

1. (a) $\frac{d}{dt} \arctan(\arcsin(\sqrt{t})) =$

(b) $\frac{d^2}{dx^2} \arccos e^x =$

2. Find the equation of the tangent line to the curve

$$e^y \cos x = \sin(xy) - e$$

through the point $(\pi, 1)$.

3. Consider the function

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

(a) Show that f is invertible.

(b) Find $(f^{-1})'(-1)$.