

Name _____ Date _____ Per. _____

STUFF YOU MUST KNOW COLD

CALC

Objective: Demonstrate that you know cold important basic information for the ap exam

Take the derivative of the following

1. x^n

2. $\sin e^{3x}$

3. $\cos 4^3$

4. $\ln(\sec x)$

5. $\csc x$

6. $\csc^{-1}(x/3)$

7. $\cot^{-1}(x-2)$

8. $\cot -x^2$

9. $3 \sec x$

10. 13^x

11. $\log_7 x$

12. $\tan^{-1}(\tan x)$

13. $\cos^{-1}(\sin x)$

14. e^{2x^5}

Evaluate the following

15. $\sin^{-1} 1/2$

16. $\sin \pi/6$

17. $\tan \pi/2$

18. What is 270 degrees in radians?

19. $\cos^{-1}(0)$

Find the antiderivative. Circle your answer.

20. $\int \frac{1}{x^2 - 4x + 5} dx$

21. $\int_0^{\sqrt{2}} \frac{dx}{\sqrt{4-x^2}}$

22. $\int \ln x dx$

23. $\int -\sec x \tan x dx$

24. $4 \int \tan 2x dx$

25. $\int_1^e \frac{dx}{2x}$

26. $\int (x^3 - 1)^4 x^2 dx$

27. $\int_0^1 \frac{1}{2} x e^{x^2} dx$

28. State the Fundamental Theorem of Calculus

29. State the definition of the derivative

30. State the Chain Rule for Differentiation

31. What is the general equation of a line.

32. How do you find the critical points (get at least 2 of the 3 acceptable answers)?

33. What is a normal line? How does its slope compare to the slope of the tangent at a particular point?

34. What is the geometric meaning of the derivative? Of the integral?

35. What are the critical points of
 $f(x) = (2x - 5)^3 (x + 4)^2$

36. Take the derivative of $\frac{6x - 11}{x + 2}$

37. $\int \frac{6x - 11}{x + 2} dx$

38. Take the derivative of $\sqrt{t^2 - 1}$

39. $\int_0^1 7^x dx$

40. State the conditions of l'Hopital's Rule and the conclusions of it.

41. 0/0 is called _____

42. State the MVT (Mean Value Theorem).

43. How do you find the average velocity?