

# Comprehensive Mathematical Formulas

## Theory of Everything Mathematical Formulas

### Introduction

This document contains mathematical formulas extracted from the Theory of Everything documentation. The formulas are rendered using LaTeX to ensure proper mathematical notation and readability. Each formula is presented with its name, the equation itself, and a brief description of its significance.

### Quantum Gravity

Quantum Gravity

$$\hat{G}_{(\mu\nu)}|\Psi\rangle = \hat{T}_{(\mu\nu)}|\Psi\rangle$$

A theoretical framework attempting to reconcile quantum mechanics with general relativity.

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### Inline Formula

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$$S_{\text{quantum}}$$

Extracted from inline LaTeX notation

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Display Formula

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$$S = \frac{1}{16\pi G} \int d^4x \sqrt{-g} (R - 2\Lambda) + \int d^4x \sqrt{-g} \left( \frac{1}{2} \bar{\psi} \gamma^\mu D_\mu \psi + (D_\mu \psi)^\dagger (D^\mu \psi) - V(\psi) \right)$$

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## Unified Field Theory

Unified Field Theory

$$G_{\mu\nu} + \Lambda g_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu} + \alpha F_{\mu\nu}$$

A proposed unified field theory combining gravity with electromagnetic forces.

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## Quantum Gravity

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## Dirac Equation

Dirac Equation

$$(i\gamma^\mu\partial_\mu-m)\psi=0$$

The Dirac equation is a relativistic wave equation that describes spin-1/2 particles.

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