$$\frac{5x^4-12x+2x^2-8+2x^2+4x^2+2x}{(x^2-4)^2}$$

$$\frac{5x^4-6x^2+2x-8}{(x^2-4)^2}$$

문제 5.1.4) 도함수를 구하여라.

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

$=x^3-2x+x^2-2$

$=x^3+x^2-2x-2$

$f'(x)=3x^2+2x-2$.

(2) $f(x)=(x+1)(x+3)(x+5)$

$=(x^2+3x+x+3)(x+5)$

$=(x^2+4x+3)(x+5)$

$=(2x+4)(x+5)+(x^2+4x+3)$

$=2x^2+10x+4x+20+x^2+4x+3$

$=3x^2+18x+23$.

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

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

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

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x^2-5x+6

문제 5.1.4)

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

sol)

$f(x)=x-1$ $\quad f'(x)=1$

$g(x)=(x-2)(x-3)$ $\quad g'(x)=2x-5$

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

$-5x-2x+5$

$=\frac{(x-2)(x-3)}{(x-2)(x-3)^2}-\frac{(x-1)(2x-5)}{(x-2)(x-3)^2}$

$=\frac{x^2-5x+6-2x^2+7x-5}{(x-2)^2(x-3)^2}$

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