SVILUPPI DI McLAURIN (i.e. $x \to 0$). $O(\bullet)$= o-grande, $o(\bullet)$=o-piccolo:

$\sin x = x - \frac{1}{6}x^3 + \frac{1}{5!}x^5 - \frac{1}{7!}x^7 + ... + (-1)^n \frac{x^{2n+1}}{(2n+1)!} + O(x^{2n+3})$
$\cos x = 1 - \frac{1}{2}x^2 + \frac{1}{24}x^4 - \frac{1}{6!}x^6 + ... + (-1)^n \frac{x^{2n}}{(2n)!} + O(x^{2n+2})$
$\tan x = x + \frac{1}{3}x^3 + \frac{2}{15}x^5 + \frac{17}{315}x^7 + \frac{62}{2835}x^9 + O(x^{11})$
$\cot x = x^{-1} - \frac{1}{3}x - \frac{1}{45}x^3 - \frac{2}{945}x^5 - \frac{1}{4725}x^7 - \frac{2}{93\,555}x^9 + O(x^{11})$
$(1+x)^\alpha = 1 + \alpha x + \binom{\alpha}{2}x^2 + \binom{\alpha}{3}x^3 + ... + \binom{\alpha}{n}x^n + O(x^{n+1})$

dove $\alpha \in R$ e $\binom{\alpha}{n} = \frac{\alpha(\alpha-1)(\alpha-2)\bullet\bullet\bullet\bullet\bullet\bullet\bullet(\alpha-n+1)}{n!}$

CASI PARTICOLARI:
$\sqrt{1+x} = 1 + \frac{1}{2}x - \frac{1}{8}x^2 + \frac{1}{16}x^3 - \frac{5}{128}x^4 + \frac{7}{256}x^5 - \frac{21}{1024}x^6 + O(x^7)$
$(1+x)^{\frac{1}{3}} = 1 + \frac{1}{3}x - \frac{1}{9}x^2 + \frac{5}{81}x^3 - \frac{10}{243}x^4 + \frac{22}{729}x^5 - \frac{154}{6561}x^6 + O(x^7)$
$(1+x)^{-1} = 1 - x + x^2 - x^3 + x^4 - x^5 + ... + (-1)^n x^n + O(x^{n+1})$
$(1+x)^{-2} = 1 - 2x + 3x^2 - 4x^3 + 5x^4 - 6x^5 + O(x^6)$
$(1+x)^{-\frac{1}{2}} = 1 - \frac{1}{2}x + \frac{3}{8}x^2 - \frac{5}{16}x^3 + \frac{35}{128}x^4 - \frac{63}{256}x^5 + O(x^6)$
$(1+x)^{-\frac{1}{3}} = 1 - \frac{1}{3}x + \frac{2}{9}x^2 - \frac{14}{81}x^3 + \frac{35}{243}x^4 - \frac{91}{729}x^5 + O(x^6)$
$(1-x)^{-1} = 1 + x + x^2 + x^3 + x^4 + x^5 + ... + x^n + O(x^{n+1})$
$(1-x)^{-2} = 1 + 2x + 3x^2 + 4x^3 + 5x^4 + 6x^5 + O(x^6)$
$\cot x = x^{-1} - \frac{1}{3}x - \frac{1}{45}x^3 - \frac{2}{945}x^5 + O(x^7)$
$\sinh x = x + \frac{1}{6}x^3 + \frac{1}{5!}x^5 + \frac{1}{7!}x^7 ...... + \frac{x^{2n+1}}{(2n+1)!} + O(x^{2n+3})$
$\cosh x = 1 + \frac{1}{2}x^2 + \frac{1}{4!}x^4 + \frac{1}{6!}x^6 ..... + \frac{x^{2n}}{(2n)!} + O(x^{2n+2})$
$\tanh x = x - \frac{1}{3}x^3 + \frac{2}{15}x^5 - \frac{17}{315}x^7 + \frac{62}{2835}x^9 + O(x^{11})$
$\coth x = x^{-1} + \frac{1}{3}x - \frac{1}{45}x^3 + \frac{2}{945}x^5 - \frac{1}{4725}x^7 + \frac{2}{93\,555}x^9 + O(x^{11})$
$\arcsin x = x + \frac{1}{6}x^3 + \frac{1\bullet 3}{2\bullet 4\bullet 5}x^5 + \frac{1\bullet 3\bullet 5}{2\bullet 4\bullet 6\bullet 7}x^7 + O(x^9)$
$\arccos x = \frac{1}{2}\pi - x - \frac{1}{6}x^3 - \frac{1\bullet 3}{2\bullet 4\bullet 5}x^5 - \frac{1\bullet 3\bullet 5}{2\bullet 4\bullet 6\bullet 7}x^7 + O(x^9)$
$\arctan x = x - \frac{1}{3}x^3 + \frac{1}{5}x^5 - \frac{1}{7}x^7 + ... + (-1)^n \frac{x^{2n+1}}{2n+1} + O(x^{2n+3})$
$\text{arccot}\, x = \frac{1}{2}\pi - x + \frac{1}{3}x^3 - \frac{1}{5}x^5 + \frac{1}{7}x^7 + O(x^9)$
$\ln(1+x) = x - \frac{1}{2}x^2 + \frac{1}{3}x^3 - \frac{1}{4}x^4 + \frac{1}{5}x^5 + ... + \frac{(-1)^n}{n+1}x^{n+1} + O(x^{n+2})$
$\ln(1-x) = -x - \frac{1}{2}x^2 - \frac{1}{3}x^3 - \frac{1}{4}x^4 - \frac{1}{5}x^5 + ... - \frac{1}{n+1}x^{n+1} + O(x^{n+2})$
$\ln\left(\frac{1+x}{1-x}\right) = 2x + \frac{2}{3}x^3 + \frac{2}{5}x^5 + \frac{2}{7}x^7 + O(x^9) = 2 sett \sinh x$
$e^x = 1 + x + \frac{1}{2}x^2 + \frac{1}{6}x^3 + \frac{1}{4!}x^4 + ... + \frac{x^n}{n!} + O(x^{n+1})$
$e^{-x} = 1 - x + \frac{1}{2}x^2 - \frac{1}{6}x^3 + \frac{1}{24}x^4 + ... + (-1)^n \frac{x^n}{n!} + O(x^{n+1})$
$a^x = 1 + (\ln a)x + \left(\frac{1}{2}\ln^2 a\right)x^2 + \left(\frac{1}{6}\ln^3 a\right)x^3 + \left(\frac{1}{4!}\ln^4 a\right)x^4 + ... + \frac{(\ln a)^n x^n}{n!} + O(x^{n+1})$
$\ln(n!) = n\ln n - n + \frac{1}{2}\ln(n) + \ln(\sqrt{2\pi}) + \sigma_n, \quad 0 < \sigma_n < \frac{1}{12n}$
$n! = (\frac{n}{e})^n \sqrt{2\pi n}\left[1 + \frac{1}{12n} + O(\frac{1}{n^2})\right]$
$1 + \frac{1}{2} + \frac{1}{3} + ... + \frac{1}{n} + ... - \ln(n) = \gamma + \varepsilon_n, \quad 0 < \varepsilon_n < \frac{1}{n},$
$\gamma \sim 0,5772$ costante di Eulero-Mascheroni