Taylor Expansion

Here, the Taylor series expansion is broken into two lines, showcasing how to handle series expansions in multi line format.

$$e^{\sin x} = 1 + \sin x + \frac{\sin^2 x}{2!} + \frac{\sin^3 x}{3!} + \frac{\sin^4 x}{4!} + \frac{\sin^5 x}{5!} + \\ \frac{\sin^6 x}{6!} + \frac{\sin^7 x}{7!} + \frac{\sin^8 x}{8!} + \frac{\sin^9 x}{9!} \cdots \quad (1)$$

Long integral

This example shows a long integral expression broken into two lines. The integral and its limits are on the first line, and the series expansion follows on the second.

$$\int_0^\infty e^{-x^2} dx = 1 + 2x - 3x^3 + 4x^4 - 5x^5 + 6x^6 - \\ 7x^7 + 8x^8 - 9x^9 + 10x^{10} - 11x^{11} + \cdots \quad (2)$$

Equation with Functions

Here, a function consisting of various trigonometric functions is broken into two lines for clarity.

$$f(x) = \sin(x) + \cos(x) + \tan(x) + \cot(x) + \\ \sec(x) + \csc(x) + \arcsin(x) + \arccos(x) + \arctan(x) \quad (3)$$

Derivative of a Trigonometric Function

This example demonstrates the derivative of a combination of trigonometric functions, neatly divided into two lines.

$$\frac{d}{dx}\left(\sin(x^2) + \cos^2(x) - \tan^{-1}(x) + \ln(\sin\ x)\right) = \\ 2x\cos(x^2) - 2\sin(x)\cos(x) - \frac{1}{1+x^2} + \frac{\cos x}{\sin x} \quad (4)$$

This equation includes a variety of complex calculus elements.

$$\int_0^\infty \left[\frac{\sin(x)}{x} - e^{-x^2}\right] dx = \lim_{y \to 0}\left(\frac{1}{y}\int_0^y \log(1+x^2)dx\right) - \\ \sum_{n=1}^\infty \frac{(-1)^n}{n^3} + \int_{-\pi}^{\pi} e^{x\cos\theta}\cos(x\sin\theta)d\theta + \\ \frac{d^2}{dx^2}\left(\frac{x^4 - 6x^2 + 8x - 3}{x^2+1}\right) - \iint_D e^{-(x^2+y^2)}\, dx\, dy \quad (5)$$