Sviluppo in serie di Taylor

$$f(x_0) = f(x_0) + \frac{f'(x_0)}{1!}(x - x_0) + \frac{f''(x_0)}{2!}(x - x_0)^2 + \ldots + \frac{f^n(x_0)}{n!}(x - x_0)^n + \text{Resto}$$

Resto di Peano: $o(x - x_0)^n$

Resto di Lagrange: $\dfrac{f^{(n+1)}(\xi)}{(n+1)!}(x - x_0)^{(n+1)}$

$$Sinx = x - \frac{x^3}{3!} + \frac{x^5}{5!} + \ldots + o(x^{2n})$$

$$Cosx = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} + \ldots + o(x^{2n+1})$$

$$Tgx = x + \frac{x^3}{3!} - \frac{x^5}{5!} + \ldots + o(x^n)$$

$$ArcTgx = x - \frac{x^3}{3} + \frac{x^5}{5} + \ldots + o(x^{2n+1})$$

$$ArcSinx = x + \frac{x^3}{3!} + \ldots + o(x^n)$$

$$Sinhx = x + \frac{x^3}{3!} + \frac{x^5}{5!} + \ldots + o(x^n)$$

$$Coshx = 1 + \frac{x^2}{2!} + \frac{x^4}{4!} + \ldots + o(x^n)$$

$$\frac{1}{1 + x^2} = 1 - x^2 + x^4 - x^6 + \ldots + o(x^n)$$

$$\frac{1}{1 + x} = 1 - x + x^2 + \ldots + (-1)^n x^n + o(x^n)$$

$$\frac{1}{1 - x} = 1 + x + x^2 + \ldots + x^n + o(x^n)$$

$$\ln(1 + x) = x - \frac{x^2}{2} + \frac{x^3}{3} + \ldots + o(x^n) \quad \text{per } x \to 0$$

$$\ln\left(1 + \frac{1}{x}\right) = \frac{1}{x} - \frac{1}{2x^2} + \frac{1}{3x^3} + \ldots + o\left(\frac{1}{x^n}\right) \quad \text{per } x \to +\infty$$

$$\ln\left(1 - \frac{1}{x}\right) = -\frac{1}{x} + \frac{1}{2x^2} - \frac{1}{3x^3} + \ldots + o\left(\frac{1}{x^n}\right) \quad \text{per } x \to +\infty$$

$$e^x = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \ldots + o(x^n)$$

$$(1 + x)^a = 1 + ax + a\left(\frac{a-1}{2}x^2\right) + \ldots + o(x^n)$$