

## Ch. 2.3 Board Work

## Product/Quotient Rule

Ex. 4) <sup>#16</sup>  $f(x) = \frac{x+1}{x-1}$        $f'(x) = \frac{-2}{(x-1)^2}$

Ex. 5)  $f(x) = \frac{x}{x^2+1}$        $f'(x) = \frac{1-x^2}{(x^2+1)^2}$

Ex. 6)  $f(x) = (x+2)(x^3-3x+1)$   
 $f'(x) = 4x^3+6x^2-6x-5$

Ex. 7)  $f(x) = \frac{27}{x^2+9}$        $f'(x) = \frac{-54x}{(x^2+9)^2}$

Ex. 8)  $f(x) = \frac{x^2}{x^2+1}$        $f'(x) = \frac{2x}{(x^2+1)^2}$

$$9) f(x) = \frac{x^2 + x - 1}{x^2 - 1}$$

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

$$10) f(x) = \frac{6x - 5}{x^2 + 1}$$

$$f' = \frac{6 + 10x - 6x^2}{(x^2 + 1)^2}$$

$$11) g(x) = (3x^2 + 7)(x^2 - 2x + 3)$$

$$g' = 2(6x^3 - 7x^2 + 16x - 7)$$

$$12) (x^3 - 3x)(x + 2)$$

$$g' = 4x^3 + 6x^2 - 6x - 6$$

$$13) f(x) = \frac{2x^3 - 1}{x^2}$$

$$f' = 2 + \frac{2}{x^3} = \frac{2x^3 + 2}{x^3}$$