

Course Overview	Pre-Calculus is intended for students who have passed Algebra 2 but will NOT be taking AP Pre-Calculus by grade 11. It is a transitional course designed to give students the depth of mathematical understanding and rigor in order to be prepared for success in AP Mathematics. Students will investigate, explore, and further their current understanding of functions and relationships. Students will focus on modeling, problem solving, and the use of technology as well as their ability to communicate and justify their thinking mathematically. Throughout the course, students will also be working toward mastery of new topics for the ACT and IDEA Pre-Calculus Final Exam.
Course Standards	Precalculus Texas Essential Knowledge and Skills (TEKS) ; Post Final Exam Extension topics: Math Medic AP Statistics - Unit 1: Analyzing Data
Instructional Materials	IDEA Mathematics Curriculum Redesign (MCR)

Scope & Sequence

Units & Instructional Days	Assessments & Scanning Deadlines	Standards
Unit 1 <i>Foundations of Functions</i> 14 days	Unit 1 Exam TX_MAT_Pre-Calculus_F26_UE1 <u>Scanning Deadline:</u> September 17, 2026	<p>P.2A: Use the composition of two functions to model and solve real-world problems.</p> <p>P.2B: Demonstrate that function composition is not always commutative.</p> <p>P.2C: Represent a given function as a composite function of two or more functions.</p> <p>P.2D: Describe symmetry of graphs of even and odd functions.</p> <p>P.2E: Determine an inverse function, when it exists, for a given function over its domain or a subset of its domain and represent the inverse using multiple representations.</p> <p>P.2F: Graph exponential, logarithmic, rational, polynomial, power, trigonometric, inverse trigonometric, and piecewise defined functions, including step functions.</p> <p>P.2G: Graph functions, including exponential, logarithmic, sine, cosine, rational, polynomial, and power functions and their transformations, including $af(x)$, $f(x) + d$, $f(x - c)$, $f(bx)$ for specific values of a, b, c, and d, in mathematical and real-world problems.</p> <p>P.2I: Determine and analyze the key features of exponential, logarithmic, rational, polynomial, power, trigonometric, inverse trigonometric, and piecewise defined functions, including step functions such as domain, range, symmetry, relative maximum/minimum, zeros, asymptotes, and intervals over which the function is increasing/decreasing.</p> <p>P.2L: Determine various types of discontinuities in the interval $(-\infty, \infty)$ as they relate to functions and explore the limitations of the graphing calculator as it relates to the behavior of the function around discontinuities.</p>
Unit 2 <i>Polynomial and Rational Functions</i> 14 days	Unit 2 Exam TX_MAT_Pre-Calculus_F26_UE2 <u>Scanning Deadline:</u> October 8, 2026	<p>P.2G: Graph functions, including exponential, logarithmic, sine, cosine, rational, polynomial, and power functions and their transformations, including $af(x)$, $f(x) + d$, $f(x - c)$, $f(bx)$ for specific values of a, b, c, and d, in mathematical and real-world problems.</p> <p>P.2I: Determine and analyze the key features of exponential, logarithmic, rational, polynomial, power, trigonometric, inverse trigonometric, and piecewise defined functions, including step functions such as domain, range, symmetry, relative maximum/minimum, zeros, asymptotes, and intervals over which the function is increasing/decreasing.</p>

<p>Unit 2 <i>Polynomial and Rational Functions</i> (continued)</p>	<p>Unit 2 Exam TX_MAT_Pre-Calculus_F26_UE2</p> <p><u>Scanning Deadline:</u> October 8, 2026</p>	<p>P.2J: Analyze and describe end behavior of functions, including exponential, logarithmic, rational, polynomial, and power functions, using infinity notation to communicate this characteristic in mathematical and real-world problems.</p> <p>P.2K: Analyze characteristics of rational functions and the behavior of the function around the asymptotes, including horizontal, vertical, and oblique asymptotes.</p> <p>P.2L: Determine various types of discontinuities in the interval $(-\infty, \infty)$ as they relate to functions and explore the limitations of the graphing calculator as it relates to the behavior of the function around discontinuities.</p> <p>P.2M: Describe the left-sided behavior and the right-sided behavior of the graph of a function around discontinuities.</p> <p>P.5J: Solve polynomial equations with real coefficients by applying a variety of techniques in mathematical and real-world problems.</p> <p>P.5K: Solve polynomial inequalities with real coefficients by applying a variety of techniques and write the solution set of the polynomial inequality in interval notation in mathematical and real-world problems.</p> <p>P.5L: Solve rational inequalities with real coefficients by applying a variety of techniques and write the solution set of the rational inequality in interval notation in mathematical and real-world problems.</p>
<p>Unit 3 <i>Exponential and Logarithmic Functions</i></p> <p>14 days</p>	<p>Unit 3 Exam TX_MAT_Pre-Calculus_F26_UE3</p> <p><u>Scanning Deadline:</u> October 29, 2026</p>	<p>P.2F: Graph exponential, logarithmic, rational, polynomial, power, trigonometric, inverse trigonometric, and piecewise defined functions, including step functions.</p> <p>P.2G: Graph functions, including exponential, logarithmic, sine, cosine, rational, polynomial, and power functions and their transformations, including $af(x)$, $f(x) + d$, $f(x - c)$, $f(bx)$ for specific values of a, b, c, and d, in mathematical and real-world problems.</p> <p>P.2I: Determine and analyze the key features of exponential, logarithmic, rational, polynomial, power, trigonometric, inverse trigonometric, and piecewise defined functions, including step functions such as domain, range, symmetry, relative maximum/minimum, zeros, asymptotes, and intervals over which the function is increasing/decreasing.</p> <p>P.2J: Analyze and describe end behavior of functions, including exponential, logarithmic, rational, polynomial, and power functions, using infinity notation to communicate this characteristic in mathematical and real-world problems.</p> <p>P.2N: Analyze situations modeled by functions, including exponential, logarithmic, rational, polynomial, and power functions, to solve real-world problems.</p> <p>P.5G: Use the properties of logarithms to evaluate or transform logarithmic expressions.</p> <p>P.5H: Generate and solve logarithmic equations in mathematical and real-world problems.</p> <p>P.5I: Generate and solve exponential equations in mathematical and real-world problems.</p>

<p>Unit 4 <i>Trigonometric Functions and Graphs</i></p> <p>24 days</p>	<p>Unit 4 Exam TX_MAT_Pre-Calculus_F26_UE4</p> <p><u>Scanning Deadline:</u> December 3, 2026</p>	<p>P.2G: Graph functions, including exponential, logarithmic, sine, cosine, rational, polynomial, and power functions and their transformations, including $af(x)$, $f(x) + d$, $f(x - c)$, $f(bx)$ for specific values of a, b, c, and d, in mathematical and real-world problems.</p> <p>P.2H: Graph $\arcsin x$ and $\arccos x$ and describe the limitations on the domain.</p> <p>P.2I: Determine and analyze the key features of exponential, logarithmic, rational, polynomial, power, trigonometric, inverse trigonometric, and piecewise defined functions, including step functions such as domain, range, symmetry, relative maximum/minimum, zeros, asymptotes, and intervals over which the function is increasing/decreasing.</p> <p>P.2M: Describe the left-sided behavior and the right-sided behavior of the graph of a function around discontinuities.</p> <p>P.2O: Develop and use a sinusoidal function that models a situation in mathematical and real-world problems.</p> <p>P.2P: Determine the values of the trigonometric functions at the special angles and relate them in mathematical and real-world problems.</p> <p>P.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.</p> <p>P.4B: Describe the relationship between degree and radian measure on the unit circle.</p> <p>P.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.</p> <p>P.4D: Represent angles in radians or degrees based on the concept of rotation in mathematical and real-world problems, including linear and angular velocity.</p> <p>P.4E: Determine the value of trigonometric ratios of angles and solve problems involving trigonometric ratios in mathematical and real-world problems.</p> <p>P.4F: Use trigonometry in mathematical and real-world problems, including directional bearing.</p>
<p>Semester Exam Window: December 7-18, 2026 Scanning Deadline: December 18, 2026</p>		
<p>Unit 5 <i>Analytic Trigonometry</i></p> <p>19 days</p>	<p>Unit 5 Exam TX_MAT_Pre-Calculus_S27_UE5</p> <p><u>Scanning Deadline:</u> February 11, 2027</p>	<p>P.4F: Use trigonometry in mathematical and real-world problems, including directional bearing.</p> <p>P.4G: Use the Law of Sines in mathematical and real-world problems.</p> <p>P.4H: Use the Law of Cosines in mathematical and real-world problems.</p> <p>P.5M: Use trigonometric identities such as reciprocal, quotient, Pythagorean, cofunctions, even/odd, and sum and difference identities for cosine and sine to simplify trigonometric expressions.</p> <p>P.5N: Generate and solve trigonometric equations in mathematical and real-world problems.</p>

Unit 6 <i>Analytic Geometry: Vectors, Parametric Equations, and Polar Curves</i> 18 days	Unit 6 Exam TX_MAT_Pre-Calculus_S27_UE6 <u>Scanning Deadline:</u> March 18, 2027	P.3A: Graph a set of parametric equations. P.3B: Convert parametric equations into rectangular relations and convert rectangular relations into parametric equations. P.3C: Use parametric equations to model and solve mathematical and real-world problems. P.3D: Graph points in the polar coordinate system and convert between rectangular coordinates and polar coordinates. P.3E: Graph polar equations by plotting points and using technology. P.4I: Use vectors to model situations involving magnitude and direction. P.4J: Represent the addition of vectors and the multiplication of a vector by a scalar geometrically and symbolically. P.4K: Apply vector addition and multiplication of a vector by a scalar in mathematical and real-world problems.
Unit 7 <i>Conic Sections</i> 14 days	Unit 7 Exam TX_MAT_Pre-Calculus_S27_UE7 <u>Scanning Deadline:</u> April 15, 2027	P.3F: Determine the conic section formed when a plane intersects a double-napped cone. P.3G: Make connections between the locus definition of conic sections and their equations in rectangular coordinates. P.3H: Use the characteristics of an ellipse to write the equation of an ellipse with center (h, k) . P.3I: Use the characteristics of a hyperbola to write the equation of a hyperbola with center (h, k) .
Unit 8 <i>Discrete Mathematics</i> 15 days	Unit 8 Exam TX_MAT_Pre-Calculus_S27_UE8 <u>Scanning Deadline:</u> May 6, 2027	P.5A: Evaluate finite sums and geometric series, when possible, written in sigma notation. P.5B: Represent arithmetic sequences and geometric sequences using recursive formulas. P.5C: Calculate n^{th} term and the n^{th} partial sum of an arithmetic series in mathematical and real-world problems. P.5D: Represent arithmetic series and geometric series using sigma notation. P.5E: Calculate n^{th} term of a geometric series, the n^{th} partial sum of a geometric series, and sum of an infinite geometric series when it exists. P.5F: Apply the Binomial Theorem for the expansion of $(a + b)^n$ in powers of a and b for a positive integer n , where a and b are any numbers.
Final Exam Window: TBD*, 2027 Scanning Deadline: TBD*, 2027		

*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.