

AP Calculus AB Notes

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Advanced Placement Calculus AB is designed for students who have a thorough knowledge of college preparatory mathematics, including Algebra, Geometry, Trigonometry, and Elementary Analysis. The course includes a study of elementary functions, properties of limits, the derivative and applications, techniques of integration, and applications of the definite integral.

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1 Limits and Continuity

1.1 Introduction to Limits

1.2 Limits Properties

1.3 Continuity

1.4 One-Sided Limits

1.5 Limits with Infinity

1.6 Limits with Trig

2 Differentiation: Definition and Fundamental Properties

2.1 Average Rate of Change and Secant Lines

2.2 Definition of Derivative

2.3 Derivative Rules

2.4 Differentiation

2.5 Product Rule

2.6 Quotient Rule

2.7 Tangent Lines

2.8 Linear Approximation

2.9 Continuity & Differentiability

3 Differentiation: Composite, Implicit, and Inverse Functions

3.1 Chain Rule

3.2 L'Hopital's Rule

3.3 Implicit Differentiation

3.4 Inverse Functions & Derivatives

4 Contextual Applications of Differentiation

4.1 Related Rates

4.2 Intro to Position, Velocity, & Acceleration

4.3 Numerical Position, Velocity, & Acceleration

4.4 Graphing Position, Velocity, & Acceleration

4.5 Analytical Positions, Velocity, & Acceleration

5 Analytical Applications of Differentiation

5.1 Extreme Values

5.2 1st Derivative Test

5.3 2nd Derivative Test

5.4 Mean Value Theorem and Rolle's Theorem

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