AP Pre-Calculus Scope and Sequence 2025-2026

AP Learning Objective Distribution among Units

	1.1A	1.1B	1.2A	1.2B	1.3A	1.3B	1.4A	1.5A	1.5B	1.6A	1.7A	1.8A	1.9A	1.10A	1.11A	1.11B	1.11C	1.12A	1.13A	1.13B	1.14A	1.14B	1.14C	2.1A	2.1B	2.2A	2.3A	2.4A	2.5A	2.5B	2.6A	2.6B	2.7A	2.7B	2.7C	2.8A	2.8B	2.9A	2.10A	2.11A	2.12A	2.13A	2.13B	2.14A	2.15A	2.15B
Unit 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X																							
Unit 2																								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Unit 3																																													
Unit 4																																													
Unit 5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Unit 6																																													

	3.1A	3.1B	3.2A	3.4A	3.5A	3.6A	3.7A	3.8A	3.8B	3.8C	3.9A	3.10A	3.11A	3.12A	3.12B	3.13C	3.13A	3.14A	3.15A	4.1A	4.2A	4.3A	4.4A	4.5A	4.5B	4.6A	4.7A	4.7B
Unit 1																												
Unit 2																												
Unit 3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X									
Unit 4																				X	X	X	X					
Unit 5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X									
Unit 6																								X	X	X	X	X

AP Pre-Calculus
Scope and Sequence 2025-2026
Grading Period 1

Unit 1: Polynomial and Rational Functions
Estimated Date Range: Aug. 12 – Oct. 2 (35 total school days)
Instructional & Re-engagement Days in Unit: 35 days

Assessments

STATE/NATIONAL ASSESSMENTS	DISTRICT ASSESSMENTS	COMMON FORMATIVE ASSESSMENTS (CFAs)
N/A	N/A	N/A

Concepts within the Unit	AP Learning Objectives
Concept #1: Functions and Rate of Change (Topics 1.1, 1.2, 1.3) Suggested Days: 6	1.1A Describe how the input and output values of a function vary together by comparing function values. 1.1B Construct a graph representing two quantities that vary with respect to each other in a contextual scenario 1.2A Compare the rates of change at two points using average rates of change near the points 1.2B Describe how two quantities vary together at different points and over different intervals of a function 1.3A Determine the average rates of change for sequences and functions, including linear, quadratic and other function types. 1.3B Determine the change in the average rates of change for linear, quadratic, and other function types.
Concept #2: Polynomial Functions (Topics 1.4, 1.5, 1.6) Suggested Days: 7	1.4A Identify key characteristics of polynomial functions related to rates of change. 1.5A Identify key characteristics of a polynomial function related to its zeros when suitable factorizations are available or with technology. 1.5B Determine if a polynomial function is even or odd 1.6A Describe end behaviors of polynomial functions
Concept #3: Rational Functions (Topics 1.7, 1.8, 1.9, 1.10) Suggested Days: 8	1.7A Describe end behaviors of rational functions 1.8A Determine the zeros of rational functions 1.9A Determine vertical asymptotes of graphs of rational functions 1.10A Determine holes in graphs of rational functions
Concept #4: Applications and Modeling of Functions (Topics 1.11, 1.12, 1.13, 1.14) Suggested Days: 9	1.11A Rewrite polynomial and rational expressions in equivalent forms 1.11B Determine the quotient of two polynomial function using long division 1.11C Rewrite the repeated product of binomials using the binomial theorem 1.12A Construct a function that is an additive and/or multiplicative transformation of another function. 1.13A Identify an appropriate function type to construct a function model for a given scenario. 1.13B Describe assumptions and restrictions related to building a function model.

	1.14A Construct a linear, quadratic, cubic, quartic, polynomial of degree *n*, or related piecewise-defined function model. 1.14B Construct a rational function model based on a context. 1.14C Apply a function model to answer questions about a data set or contextual scenario.
Unit 2: Exponential and Logarithmic Functions (Continues in Grading Period 2) Estimated Date Range: Oct. 3 – Dec. 19 (45 total school days) Instructional & Re-engagement Days in Unit: 39 days *For Details see Grading Period 2*	
Grading Period 2	
Unit 2: Exponential and Logarithmic Functions (continued) Estimated Date Range: Oct. 3 – Dec. 19 (45 total school days) Instructional & Re-engagement Days in Unit: 39 days	
Assessments	
STATE/NATIONAL ASSESSMENTS N/A	**DISTRICT ASSESSMENTS** N/A
COMMON FORMATIVE ASSESSMENTS (CFAs) N/A	**Semester Exams** (4 days) Testing Window Dec. 16 – Dec. 19
Concepts within the Unit	**AP Learning Objective**
Concept #1: Exponential Functions (Topics 2.1, 2.2, 2.3, 2.4, 2.5, 2.6) Suggested Days: 13	2.1A Express arithmetic sequences found in mathematical and contextual scenarios as functions of the whole numbers. 2.1B Express geometric sequences found in mathematical and contextual scenarios as functions of the whole numbers. 2.2A Construct functions of the real numbers that are comparable to arithmetic and geometric sequences. 2.2B Describe similarities and differences between linear and exponential functions. 2.3A Identify key characteristics of exponential functions 2.4A Rewrite exponential expression in equivalent forms 2.5A Construct a model for situations involving proportional output values over equal-length input-value intervals. 2.5B Apply exponential models to answer questions about a data set or contextual scenario. 2.6A Construct linear, quadratic, and exponential models based on a data set. 2.6B Validate a model constructed from a data set.
Concept #2: Logarithmic Functions (Topics 2.7. 2.8, 2.9, 2.10, 2.11) Suggested Days: 12	2.7A Evaluate the composition of two or more functions for given values. 2.7B Construct a representation of the composition of two or more functions. 2.7C Rewrite a given function as a composition of two or more functions. 2.8A Determine the input-output pairs of the inverse of a function. 2.8B Determine the inverse of a function on an invertible domain.

	2.9A Evaluate logarithmic expressions 2.10A Construct representations of the inverse of an exponential function with an initial value of 1. 2.11A Identify key characteristics of logarithmic functions.
Concept #3: Exponential and Log Equations and Inequalities (Topics 2.12, 2.13) Suggested Days: 6	2.12A Rewrite logarithmic expression in equivalent forms. 2.13A Solve exponential and logarithmic equations and inequalities. 2.13B Construct the inverse function for exponential and logarithmic functions
Concept #4: Modeling with Exponential and Log Functions (Topics 2.14, 2.15) Suggested Days: 6	2.14A Construct a logarithmic function model. 2.15A Determine if an exponential model is appropriate by examining a semi-log plot of a data set. 2.15B Construct the linearization of exponential data.

Grading Period 3

Unit 3: Trigonometric and Polar Functions (Continued in Grading Period 4)

Estimated Date Range: Jan. 8 – Apr. 6 (52 total school days)

Instructional & Re-engagement Days in Unit: 50 days

Assessments

STATE/NATIONAL ASSESSMENTS	DISTRICT ASSESSMENTS	COMMON FORMATIVE ASSESSMENTS (CFAs)
SAT (1 day) Testing Window Mar. 4 TELPAS (1 days) Testing Window Feb. 16 – Mar. 27	N/A	N/A

Concepts within the Unit	AP Learning Objective
Concept #1: Periodic Functions (Topics 3.1, 3.2, 3.3) Suggested Days: 9	3.1A Construct graphs of periodic relationships based on verbal representations. 3.1B Describe key characteristics of a periodic function based on a verbal representation. 3.2A Determine the sine, cosine, and tangent of an angle using the unit circle. 3.3A Determine coordinates of points on a circle centered at the origin.
Concept #2: Sinusoidal Functions (Topics 3.4, 3.5, 3.6, 3.7) Suggested Days: 11	3.4A Construct representation of the sine and cosine functions using the unit circle. 3.5A Identify key characteristics of the sine and cosine functions. 3.6A Identify the amplitude, vertical shift, period, and phase shift of a sinusoidal function. 3.7A Construct sinusoidal function models of periodic phenomena.
Concept #3: Other Trigonometric Functions (Topics 3.8, 3.9, 3.10, 3.11) Suggested Days: 11	3.8A Construct representations of the tangent function using the unit circle. 3.8B Describe key characteristics of the tangent function. 3.8C Describe additive and multiplicative transformations involving the tangent function. 3.9A Construct analytical and graphical representations of the inverse of the sine, cosine, and tangent functions over a restricted domain. 3.10A Solve equations and inequalities involving trigonometric functions. 3.11A Identify key characteristics of functions that involve quotients of the sine and cosine functions.

Concept #4: Equivalent Representations of Trig Functions (Topic 3.12) Suggested Days: 4	3.12A Rewrite trigonometric expressions in equivalent forms with the Pythagorean identity. 3.12B Rewrite trigonometric expressions in equivalent forms with sine and cosine sum identities. 3.12C Solve equations using equivalent analytic representations of trigonometric functions.
Concept #5: Polar Functions (Topics 3.13, 3.14, 3.15) Suggested Days 10	3.13A Determine the location of a point in the plane using both rectangular and polar coordinates. 3.14A Construct graphs of polar functions 3.15A Describe characteristics of the graph of a polar function.

Grading Period 4

Unit 3: Trigonometric and Polar Functions (continued)
Estimated Date Range: Jan. 8 – Apr. 6 (52 total school days)
Instructional & Re-engagement Days in Unit: 50 days
For details see Grading Period 3

Unit 4: Parametric Functions Part 1
Estimated Date Range: Jan. April 7 – April 17 (9 total school days)
Instructional & Re-engagement Days in Unit: 9 days
Note: This unit is not tested on the Pre-Calculus AP Exam

Assessments

STATE/NATIONAL ASSESSMENTS	DISTRICT ASSESSMENTS	COMMON FORMATIVE ASSESSMENTS (CFAs)
N/A	N/A	N/A

Concepts within the Unit	AP Learning Objective
Concept #1: Parametric Functions (Topics 4.1, 4.2, 4.3, and 4.4) Suggested Days: 7	4.1A Construct a graph or table of values for a parametric function represented analytically. 4.2A Identify key characteristics of a parametric planar motion function that are related to position. 4.3A Identify key characteristics of a parametric planar motion function that are related to direction and rate of change. 4.4A Express motion around a circle or along a line segment parametrically.

Unit 5: AP Review
Estimated Date Range: April 20 – May 11 (16 total school days)
Instructional & Re-engagement Days in Unit: 15 days

Assessments

STATE/NATIONAL ASSESSMENTS	DISTRICT ASSESSMENTS	COMMON FORMATIVE ASSESSMENTS (CFAs)
AP Testing (1 day) Testing Window May 4 – May 15	N/A	N/A

Concepts within the Unit	AP Learning Objective

Concept #1: Polynomial and Rational Functions Suggested Days: Determined by individual student need	1.1A Describe how the input and output values of a function vary together by comparing function values. 1.1B Construct a graph representing two quantities that vary with respect to each other in a contextual scenario 1.2A Compare the rates of change at two points using average rates of change near the points 1.2B Describe how two quantities vary together at different points and over different intervals of a function 1.3A Determine the average rates of change for sequences and functions, including linear, quadratic and other function types. 1.3B Determine the change in the average rates of change for linear, quadratic, and other function types. 1.4A Identify key characteristics of polynomial functions related to rates of change. 1.5A Identify key characteristics of a polynomial function related to its zeros when suitable factorizations are available or with technology. 1.5B Determine if a polynomial function is even or odd 1.6A Describe end behaviors of polynomial functions 1.7A Describe end behaviors of rational functions 1.8A Determine the zeros of rational functions 1.9A Determine vertical asymptotes of graphs of rational functions 1.10A Determine holes in graphs of rational functions 1.11A Rewrite polynomial and rational expressions in equivalent forms 1.11B Determine the quotient of two polynomial function using long division 1.11C Rewrite the repeated product of binomials using the binomial theorem 1.12A Construct a function that is an additive and/or multiplicative transformation of another function. 1.13A Identify an appropriate function type to construct a function model for a given scenario. 1.13B Describe assumptions and restrictions related to building a function model. 1.14A Construct a linear, quadratic, cubic, quartic, polynomial of degree *n*, or related piecewise-defined function model. 1.14B Construct a rational function model based on a context. 1.14C Apply a function model to answer questions about a data set or contextual scenario.

Concept #2: Exponential and Logarithmic Functions Suggested Days: Determined by individual student need	2.1A Express arithmetic sequences found in mathematical and contextual scenarios as functions of the whole numbers. 2.1B Express geometric sequences found in mathematical and contextual scenarios as functions of the whole numbers. 2.2A Construct functions of the real numbers that are comparable to arithmetic and geometric sequences. 2.2B Describe similarities and differences between linear and exponential functions. 2.3A Identify key characteristics of exponential functions 2.4A Rewrite exponential expression is equivalent forms 2.5A Construct a model for situations involving proportional output values over equal-length input-value intervals. 2.5B Apply exponential models to answer questions about a data set or contextual scenario. 2.6A Construct linear, quadratic, and exponential models based on a data set. 2.6B Validate a model constructed from a data set. 2.7A Evaluate the composition of two or more functions for given values. 2.7B Construct a representation of the composition of two or more functions. 2.7C Rewrite a given function as a composition of two or more functions. 2.8A Determine the input-output pairs of the inverse of a function. 2.8B Determine the inverse of a function on an invertible domain. 2.9A Evaluate logarithmic expressions 2.10A Construct representations of the inverse of an exponential function with an initial value of 1. 2.11A Identify key characteristics of logarithmic functions. 2.12A Rewrite logarithmic expression in equivalent forms. 2.13A Solve exponential and logarithmic equations and inequalities. 2.13B Construct the inverse function for exponential and logarithmic functions 2.14A Construct a logarithmic function model. 2.15A Determine if an exponential model is appropriate by examining a semi-log plot of a data set. 2.15B Construct the linearization of exponential data.

Concept #3: Trigonometric and Polar Functions Suggested Days: Determined by individual student need	3.1A Construct graphs of periodic relationships based on verbal representations. 3.1B Describe key characteristics of a periodic function based on a verbal representation. 3.2A Determine the sine, cosine, and tangent of an angle using the unit circle. 3.3A Determine coordinates of points on a circle centered at the origin. 3.4A Construct representation of the sine and cosine functions using the unit circle. 3.5A Identify key characteristics of the sine and cosine functions. 3.6A Identify the amplitude, vertical shift, period, and phase shift of a sinusoidal function. 3.7A Construct sinusoidal function models of periodic phenomena. 3.8A Construct representations of the tangent function using the unit circle. 3.8B Describe key characteristics of the tangent function. 3.8C Describe additive and multiplicative transformations involving the tangent function. 3.9A Construct analytical and graphical representations of the inverse of the sine, cosine, and tangent functions over a restricted domain. 3.10A Solve equations and inequalities involving trigonometric functions. 3.11A Identify key characteristics of functions that involve quotients of the sine and cosine functions. 3.12A Rewrite trigonometric expressions in equivalent forms with the Pythagorean identity. 3.12B Rewrite trigonometric expressions in equivalent forms with sine and cosine sum identities. 3.12C Solve equations using equivalent analytic representations of trigonometric functions. 3.13A Determine the location of a point in the plane using both rectangular and polar coordinates. 3.14A Construct graphs of polar functions 3.15A Describe characteristics of the graph of a polar function.

Unit 6: Parametric Functions Part 2

Estimated Date Range: May 12 - May 28 (12 total school days)

Instructional & Re-engagement Days in Unit: 8 days

Assessments

STATE/NATIONAL ASSESSMENTS	DISTRICT ASSESSMENTS	COMMON FORMATIVE ASSESSMENTS (CFAs)	Semester Exams
N/A	N/A	N/A	(4 days) Testing Window May 22 – May 28

Concepts within the Unit	AP Learning Objective
Concept #1: Implicitly Defined Functions (Topics 4.5, 4.6, 4.7) Suggested days: 5	4.5A Construct a graph of an equation involving two variables. 4.5B Determine how the two quantities related in an implicitly defined function vary together. 4.6A Represent conic sections with horizontal or vertical symmetry analytically. 4.7A Represent a curve in the plane parametrically. 4.7B Represent conic sections parametrically.