$$e^x = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \cdots + \frac{x^n}{n!} + x^n\varepsilon(x) = \sum_{k=0}^{n} \frac{x^k}{k!} + x^n\varepsilon(x)$$

$$\sin(x) = x - \frac{x^3}{3!} + \cdots + (-1)^n \frac{x^{2n+1}}{(2n+1)!} + x^{2n+2}\varepsilon(x) = \sum_{k=0}^{n} (-1)^k \frac{x^{2k+1}}{(2k+1)!} + x^{2n+2}\varepsilon(x)$$

$$\cos(x) = 1 - \frac{x^2}{2!} + \cdots + (-1)^n \frac{x^{2n}}{2n!} + x^{2n+1}\varepsilon(x) = \sum_{k=0}^{n} (-1)^k \frac{x^{2k}}{(2k)!} + x^{2n+1}\varepsilon(x)$$

$$\frac{1}{1-x} = 1 + x + x^2 + \cdots + x^n + x^n\varepsilon(x) = \sum_{k=0}^{n} x^k + x^n\varepsilon(x)$$

$$\frac{1}{1+x} = 1 - x + x^2 + \cdots + (-x)^n + x^n\varepsilon(x) = \sum_{k=0}^{n} (-1)^k x^k + x^n\varepsilon(x)$$

$$(1+x)^a = 1 + ax + \tfrac{a(a-1)}{2!}x^2 + \tfrac{a(a-1)(a-2)}{3!}x^3 + \cdots + \tfrac{a(a-1)\cdots(a-n+1)}{n!}x^n + x^n\varepsilon(x)$$

$$\ln(1+x) = x - \frac{x^2}{2} + \frac{x^3}{3} + \cdots + (-1)^{n+1}\frac{x^n}{n} + x^n\varepsilon(x) = \sum_{k=1}^{n} (-1)^{k+1}\frac{x^k}{k} + x^n\varepsilon(x)$$

$$\begin{aligned}\mathrm{Arctan}(x) &= x - \frac{x^3}{3} + \frac{x^5}{5} + \cdots + (-1)^n \frac{x^{2n+1}}{2n+1} + x^{2n+2}\varepsilon(x)\\ &= \sum_{k=0}^{n} (-1)^k \frac{x^{2k+1}}{2k+1} + x^{2n+2}\varepsilon(x)\end{aligned}$$

$$\tan(x) = x + \frac{x^3}{3} + x^4\varepsilon(x)$$

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

$$\cosh(x) = 1 + \frac{x^2}{2!} + \cdots + \frac{x^{2n}}{2n!} + x^{2n+1}\varepsilon(x) = \sum_{k=0}^{n} \frac{x^{2k}}{(2k)!} + x^{2n+1}\varepsilon(x)$$

Facultatifs mais TRES fortement conseillés

$$\sqrt{1+x} = 1 + \frac{1}{2}x - \frac{1}{8}x^2 + x^2\varepsilon(x)$$

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