Name: KEY

Business Calculus

Quiz 5

Instructions. Find the derivatives of the following functions. You may use any of your favorite rules or tricks.

1. $g(x) = 5x^{-7} - 2x^{-4}$

$g'(x) = -7(5)x^{-8} - 2(-4)x^{-5}$

$= \boxed{-35x^{-8} + 8x^{-5}}$

2. $y = \log(x) + 4x^2 + 1$

$y' = \boxed{\frac{1}{\ln(10)\,x} + 8x}$

3. $f(x) = \dfrac{1 - e^x}{1 + e^x}$

$f'(x) = \dfrac{(1+e^x)(-e^x) - (1-e^x)(e^x)}{(1+e^x)^2} = \dfrac{-e^x - e^{2x} - e^x + e^{2x}}{(1+e^x)^2}$

$= \boxed{\dfrac{-2e^x}{(1+e^x)^2}}$

4. $y = 2(x^3 + 6)^5$

$y' = 2(5)(x^3+6)^4 (3x^2)$

$= \boxed{30x^2(x^3+6)^4}$