


Calculus AB

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		Content	# of days	ACT Standard	Assessment
1 st nine weeks		Review PreCalculus and Trigonometry	4-5		
		Apply the informal definition of a limit to one- and two-sided limits.	1		
		Identify limits that fail to exist, know and apply the properties of limits	1		
		Find finite limits graphically, numerically, and analytically, using direct substitution, cancellation techniques, and rationalization technique.	4		
		Use limits to compare relative magnitudes of functions and their rates of change	1		
		Know and apply the properties of continuity and determine continuity on open and closed intervals	1		
		Identify and apply the definition of continuity to determine continuity at a point and identify points of discontinuity	1		
		Apply the Intermediate Value Theorem	1		
		Use infinite limits to determine the asymptotic behavior of a function, including vertical asymptotes	2		
	Know and apply the formal definition and alternate form of the formal definition to determine basic derivatives, equations of tangent lines, local linearity, differentiability, and continuity	3			
	Know and apply the basic rules of differentiation, including constant multiple, power, sum and difference, product and quotient rules.	5			
	Know and apply the rules of differentiation for transcendental functions	2			
	Communicate the concept of a derivative in terms of slope, local linearity, and instantaneous and average rate of change.	3			
	Determine higher order derivatives	1			
	Apply the chain rule of derivatives	3			
	Compute the derivative of a function numerically using a graphing calculator	1			
	Review, Quizzes, Tests, and Curriculum Adjustment	8 – 10			
2 nd		Determine relative (local) and absolute (global) extrema on an interval and know and apply the Extreme Value Theorem	2		

		Determine the critical values of a function	1		
		Know and apply Rolle's Theorem and the Mean Value Theorem	2		
		Determine increasing and decreasing intervals of a function	1		
		Determine monotonic functions	1		
		Use the first and second derivative test to determine relative minima and maxima	2		
		Determine intervals of concavity of a function	1		
		Determine points of inflection of a function	1		
		Apply the relationships of f, f', f'' in a variety of applications, including curve sketching	5		
		Solve applied minimum and maximum problems (optimization)	3		
		Estimate numeric derivatives using local linear approximations	1		
		Interpret rates of change including numerical data and slope fields	2		
		Interpret the derivatives as a rate of change in a variety of applied contexts, including velocity, speed, and acceleration	3		
		Use implicit differentiation to determine the derivative of a function including inverse functions	3		
		Apply derivatives to real world problems involving related rates	3		
		Review, Quizzes, Tests, and Curriculum Adjustment	9 - 13		
3 rd nine weeks		Estimate Area using left, right, midpoint, upper, lower, and trapezoidal sums	2		
		Approximate definite integrals of functions represented algebraically, geometrically, and by tables of values, using Riemann Sums and Trapezoidal Rule (including distance travelled by a particle along a line)	1		
		Compute Riemann Sums using left, right, midpoint, upper, lower and evaluation points	1		
		Find Area using the limit definition of a Riemann Sum	1		
		Know and apply the definition of a definite integral as a limit of a summing process	2		
		Find the anti-derivatives following directly from derivatives of basic functions including use of a general power rule	1		
		Know and apply the properties of definite integrals and find the constant of integration	1		
		Use the Fundamental Theorem of Calculus to evaluate definite integrals	1		
		Know and apply the Mean Value Theorem for	1		

