Einige Taylorreihenentwicklungen im Punkt 0

$$e^x = \sum_{k=0}^{n} \frac{x^k}{k!} + o(x^n) = 1 + x + \frac{x^2}{2!} + \ldots + \frac{x^n}{n!} + o(x^n)$$

$$\sin(x) = \sum_{k=0}^{k} (-1)^k \frac{x^2k+1}{(2k+1)!} + o(x^{2n+2}) = x - \frac{x^3}{3!} + \ldots + \frac{(-1)^n x^{2n+1}}{(2n+1)!} + o(x^{2n+2})$$

$$\cos(x) = \sum_{k=0}^{k} (-1)^k \frac{x^2k}{(2k)!} + o(x^{2n+1}) = 1 - \frac{x^2}{2!} + \ldots + \frac{(-1)^n x^{2n}}{(2n)!} + o(x^{2n+1})$$

$$\frac{1}{1+x} = \sum_{k=0}^{n} (-1)^k x^k + o(x^n) = 1 - x + x^2 + \ldots + (-1)^n x^n + o(x^n)$$

$$\frac{1}{1-x} = \sum_{k=0}^{n} x^k + o(x^n) = 1 + x + x^2 + \ldots + x^n + o(x^n)$$

$$\ln(1+x) = \sum_{k=1}^{n} (-1)^{k-1} \frac{x^k}{k} + o(x^n) = x - \frac{x^2}{2} + \frac{x^3}{3} + \ldots + \frac{(-1)^{n-1} x^n}{n} + o(x^n)$$

$$\ln(1-x) = -\sum_{k=1}^{n} \frac{x^k}{k} + o(x^n) = -x - \frac{x^2}{2} - \frac{x^3}{3} - \ldots - \frac{x^n}{n} + o(x^n)$$