DÉVELOPPEMENTS LIMITÉS USUELS

Soit $n \in \mathbb{N}^*$, $a \in \mathbb{R}^*$ et $b \in \mathbb{C}^*$.

$$\sin(x) = \sum_{k=0}^{n} \frac{(-1)^k\, x^{2k+1}}{(2k+1)!} + \underset{x\to 0}{O}(x^{2n+3})$$

$$\cos(x) = \sum_{k=0}^{n} \frac{(-1)^k\, x^{2k}}{(2k)!} + \underset{x\to 0}{O}(x^{2n+2})$$

$$\tan(x) = x + \frac{x^3}{3} + \frac{2\,x^5}{15} + \frac{17\,x^7}{315} + \underset{x\to 0}{O}(x^9)$$

$$\sinh(x) = \sum_{k=0}^{n} \frac{x^{2k+1}}{(2k+1)!} + \underset{x\to 0}{O}(x^{2n+3})$$

$$\cosh(x) = \sum_{k=0}^{n} \frac{x^{2k}}{(2k)!} + \underset{x\to 0}{O}(x^{2n+2})$$

$$e^x = \sum_{k=0}^{n} \frac{x^{2k}}{k!} + \underset{x\to 0}{O}(x^{n+1})$$

$$\ln(1+x) = \sum_{k=0}^{n} \frac{(-1)^{k-1}\, x^k}{k} + \underset{x\to 0}{O}(x^{n+1})$$

$$(1+x)^a = 1 + \sum_{k=0}^{n} \left(\prod_{i=0}^{k-1} (a-i) \right) \frac{x^k}{k!} + \underset{x\to 0}{O}(x^{n+1})$$

$$\frac{1}{1+x} = \sum_{k=0}^{n} (-1)^k\, x^k + \underset{x\to 0}{O}(x^{n+1})$$

$$\frac{1}{1-x} = \sum_{k=0}^{n} x^k + \underset{x\to 0}{O}(x^{n+1})$$

$$e^{bx} = \sum_{k=0}^{n} \frac{b^k\, x^k}{k!} + \underset{x\to 0}{O}(x^{n+1})$$