Développements limités en 0

$$e^x = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + ... + \frac{x^n}{n!} + o\,(x^n)$$

$$\sin x = x - \frac{x^3}{3!} + \frac{x^5}{5!} - ...... + \frac{(-1)^p\, x^{2p+1}}{(2p+1)!} + o\,(x^{2p+2})$$

$$\cos x = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - ...... + \frac{(-1)^p\, x^{2p}}{(2p)!} + o\,(x^{2p+1})$$

$$\tan x = x + \frac{x^3}{3} + \frac{2x^5}{15} + o\,(x^5)$$

$$\text{sh } x = x + \frac{x^3}{3!} + \frac{x^5}{5!} + ... + \frac{x^{2p+1}}{(2p+1)!} + o\,(x^{2p+2})$$

$$\text{ch } x = 1 + \frac{x^2}{2!} + \frac{x^4}{4!} + ... + \frac{x^{2p}}{(2p)!} + o\,(x^{2p+1})$$

$$\text{th } x = x - \frac{x^3}{3} + \frac{2x^5}{15} + o\,(x^5)$$

$$(1+x)^{m} = 1 + mx + \frac{m(m-1)x^2}{2!} + \frac{m(m-1)(m-2)x^3}{3!} + ... + \frac{m(m-1)(m-2)...(m-n+1)x^n}{n!} + o\,(x^n)$$

avec $m \in \mathbb{R}$

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

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

$$\arcsin x = x + \frac{1.x^3}{2.3} + \frac{1.3.x^5}{2.4.5} + ... + \frac{1.3.5...(2p-1).x^{2p+1}}{2.4.6...(2p).(2p+1)} + o\,(x^{2p+2})$$

$$\arctan x = x - \frac{x^3}{3} + \frac{x^5}{5} - ...... + \frac{(-1)^p\, x^{2p+1}}{(2p+1)} + o\,(x^{2p+2})$$