

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

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 4		10-Sep	11-Sep	12-Sep	13-Sep
Lesson		3.1 Chain Rule	EARLY DISMISSAL 3.1 Chain Rule	3.1 Chain Rule	3.2 Implicit Differentiation
HMWK		HW1 --p.231 #15, 21,23,73ab, p.235 AP Practice #5	HW2 --p.231 #33,39,41,51,47, 49, p.235 AP Practice #3,4,6,10,11	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	16-Sep	17-Sep	18-Sep	19-Sep	20-Sep
Lesson	3.2 Implicit Differentiation	1/2 DAY 3.3 Derivative of Inverse Trig Functions	3.3 Derivative of Inverse Trig Functions Quiz 3.1 & 3.2	Assembly? 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	23-Sep	24-Sep	25-Sep		
Lesson	<i>Unit 3 REVIEW</i>	Unit 3 TEST	EARLY DISMISSAL 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	<i>AP Activity: Unit 3 due Oct 2</i>		

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
<p>FUN-3.C Calculate derivatives of compositions of differentiable functions.</p> <p>FUN-3.D Calculate derivatives of implicitly defined functions.</p> <p>FUN-3.E Calculate derivatives of inverse and inverse trigonometric functions.</p> <p>FUN-3.E Calculate derivatives of inverse and inverse trigonometric functions.</p>	<p>FUN-3.C.1 The chain rule provides a way to differentiate composite functions.</p> <p>FUN-3.D.1 The chain rule is the basis for implicit differentiation.</p> <p>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.</p> <p>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.</p>

FUN-3
Recognizing opportunities to apply derivative rules can simplify differentiation.

LEARNING OBJECTIVE	ESSENTIAL KNOWLEDGE
<p>FUN-3.A Calculate derivatives of familiar functions.</p> <p>FUN-3.F Determine higher order derivatives of a function.</p>	<p>FUN-3.A.4 Specific rules can be used to find the derivatives for sine, cosine, exponential, and logarithmic functions.</p> <p>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.</p> <p>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 $\frac{d^n y}{dx^n}$ or $f^{(n)}(x)$.</p>

FUN-3
Recognizing opportunities to apply derivative rules can simplify differentiation.

LEARNING OBJECTIVE	ESSENTIAL KNOWLEDGE
<p>FUN-3.G Calculate derivatives of functions written in polar coordinates. BC ONLY</p>	<p>FUN-3.G.1 Methods for calculating derivatives of real-valued functions can be extended to functions in polar coordinates. BC ONLY</p> <p>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</p>

CHA-3
Derivatives allow us to solve real-world problems involving rates of change.

LEARNING OBJECTIVE	ESSENTIAL KNOWLEDGE
<p>CHA-3.G Calculate derivatives of parametric functions. BC ONLY</p>	<p>CHA-3.G.1 Methods for calculating derivatives of real-valued functions can be extended to parametric functions. BC ONLY</p> <p>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</p> <p>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</p> <p>CHA-3.H Calculate derivatives of vector-valued functions. BC ONLY</p> <p>CHA-3.H.1 Methods for calculating derivatives of real-valued functions can be extended to vector-valued functions. BC ONLY</p>

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
<p>FUN-8.B Determine values for positions and rates of change in problems involving planar motion. BC ONLY</p>	<p>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</p> <p>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</p>