Corrigés

Exercice 1

Calculer les dérivées des fonctions suivantes.

$f(x) = x^6$

$f'(x) = 6x^5$

$g(x) = 5x + 6$

$g'(x) = 5$

$h(x) = 1\,005$

$h'(x) = 0$

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

$i'(x) = 2x + 3$

$j(x) = \frac{1}{x}$

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

$k(x) = \sqrt{x}$

$k'(x) = \frac{1}{2\sqrt{x}}$

Corrigés

Exercice 2

Calculer les dérivées des fonctions suivantes.

$$\boldsymbol{f(x) = x^6(2x + 3)}$$

$$f(x) = u \times v$$

$$u = x^6 \; donc \; u' = 6x^5$$

$$v = 2x + 3 \; donc \; v' = 2$$

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

$$f'(x) = 6x^5 \times (2x + 3) + x^6 \times 2$$

$$f'(x) = 6x^5 \times 2x + 6x^5 \times 3 + x^6 \times 2$$

$$f'(x) = 12x^6 + 18x^5 + 2x^6$$

$$\boldsymbol{f'(x) = 14x^6 + 18x^5}$$

Pop School

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

$$g(x) = \frac{u}{v}$$

$$u = 3x^2 \; donc \; u' = 6x$$

$$v = 2x + 1 \; donc \; v' = 2$$

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

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

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

$$g'(x) = \frac{12x^2 + 6x - 6x^2}{(2x+1)^2}$$

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

Corrigés

$$\boldsymbol{i(x) = 4x^2 + 3x^3}$$

$$\boldsymbol{i'(x) = 8x + 9x^2}$$

$$\boldsymbol{j(x) = \frac{1}{4x^2 + 3x}}$$

$$j(x) = \frac{1}{v}$$

$$v = 4x^2 + 3x \; donc \; v' = 8x + 3$$

$$j'(x) = \frac{-v'}{v^2}$$

$$j'(x) = \frac{-(8x + 3)}{(4x^2 + 3x)^2}$$

$$\boldsymbol{j'(x) = \frac{-8x - 3}{(4x^2 + 3x)^2}}$$