

Reading Public Schools

Instilling a joy of learning and inspiring the innovative leaders of tomorrow



Math Curriculum Guide

AP Calculus AB

Course Description

As stated by the College Board, Advanced Placement Calculus AB affords students the opportunity to explore the concepts, methods and applications of differential and integral calculus. It is the equivalent of an introductory college-level calculus course. Students will work to understand the theoretical basis and solve problems by applying their knowledge and skills. This course is the equivalent of a first-semester college calculus course devoted to topics in differential and integral calculus. More information about the requirements of the College Board AP Calculus AB course can be found at: <https://apcentral.collegeboard.org/courses/ap-calculus-ab/course>

Content Standards

BIG IDEA 1—CHANGE

Using derivatives to describe rates of change of one variable with respect to another or using definite integrals to describe the net change in one variable over an interval of another allows students to understand change in a variety of contexts. It is critical that students grasp the relationship between integration and differentiation as expressed in the Fundamental Theorem of Calculus .

BIG IDEA 2—LIMITS

Beginning with a discrete model and then considering the consequences of a limiting case allows us to model real-world behavior and to discover and understand important ideas, definitions, formulas, and theorems in calculus: for example, continuity, differentiation, integration.

BIG IDEA 3—ANALYSIS OF FUNCTIONS

Calculus allows us to analyze the behaviors of functions by relating limits to differentiation, integration, and infinite series and relating each of these concepts to the others.

Mathematical Practices

1. **Implementing Mathematical Processes**—Determine expressions and values using mathematical processes.
2. **Connecting Representations**—Translate mathematical information from a single representation.
3. **Justification**—Justify reasoning and solutions.
4. **Communication and Notation**—Use correct notation, language, and mathematical conventions.

