MATH 11012   Practice Exponential and Logarithmic Differentiation Problems

1. $f(x) = e^{x^2}$

2. $f(x) = e^{5x}$

3. $f(x) = (x^2 + 3x)e^{8x}$

4. $f(x) = xe^x - e^{-x}$

5. $f(x) = e^{x^2} \cdot e^{x+1}$

6. $f(x) = \dfrac{e^{x^2}}{e^{x-1}}$

7. $f(x) = e^{\sqrt{x}}$

8. $f(x) = e^{3x} + 2e^{2x} - 3e^x + 7$

9. $f(x) = e^{x^2-2}$

10. $f(x) = \dfrac{1 + e^{2x}}{2 - e^{2x}}$

11. $f(x) = e^{3x-1} - 4e^{-x}$

12. $f(x) = e^{-2x} + 4e^{-3x} + 7$

13. $f(x) = e^{2x+1}(3x^2 - 6x + 1)$

14. $f(x) = \dfrac{e^{3x} - 5}{e^{7x} + 4}$

15. $f(x) = 2xe^x$

16. $f(x) = \dfrac{1}{1 - e^{-x}}$

17. $f(x) = \dfrac{e^{-x}}{x}$

18. $f(x) = x^2 e^{-x}$

19. $f(x) = e^{\sqrt{x^2+1}}$

20. $f(x) = \dfrac{e^{2x} - e^{-x}}{2}$

21. $f(x) = \ln(x^2)$

22. $f(x) = \ln(x^2 - 5x + 11)$

23. $f(x) = \ln(7x^4 - 3x^2 + 2)$

24. $f(x) = e^x \ln x$

25. $f(x) = \dfrac{x}{\ln x}$

26. $f(x) = \ln\left(\dfrac{10}{x}\right)$

27. $f(x) = \ln(3x) + 4\ln x + 5$

28. $f(x) = x^2 \ln(2x)$

29. $f(x) = \ln(x^{-1})$

30. $f(x) = x \ln x$

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

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

33. $f(x) = (\ln x)^{1/2}$

34. $f(x) = \ln(3xe^x)$

35. $f(x) = \ln\left(\dfrac{x - 1}{x^2 + 1}\right)$

36. $f(x) = \ln\left(\dfrac{e^x}{1 + e^x}\right)$

37. $f(x) = \ln\sqrt{\dfrac{x}{x^2 + 1}}$

38. $f(x) = \left(\ln x^2\right)^5$

39. $f(x) = \dfrac{\ln(2x + 5)}{3x + 1}$

40. $f(x) = \dfrac{2x^2 + e^x}{\ln(4x - 5)}$

41. $f(x) = 2^x$

42. $f(x) = 3^x$

43. $f(x) = 7\left(\dfrac{1}{2}\right)^x$

44. $f(x) = x(4^x)$

45. $f(x) = 7x^2(5^x)$

46. $f(x) = \dfrac{2^x}{3x + 1}$

47. $f(x) = \log x$

48. $f(x) = \log_9 x$

49. $f(x) = 3\log_7 x$

50. $f(x) = 2\log_3 x$