

I, Find the derivative of the functions

a) $y = 5(2^x) - 5x + 4$

b) $w = (5r - 6)^3$

c) $f(x) = 6e^{5x} + e^{-x^2}$

d) $f(t) = \ln(t^2 + 1)$

e) $y = (t^2 + 3)e^t$

f) $y = t^2(3t + 1)^3$

II

Suppose \$1000 is deposited into a bank account which pays 8% annual interest, compounded continuously.

- (a) Find a formula $f(t)$ for the balance t years after the initial deposit.
- (b) Find $f(10)$ and $f'(10)$

III

Find the equation of the tangent line to the graph of $y = 3^x$ at $x = 1$.