Extra Problems Sheet – Brief Calculus 4.5   Name: _____

find the derivative of each function.

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

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

21. $f(x) = \dfrac{e^{3x} - e^{-x}}{e^x}$

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

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

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

In Problems 53–58 use logarithmic differentiation to find the derivative of each function.

53. $f(x) = (x^2 + 1)^2 (2x^3 - 1)^4$

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