Directions: Differentiate the following functions.

1. $y = \sec\left(x^5\right) + \sec^5(x)$

2. $y = \left(\dfrac{x^3 - x^2}{\sin(x)}\right)^4$

3. $y = \dfrac{2}{x^4 - 3x^3}$

4. $y = x^5 - \sqrt{\tan\left(x^3\right)}$

Directions: Differentiate the following functions.

1. $y = e^{\cos(x)} + \cos(e^x)$

2. $y = \left(x^2 + 3x - 4\right)^{100}$

3. $y = \dfrac{2}{5}\sqrt{e^{5x} + 5x}$

4. $y = x^4 + \left(e^x + \dfrac{x^3 - 1}{x + 1}\right)^4$