Power Series

$$\sin(x) = \sum_{n=0}^{\infty} \frac{(-1)^n x^{2n+1}}{(2n+1)!} : \mathbb{R}$$

$$\frac{1}{1-x} = \sum_{n=0}^{\infty} x^n : |x| < 1$$

$$\cos(x) = \sum_{n=0}^{\infty} \frac{(-1)^n x^{2n}}{(2n)!} : \mathbb{R}$$

$$\frac{1}{1+x} = \sum_{n=0}^{\infty} (-1)^n x^n : |x| < 1$$

$$\sinh(x) = \sum_{n=0}^{\infty} \frac{x^{2n+1}}{(2n+1)!} : \mathbb{R}$$

$$\ln(x) = \sum_{n=1}^{\infty} \frac{(-1)^n (x-1)^n}{n} : |1-x| < 1$$

$$\cosh(x) = \sum_{n=0}^{\infty} \frac{x^{2n}}{(2n)!} : \mathbb{R}$$

$$\ln(1+x) = \sum_{n=1}^{\infty} \frac{(-1)^{n+1} x^n}{n} : |x| < 1$$

$$\tan^{-1}(x) = \sum_{n=0}^{\infty} \frac{(-1)^n x^{2n+1}}{2n+1} : |x| < 1$$

$$\ln(1-x) = -\sum_{n=1}^{\infty} \frac{x^n}{n} : |x| < 1$$

$$e^x = \sum_{n=0}^{\infty} \frac{x^n}{n!} : \mathbb{R}$$

$$\ln\left(\frac{1+x}{1-x}\right) = 2\sum_{n=0}^{\infty} \frac{x^{2n+1}}{2n+1} : |x^2| < 1$$