

The following series may be used without proof.

$$e^x = \sum_{n=0}^{\infty} \frac{x^n}{n!}, \quad \sin x = \sum_{n=0}^{\infty} \frac{(-1)^n}{(2n+1)!} x^{2n+1}, \quad \cos x = \sum_{n=0}^{\infty} \frac{(-1)^n}{(2n)!} x^{2n}$$
$$\frac{1}{1-x} = \sum_{n=0}^{\infty} x^n, \quad (1+x)^m = 1 + mx + \frac{m(m-1)}{2!} x^2 + \frac{m(m-1)(m-2)}{3!} x^3 + \dots$$

The following antiderivatives may be used without proof.

$$\int \sin x \, dx = -\cos x + C,$$
$$\int \cos x \, dx = \sin x + C,$$
$$\int \sec^2 x \, dx = \tan x + C,$$
$$\int \sec x \tan x \, dx = \sec x + C,$$
$$\int \csc^2 x \, dx = -\cot x + C,$$
$$\int \csc x \cot x \, dx = -\csc x + C,$$
$$\int \frac{1}{\sqrt{1-x^2}} \, dx = \text{Sin}^{-1} x + C,$$
$$\int \frac{1}{1+x^2} \, dx = \text{Tan}^{-1} x + C,$$
$$\int \frac{1}{x\sqrt{x^2-1}} \, dx = \text{Sec}^{-1} x + C,$$
$$\int e^x \, dx = e^x + C,$$
$$\int a^x \, dx = a^x \log_a e + C,$$
$$\int \frac{1}{x} \, dx = \ln |x| + C.$$