

<b>Curriculum</b>	
<b>Grade:</b>	12 IP
<b>Subject:</b>	Mathematics

Topic	Description	Lesson	Lesson Code	Objectives
Calculus	The branch of mathematics concerned with the calculation of instantaneous rates of change (differential calculus) and the summation of infinitely many small factors to determine some whole (integral calculus).	Limits and Their Properties: Evaluating Limits Analytically (REVISION)	C1.3.1	Evaluate a limit using properties of limits.
			C1.3.2	Develop and use a strategy for finding limits.
			C1.3.3	Evaluate a limit using dividing out and rationalizing techniques.
		Limits and Their Properties: Continuity and One-Sided Limits	C1.4.1	Determine continuity at a point and continuity on an open interval.
			C1.4.2	Determine one-sided limits and continuity on a closed interval.
			C1.4.3	Know properties of continuity.
		Limits and Their Properties: Infinite Limits	C1.5.1	Determine infinite limits from the left and from the right.
			C1.5.2	Find and sketch the vertical asymptotes of the graph of a function.
		Limits and Their Properties: Limits at Infinity	C1.6.1	Determine limits at infinity.
			C1.6.2	Determine the horizontal asymptotes, if any, of the graph of a function.
		Differentiation: The Derivative and the Tangent Line Problem	C2.1.1	Find the slope of the tangent line to a curve at a point.
			C2.1.2	Use the limit definition to find the derivative of a function.
			C2.1.3	Understand the relationship between differentiability and continuity.
		Differentiation: Basic Differentiation Rules and Rates of Change	C2.2.1	Find the derivative of a function using the Constant Rule.
			C2.2.2	Find the derivative of a function using the Power Rule.
			C2.2.3	Find the derivative of a function using the Constant Multiple Rule.
			C2.2.4	Find the derivative of a function using the Sum and Difference Rules.
			C2.2.5	Find the derivatives of the sine function and of the cosine function.
			C2.2.6	Use derivatives to find rates of change.
		Differentiation:	C2.3.1	Find the derivative of a function using the Product Rule.

	Product and Quotient Rules and Higher-Order Derivatives	C2.3.2	Find the derivative of a function using the Quotient Rule.
		C2.3.3	Find the derivative of a trigonometric function.
		C2.3.4	Find a higher-order derivative of a function.
	Differentiation: The Chain Rule	C2.4.1	Find the derivative of a composite function using the Chain Rule.
		C2.4.2	Find the derivative of a function using the General Power Rule.
		C2.4.3	Find the derivative of a trigonometric function using the Chain Rule.
	Applications of Differentiation: Extrema on an Interval	C3.1.1	Understand the definition of extrema of a function on an interval.
		C3.1.2	Understand the definition of relative extrema of a function on an open interval.
		C3.1.3	Find extrema on a closed interval.
	Applications of Differentiation: Increasing and Decreasing Function and the First Derivative Test	C3.2.1	Determine intervals on which a function is increasing or decreasing.
		C3.2.2	Apply the First Derivative Test to find relative extrema of a function.
	Applications of Differentiation: Concavity and the Second Derivative Test	C3.3.1	Determine intervals on which a function is concave upward or downward.
		C3.3.2	Find any points of inflection of the graph of a function.
		C3.3.3	Apply the Second Derivative Test to find relative extrema of a function.
	Applications of Differentiation: A Summary of Curve Sketching	C3.4.1	Analyze and sketch the graph of a function.
	Applications of Differentiation: Optimization Problems	C3.5.1	Solve applied minimum and maximum problems.
	Integration: Antiderivatives and Indefinite Integrals	C4.1.1	Write the general solution of a differential equation.
		C4.1.2	Use indefinite integral notation for antiderivatives.
		C4.1.3	Use basic integration rules to find antiderivatives.
C4.1.4		Find a particular solution of a differential equation.	

		Integration: Definite Integrals	C4.2.1	Evaluate a definite integral using properties of definite integrals.
			C4.2.2	Finding areas of common geometric figures.
		Logarithmic and Exponential Functions: The Natural Logarithmic Function	C5.1.1	Use properties of the natural logarithmic function.
			C5.1.2	Understand the definition of the number e.
			C5.1.3	Find derivatives of functions involving the natural logarithmic function.
			C5.1.4	Use the Log Rule for Integration to integrate a rational function.
		Logarithmic and Exponential Functions: Exponential Functions	C5.2.1	Use properties of the natural exponential function.
			C5.2.2	Differentiate natural exponential functions.
			C5.2.3	Integrate natural exponential functions.
SAT	Preparation for the SAT standardized test that is widely used for college admissions.	SAT Practice	SAT	Learning different strategies and tactics to solve various SAT questions.
SAT2 Subject Test	Preparation for the SAT standardized test that is widely used for college admissions.	SAT2 Practice	SAT2	Learning different strategies and tactics to solve various SAT2 questions.