Calculus BC Schedule--Unit 3/Chapter 3 Derivatives (cont'd)

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 4		*12-Sep*	*13-Sep*	*14-Sep*	*15-Sep*
Lesson		***1/2 DAY*** 3.1 Chain Rule	3.1 Chain Rule	3.1 Chain Rule	3.2 Implicit Differentiation
HMWK		**HW1**--p.231 #15, 21,23,33,39,41,51, 73, p.235 AP Practice #5,10	**HW2**--p.231 #47,49, p.235 AP Practice #3,4,6,11	**HW3--**p.231 #35, 65,69,79,81,83, 96abcd,97, p.235 AP Practice #8	**HW4--**p.242 #7,15,21,71b, p.245 AP Practice #1,3,6,9

Week 5	*18-Sep*	*19-Sep*	*20-Sep*	*21-Sep*	*22-Sep*
Lesson	3.2 Implicit Differentiation	***LATE START*** 3.3 Derivative of Inverse Trig Functions	3.3 Derivative of Inverse Trig Functions **Quiz 3.1 & 3.2**	3.4 Derivatives of Logarithmic Functions	9.2/9.3/9.5 Parametric, Polar, Vector Derivatives
HMWK	**HW5--**p.242 #25,35,39,49,59,77ab, p.245 AP Practice #5,8	**HW6--**p.250 #17,21,31,35,39, p.251 AP Practice #1,2,6 **Study for Quiz 3.1 & 3.2**	**HW7--**p.250 #5,6,47, p.251 AP Practice #3,7,8	**HW8--**p.259 #9,17,25,27,45, p.261 AP Practice #2,4,5	**HW9--**p.658 #8,26a, p.668 #27, p.682 #46,51, p.688 #23,34c, p.689 AP Practice #2

Week 6	*25-Sep*	*26-Sep*	*27-Sep*
Lesson	*Unit 3 REVIEW*	***LATE START*** **Unit 3 TEST**	AP Activity: Unit 3
HMWK	**HW10--**p.263 #3, 13,14,26,35,41,45, p.265 AP Review #6, p.702 AP Review #17,20, 25abc	**No Additional Homework**	*AP Activity: Unit 3 due Oct 4*

Calculus BC Schedule--Unit 3/Chapter 3 Derivatives (cont'd)

UNIT 3: Differentiation Continued

FUN-3

Recognizing opportunities to apply derivative rules can simplify differentiation.

LEARNING OBJECTIVE	ESSENTIAL KNOWLEDGE
FUN-3.C Calculate derivatives of compositions of differentiable functions.	**FUN-3.C.1** The chain rule provides a way to differentiate composite functions.
FUN-3.D Calculate derivatives of implicitly defined functions.	**FUN-3.D.1** The chain rule is the basis for implicit differentiation.
FUN-3.E Calculate derivatives of inverse and inverse trigonometric functions.	**FUN-3.E.1** The chain rule and definition of an inverse function can be used to find the derivative of an inverse function, provided the derivative exists.
FUN-3.E Calculate derivatives of inverse and inverse trigonometric functions.	**FUN-3.E.2** The chain rule applied with the definition of an inverse function, or the formula for the derivative of an inverse function, can be used to find the derivatives of inverse trigonometric functions.

FUN-3

Recognizing opportunities to apply derivative rules can simplify differentiation.

LEARNING OBJECTIVE	ESSENTIAL KNOWLEDGE
FUN-3.A Calculate derivatives of familiar functions.	**FUN-3.A.4** Specific rules can be used to find the derivatives for sine, cosine, exponential, and logarithmic functions.
FUN-3.F Determine higher order derivatives of a function.	**FUN-3.F.1** Differentiating f' produces the second derivative f'', provided the derivative of f' exists; repeating this process produces higher-order derivatives of f. **FUN-3.F.2** Higher-order derivatives are represented with a variety of notations. For $y = f(x)$, notations for the second derivative include $\frac{d^2y}{dx^2}$, $f''(x)$, and y''. Higher-order derivatives can be denoted $\frac{d^ny}{dx^n}$ or $f^{(n)}(x)$.

FUN-3

Recognizing opportunities to apply derivative rules can simplify differentiation.

LEARNING OBJECTIVE	ESSENTIAL KNOWLEDGE
FUN-3.G Calculate derivatives of functions written in polar coordinates. BC ONLY	**FUN-3.G.1** Methods for calculating derivatives of real-valued functions can be extended to functions in polar coordinates. BC ONLY **FUN-3.G.2** For a curve given by a polar equation $r = f(\theta)$, derivatives of r, x, and y with respect to θ, and first and second derivatives of y with respect to x can provide information about the curve. BC ONLY

CHA-3

Derivatives allow us to solve real-world problems involving rates of change.

LEARNING OBJECTIVE	ESSENTIAL KNOWLEDGE
CHA-3.G Calculate derivatives of parametric functions. BC ONLY	**CHA-3.G.1** Methods for calculating derivatives of real-valued functions can be extended to parametric functions. BC ONLY **CHA-3.G.2** For a curve defined parametrically, the value of $\frac{dy}{dx}$ at a point on the curve is the slope of the line tangent to the curve at that point. $\frac{dy}{dx}$, the slope of the line tangent to a curve defined using parametric equations, can be determined by dividing $\frac{dy}{dt}$ by $\frac{dx}{dt}$, provided $\frac{dx}{dt}$ does not equal zero. BC ONLY
CHA-3.G Calculate derivatives of parametric functions. BC ONLY	**CHA-3.G.3** $\frac{d^2y}{dx^2}$ can be calculated by dividing $\frac{d}{dt}\left(\frac{dy}{dx}\right)$ by $\frac{dx}{dt}$. BC ONLY
CHA-3.H Calculate derivatives of vector-valued functions. BC ONLY	**CHA-3.H.1** Methods for calculating derivatives of real-valued functions can be extended to vector-valued functions. BC ONLY

FUN-8

Solving an initial value problem allows us to determine an expression for the position of a particle moving in the plane.

LEARNING OBJECTIVE	ESSENTIAL KNOWLEDGE
FUN-8.B Determine values for positions and rates of change in problems involving planar motion. BC ONLY	**FUN-8.B.1** Derivatives can be used to determine velocity, speed, and acceleration for a particle moving along a curve in the plane defined using parametric or vector-valued functions. BC ONLY **FUN-8.B.2** For a particle in planar motion over an interval of time, the definite integral of the velocity vector represents the particle's displacement (net change in position) over the interval of time, from which we might determine its position. The definite integral of speed represents the particle's total distance traveled over the interval of time. BC ONLY