TAVOLA DEGLI SVILUPPI DI TAYLOR DELLE FUNZIONI ELEMENTARI PER $x \to 0$.

$$
\begin{aligned}
e^x &= 1 + x + \frac{x^2}{2} + \frac{x^3}{6} + \cdots + \frac{x^n}{n!} + o(x^n) \\
\sin x &= x - \frac{x^3}{6} + \frac{x^5}{5!} + \cdots + \frac{(-1)^n}{(2n+1)!} x^{2n+1} + o(x^{2n+2}) \\
\cos x &= 1 - \frac{x^2}{2} + \frac{x^4}{4!} + \cdots + \frac{(-1)^n}{(2n)!} x^{2n} + o(x^{2n+1}) \\
\tan x &= x + \frac{x^3}{3} + \frac{2}{15} x^5 + \frac{17}{315} x^7 + \frac{62}{2835} x^9 + o(x^{10}) \\
\sinh x &= x + \frac{x^3}{6} + \frac{x^5}{5!} + \cdots + \frac{x^{2n+1}}{(2n+1)!} + o(x^{2n+2}) \\
\cosh x &= 1 + \frac{x^2}{2} + \frac{x^4}{4!} + \cdots + \frac{x^{2n}}{(2n)!} + o(x^{2n+1}) \\
\tanh x &= x - \frac{x^3}{3} + \frac{2}{15} x^5 - \frac{17}{315} x^7 + \frac{62}{2835} x^9 + o(x^{10}) \\
\frac{1}{1-x} &= 1 + x + x^2 + x^3 + \cdots + x^n + o(x^n) \\
\log(1+x) &= x - \frac{x^2}{2} + \frac{x^3}{3} + \cdots + \frac{(-1)^{n+1}}{n} x^n + o(x^n) \\
\arctan x &= x - \frac{x^3}{3} + \frac{x^5}{5} + \cdots + \frac{(-1)^n}{2n+1} x^{2n+1} + o(x^{2n+2}) \\
\operatorname{arctanh} x &= x + \frac{x^3}{3} + \frac{x^5}{5} + \cdots + \frac{x^{2n+1}}{2n+1} + o(x^{2n+2}) \\
(1+x)^\alpha &= 1 + \alpha x + \frac{\alpha(\alpha-1)}{2} x^2 + \frac{\alpha(\alpha-1)(\alpha-2)}{6} x^3 + \cdots + \binom{\alpha}{n} x^n + o(x^n)
\end{aligned}
$$

con

$$
\binom{\alpha}{n} = \frac{\alpha(\alpha-1)(\alpha-2)\cdot \cdots \cdot (\alpha-n+1)}{n!}
$$

TAVOLA DI PRIMITIVE DI FUNZIONI ELEMENTARI

$$
\begin{aligned}
\int x^a \, dx &= \frac{x^{a+1}}{a+1} + C \qquad \text{se } a \neq -1 \\
\int \frac{1}{x} \, dx &= \log|x| + C \\
\int a^x \, dx &= \frac{a^x}{\log a} + C \\
\int \cos x \, dx &= \sin x + C \\
\int \sin x \, dx &= -\cos x + C \\
\int \frac{1}{\cos^2 x} \, dx &= \tan x + C \\
\int \frac{1}{\sin^2 x} \, dx &= -\operatorname{cotan} x + C \\
\int \cosh x \, dx &= \sinh x + C \\
\int \sinh x \, dx &= \cosh x + C \\
\int \frac{1}{\cosh^2 x} \, dx &= \tanh x + C \\
\int \frac{1}{\sinh^2 x} \, dx &= -\operatorname{cotanh} x + C \\
\int \frac{1}{a^2 + x^2} \, dx &= \frac{1}{a} \arctan \frac{x}{a} + C \\
\int \frac{1}{\sqrt{1 - x^2}} \, dx &= \arcsin x + C \\
\int \frac{1}{\sqrt{x^2 + 1}} \, dx &= \operatorname{arcsinh} x + C = \log\left(x + \sqrt{x^2 + 1}\right) + C \\
\int \frac{1}{\sqrt{x^2 - 1}} \, dx &= \operatorname{arccosh} x + C = \log\left(x + \sqrt{x^2 - 1}\right) + C \qquad \text{per } x > 1
\end{aligned}
$$