Dérivée des fonctions usuelles.

Si $f(x) = cste$ (fonction Constante)
donc $\boxed{f'(x) = 0}$; $\forall x \in \mathbb{R}$

Exemples: $f(x) = 5$ donc $\boxed{f'(x) = 0}$ | $f(x) = \frac{15}{2}$ donc $\boxed{f'(x) = 0}$

Si $f(x) = ax + b$; $x \in \mathbb{R}$
donc $\boxed{f'(x) = a}$

Exemples $f(x) = 2x - 1$ donc $\boxed{f'(x) = 2}$ | $f(x) = \frac{2}{3}x - \frac{5}{2}$ donc $\boxed{f'(x) = \frac{2}{3}}$

Si $f(x) = x^n$; $n \geqslant 2$
donc $\boxed{f'(x) = n x^{n-1}}$; $\forall x \in \mathbb{R}$

Exemples: $f(x) = x^4$ donc $\boxed{f'(x) = 4x^3}$ | $f(x) = x^{17}$ donc $\boxed{f'(x) = 17x^{16}}$

Si $f(x) = \frac{1}{x}$; $\forall x \in \mathbb{R}'$

NETSCHOOL1
ACADEMY

NETSCHOOL1
ACADEMY

donc $\boxed{f'(x) = \frac{-1}{x^2}}$

exemples:

$f(x) = \frac{4}{x}$ donc $\boxed{f'(x) = \frac{-4}{x^2}}$

$f(x) = \frac{-3}{x}$ donc $\boxed{f'(x) = \frac{3}{x}}$

Si $f(x) = \sqrt{x}$; $\forall x \in \mathbb{R}_+$

donc $\boxed{f'(x) = \frac{1}{2\sqrt{x}}}$

Si $f(x) = \sin(ax+b)$; $\forall x \in \mathbb{R}$

donc $\boxed{f'(x) = a\cos(ax+b)}$

exemple:

$f(x) = \sin(2x-4)$; $\forall x \in \mathbb{R}$

donc $\boxed{f'(x) = 2\cos(2x-4)}$

Si $f(x) = \cos(ax+b)$; $\forall x \in \mathbb{R}$

donc $\boxed{f'(x) = -a\sin(ax+b)}$

Exemple :

$f(x) = \cos\left(4x + \frac{1}{3}\right)$; $\forall x \in \mathbb{R}$

donc $\boxed{f'(x) = -4 \sin\left(4x + \frac{1}{3}\right)}$

Si $f(x) = tg(x)$; $x \in \mathbb{R} \setminus \left\{ \frac{\pi}{2} + k\pi, k \in \mathbb{Z} \right\}$

donc
$$\boxed{f'(x) = 1 + tg^2 x = \frac{1}{\cos^2 x}}$$

Si $f(x) = \cot g(x)$; $x \in \mathbb{R} \setminus \{ k\pi, k \in \mathbb{Z} \}$

donc
$$\boxed{f'(x) = 1 + \cot g^2 x = \frac{1}{\sin^2 x}}$$

NETSCHOOL1 ACADEMY