$\boxed{\text{ExpLog}}$

$$\boxed{\log_2 u = x \iff 2^x = u}$$

$\log u = \log_{10} u$

$\ln u = \log_e u$

$e \simeq 2.71828 \ldots$

$$\log_a(x \cdot y) = \log_a(x) + \log_a(y)$$

pro aide-mémoire

$$\log_a(x^s) = s \cdot \log_a(x)$$

$$\boxed{\begin{gathered}\log_a a = 1 \\ \log_a 1 = 0\end{gathered}}$$

$$\log_a b = \frac{\log_c b}{\log_c a}$$

1.2.1 à 1.2.6

$$a^{f(x)} = a^{g(x)} \iff f(x) = g(x)$$

$$\log 16 + 2\log 3 - 2\log 2 - \frac{1}{2}\log 9 =$$

$$\log 2^4 - 2\log 2 + 2\log 3 - \frac{1}{2}\log 3^2 =$$

$$\underbrace{4\log 2 - 2\log 2}_{2\log 2} + \overbrace{\underbrace{2\log 3 \underbrace{- \frac{1}{2}\cdot 2}_{-1}\log 3}_{\log 3}}^{2\log 3 - \log 3} = 2\log 2 + \log 3$$

$$\left(\frac{1}{4}\right)^{f(x)} = 4^{1}$$

$$\frac{1}{2^n} = 2^{-n}$$

$$\left(4^{-1}\right)^{f(x)} = 4^{1}$$

$$\left(2^n\right)^m = 2^{n \cdot m}$$

$$4^{(-1 \cdot f(x))} = 4^{1} \Rightarrow \boxed{4^{-f(x)} = 4^{1}}$$

$$(-1) \cdot f(x) = -f(x)$$

$$\boxed{\frac{a}{b} + \frac{c}{d} = \frac{a \cdot d + b \cdot c}{b \cdot d}}$$

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

$$a \cdot \left(3^{2x+1}\right)^2 + b\, 3^{2x+1} + c = 0$$

$$a t^2 + bt + c = 0$$

$$3^{2x+1} = t_1$$

$$t \begin{cases} t_1 \\ t_2 \end{cases}$$

$$3^{2x+1} = t_2$$

$$3^{4x+2} - 36 \cdot 3^{2x+1} + 243 = 0$$

$$\left(3^{2x+1}\right)^2 - 36 \cdot 3^{2x+1} + 243 = 0$$

$$\left(2^n\right)^m = 2^{n \cdot m}$$

$$t^2 - 36t + 243 = 0$$

$$\left(3^{2x+1}\right)^2 = 3^{2 \cdot (2x+1)}$$

$$(t-9)(t-27) = 0$$

$$t_1 = 9 \Rightarrow 3^{2x+1} = 9 \Leftrightarrow 2x+1 = 2 \Leftrightarrow x = \frac{1}{2}$$

$$t_2 = 27 \Rightarrow 3^{2x+1} = 27 \Leftrightarrow 2x+1 = 3 \Leftrightarrow x = 1$$

$$27^{(x-1)} = \left(3^3\right)^{x-1}$$

$$= 3^{3\cdot(x-1)}$$

x	-3	2	4
$f(x)$	‖	0	‖