

§3.2 (PART 2): DERIVATIVES OF PRODUCTS AND QUOTIENTS

1.] Differentiate the following functions:

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

b.) $g(x) = x^2 e^x$

c.) $h(x) = 2^x(x^3 - \sqrt{x})$

d.) $k(x) = 3^2 \cdot 4^3$

2.] Differentiate the following functions:

a.) $f(x) = \frac{x^2}{x - 1}$

b.) $g(x) = \frac{x^3 - x}{\sqrt{x}}$

c.) $h(x) = \frac{x^2 + 3x + 4}{x^2 - 1}$

d.) $k(x) = \frac{2^x}{2^x + 1}$

3.] Differentiate the following functions:

a.) $f(x) = \frac{2^x}{3^x}$

b.) $g(x) = \frac{4xe^x}{x^2 + 1}$

4.] Find the equation of the line tangent to the graph of the function $f(x) = \frac{8}{x^2 + 4}$ at the point $(2, f(2))$.