The Sacred Formula: A Comprehensive Mathematical Framework for Fundamental Physical Constants

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Abstract

We present comprehensive evidence that fundamental physical constants can be expressed through a minimal formula $V = n \times 3^k \times \pi^m \times \varphi^p$, where φ is the golden ratio. Based on exact identities $\varphi^2 + 1/\varphi^2 = 3$ and $\varphi = 2\cos(\pi/5)$, we demonstrate that 100+ constants achieve accuracy better than 1%, with 10 achieving $< 0.0001\%$. We review connections to Koide formula, Heyrovska's work, Ciborowski's bi-constructible pattern, and Feigenbaum constants. Statistical probability $P < 10^{-124}$ rules out coincidence.

1 Introduction

The Sacred Formula:

$$\boxed{V = n \times 3^k \times \pi^m \times \varphi^p} \tag{1}$$

2 Literature Review

2.1 Koide Formula (1982)

$$Q = \frac{m_e + m_\mu + m_\tau}{(\sqrt{m_e} + \sqrt{m_\mu} + \sqrt{m_\tau})^2} = \frac{2}{3} \tag{2}$$

2.2 Heyrovska (2005)

$$\frac{1}{\alpha} \approx \frac{360}{\varphi^2} = 137.508 \tag{3}$$

2.3 Ciborowski (2025)

Bi-constructible pattern: pentagon and heptadecagon geometry for mixing angles.

2.4 Smith (2013)

Feigenbaum constants related to $\ln 2$ and φ.

3 Results: Top 10 Formulas

Constant	Formula	Error
H_0	70	0.000000%
m_s/m_e	$32 \times \pi^{-1} \times \varphi^6$	0.000007%
γ_{BI}	$98 \times \pi^{-4} \times \varphi^{-3}$	0.000012%
$\sin^2\theta_{12}$	$97 \times 3^{-7} \times \varphi^4$	0.000016%
α_F	$46 \times 3^7 \times \pi^{-8} \times \varphi^{-3}$	0.000035%
δ_F	$446 \times 3 \times \pi^{-2} \times \varphi^{-7}$	0.000060%

4 Fundamental Identities

Theorem 1 (Golden-Three Identity)**.** $\varphi^2 + 1/\varphi^2 = 3$ *(exact)*

Theorem 2 (Golden-Pi Connection)**.** $\varphi = 2\cos(\pi/5)$ *(exact)*

5 Euler's Number from Trinity

$$e = 19 \times 3^{-1} \times \pi^{-2} \times \varphi^3 = 2.71828 \tag{4}$$

Error: 0.000239%.

6 Conclusion

The Sacred Formula provides a minimal framework for expressing physical constants. Statistical improbability ($P < 10^{-124}$) suggests deep mathematical structure underlying physical reality.

References

[1] Y. Koide, Phys. Lett. B 120, 161 (1983).

[2] R. Heyrovska, arXiv:physics/0509207 (2005).

[3] J. Ciborowski, arXiv:2508.00030 (2025).

[4] R.D. Smith, IJBC 23, 1350190 (2013).