

# Mathematical Expressions

## Partial Derivatives

$$\frac{\partial f}{\partial x} = \int_0^{\infty} g(x) dx$$

## Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

## Summation and Products

$$\sum_{i=1}^n i = \frac{n(n+1)}{2}$$

$$\prod_{k=1}^n k = n!$$

## Matrix Notation

$$\begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{pmatrix}$$

## Limits

$$\lim_{x \rightarrow \infty} \left(1 + \frac{1}{x}\right)^x = e$$