# AP CALCULUS

# CHAPTER #3 - DERIVATIVES

## ASSIGNMENTS:
1.  **Read-(3.1)** p.101: (1-13)X3,5,12, 16, **WS#3.1**        **Derivative of a function**
2.  continued: 14,15,17-19,21,27,28                              nDeriv, tangent program
3.  **Read-(3.2)** p.111: (1-14)X4, (17-27)X24                **Differentiability**  (11 on: calculator)
4.  **Read-(3.3A)** p.120: (1-11)odd, 10,25,27,29             **Rules for differentiation**
5.  3.3B: 12-14, 17,18,23,30,31, 33-36,  24 in class                 Product & Quotient Rules

## QUIZ: 3.1-3.3
6.  **Read-(3.4A)** p.129:1-5,9                               **Velocity & other rates of change**
7.  p.129: 10(in class),12, 13,14,16 **WS#3.4B**              acceleration & jerk
8.  3.4C-continued: (21-25)X22, 28, 29
9.  **WS#3.4D -** review
10. **Read-(3.5)** p.139: 1-3,6,9,10, p.140: (1-13)x3         **Derivatives of trigonometric functions**
11. continued: (12-22 even)X14, (27-33) odd, 32 in class
12. **Read-(3.6)** p.146: (1-28)x3                            **the Chain Rule**
13. Continued: (2-35)x3, 39, class: **WS# 3.6**
14. **Read-(3.7)** p.155: (3-21)x3, p148; 57                  **Implicit differentiation**
15. continued: (24-39)x3, 41,44,46, (48 in class)

## QUIZ: 3.4-3.7
16. **Read-(3.8)** p.162: 1-7,19,  p.155:20                   **Derivatives of inverse t**rig **functions**
17. continued:10,13,16,17, 20, 23, 27,  p.133: 36
18. **Read-(3.9)** p.170: (1-13)odd, (21-29)odd,41,42         **Derivatives of log functions**
19. continued: 15,14,19, (22-30)even, 31,40,47
21. **REVIEW WORKSHEET**
22. p.172: (1-28)x3, 31,35,45,47, 53-55, 57, 59, 61-64, 67b,f, ,69,71,73,74,   **WS 3.2 / WS 3.3**

## TEST CHAPTER #3
AP-Multiple Choice Practice

## OUTCOMES
0.  **VOCABULARY:** derivative, differentiable, f ′(x), y′, dy/dx, f ″(x), y″, $d^2y/dx^2$, derivative at  point,
    f ′(x) = lim    $\frac{f(x+h) – f(x)}{h}$ , numerical derivative, differentiability implies continuity, Power Rule,
         h→0        left/right hand derivatives, f ′(x) fails to exist, vertical tangent, corner,
    cusp, jump discontinuity, discontinuous, oscillates, Constant Multiplier Rule, Product Rule,
    Quotient Rule, LodHi – HidLo over the square of lo we go,  higher order derivatives, instantaneous
    velocity, speed, acceleration, jerk, Chain Rule, Outside-Inside Rule, Implicit Differentiation
1.  **USE THE DEFINITION OF f'(x) TO FIND THE DERIVATIVE**
2.  **USE THEOREMS TO FIND f'(x) AND HIGHER ORDER DERIVATIVES**
3.  **FIND THE DERIVATIVE IMPLICITLY**
4.  **UNDERSTAND THE RELATIONSHIP BETWEEN f(x) AND f'(x) GRAPHICALLY**
5.  **APPLICATIONS OF THE DERIVATIVE**

1981-1      1983-1      1985-1      1988-1
1989-1      1990-2      1996-1      2000-5