$$\cos(x) = 1 - \frac{x^2}{2} + \frac{x^4}{24} + o(x^5)$$

$$\sin(x) = x - \frac{x^3}{6} + \frac{x^5}{120} + o(x^5)$$

$$e^x = 1 + x + \frac{x^2}{2} + \frac{x^3}{6} + o(x^3)$$

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

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

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

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

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

$$\sinh(x) = x + \frac{x^3}{3} + \frac{x^5}{5} + \dots + \frac{(-1)^n x^{2n+1}}{2n+1} + o(x^{2n+1})$$

$$\sqrt{1+x} = 1 + \frac{x}{2} - \frac{x^2}{8} + \frac{x^3}{16} + o(x^3)$$

équivalence usuelle

$e^x - 1 \underset{0}{\sim} x$

$(1+x)^\alpha - 1 \underset{0}{\sim} \alpha x$

$\sqrt{(1+x)} - \underset{0}{\sim} \frac{x}{2}$

$\cos(x) - 1 \underset{0}{\sim} \frac{-x^2}{2}$

$\cosh(x) - 1 \underset{0}{\sim} \frac{x^2}{2}$

$\ln(1+x) \underset{0}{\sim} x$

$\sin(x) \underset{0}{\sim} x$

$\sinh(x) \underset{0}{\sim} x$