

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

Méthode 1

$$f(x) = \underbrace{(2x+1)}_{u(x)} \underbrace{(2x+1)}_{v(x)}$$

$$u'(x) = 2$$

$$v'(x) = 2$$

$$(uv)' = u'v + v'u$$

$$\begin{aligned} f'(x) &= 2(2x+1) + 2 \times (2x+1) \\ &= 4x+2 + 4x+2 \\ &= 8x+4 \end{aligned}$$

Méthode 2

$$f(x) = (2x+1)^2 = 4x^2 + 4x + 1$$

$$f'(x) = 4 \times 2x + 4 = 8x + 4$$

Exercice

$$\bullet f(x) = (3x+2)^2$$

$$f'(x) =$$

$$\bullet g(x) = (2x-3)^2$$

$$g'(x) =$$

$$f(x) = \frac{1}{5x+2}$$

$\nwarrow u(x)$
 $\nwarrow v(x)$

$$u(x) = 1$$

$$v(x) = 5x + 2$$

$$u'(x) = 0$$

$$v'(x) = 5$$

$$\frac{u'v - v'u}{v^2}$$

$$f'(x) = \frac{0 \times (5x+2) - 5 \times 1}{(5x+2)^2} = \frac{-5}{(5x+2)^2}$$

Exercice

$$h(x) = \frac{1}{3x+1} \quad x \neq -\frac{1}{3} \quad h'(x) =$$

(valeur interdite)

$$f(x) = \frac{1}{(4x+3)^2} \quad x \neq -\frac{3}{4} \quad (\text{valeur interdite})$$

$$u(x) = 1 \quad u'(x) = 0$$

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

⚠ méthode 2 page 1

$$v(x) = 16x^2 + 24x + 9$$

Donc $v'(x) = 32x + 24$

$$f'(x) = \frac{0 \times (4x+3)^2 - (32x+24) \times 1}{((4x+3)^2)^2} = \frac{-32x-24}{(4x+3)^4}$$

Exercice

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

$$i'(x) =$$

Question

$$f'(x) = 6 \times (3x+2) = 18x+12$$

$$g'(x) = 4 \times (2x-3) = 8x-12$$

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

$$k'(x) = \frac{-18x+6}{(3x-1)^4} = \frac{-6(3x-1)}{(3x-1)^4} = \frac{-6}{(3x-1)^3}$$
