

Course Overview	Algebra 2 is designed to enhance students' algebraic foundation from Algebra 1 and prepare students for the mathematical rigor of AP Precalculus and AP Calculus. Students will broaden their knowledge of the foundational properties and attributes of functions, the use of algebraic knowledge to solve problems, and properties of linear, quadratic, and exponential functions. In addition, students expand their library of functions to include logarithmic, rational, radical, cubic and absolute value. Throughout the course, students will progress toward mastery of topics covered on the ACT and IDEA Algebra 2 Final Exam.
Course Standards	Algebra II Texas Essential Knowledge and Skills (TEKS) ; Lead4Ward Snapshot Post Final Exam Extension topics: Math Medic Precalculus - Unit 0: Prerequisites
Instructional Materials	IDEA Mathematics Curriculum Redesign (MCR)

Scope & Sequence

Units & Instructional Days	Assessments & Scanning Deadlines	Standards
Unit 1 <i>Foundations of Functions</i> 13 days	Unit 1 Exam TX_MAT_Algebra2_F26_UE1 <u>Scanning Deadline:</u> September 17, 2026	<p>2A.2A: Graph the functions $f(x) = \sqrt{x}$, $f(x) = 1/x$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = x$, 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 given an interval.</p> <p>2A.2B: Graph and write the inverse of a function using notation such as $f^{-1}(x)$.</p> <p>2A.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, which will restrict its range.</p> <p>2A.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>2A.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.</p> <p>2A.4F: Solve quadratic and square root equations.</p> <p>2A.6E: Solve absolute value linear equations.</p> <p>2A.7B: Add, subtract, and multiply polynomials.</p> <p>2A.7I: Write the domain and range of a function in interval notation, inequalities, and set notation.</p> <p>2A.8A: Analyze data to select the appropriate model from among linear, quadratic, and exponential models.</p>
Unit 2 <i>Absolute Value Functions</i> 8 days	Unit 2 Exam TX_MAT_Algebra2_F26_UE2 <u>Scanning Deadline:</u> September 24, 2026	<p>2A.2A: Graph the functions $f(x) = \sqrt{x}$, $f(x) = 1/x$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = x$, 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 given an interval.</p> <p>2A.6C: Analyze the effect on the graphs of $f(x) = x$ when $f(x)$ is replaced by $af(x)$, $f(bx)$, $f(x - c)$, and $f(x) + d$ for specific positive and negative real values of a, b, c, and d.</p> <p>2A.6D: Formulate absolute value linear equations.</p> <p>2A.6E: Solve absolute value linear equations.</p> <p>2A.6F: Solve absolute value linear inequalities.</p> <p>2A.7I: Write the domain and range of a function in interval notation, inequalities, and set notation.</p>

<p>Unit 3 <i>Systems of Linear Equations and Inequalities</i></p> <p>15 days</p>	<p>Unit 3 Exam TX_MAT_Algebra2_F26_UE3</p> <p><u>Scanning Deadline:</u> October 22, 2026</p>	<p>2A.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.</p> <p>2A.3B: Solve systems of three linear equations in three variables by using technology with matrices and substitution.</p> <p>2A.3E: Formulate systems of at least two linear inequalities in two variables.</p> <p>2A.3F: Solve systems of two or more linear inequalities in two variables.</p> <p>2A.3G: Determine possible solutions in the solution set of systems of two or more linear inequalities in two variables.</p>
<p>Unit 4 <i>Quadratic Functions and Equations</i></p> <p>18 days</p>	<p>Unit 4 Exam TX_MAT_Algebra2_F26_UE4</p> <p><u>Scanning Deadline:</u> November 19, 2026</p>	<p>2A.3C: Solve, algebraically, systems of two equations in two variables consisting of a linear equation and a quadratic equation.</p> <p>2A.4A: Write the quadratic function given three specified points in the plane.</p> <p>2A.4B: Write the equation of a parabola using given attributes, including vertex, focus, directrix, axis of symmetry, and direction of opening.</p> <p>2A.4C: Determine the effects 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.</p> <p>2A.4D: Transform a quadratic function $f(x) = ax^2 + bx + c$ into the form $f(x) = a(x - h)^2 + k$ to identify the different attributes of $f(x)$.</p> <p>2A.4F: Solve quadratic and square root equations.</p> <p>2A.4H: Solve quadratic inequalities.</p> <p>2A.7A: Add, subtract, and multiply complex numbers.</p> <p>2A.7I: Write the domain and range of a function in interval notation, inequalities, and set notation.</p>
<p>Unit 5 <i>Square Root Functions and Equations</i></p> <p>13 days</p>	<p>Unit 5 Exam TX_MAT_Algebra2_F26_UE5</p> <p><u>Scanning Deadline:</u> December 3, 2026</p>	<p>2A.2A: Graph the functions $f(x) = \sqrt{x}$, $f(x) = 1/x$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = x$, 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 given an interval.</p> <p>2A.4C: Determine the effects 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.</p> <p>2A.4F: Solve quadratic and square root equations.</p> <p>2A.4H: Solve quadratic inequalities.</p> <p>2A.7I: Write the domain and range of a function in interval notation, inequalities, and set notation.</p> <p>2A.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>

Semester Exam Window: December 7-18, 2026 | Scanning Deadline: December 18, 2026

<p>Unit 6 <i>Exponential & Logarithmic Functions and Equations</i></p> <p>19 days</p>	<p>Unit 6 Exam TX_MAT_Algebra2_S27_UE6</p> <p><u>Scanning Deadline:</u> February 11, 2027</p>	<p>2A.2A: Graph the functions $f(x) = \sqrt{x}$, $f(x) = 1/x$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = x$, 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 given an interval.</p> <p>2A.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, which will restrict its range.</p> <p>2A.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>2A.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 $af(x)$, $f(x) + d$, and $f(x - c)$ for specific positive and negative values of a, c, and d.</p> <p>2A.5B: Formulate exponential and logarithmic equations that model real-world situations, including exponential relationships written in recursive notation.</p> <p>2A.5C: Rewrite exponential equations as their corresponding logarithmic equations and logarithmic equations as their corresponding exponential equations.</p> <p>2A.5D: Solve exponential equations of the form $y = ab^x$ 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.</p> <p>2A.5E: Determine the reasonableness of a solution to a logarithmic equation.</p> <p>2A.7I: Write the domain and range of a function in interval notation, inequalities, and set notation.</p> <p>2A.8A: Analyze data to select the appropriate model from among linear, quadratic, and exponential models.</p> <p>2A.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>2A.8C: Predict and make decisions and critical judgments from a given set of data using linear, quadratic, and exponential models.</p>
<p>Unit 7 <i>Polynomials</i></p> <p>16 days</p>	<p>Unit 7 Exam TX_MAT_Algebra2_S27_UE7</p> <p><u>Scanning Deadline:</u> March 11, 2027</p>	<p>2A.2A: Graph the functions $f(x) = \sqrt{x}$, $f(x) = 1/x$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = x$, 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 given an interval.</p> <p>2A.7B: Add, subtract, and multiply polynomials.</p> <p>2A.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>2A.7D: Determine the linear factors of a polynomial function of degree three and of degree four using algebraic methods.</p> <p>2A.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>2A.7I: Write the domain and range of a function in interval notation, inequalities, and set notation.</p> <p>2A.8A: Analyze data to select the appropriate model from among linear, quadratic, and exponential models.</p>

<p>Unit 8 <i>Cubic and Radical Functions and Equations</i></p> <p>15 days</p>	<p>Unit 8 Exam TX_MAT_Algebra2_S27_UE8</p> <p><u>Scanning Deadline:</u> April 8, 2027</p>	<p>2A.2A: Graph the functions $f(x) = \sqrt{x}$, $f(x) = 1/x$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = x$, 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 given an interval.</p> <p>2A.2B: Graph and write the inverse of a function using notation such as $f^{-1}(x)$.</p> <p>2A.6A: Analyze the effect on the graphs of $f(x) = x^3$ and $f(x) = \sqrt[3]{x}$ when $f(x)$ is replaced by $af(x)$, $f(bx)$, $f(x - c)$, and $f(x) + d$ for specific positive and negative real values of a, b, c, and d.</p> <p>2A.6B: Solve cube root equations that have real roots.</p> <p>2A.7G: Rewrite radical expressions that contain variables to equivalent forms.</p> <p>2A.7H: Solve equations involving rational exponents.</p> <p>2A.7I: Write the domain and range of a function in interval notation, inequalities, and set notation.</p>
<p>Unit 9 <i>Rational Functions and Equations</i></p> <p>13 days</p>	<p>Unit 9 Exam TX_MAT_Algebra2_S27_UE9</p> <p><u>Scanning Deadline:</u> April 29, 2027</p>	<p>2A.2A: Graph the functions $f(x) = \sqrt{x}$, $f(x) = 1/x$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = x$, 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 given an interval.</p> <p>2A.6G: Analyze the effect on the graphs of $f(x) = \frac{1}{x}$ when $f(x)$ is replaced by $af(x)$, $f(bx)$, $f(x - c)$, and $f(x) + d$ for specific positive and negative real values of a, b, c, and d.</p> <p>2A.6H: Formulate rational equations that model real-world situations.</p> <p>2A.6I: Solve rational equations that have real solutions.</p> <p>2A.6J: Determine the reasonableness of a solution to a rational equation.</p> <p>2A.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>2A.6L: Formulate and solve equations involving inverse variation.</p> <p>2A.7F: Determine the sum, difference, product, and quotient of rational expressions with integral exponents of degree one and of degree two.</p> <p>2A.7I: Write the domain and range of a function in interval notation, inequalities, and set notation.</p>
<p>Final Exam Window: TBD*, 2027 Scanning Deadline: TBD*, 2027</p>		

*Exam dates will be updated when the 26-27 Assessment Tenets and Structure district document is finalized.

TEKS Alignment

Instruction in this course is aligned to the Texas Essential Knowledge and Skills (TEKS) as adopted by the State Board of Education and implemented in accordance with Texas Education Code Chapter 28.

Instructional Materials

Primary Texts (if applicable)

Supplemental instructional materials may be used to support instruction. Supplemental materials do not replace board-approved core instructional materials.

Additional information regarding instructional programs, assessments, and parent access to instructional materials is available on the district website.

Instructional Expectations

Instruction is delivered using board-approved instructional materials and aligned to the scope and sequence outlined above. Teachers are expected to ensure all required standards are taught within the course timeframe.

Assessment Overview

Student learning is monitored through formative and summative assessments aligned to course standards. Assessment results are used to inform instruction and student supports. Students participate in required state assessments when applicable.