Développements limités à connaître par cœur...

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

$$(1-x)^{-1} = 1+x+x^2+\cdots+x^n+\circ(x^n)$$

$$(1+x)^{-1} = 1-x+x^2+\cdots+(-1)^n x^n+\circ(x^n)$$

$$e^x = 1+x+\frac{x^2}{2!}+\cdots+\frac{x^n}{n!}+\circ(x^n)$$

$$\sin x = x-\frac{x^3}{3!}+\frac{x^5}{5!}+\cdots+(-1)^n\frac{x^{2n+1}}{(2n+1)!}+\circ(x^{2n+1})$$

$$\cos x = 1-\frac{x^2}{2!}+\frac{x^4}{4!}+\cdots+(-1)^n\frac{x^{2n}}{(2n)!}+\circ(x^{2n})$$

$$\mathrm{ch}(x) = \frac{e^x+e^{-x}}{2} = 1+\frac{x^2}{2!}+\cdots+\frac{x^{2n}}{(2n)!}+\circ(x^{2n})$$

$$\mathrm{sh}(x) = \frac{e^x-e^{-x}}{2} = x+\frac{x^3}{3!}+\cdots+\frac{x^{2n+1}}{(2n+1)!}+\circ(x^{2n+1})$$

$$\ln(1-x) = -\int\frac{1}{1-x} = -x-\frac{x^2}{2}-\frac{x^3}{3}-\cdots-\frac{x^{n+1}}{n+1}+\circ(x^{n+1})$$

$$\ln(1+x) = \int\frac{1}{1+x} = x-\frac{x^2}{2}+\frac{x^3}{3}+\cdots+(-1)^n\frac{x^{n+1}}{n+1}+\circ(x^{n+1})$$

$$\arctan x = \int\frac{1}{1+x^2} = x-\frac{x^3}{3}+\frac{x^5}{5}+\cdots+(-1)^n\frac{x^{2n+1}}{2n+1}+\circ(x^{2n+1})$$

$$\arcsin x = \int\frac{1}{\sqrt{1-x^2}} = x+\frac{1}{2}\frac{x^3}{3}+\cdots+\frac{1\times3\times\cdots\times(2n-1)}{2\times4\times\cdots\times2n}\frac{x^{2n+1}}{2n+1}+\circ(x^{2n+1})$$