

Sviluppi in serie di Taylor con c=0 delle funzioni elementari

Funzione	Sviluppo in forma troncata	Sviluppo in forma compatta
$\sin(x)$	$\sin(x) = x - \frac{x^3}{6} + \frac{x^5}{120} - \frac{x^7}{5040} + o(x^7), \quad \forall x \in \mathbb{R}$	$\sin(x) = \sum_{n=0}^{\infty} \frac{(-1)^n}{(2n+1)!} x^{2n+1}, \quad \forall x \in \mathbb{R}$
$\cos(x)$	$\cos(x) = 1 - \frac{x^2}{2} + \frac{x^4}{24} - \frac{x^6}{720} + \frac{x^8}{40320} + o(x^8), \quad \forall x \in \mathbb{R}$	$\cos(x) = \sum_{n=0}^{\infty} \frac{(-1)^n}{(2n)!} x^{2n}, \quad \forall x \in \mathbb{R}$
$\tan(x)$	$\tan(x) = x + \frac{x^3}{3} + \frac{2}{15}x^5 + o(x^5), \quad x < \frac{\pi}{2}$	
$\sec(x)$	$\sec(x) = 1 + \frac{x^2}{2} + \frac{5}{24}x^4 + \frac{61}{720}x^6 + \frac{277}{8064}x^8 + o(x^8), \quad x < \frac{\pi}{2}$	
$\arcsin(x)$	$\arcsin(x) = x + \frac{x^3}{6} + \frac{3}{40}x^5 + \frac{5}{112}x^7 + \frac{35}{1152}x^9 + o(x^9), \quad x < 1$	
$\arccos(x)$	$\arccos(x) = \frac{\pi}{2} - x - \frac{x^3}{6} - \frac{3}{40}x^5 - \frac{5}{112}x^7 - \frac{35}{1152}x^9 + o(x^9), \quad x < 1$	
$\arctan(x)$	$\arctan(x) = x - \frac{x^3}{3} + \frac{x^5}{5} - \frac{x^7}{7} + \frac{x^9}{9} + o(x^9), \quad x < 1$	
e^x	$e^x = 1 + x + \frac{x^2}{2} + \frac{x^3}{6} + \frac{x^4}{24} + \frac{x^5}{120} + o(x^5), \quad \forall x \in \mathbb{R}$	$e^x = \sum_{n=0}^{\infty} \frac{x^n}{n!} \quad \forall x \in \mathbb{R}$
$\ln(1+x)$	$\ln(1+x) = x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \frac{x^5}{5} + o(x^5), \quad x < 1$	$\ln(1+x) = \sum_{n=1}^{\infty} (-1)^{n+1} \frac{x^n}{n}, \quad x < 1$
$(1+x)^\alpha$	$(1+x)^\alpha = 1 + \alpha x + \frac{\alpha(\alpha-1)}{2}x^2 + \frac{\alpha(\alpha-1)(\alpha-2)}{6}x^3 + o(x^3), \quad x < 1$	
$\frac{1}{1-x}$	$\frac{1}{1-x} = 1 + x + x^2 + x^3 + x^4 + o(x^4), \quad x < 1$	$\sum_{n=0}^{\infty} x^n, \quad x < 1$
$\frac{1}{1+x^2}$	$\frac{1}{1+x^2} = 1 - x^2 + x^4 - x^6 + o(x^6), \quad x < 1$	$\sum_{n=0}^{\infty} (-1)^n x^{2n}, \quad x < 1$
$\sinh(x)$	$x + \frac{x^3}{6} + \frac{x^5}{120} + \frac{x^7}{5040} + o(x^7)$	
$\cosh(x)$	$1 + \frac{x^2}{2} + \frac{x^4}{24} + \frac{x^6}{720} + o(x^6)$	