Alcuni sviluppi di McLaurin notevoli (si sottintende ovunque che i resti sono trascurabili per $x \to 0$)

e^x	$= 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \cdots + \frac{x^n}{n!} + o(x^n)$	$= \sum_{k=0}^{n} \frac{x^k}{k!} + o(x^n)$
$\sinh x$	$= x + \frac{x^3}{3!} + \frac{x^5}{5!} + \cdots + \frac{x^{2n+1}}{(2n+1)!} + o\left(x^{2n+2}\right)$	$= \sum_{k=0}^{n} \frac{x^{2k+1}}{(2k+1)!} + o\left(x^{2n+2}\right)$
$\cosh x$	$= 1 + \frac{x^2}{2!} + \frac{x^4}{4!} + \cdots + \frac{x^{2n}}{(2n)!} + o\left(x^{2n+1}\right)$	$= \sum_{k=0}^{n} \frac{x^{2k}}{(2k)!} + o\left(x^{2n+2}\right)$
$\tanh x$	$= x - \frac{1}{3}x^3 + \frac{2}{15}x^5 + o\left(x^6\right)$	
$\ln(1+x)$	$= x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \cdots + (-1)^{n-1}\frac{x^n}{n} + o(x^n)$	$= \sum_{k=1}^{n} (-1)^{k-1}\frac{x^k}{k} + o(x^n)$
$\sin x$	$= x - \frac{x^3}{3!} + \frac{x^5}{5!} + \cdots + (-1)^n \frac{x^{2n+1}}{(2n+1)!} + o\left(x^{2n+2}\right)$	$= \sum_{k=0}^{n} (-1)^k \frac{x^{2k+1}}{(2k+1)!} + o\left(x^{2n+2}\right)$
$\cos x$	$= 1 - \frac{x^2}{2!} + \frac{x^4}{4!} + \cdots + (-1)^n \frac{x^{2n}}{(2n)!} + o\left(x^{2n+1}\right)$	$= \sum_{k=0}^{n} (-1)^k \frac{x^{2k}}{(2k)!} + o\left(x^{2n+1}\right)$
$\tan x$	$= x + \frac{1}{3}x^3 + \frac{2}{15}x^5 + o\left(x^6\right)$	
$\arcsin x$ $\arccos x$	$= x + \frac{1}{6}x^3 + \frac{3}{40}x^5 + \cdots + \left\lvert\binom{-1/2}{n}\right\rvert \frac{x^{2n+1}}{2n+1} + o\left(x^{2n+2}\right)$ $= \frac{\pi}{2} - \arcsin x$	$= \sum_{k=0}^{n} \left\lvert\binom{-1/2}{k}\right\rvert \frac{x^{2k+1}}{2k+1} + o\left(x^{2n+2}\right)$
$\arctan x$	$= x - \frac{x^3}{3} + \frac{x^5}{5} + \cdots + (-1)^n \frac{x^{2n+1}}{2n+1} + o\left(x^{2n+2}\right)$	$= \sum_{k=0}^{n} (-1)^k \frac{x^{2k+1}}{2k+1} + o\left(x^{2n+2}\right)$
$(1+x)^\alpha$	$= 1 + \alpha x + \binom{\alpha}{2}x^2 + \binom{\alpha}{3}x^3 + \cdots + \binom{\alpha}{n}x^n + o(x^n)$	$= \sum_{k=0}^{n} \binom{\alpha}{k}x^k + o(x^n)$
$\frac{1}{1+x}$	$= 1 - x + x^2 - x^3 + x^4 + \cdots + (-1)^n x^n + o(x^n)$	$= \sum_{k=0}^{n} (-1)^k x^k + o(x^n)$
$\frac{1}{1-x}$	$= 1 + x + x^2 + x^3 + x^4 + \cdots + x^n + o(x^n)$	$= \sum_{k=0}^{n} x^k + o(x^n)$
$\sqrt{1+x}$	$= 1 + \frac{1}{2}x - \frac{1}{8}x^2 + \frac{1}{16}x^3 + \cdots + \binom{1/2}{n}x^n + o(x^n)$	$= \sum_{k=0}^{n} \binom{1/2}{k}x^k + o(x^n)$
$\frac{1}{\sqrt{1+x}}$	$= 1 - \frac{1}{2}x + \frac{3}{8}x^2 - \frac{5}{16}x^3 + \cdots + \binom{-1/2}{n}x^n + o(x^n)$	$= \sum_{k=0}^{n} \binom{-1/2}{k}x^k + o(x^n)$
$\sqrt[3]{1+x}$	$= 1 + \frac{1}{3}x - \frac{1}{9}x^2 + \frac{5}{81}x^3 + \cdots + \binom{1/3}{n}x^n + o(x^n)$	$= \sum_{k=0}^{n} \binom{1/3}{k}x^k + o(x^n)$
$\frac{1}{\sqrt[3]{1+x}}$	$= 1 - \frac{1}{3}x + \frac{2}{9}x^2 - \frac{7}{81}x^3 + \cdots + \binom{-1/3}{n}x^n + o(x^n)$	$= \sum_{k=0}^{n} \binom{-1/3}{k}x^k + o(x^n)$

Si ricordi che $\forall \alpha \in \mathbb{R}$ si pone $\binom{\alpha}{0} = 1$ e $\binom{\alpha}{n} = \frac{\overbrace{\alpha(\alpha-1)\cdots(\alpha-n+1)}^{n \text{ fattori}}}{n!}$ se $n \geq 1$.