

exercice 47 :

• $f(x) = -4x^3 + 2x^2 - 3x + 1$

↳ $f'(x) = -4 \times 3x^2 + 2 \times 2x - 3$
 $= -12x^2 + 4x - 3$

• $g(x) = 3x^2 - x + 1$

↳ $g'(x) = 6x - 1$

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

↳ $h'(x) = \frac{2}{3} \times 4x^3 + \frac{1}{2} \times 3x^2 - 1$

$$= \frac{8}{3}x^3 + \frac{3}{2}x^2 - 1$$

exercice 28:

$$\bullet f(x) = \underbrace{(2x+1)}_u \underbrace{(3x^2-x+1)}_v$$

$$\hookrightarrow f'(x) = 2 \times (3x^2-x+1) + (2x+1) \times (6x-1)$$

$$= 6x^2 - 2x + 2 + 12x^2 - 2x + 6x - 1$$

$$= 18x^2 + 2x + 1$$

$$\bullet g(x) = (\sqrt{x} + 1)(x^2 - 2)$$

$$\hookrightarrow g'(x) = \frac{1}{2\sqrt{x}} \times (x^2 - 2) + (\sqrt{x} + 1) \times 2x$$

$$= \frac{x^2 - 2}{2\sqrt{x}} + 2x\sqrt{x} + 2x$$

exercice :

$$\left(\frac{u}{v}\right)' = \frac{u'v - uv'}{v^2}$$

$$\bullet \quad f(x) = \frac{2x+1}{3x+2}.$$

$$\left\{ \begin{array}{l} f'(x) = \frac{2(3x+2) - 3(2x+1)}{(3x+2)^2} \end{array} \right.$$

$$= \frac{6x+4-6x-3}{(3x+2)^2}$$

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

$$\cdot g(x) = \frac{3x^2 - 4x + 1}{2x - 3}$$

$$g'(x) = \frac{(6x - 4)(2x - 3) - 2x(3x^2 - 4x + 1)}{(2x - 3)^2}$$

$$= \frac{12x^2 - 18x - 8x + 12 - 6x^2 + 8x - 2}{(2x - 3)^2}$$

$$= \frac{6x^2 - 18x + 10}{(2x - 3)^2}$$