Name_____

Chapter 5 Review: No Calculator
AP Cal

1. $\int x^4 e^{x^5+1}\,dx$

2. $\int \frac{xe^{x^2}}{e^{x^2}+3}\,dx$

3. $\int e^x \tan e^x\,dx$

4. $\int xe^{x^2}\cos\left(e^{x^2}\right)\sin\left(e^{x^2}\right)dx$

5. $\int \frac{\tan x(e^{\sec x})}{\cos x}\,dx$

6. $\int_0^1 \frac{5x^2}{3x^3+3}dx$

7. $\int 2x(x^2+4)^2\,dx$

8. $\int \frac{2x}{(x^2+4)^2}\,dx$

9. $\int \frac{2x}{x^2+4}\,dx$

10. $\int \frac{-\tan x}{\ln\cos x}\,dx$

11. If $p(x)=\cos(\arcsin 3x)$, find $p'(x)$.

12. If $y=\frac{x\sqrt{x^2+1}}{x^3+2x+1}$, find y' using Logarithmic Differentiation (Log Diff).

13. Name an integer critical value from problem number 12.

14. $\frac{d}{dx}\log_3 5x$

15. $y = x^{\ln x}, x > 0$ then $y' = ?$

16. If $a = \ln 2, b = \ln 3$ then write $\ln 24$ in terms of a and b.

17. If $y = xe^{-1} - \ln\sqrt{x^2+1}$, then y' =?

18. $\int 2^{5x}\,dx$

19. For $x = 2^y$, find $\frac{dy}{dx}$

20. $\frac{d}{dx}e^{-\ln\frac{1}{x}} = ?$

21. For $\log_{10} 2 = 0.3103$, find $\log_{10} 20$

22. $\frac{d}{dx}\log_4 e^{\sin e^x}$

23. $\int_0^{\ln 2} \frac{e^x\,dx}{e^x+1}$

24. For all real $b, \int_0^b |2x|dx$ is a) $-b|b|$ b) b^2 c) $-b^2$ d) $b|b|$ e) none of the above

25. If $f(x) = x^3 - 7x^2 + 25x - 39$ and g is the inverse function of f, what is the EXACT value of $g'(0)$? (Calc OK)