Ex 54

$f(x) = 2x^2 - 8x - 5$; $g(x) = -x^2 + 3x$

$f'(x) = 4x - 8$; $g'(x) = -2x + 3$

Ex 55

$f(x) = x^3 + x + 1$; $g(x) = x^4 - 3x^2 + 2$

$f'(x) = 3x^2 + 1$; $g'(x) = 4x^3 - 6x$

Ex 56

$f(x) = (2x+1)^3$; $g(x) = (x+2)(e^x + 1)$

$f(x) = u^3$ avec $u = 2x+1 \Rightarrow u' = 2$

$f'(x) = 3u^2 u' = 3(2x+1)^2 2 = 6(2x+1)^2$

$g(x) = uv$ avec $u = x+2$ et $v = e^x + 1$

$u' = 1$ $v' = e^x$

$g'(x) = u'v + uv' = 1(e^x + 1) + (x+2)e^x = e^x + 1 + e^x(x+2) = e^x + 1 + xe^x + 2e^x =$

$= xe^x + 3e^x + 1$

Ex 57

$f(x) = \dfrac{x-1}{x^2+4x+1}$; $g(x) = \dfrac{1}{x^2+1}$

$f(x) = \dfrac{u}{v}$ avec $u = x-1$ et $v = x^2+4x+1$

$u' = 1$ $v' = 2x+4$

$f'(x) = \dfrac{u'v - uv'}{v^2} = \dfrac{x^2+4x+1-(x-1)(2x+4)}{(x^2+4x+1)^2} = \dfrac{x^2+4x+1-(2x^2+4x-2x-4)}{(x^2+4x+1)^2} =$

$= \dfrac{x^2+4x+1-2x^2-4x+2x+4}{(x^2+4x+1)^2} = \dfrac{-x^2+2x+5}{(x^2+4x+1)^2}$

$g = \dfrac{u}{v}$ avec $u = 1$ et $v = x^2+1$

$u' = 0$ $v' = 2x$

$g'(x) = \dfrac{u'v - uv'}{v^2} = \dfrac{-2x}{(x^2+1)^2}$