

AP Calculus AB Course Overview:

Calculus is a widely applied area of mathematics and involves a beautiful intrinsic theory. Students in this course will be exposed to both aspects of the subject. A.P. Calculus AB is a challenging and demanding college-level mathematics course organized around the themes of limits, derivatives, integrals, and applications & modeling. Within the context of these themes, the following topics are explored in depth: functions, graphs, and limits, continuity as a property of functions, the concept of a derivative, computation of derivatives, applied derivatives, techniques and applications of antidifferentiation, interpretations and properties of definite integrals, applications of integrals, fundamental Theorem of Calculus, and numerical approximations to definite integrals

Learning Targets (Based on the California Academic Content Standards for Calculus and the Calculus AB topic outline):

Unit 1: Demonstration of Mastery for Mathematics 6-Pre-Calculus

Unit 2: Limits

Unit 3: Modeling the Rate of Change

Unit 4: Derivatives

Unit 5: Derivative Applications: Related Rates & Rectilinear Motion

Unit 6: Derivative Applications: Curve Sketching and Optimization

Unit 7: Indefinite Integrals and Differential Equations

Unit 8: Definite Integrals

Unit 9: Applications of Integrals

Unit 10: AP Review

Unit 11: Integration by Parts and Derivatives of Hyperbolic Functions

Unit 1: Mathematics in review, the last 10 years.....- Welcome to the Oscars

Target #	Std.	Learning Target	Practice Sets
1.1	K-Pre-Calculus	Explain how to use the unit circle to evaluate trigonometric functions	
1.2	K-Pre-Calculus	Explain how to use sets to solve equations, inequalities, and absolute value equations/inequalities and solve these with ease	
1.3	K-Pre-Calculus	Explain the similarities and differences between working with linear equations, quadratic equations, and trigonometric equations.	
1.4	K-Pre-Calculus	Describe the similarities and differences between analyzing polynomial functions, rational functions, and transcendental functions (logarithmic, exponential, trigonometric).	
1.5	K-Pre-Calculus	Describe how to work with conics and compare this to working with functions	
1.6	K-Pre-Calculus	Graph the six trigonometric functions and identify the domain, range, period	
1.7	K-Pre-Calculus	Explain the connection between trigonometric functions and their inverses	
1.8	K-Pre-Calculus	Explain how to sketch and translate the library of functions (linear, quadratic, absolute value, cubic, cube root, square root, natural log.,exponential growth/decay, G.I.F., piecewise)	
1.9	K-Pre-Calculus	Define the most common formulas used for mathematical modeling and explain how to approach finding mathematical models	

Clemmer Thematic Focus: Movies and Imagination. Set the stage→ Pacing: **Take 2 weeks to establish the expectation of mastery/retention; do not review, rather expect retention....**

Content Link: Connect sketching and focus reaching a point.