



Southmoreland School District AP Calculus Curriculum Overview

AP Calculus AB:

AP Calculus AB is roughly equivalent to a first semester college calculus course devoted to topics in differential and integral calculus. The AP course covers topics in these areas, including concepts and skills of limits, derivatives, definite integrals, Disk and Washer Methods, and the Fundamental Theorem of Calculus.

Module Titles:

- Module 1: Limits and Their Properties**
- Module 2: Differentiation**
- Module 3: Applications of Differentiation**
- Module 4: Integrals and Differential Equations**
- Module 5: Applications of Integration**

Module Overviews:

Module 1: Limits and Their Properties

The students will define a limit and whether it exists. They will calculate the value of the limit using graphs, tables, and algebraic properties.

Module 2: Differentiation

In this module the students will define and calculate derivatives and higher order derivatives using the rules of derivatives- quotient, product, chain. They will also use the derivative rules on logarithmic, trigonometric and inverse functions.

Module 3: Applications of Differentiation

The students will be able to calculate related rates, velocity, and acceleration. They will be able to use and justify Rolle's Theorem, Mean Value Theorem, and the first and second derivative tests.

Module 4: Integrals and Differential Equations

The students will be able to approximate areas using Riemann Sums and calculate areas using antiderivatives rules.

Module 5: Applications of Integration

The students will be able to integrate an area and use the Fundamental Theorem of Calculus. The students will use the disk, washer, and shell method.