

AP Calculus : 2nd Review packet's Answers

P1: (1) a (2)  (3) c

P2: (4) a

1. $f'(x) = 48x^5$

2. $f'(x) = 8(x^5 + 3x)^7 (5x^4 + 3)$

3. $y' = 6^{(3x+2)} (\ln 6)(3)$

4. $f'(x) = e^{x^2} \cdot (2x)$

5. $f'(x) = \frac{4}{(4x-9)(\ln 2)}$

6. $f'(x) = \frac{2x+1}{x^2+x}$

7. $f'(x) = 3 \cos(3x)$

8. $f'(x) = 2x \cdot \sec^2(x^2)$

9. $f'(x) = \sec(e^x) \cdot \tan(e^x) \cdot e^x$

10. $f'(x) = 1 + \frac{1}{x}$

P.3: 11. $y' = x^{\sin x} \left(\frac{\sin x}{x} + \cos x \cdot \ln x \right)$; 12. $y' = \frac{3}{\sqrt{16-9x^2}}$

Inverse Func.

(1) 2

(2) $\frac{1}{2}$

(3) c

P.4: EQ Tangent line : b or $y = 2x + 1$

Diff. and cont : c or $a + b = 2$

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① E ; Implicit Diff: C

Related Rate: ① D ② D

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I.V.T: B ; M.V.T: B

Pg. 7

M.V.T (cont.) B

BC (only): Page 7

Indefinite Integrals

① $\frac{1}{2}e^{2x} + \frac{1}{2}x^2 + C$ ② $\ln|\sec x| - \ln|\sec x + \tan x| + C$

③ $2x^{1/2} + 3x^{1/3} + C$ ④ $\frac{1}{5}(x^2 - 5)^5 + C$

⑤ $\frac{1}{12}(4x^2 + 9)^{3/2} + C$ ⑥ $\frac{1}{4}\sin(4x) + C$

⑦ $\frac{1}{3}e^{3x} + C$ ⑧ $\frac{1}{2}\ln|x^2 + 2| + C$

Page 8 ⑨ $\frac{1}{16}\sin^4 x + C$ ⑩ $-\frac{1}{8}\ln|\cos(8x)| + C$

FTC Part I: 1 ; FTC Part II: ① $2\sin(4x^2)$

② $5e^{5x}$

Page 9 Ave Value: $\frac{2}{3}$

Volume: ① $V = \int_0^{\ln 3} (e^x)^2 dx$ ② $\frac{68\pi}{3}$

③ ~~$\frac{8\pi}{3}$~~ $\frac{212\pi}{3}$

Trapezoidal Rule: $\frac{19}{4} \sqrt{\frac{1}{5} \ln(5x) t}$

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$y = \frac{Ae^{2x} - 1}{2}$ when $A = \pm e^{2c}$

$P = 200e$