$\boxed{\text{Dérivée}}$

But: technique

compréhension

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

fonction

$$(x^n)' = n \cdot x^{n-1}$$

$\in \mathbb{R}$, constant

$$\boxed{(a \cdot f)' = a \cdot f'}$$

$$(f+g)' = f' + g'$$

$$\boxed{(f \cdot g)' = f'g + fg'}$$

fonction

$$\left(\frac{f}{g}\right)' = \frac{f'g - fg'}{g^2}$$

$$(3x^2)' = 3' \cdot x^2 + 3 \cdot (x^2)'$$

$$= \underbrace{0 \cdot x^2}_{=0} + 3 \cdot 2x = 3 \cdot (x^2)'$$

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

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

$(f\cdot g)' = f'\cdot g + f\cdot g'$

$$\Big((5x+3)(x^3+5)\Big)' = (5x+3)'(x^3+5) + (5x+3)(x^3+5)'$$

$$= \boxed{5(x^3+5) + (5x+3)(3x^2)}$$

$$= 5x^3+25+15x^3+9x^2$$

$$= \boxed{20x^3+9x^2+25}$$

$$(\sin x)' = \cos x$$

$$(\cos x)' = -\sin x$$

$$(\sin x\cdot\cos x)' = (\sin x)'\cos x + \sin x\,(\cos x)'$$

$$= \cos x\cos x + \sin x\,(-\sin x)$$

$$= \cos^2 x - \sin^2 x =$$

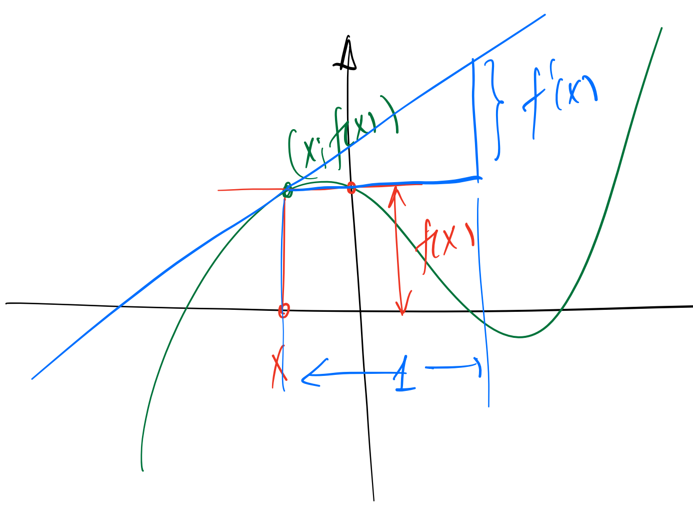
$$\left((x+5)^{10}\cdot(1-x)^{50}\right)' =$$

$$\left[(x+5)^{10}\right]'(1-x)^{50} + (x+5)^{10}\cdot\left((1-x)^{50}\right)'$$

⚠ Formule supplémentaire :

$$\boxed{(f^n)' = n\cdot f^{n-1}\cdot f'}$$

$$\left[\left(x^3-x^2+3x-4\right)^5\right]' = 5\left(x^3-x^2+3x-4\right)^4\cdot\left(3x^2-2x+3\right)$$



$f(x) = 2x^2-x^3$

$f'(x) = 4x-3x^2$

$f'(-1) = -4-3$
$= -7$