

MA 181 SECTION 3.2: PRODUCT & QUOTIENT RULES

THE PRODUCT RULE: $[f(x)g(x)]' = f'(x)g(x) + f(x)g'(x)$

Note: This is different but equivalent to the rule as stated in the text.

EXAMPLES:

1. $y = x^3(x^2 + 1)$

2. $g(x) = \sqrt{x} e^x$

THE QUOTIENT RULE: $\left[\frac{f(x)}{g(x)}\right]' = \frac{f'(x)g(x) - f(x)g'(x)}{(g(x))^2}$

EXAMPLES:

1. $y = \frac{e^x}{1 + x}$

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