FORMULAIRE : DÉVELOPPEMENTS LIMITÉS

$$e^x = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \ldots\ldots + \frac{x^n}{n!} + \mathbf{o}(x^n)$$

$$\cosh(x) = 1 + \frac{x^2}{2!} + \frac{x^4}{4!} + \ldots\ldots + \frac{x^{2n}}{(2n)!} + \mathbf{o}(x^{2n+1})$$

$$\sinh(x) = x + \frac{x^3}{3!} + \frac{x^5}{5!} + \ldots\ldots + \frac{x^{2n+1}}{(2n+1)!} + \mathbf{o}(x^{2n+2})$$

$$\cos(x) = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \ldots\ldots + (-1)^n \frac{x^{2n}}{(2n)!} + \mathbf{o}(x^{2n+1})$$

$$\sin(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \ldots\ldots + (-1)^n \frac{x^{2n+1}}{(2n+1)!} + \mathbf{o}(x^{2n+2})$$

$$(1+x)^\alpha = 1 + \frac{\alpha}{1!}x + \frac{\alpha(\alpha-1)}{2!}x^2 + \ldots\ldots + \frac{\alpha(\alpha-1)\ldots(\alpha-n+1)}{n!}x^n + \mathbf{o}(x^n)$$

$$\frac{1}{1+x} = 1 - x + x^2 - \ldots\ldots + (-1)^n x^n + \mathbf{o}(x^n)$$

$$\sqrt{1+x} = 1 + \frac{x}{2} - \frac{x^2}{8} + \frac{x^3}{16} - \ldots\ldots + (-1)^{n-1}\frac{1.3.5\ldots(2n-3)}{2^n.n!}x^n + \mathbf{o}(x^n)$$

$$\frac{1}{\sqrt{1+x}} = 1 - \frac{x}{2} + \frac{3x^2}{8} - \frac{5x^3}{16} + \ldots\ldots + (-1)^n\frac{1.3.5\ldots(2n-1)}{2^n.n!}x^n + \mathbf{o}(x^n)$$

$$\ln(1+x) = x - \frac{x^2}{2} + \frac{x^3}{3} + \ldots\ldots + (-1)^{n-1}\frac{x^n}{n} + \mathbf{o}(x^n)$$

$$\operatorname{arg\,tanh}(x) = x + \frac{x^3}{3} + \frac{x^5}{5} + \ldots\ldots + \frac{x^{2n+1}}{2n+1} + \mathbf{o}(x^{2n+2})$$

$$\arctan(x) = x - \frac{x^3}{3} + \frac{x^5}{5} - \ldots\ldots + (-1)^n\frac{x^{2n+1}}{2n+1} + \mathbf{o}(x^{2n+2})$$

$$\operatorname{arg\,sinh}(x) = x - \frac{1}{2}\frac{x^3}{3} + \frac{3}{8}\frac{x^5}{5} - \ldots\ldots + (-1)^n\frac{1.3.5\ldots(2n-1)}{2^n.n!}\frac{x^{2n+1}}{2n+1} + \mathbf{o}(x^{2n+2})$$

$$\arcsin(x) = x + \frac{1}{2}\frac{x^3}{3} + \frac{3}{8}\frac{x^5}{5} + \ldots\ldots + \frac{1.3.5\ldots(2n-1)}{2^n.n!}\frac{x^{2n+1}}{2n+1} + \mathbf{o}(x^{2n+2})$$

$$\tan(x) = x + \frac{x^3}{3} + \frac{2x^5}{15} + \frac{17x^7}{315} + \frac{62x^9}{2835} + \mathbf{o}(x^{10})$$

$$\tanh(x) = x - \frac{x^3}{3} + \frac{2x^5}{15} - \frac{17x^7}{315} + \frac{62x^9}{2835} + \mathbf{o}(x^{10})$$

$$\cot(x) = \frac{1}{x} - \frac{x}{3} - \frac{x^3}{45} - \frac{2x^5}{945} + \mathbf{o}(x^6)$$