

DESENVOLVIMENTOS DE FUNÇÕES EM SÉRIES DE POTÊNCIAS

- $e^x = \sum_{n=0}^{+\infty} \frac{x^n}{n!}, \quad x \in \mathbb{R}$

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

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

- $(1+x)^\alpha = \sum_{n=0}^{+\infty} \binom{\alpha}{n} x^n, \quad |x| < 1$

$$\binom{\alpha}{0} = 1; \quad \binom{\alpha}{n} = \frac{\alpha(\alpha-1)\dots(\alpha-n+1)}{n!}, \quad n \geq 1$$

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