$$(1+x)^\alpha = 1 + \sum_{k=1}^{n} \left[\prod_{p=0}^{k-1} (\alpha - p)\right] \frac{x^k}{k!} + \underset{x\to 0}{o}(x^n)$$

$$e^x = \sum_{k=0}^{n} \frac{x^k}{k!} + \underset{x\to 0}{o}(x^n)$$

$$chx = \sum_{k=0}^{n} \frac{x^{2k}}{(2k)!} + \underset{x\to 0}{o}(x^{2n+1})$$

$$shx = \sum_{k=0}^{n} \frac{x^{2k+1}}{(2k+1)!} + \underset{x\to 0}{o}(x^{2n+2})$$

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

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

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

$$ln(1+x) = \sum_{k=1}^{n} \frac{(-1)^{k+1} x^k}{k} + \underset{x\to 0}{o}(x^n)$$

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

$$tanx = x + \frac{x^3}{3} + \frac{2x^5}{15} + \underset{x\to 0}{o}(x^6)$$