

HW 5.4

Find the derivative.

36. $y = e^{-x^2}$

42. $y = \ln\left(\frac{1+e^x}{1-e^x}\right)$

39. $g(t) = (e^{-t} + e^t)^3$

45. $y = e^x (\sin x + \cos x)$

Find an equation of the tangent line to the graph of the function at the given point.

51. $y = \ln(e^{x^2}), (-2, 4)$

54. $y = xe^x - e^x, (1, 0)$

Use implicit differentiation to find dy/dx .

57. $xe^y + ye^x = 1$

Find the indefinite integral.

87. $\int \frac{e^{\sqrt{x}}}{\sqrt{x}} dx$

93. $\int \frac{e^x + e^{-x}}{e^x - e^{-x}} dx$

90. $\int \frac{e^{2x}}{1+e^{2x}} dx$

96. $\int \frac{e^{2x} + 2e^x + 1}{e^x} dx$

Evaluate the definite integral.

99. $\int_0^1 e^{-2x} dx$

102. $\int_{-2}^0 x^2 e^{x^3/2} dx$

105. $\int_0^{\pi/2} e^{\sin \pi x} \cos \pi x dx$

Solve the differential equation.

107. $\frac{dy}{dx} = xe^{ax^2}$