Calculus 2

Derivatives of Logarithmic Functions

Differentiate the following:

1. $f(x) = ln(\pi x)$

2. $f(x) = ln(2\pi x)$

3. $f(x) = ln(x^2)$

4. $f(x) = ln(x^3)$

5. $f(x) = ln(\sin(x))$

6. $f(x) = ln(\cos(x))$

7. $f(x) = \ln(x^3)$

8. $f(x) = \ln(x^4)$

9. $f(x) = ln(4x^5)$

10. $f(x) = ln(2x^3)$

11. $f(x) = xln(2x)$

12. $f(x) = xln(5x)$

13. $f(x) = x^2 ln(x)$

14. $f(x) = x^3 ln(x)$

15. $f(x) = x^3 ln(5x)$

16. $f(x) = x^3 ln(7x)$

17. $f(x) = \sqrt{ln(x)}$

18. $f(x) = \sqrt[3]{\ln(x)}$

19. $f(x) = ln^2(x)$

20. $f(x) = ln^3(x)$

21. $f(x) = 4ln^3(x)$

22. $f(x) = 5ln^4(x)$

23. $f(x) = \frac{\ln(x)}{x}$

24. $f(x) = \frac{\ln(x)}{x^2}$

25. $f(x) = \frac{\ln(3x)}{x^4}$

26. $f(x) = \frac{\ln(7x)}{x^3}$

27. $f(x) = ln(\sqrt{x})$

28. $f(x) = ln(\sqrt[3]{x})$

29. $f(x) = \frac{ln(4x)}{\sqrt{x}}$

30. $f(x) = \frac{ln(5x)}{\sqrt{x}}$

31. $f(x) = sin[ln(1/x)]$

32. $f(x) = cos[ln(1/x)]$

33. $f(x) = tan[ln(\pi/x)]$

34. $f(x) = cot[ln(\pi/x)]$

35. $f(x) = x^{\tan(x)}$

36. $f(x) = x^{\sec(x)}$

37. $f(x) = sin^x(x)$

38. $(x) = cos^x(x)$

39. $f(x) = x^{\ln(x)}$

40. $f(x) = x^{e^x}$

41. $f(x) = (3x+5)^4(x-1)^3$

42. $f(x) = (2x+5)^3(x-1)^2$

43. $f(x) = \frac{\sqrt{x}(3x-2)^4}{(x+5)^3}$

44. $f(x) = \frac{\sqrt{x}(5x-2)^2}{(x+2)^4}$

45. $f(x) = \frac{e^{2x}(x-5)^{2/5}}{\sqrt[3]{2x+1}}$

46. $f(x) = \frac{e^{3x}(x-5)^{2/3}}{\sqrt[3]{4x+1}}$