The following series may be used without proof.

$$e^x = \sum_{n=0}^{\infty} \frac{x^n}{n!}, \qquad \sin x = \sum_{n=0}^{\infty} \frac{(-1)^n}{(2n+1)!} x^{2n+1}, \qquad \cos x = \sum_{n=0}^{\infty} \frac{(-1)^n}{(2n)!} x^{2n}$$

$$\frac{1}{1-x} = \sum_{n=0}^{\infty} x^n, \qquad (1+x)^m = 1 + mx + \frac{m(m-1)}{2!}x^2 + \frac{m(m-1)(m-2)}{3!}x^3 + \cdots$$

The following antiderivatives may be used without proof.

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