationships to connect and communicate mathematical idea.</p> <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <p>Ⓟ ALGII.7A Add, subtract, and multiply complex numbers.</p> <p>Ⓟ ALGII.7D Determine the linear factors of a polynomial function of degree three and of degree four using algebraic methods.</p>

Cycle 3	30 Days	<p><i>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i></p>
	Nov. 15, 2021 - Jan. 14, 2022	
Unit	# Class Periods	<p>Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:</p>
		<p>Ⓡ ALGII.7E 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.</p>
<p>Unit 8: Solving Quadratic Equations and Inequalities Students analyze solutions of quadratic equations and inequalities using multiple representations.</p>	<p>3 class periods (90-min. each) or 6 class periods (45-min. each)</p>	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <p>Ⓢ ALGII.1C 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.</p> <p>Ⓢ ALGII.1F Analyze mathematical relationships to connect and communicate mathematical idea.</p> <p>Quadratic and Square Root Functions, Equations, and Inequalities. 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>Ⓡ ALGII.4F Solve quadratic and square root equations.</p> <p>Ⓢ ALGII.4H Solve quadratic inequalities.</p>
<p>Unit 9: Applications of Quadratic Equations and Inequalities Students analyze quadratic functions and connect attributes to real world situations.</p> <p>(continues in cycle 4)</p>	<p>3 class periods (90-min. each) or 6 class periods (45-min. each)</p>	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <p>Ⓢ ALGII.1A Apply mathematics to problems arising in everyday life, society, and the workplace.</p> <p>Ⓢ ALGII.1F Analyze mathematical relationships to connect and communicate mathematical idea.</p> <p>Quadratic and Square Root Functions, Equations, and Inequalities. 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>Ⓢ ALGII.4A Write the quadratic function given three specified points in the plane.</p> <p>Ⓡ ALGII.4B Write the equation of a parabola using given attributes, including vertex, focus, directrix, axis of symmetry, and direction of opening.</p> <p>Ⓢ ALGII.4E Formulate quadratic and square root equations using technology given a table of data.</p>

Cycle 3	30 Days	<i>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i>
	Nov. 15, 2021 - Jan. 14, 2022	
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:
		<p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <p>Ⓢ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.</p> <p>Data. The student applies mathematical processes to analyze data, select appropriate models, write corresponding functions, and make predictions. The student is expected to:</p> <p>Ⓢ ALGII.8A Analyze data to select the appropriate model from among linear, quadratic, and exponential models.</p> <p>Ⓢ ALGII.8B Use regression methods available through technology to write a linear function, a quadratic function, and an exponential function from a given set of data.</p> <p>Ⓡ ALGII.8C Predict and make decisions and critical judgments from a given set of data using linear, quadratic, and exponential models.</p>

Cycle 4	27 Days Jan. 19 - Feb. 25, 2022	<i>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i>
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:
Unit 9: Applications of Quadratic Equations and Inequalities Students analyze quadratic functions and connect attributes to real world situations. (continued from cycle 3)	3 class periods (90-min. each) or 6 class periods (45-min. each) <i>Teacher Service Day/Presidents' Day (no students) Feb. 21</i>	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1A Apply mathematics to problems arising in everyday life, society, and the workplace. Ⓟ ALGII.1F Analyze mathematical relationships to connect and communicate mathematical idea. <p>Quadratic and Square Root Functions, Equations, and Inequalities. 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> <ul style="list-style-type: none"> Ⓢ ALGII.4A Write the quadratic function given three specified points in the plane. Ⓢ ALGII.4B Write the equation of a parabola using given attributes, including vertex, focus, directrix, axis of symmetry, and direction of opening. Ⓢ ALGII.4E Formulate quadratic and square root equations using technology given a table of data. <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation. <p>Data. The student applies mathematical processes to analyze data, select appropriate models, write corresponding functions, and make predictions. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.8A Analyze data to select the appropriate model from among linear, quadratic, and exponential models. Ⓢ ALGII.8B Use regression methods available through technology to write a linear function, a quadratic function, and an exponential function from a given set of data. Ⓢ ALGII.8C Predict and make decisions and critical judgments from a given set of data using linear, quadratic, and exponential models.

Cycle 4	27 Days	The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
	Jan. 19 - Feb. 25, 2022	
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:
Unit 10: Systems of Linear and Quadratic Equations Students analyze a system of equations in two variables consisting of a linear equation and a quadratic equation.	2 class periods (90-min. each) or 4 class periods (45-min. each)	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1C 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. Ⓟ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. <p>Systems of Equations and Inequalities. 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> <ul style="list-style-type: none"> Ⓢ ALGII.3A 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. Ⓢ ALGII.3C Solve, algebraically, systems of two equations in two variables consisting of a linear equation and a quadratic equation. Ⓢ ALGII.3D Determine the reasonableness of solutions to systems of a linear equation and a quadratic equation in two variables.
Unit 11: Radicals and Rational Exponents Students simplify radical expressions and rational exponents and explore the relationship to laws of exponents.	3 class periods (90-min. each) or 6 class periods (45-min. each)	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1C 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. Ⓟ ALGII.1F Analyze mathematical relationships to connect and communicate mathematical ideas. <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.7G Rewrite radical expressions that contain variables to equivalent forms. Ⓢ ALGII.7H Solve equations involving rational exponents.

Cycle 4	27 Days Jan. 19 - Feb. 25, 2022	<i>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i>
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:
Unit 12 Root Equations and Functions Students explore transformations and attributes of square root and cube root functions.	2 class periods (90-min. each) or 4 class periods (45-min. each)	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓡ ALGII.1C 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. Ⓡ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. <p>Attributes of Functions and Their Inverses. 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> <ul style="list-style-type: none"> Ⓡ ALGII.2A Graph the functions, $f(x) = \sqrt{x}$, $f(x) = \frac{1}{x}$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = x$, and $f(x) = \log_b x$ where b is 2, 10, and e and when applicable analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum. Ⓢ ALGII.2B Graph and write the inverse of a function using notation such as $f^{-1}(x)$. Ⓡ ALGII.2C 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. Ⓢ ALGII.2D Use the composition of two functions, including the necessary restrictions on the domain, to determine if the functions are inverses of each other. <p>Quadratic and Square Root Functions, Equations, and Inequalities. 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> <ul style="list-style-type: none"> Ⓡ ALGII.4C Determine the effect on the graph of $f(x) = \sqrt{x}$ when $f(x)$ is replaced by $af(x)$, $f(x) + d$, $f(bx)$, and $f(x - c)$ for specific positive and negative values of a, b, c, and d.

Cycle 4	27 Days Jan. 19 - Feb. 25, 2022	<i>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i>
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:
Unit 13: Solving Root Equations Students solve square root and cube root equations.	2 class periods (90-min. each) or 4 class periods (45-min. each)	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓡ ALGII.1C 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. Ⓡ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. <p>Quadratic and Square Root Functions, Equations, and Inequalities. 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> <ul style="list-style-type: none"> Ⓢ ALGII.4E Formulate quadratic and square root equations using technology given a table of data. Ⓡ ALGII.4F Solve quadratic and square root equations. Ⓢ ALGII.4G Identify extraneous solutions of square root equations. <p>Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities. 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.</p> <ul style="list-style-type: none"> Ⓢ ALGII.6B Solve cube root equations that have real roots.

Cycle 5	33 Days	The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
	Feb. 28 - Apr. 22, 2022	
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:
Unit 14: Polynomial Functions Students analyze attributes, transformations, and applications of polynomial functions within the context of real-world situations.	6 class periods (90-min. each) or 12 class periods (45-min. each) <i>Enrichment Opportunities</i> Mar. 14-16 <i>Spring Break</i> Mar. 14-18 <i>Chávez-Huerta Day</i> Mar. 28 <i>Spring Holiday</i> Apr. 15	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓡ ALGII.1A Apply mathematics to problems arising in everyday life, society, and the workplace. Ⓡ ALGII.1F Analyze mathematical relationships to connect and communicate mathematical ideas. <p>Attributes of Functions and Their Inverses. 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> <ul style="list-style-type: none"> Ⓡ ALGII.2A Graph the functions, $f(x) = \sqrt{x}$, $f(x) = \frac{1}{x}$, $f(x)=x^3$, $f(x) = \sqrt[3]{x}$, $f(x)=b^x$, $f(x) = x$, and $f(x) = \log_b x$ where b is 2, 10, and e and when applicable analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum. <p>Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities. 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 will be expected to:</p> <ul style="list-style-type: none"> Ⓡ ALGII.6A Analyze the effect on the graphs of $f(x) = x^3$ and $f(x) = \sqrt[3]{x}$ when $f(x)$ is replaced by $a \cdot f(x)$, $f(bx)$, $f(x - c)$, and $f(x) + d$ for specific positive and negative real values of a, b, c, and d. <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <ul style="list-style-type: none"> Ⓡ ALGII.7B Add, subtract, and multiply polynomials. Ⓡ ALGII.7C 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. Ⓡ ALGII.7D Determine the linear factors of a polynomial function of degree three and of degree four using algebraic methods. Ⓡ ALGII.7E 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. Ⓡ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.

Cycle 5	33 Days Feb. 28 - Apr. 22, 2022	<i>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i>
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:
Unit 15: Inverse Variation and Transformations of Rational Functions Students analyze inverse variation and transformations of rational functions through graphs, tables, and algebraic methods	3 class periods (90-min. each) or 6 class periods (45-min. each)	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓡ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. Ⓡ ALGII.1G Display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication. <p>Attributes of Functions and Their Inverses. 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> <ul style="list-style-type: none"> Ⓡ ALGII.2A Graph the functions, $f(x) = \sqrt{x}$, $f(x) = \frac{1}{x}$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = x$, and $f(x) = \log_b x$ where b is 2, 10, and e and when applicable analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum. Ⓢ ALGII.2B Graph and write the inverse of a function using notation such as $f^{-1}(x)$. <p>Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities. 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> <ul style="list-style-type: none"> Ⓢ ALGII.6G Analyze the effect on the graphs of $f(x) = 1/x$, when $f(x)$ is replaced by $a \cdot f(x)$, $f(bx)$, $f(x - c)$, and $f(x) + d$ for specific positive and negative real values of a, b, c, and d. Ⓢ ALGII.6K Determine the asymptotic restrictions on the domain of a rational function and represent domain and range using interval notation, inequalities, and set notation. Ⓡ ALGII.6L Formulate and solve equations involving inverse variation. <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.

Cycle 5	33 Days Feb. 28 - Apr. 22, 2022	<i>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i>
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:
Unit 16: Rational Equations and Functions Students analyze rational equations and functions through graphs, tables, and algebraic methods. (continues in cycle 6)	5 class periods (90-min. each) or 10 class periods (45-min. each)	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. Ⓢ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. <p>Attributes of Functions and Their Inverses. 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> <ul style="list-style-type: none"> Ⓢ ALGII.2A Graph the functions, $f(x) = \sqrt{x}$, $f(x) = \frac{1}{x}$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = x$, and $f(x) = \log_b x$ where b is 2, 10, and e and when applicable analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum. <p>Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities. 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> <ul style="list-style-type: none"> Ⓢ ALGII.6H Formulate rational equations that model real-world situations. Ⓢ ALGII.6I Solve rational equations that have real solutions. Ⓢ ALGII.6J Determine the reasonableness of a solution to a rational equation. Ⓢ ALGII.6K Determine the asymptotic restrictions on the domain of a rational function and represent domain and range using interval notation, inequalities, and set notation. <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.7C 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. Ⓢ ALGII.7F determine the sum, difference, product, and quotient of rational expressions with integral exponents of degree one and degree two. Ⓢ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.

Cycle 6	31 Days	The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
	Apr. 25 - June 7, 2022	
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:
<p>Unit 16: Rational Equations and Functions Students analyze rational equations and functions through graphs, tables, and algebraic methods.</p> <p>(continued from cycle 5)</p>	<p>5 class periods (90-min. each) or 10 class periods (45-min. each)</p> <p><i>Memorial Day May 30</i></p> <p><i>Teacher Prep Day (no students) June 8</i></p>	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <p>Ⓢ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.</p> <p>Ⓢ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.</p> <p>Attributes of Functions and Their Inverses. 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>Ⓢ ALGII.2A Graph the functions, $f(x) = \sqrt{x}$, $f(x) = \frac{1}{x}$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = x$, and $f(x) = \log_b x$ where b is 2, 10, and e and when applicable analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum.</p> <p>Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities. 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>Ⓢ ALGII.6H Formulate rational equations that model real-world situations.</p> <p>Ⓢ ALGII.6I Solve rational equations that have real solutions.</p> <p>Ⓢ ALGII.6J Determine the reasonableness of a solution to a rational equation.</p> <p>Ⓢ ALGII.6K Determine the asymptotic restrictions on the domain of a rational function and represent domain and range using interval notation, inequalities, and set notation.</p> <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <p>Ⓢ ALGII.7C 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.</p> <p>Ⓢ ALGII.7F determine the sum, difference, product, and quotient of rational expressions with integral exponents of degree one and degree two.</p> <p>Ⓢ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.</p>

Cycle 6	31 Days	The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
	Apr. 25 - June 7, 2022	
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course. The student will:
Unit 17: Exponential and Logarithmic Functions Students analyze transformations and inverses and solve application problems using exponential and logarithmic functions.	6 class periods (90-min. each) or 12 class periods (45-min. each)	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1A Apply mathematics to problems arising in everyday life, society, and the workplace. Ⓟ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. <p>Attributes of Functions and Their Inverses. 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> <ul style="list-style-type: none"> Ⓟ ALGII.2C 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. <p>Exponential and Logarithmic Functions and Equations. 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> <ul style="list-style-type: none"> Ⓟ ALGII.5B Formulate exponential and logarithmic equations that model real-world situations including exponential relationships written in recursive notation. Ⓟ ALGII.5C Rewrite exponential equations as their corresponding logarithmic equations and logarithmic equations as their corresponding exponential equations. Ⓟ ALGII.5D Solve exponential equations of the form $y = a \cdot b^x$ where a is a nonzero real number and b is greater than zero and not equal to one and single logarithmic equations having real solutions. Ⓟ ALGII.5E Determine the reasonableness of a solution to a logarithmic equation. <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.

Cycle 6	31 Days	<p><i>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i></p>
	Apr. 25 - June 7, 2022	
Unit	# Class Periods	<p>Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs)</p> <p>The bold face words in the TEKS/SEs indicates concepts addressed specifically in this unit, the unbolded concepts are addressed in other units of this course.</p> <p>The student will:</p>
<p>Unit 18: Bridge to Precalculus Trigonometry</p> <p>Students review trigonometric ratios studied in geometry. They develop the relationship between the unit circle and the definition of a periodic function and apply trigonometric functions in mathematical and real-world problems.</p>	<p>2 class periods (90-min. each)</p> <p>or</p> <p>4 class periods (45-min. each)</p>	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓡ PC.1C 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. Ⓡ PC.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. <p>Similarity, proof, and trigonometry. The student uses the process skills in applying similarity to solve problems. The student is expected to:</p> <ul style="list-style-type: none"> Ⓡ GEOM.7B Apply the Angle-Angle criterion to verify similar triangles and apply the proportionality of the corresponding sides to solve problems. <p>Similarity, proof, and trigonometry. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:</p> <ul style="list-style-type: none"> Ⓡ GEOM.9A Determine the lengths of sides and measures of angles in a right triangle by applying the trigonometric ratios sine, cosine, and tangent to solve problems. Ⓡ GEOM.9B Apply the relationships in special right triangles 30°-60°-90° and 45°-45°-90° and the Pythagorean theorem, including Pythagorean triples, to solve problems. <p>Number and measure. The student uses process standards in mathematics to apply appropriate techniques, tools, and formulas to calculate measures in mathematical and real-world problems. The student is expected to:</p> <ul style="list-style-type: none"> Ⓡ PC.4A Determine the relationship between the unit circle and the definition of a periodic function to evaluate trigonometric functions in mathematical and real-world problems. Ⓡ PC.4B Describe the relationship between degree and radian measure on the unit circle. Ⓡ PC.4C Represent angles in radians or degrees based on the concept of rotation and find the measure of reference angles and angles in standard position. Ⓡ PC.4E Determine the value of trigonometric ratios of angles and solve problems involving trigonometric ratios in mathematical and real-world problems. Ⓡ PC.4F Use trigonometry in mathematical and real-world problems, including directional bearing.