Calculus Capacity Matrix

Purpose and Vision		Understanding and Applying Calculus	Information	Knowledge	Know-how	wisdom	Portfolio
Unit	**Standard**	**Capacity Breakdown**					
Review Algebra		Exponential Rules	x				
		Radicals	x				
		Use interval notation	x				
		Solve and use properties of inequalities	x				
		Solve equations involving Absolute Value	x				
		Solve Inequalities involving Absolute Value	x				
		Complex numbers	x				
		Factoring polynomials and Rational Expressions	x				
		Solving quadratics equations-factoring, completing the square and quadratic formula	x				
		Synthetic division	x				
Unit	**Standard**	**Capacity Breakdown**					
Limits and their Properties Chapter 3	Sec 3.2	Estimate a limit using a numerical or graphical approach	x				
	Sec. 3.2	Formal Definition of a limit (delta epsilon proof)	x				
	Sec. 3.2	Evaluate limits using properties of limits	x				
	Sec. 3.2	Develop and use a strategy for finding limits	x				
	Sec. 3.3	Evaluate limits using dividing out and rationalizing techniques	x				
	Sec. 3.3	Evaluate limits using the squeeze theorem	x				

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Unit	**Standard**	**Capacity Matrix**					
Limits and their Properties Chapter 3	Sec. 3.4	Use properties of continuity	x				
	Sec. 3.4	Difference Quotient	x				
	Sec. 3.4	Use the Intermediate Value Theorem	x				
	Sec 3.5	Determine infinite limits from the left and right	x				
	Sec 3.5	Find and sketch vertical asymptotes of the graphs of functions	x				
	Sec 3.4	Recognizing continuity graphically	x	x			Activity 4
	Sec 3.4	Mathematical definition of continuity	x				
	Sec 3.4	Types of discontinuity: jump, point, infinite	x	x			Activity 4
Unit	**Standard**	**Capacity Matrix**					
Differentiation Chapter 4	Sec 4.1	Find the slope of the tangent line to a curve at a point	x				
	Sec 4.1	Use the limit definition to find the derivative of a function	x				
	Sec 4.1	Understand the relationship between differentiability and continuity	x				
	Sec 4.2	Find the derivative of a function using the constant rule	x				

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Unit	**Standard**	**Capacity Matrix**					
Differentiation Chapter 4	Sec 4.2	Find the derivative of a function using the sum and difference rule	x				
	Sec 4.2	Use derivatives to find rates of change	x				
	Sec 4.3	Find the derivatives of a function using the product rule	x				
	Sec 4.3	Find the derivative of a function using the quotient rule	x				
	Sec 4.3	Find a higher-order derivative of a function	x				
	Sec 4.4	Find the derivative of a composite function using the chain rule. Find the derivative of a function using the general power rule and simplify the derivatives of a function using algebra	x				
	Sec. 4.5	Distinguish between functions written in implicit form and explicit form. Use implicit differentiation to find the derivatives of a function	x				
	Sec. 4.6	Find a related rate and use the related rates to solve real-life problems					
Unit	**Standard**	**Capacity Breakdown**					
Applications of Differentiation Chapter 5	Sec 5.1	Understand the definition of extrema of a function on an interval					
	Sec 5.1	Understand the definition of local(relative) extrema on an open interval					
	Sec 5.1	Find extrema on a closed interval					
	Sec 5.2	Use Rolle's Theorem					

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Unit	**Standard**	**Capacity Matrix**					
Applications of Differentiation Chapter 5	Sec 5.2	Be able to use the Mean Value Theorem					
	Sec 5.3	Determine intervals on which a function is increasing or decreasing					
	Sec 5.3	Apply the first derivative test to find relative extrema of a function					
	Sec 5.4	Determine intervals on which the function is concave upward or concave downward					
	Sec. 5.4	Find any points of inflection of the graph of a function					
	Sec. 5.4	Apply the second derivative test to find relative extrema of a function					
	Sec 5.7	Use calculus to solve optimization problems					