Derivatives of exponential and logarithmic functions

3.11.1

(a)

$$\frac{dy}{dx} = \frac{e^{x^2+1} \cdot (2x) \cdot \ln(1-x) - e^{x^2+1} \cdot \frac{1}{1-x} \cdot (-1)}{(\ln(1-x))^2}$$

(b)

$$\frac{dy}{dx} = \cos(\sin(\sin 4^x)) \cdot \cos(\sin 4^x) \cdot \cos 4^x \cdot 4^x \cdot \ln 4$$

(c)

$$\frac{dy}{dx} = \frac{-\csc^2 x}{\cot x \cdot \ln 5} - \frac{2}{(2x-1) \cdot \ln 5}$$

3.11.2

$$\frac{d^n y}{dx^n} = e^x(n+x)$$