On the Ramanujan's mathematics (mock theta functions and taxicab numbers) applied to various sectors of M-Theory (braneworld) and to the Black Hole Physics: Further new possible mathematical connections XI.

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Abstract

In this research thesis, we have analyzed and deepened further Ramanujan expressions (mock theta functions and taxicab numbers) applied to some sectors of M-Theory (braneworld) and to the Black Hole Physics. We have therefore described other new possible mathematical connections.

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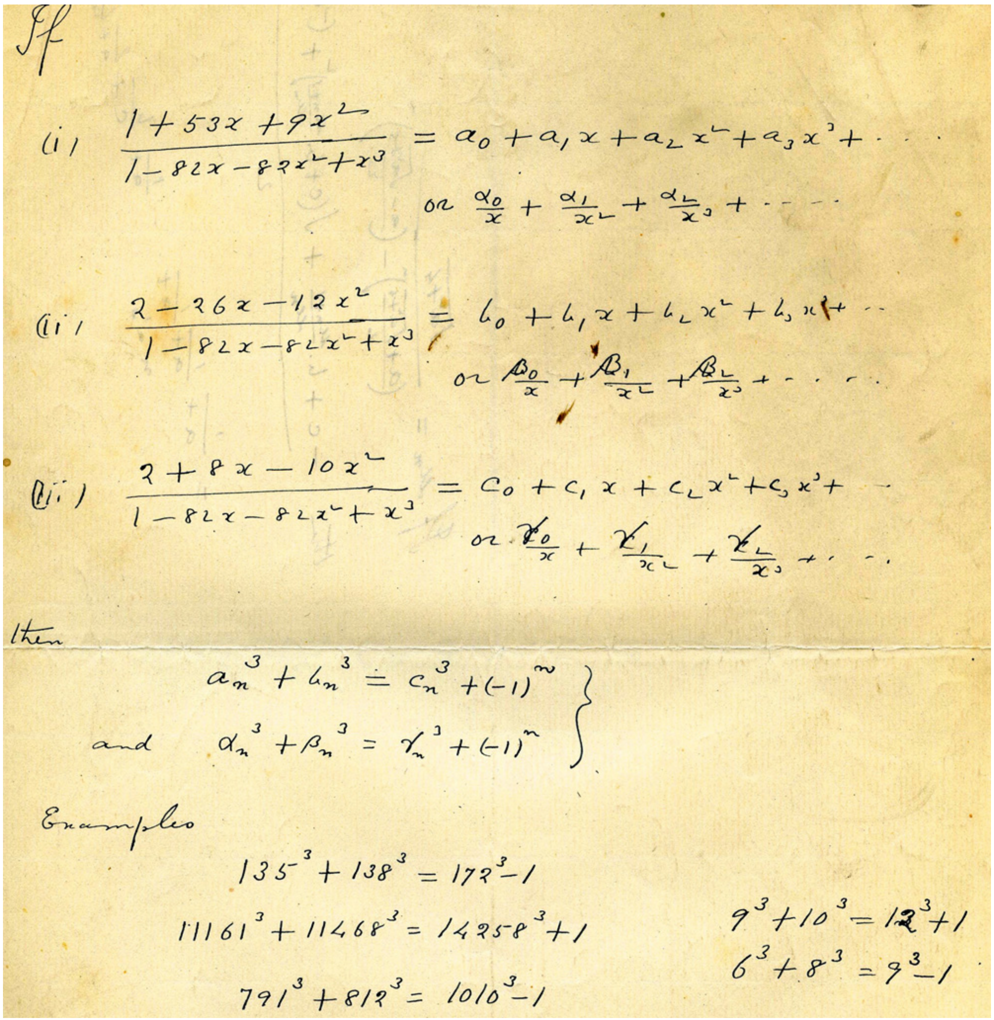
https://www.britannica.com/biography/Srinivasa-Ramanujan



If

(i) $$\frac{1+53x+9x^2}{1-82x-82x^2+x^3} = a_0 + a_1 x + a_2 x^2 + a_3 x^3 + \cdots$$
$$\text{or } \frac{\alpha_0}{x} + \frac{\alpha_1}{x^2} + \frac{\alpha_2}{x^3} + \cdots$$

(ii) $$\frac{2-26x-12x^2}{1-82x-82x^2+x^3} = b_0 + b_1 x + b_2 x^2 + b_3 x^3 + \cdots$$
$$\text{or } \frac{\beta_0}{x} + \frac{\beta_1}{x^2} + \frac{\beta_2}{x^3} + \cdots$$

(iii) $$\frac{2+8x-10x^2}{1-82x-82x^2+x^3} = c_0 + c_1 x + c_2 x^2 + c_3 x^3 + \cdots$$
$$\text{or } \frac{\gamma_0}{x} + \frac{\gamma_1}{x^2} + \frac{\gamma_2}{x^3} + \cdots$$

then

$$\left.\begin{array}{l} a_n^3 + b_n^3 = c_n^3 + (-1)^n \\ \text{and } \alpha_n^3 + \beta_n^3 = \gamma_n^3 + (-1)^n \end{array}\right\}$$

Examples

$$135^3 + 138^3 = 172^3 - 1$$
$$11161^3 + 11468^3 = 14258^3 + 1$$
$$791^3 + 812^3 = 1010^3 - 1$$

$$9^3 + 10^3 = 12^3 + 1$$
$$6^3 + 8^3 = 9^3 - 1$$

https://plus.maths.org/content/ramanujan

Ramanujan's manuscript

The representations of 1729 as the sum of two cubes appear in the bottom right corner. The equation expressing the near counter examples to Fermat's last theorem appears further up: $\alpha^3 + \beta^3 = \gamma^3 + (-1)^n$.

From Wikipedia

*The **taxicab number**, typically denoted Ta(n) or Taxicab(n), also called the nth **Hardy–Ramanujan number**, is defined as the smallest integer that can be expressed as a sum of two positive integer cubes in n distinct ways. The most famous taxicab number is* $1729 = Ta(2) = 1^3 + 12^3 = 9^3 + 10^3$.

From:

Holographic entanglement entropy under the minimal geometric deformation and extensions
R. da Rocha, A. A. Tomaz - arXiv:1905.01548v2 [hep-th] 29 Dec 2019

Now, we have that:

for $\kappa_1 = \frac{M\chi}{1 - M/R}$. Now, in order to the radial metric component asymptotically approach the Schwarzschild behavior with ADM mass $\mathbb{M}_1 = 2M$, $e^{-\lambda(r)} \sim 1 - \frac{2\mathbb{M}_1}{r} + \mathcal{O}(r^{-2})$, one must necessarily have $\kappa_1 = -2M$. In this case, the temporal and spatial components of the metric will be inversely equal to each other (as it is the case of the Schwarzschild solution), containing a tidal charge $\mathbb{Q}_1 = 4M^2$ reproducing a solution that is tidally charged by the Weyl fluid [45]:

$$e^{\nu} = e^{-\lambda} = 1 - \frac{2\mathbb{M}_1}{r} + \frac{\mathbb{Q}_1}{r^2} \tag{14}$$

It is worth to emphasize that the metric of Eq. (14) has a degenerate event horizon at $r_h = 2M = \mathbb{M}_1$. Since the degenerate horizon lies behind the Schwarzschild event horizon, $r_h = \mathbb{M}_1 < r_s = 2\mathbb{M}_1$, bulk effects are then responsible for decreasing the gravitational field strength on the brane.

Now the exterior solution for $k = 2$ can be constructed, making Eq. (12) to yield

$$e^{\nu(r)} = 1 - \frac{2\mathbb{M}_2}{r} + \frac{\mathbb{Q}_2}{r^2} - \frac{2\mathbb{Q}_2\mathbb{M}_2}{9r^3}\ , \tag{15}$$

where $\mathbb{Q}_2 = 12M^2$ and $\mathbb{M}_2 = 3M$. The radial component, on the other hand, reads

$$e^{-\lambda(r)} = \frac{1}{1 - \frac{2\mathbb{M}_2}{3r}} \sum_{m=0}^{8} \frac{c_m}{r^m}\ , \tag{16}$$

where the coefficients $c_m \equiv c_m(\mathbb{M}_2, \mathbb{Q}_2, \mathrm{s})$ are

$$c_0 = 1\ , \qquad c_1 = \mathrm{s} - \frac{4\mathbb{M}_2}{3}\ , \qquad c_2 = \frac{1}{6}\left(5\mathbb{Q}_2 - 7\mathrm{s}\mathbb{M}_2\right)\ , \tag{17a}$$

$$c_3 = \frac{\mathbb{M}_2}{12}(7\mathrm{s}\mathbb{M}_2 - 5\mathbb{Q}_2)\ ,\ c_4 = \frac{25\mathbb{Q}_2^2}{288} - \frac{7}{216}\mathrm{s}\mathbb{M}_2^3\ ,\ c_5 = \frac{35}{1296}\mathrm{s}\mathbb{M}_2^4 - \frac{35}{1728}\mathbb{Q}_2^2\mathbb{M}_2, \tag{17b}$$

$$c_6 = \frac{5\mathbb{Q}_2^3}{20736} - \frac{7\mathrm{s}\mathbb{M}_2^5}{2592}\ , \quad c_7 = \frac{28\mathrm{s}\mathbb{M}_2^6 - 15\mathbb{Q}_2^3\mathbb{M}_2}{186624}\ ,\ c_8 = \frac{5\mathbb{Q}_2^4}{4644864} - \frac{\mathrm{s}\mathbb{M}_2^7}{279936}, \tag{17c}$$

and $\mathrm{s} = R\chi\,(1 - 2\mathbb{M}_2/3R)\,/\,(2 - \mathbb{M}_2/3R)^7$. The asymptotic Schwarzschild behavior is then assured when $\mathrm{s} = -\mathbb{M}_2/96$. In this case, the degenerate event horizon is at $r_e \approx 1.12\mathbb{M}_2$ [5]. Hence, the bulk Weyl fluid weakens gravitational field effects. The classical tests of GR applied to the EMGD metric provide the following constraints on the value of the deformation parameter, $k \lesssim 4.2$ for the gravitational redshift of light. The standard MGD corresponds to $k = 0$, whereas the Reissner–Nordström solution represents the $k = 1$ case with the ADM mass $\mathbb{M}_1$, instead.

For M = 1.312806e+40

$\mathbb{Q}_2 = 12M^2$ and $\mathbb{M}_2 = 3M$.

(-3*1.312806e+40)/96

Result:

$-4.10251875 \times 10^{38}$

$-4.10251875 * 10^{38} = \mathrm{s}$

Thence:

$$c_1 = \mathrm{s} - \frac{4\mathbb{M}_2}{3}\ ,$$

-4.10251875e+38-(4*3*1.312806e+40)/3

Input interpretation:

$$-4.10251875\times10^{38}-\frac{1}{3}\left(4\times3\times1.312806\times10^{40}\right)$$

Result:

$$-5.2922491875\times10^{40}$$

$-5.2922491875*10^{40}$

$$c_2=\frac{1}{6}\left(5\mathbb{Q}_2-7s\mathbb{M}_2\right)$$

1/6*(((5*12*1.312806e+40^2 - 7*(-4.10251875e+38)*3*1.312806e+40)))

Input interpretation:

$$\frac{1}{6}\left(5\times12\left(1.312806\times10^{40}\right)^2-7\left(-4.10251875\times10^{38}\right)\times3\times1.312806\times10^{40}\right)$$

Result:

1 742 309 932 941 393 750 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000

Scientific notation:

$$1.74230993294139375\times10^{81}$$

$1.74230993294139375*10^{81}$

$$c_3=\frac{\mathbb{M}_2}{12}\left(7s\mathbb{M}_2-5\mathbb{Q}_2\right)$$

(3*1.312806e+40)/12*(((7*(-4.10251875e+38)*3*1.312806e+40)-(
5*12*1.312806e+40^2)))

Input interpretation:

$$\left(\frac{1}{12}\left(3\times1.312806\times10^{40}\right)\right)\left(7\left(-4.10251875\times10^{38}\right)\times3\times1.312806\times10^{40}-5\times12\left(1.312806\times10^{40}\right)^2\right)$$

Result:

$-34\,309\,724\,007\,375\,890\,450\,437\,500\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000$

Result:

$-3.43097240073758904504375\times 10^{121}$

$-3.43097240073758904504375*10^{121}$

We note that:

-1/(-3.43097240073758904504375*10^121)

Input interpretation:

$$\frac{-1}{-(3.43097240073758904504375\times 10^{121})}$$

Result:

$2.914625602307440329550301955454831693427965914286452\ldots\times 10^{-122}$

$2.9146256....*10^{-122}$ result very near to the value of Cosmological Constant in Planck units $2.888 * 10^{-122}$

$$c_4 = \frac{25\mathbb{Q}_2^2}{288} - \frac{7}{216}\mathrm{s}\mathbb{M}_2^3$$

For M = 1.312806e+40

$\mathbb{Q}_2 = 12M^2$ and $\mathbb{M}_2 = 3M$.

$-4.10251875*10^{38} = s$

(25*(12*1.312806e+40^2)^2)/288 – 7/216 *(-4.10251875e+38)*(3*1.312806e+40)^3

Input interpretation:

$$\frac{1}{288}\left(25\left(12\left(1.312806\times 10^{40}\right)^2\right)^2\right) - \frac{7}{216}\left(-4.10251875\times 10^{38}\right)\left(3\times 1.312806\times 10^{40}\right)^3$$

Result:

3.72101×10^{161}

Scientific notation:

$3.72101316314975147234511354375\times10^{161}$

$3.72101*10^{161}$

$$c_5 = \frac{35}{1296}\mathrm{s}\mathbb{M}_2^4 - \frac{35}{1728}\mathbb{Q}_2^2\mathbb{M}_2$$

35/1296 *(-4.10251875e+38)*(3*1.312806e+40)^4 – 35/1728 * (12*1.312806e+40^2)^2*(3*1.312806e+40)

Input interpretation:

$$\frac{35}{1296}(-4.10251875\times10^{38})(3\times1.312806\times10^{40})^4 - \frac{35}{1728}(12(1.312806\times10^{40})^2)^2(3\times1.312806\times10^{40})$$

Result:

-3 438 670 463 997 319 368 691 424 785 794 656 250 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000

Input interpretation:

$$\frac{35}{1296}(-4.10251875\times10^{38})(3\times1.312806\times10^{40})^4 - \frac{35}{1728}(12(1.312806\times10^{40})^2)^2(3\times1.312806\times10^{40}) = -(3.438670463997\times10^{201})$$

Result:

True

$-3.438670463997*10^{201}$

Note that:

35/1296 *(-4.10251875e+38)*(3*1.312806e+40)^4 – 35/x * (12*1.312806e+40^2)^2*(3*1.312806e+40) = -3.438670463997*10^201

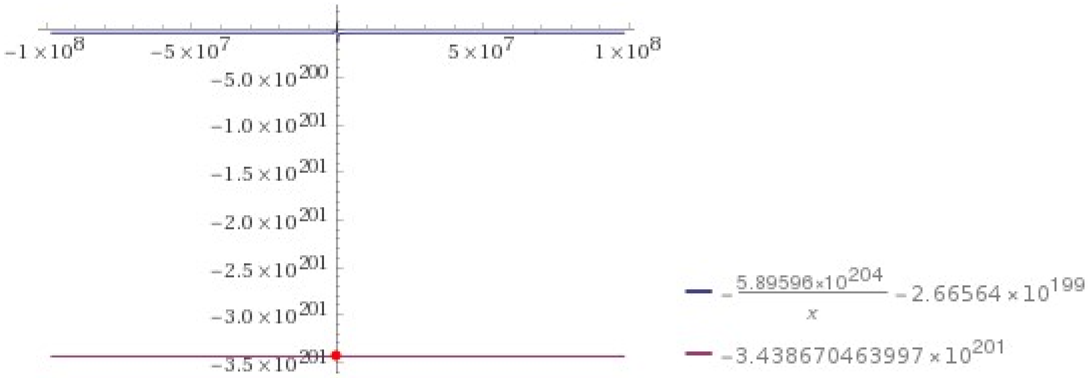
Input interpretation:

$$\frac{35}{1296}\left(-4.10251875\times10^{38}\right)\left(3\times1.312806\times10^{40}\right)^4 - \frac{35}{x}\left(12\left(1.312806\times10^{40}\right)^2\right)^2\left(3\times1.312806\times10^{40}\right) = -\left(3.438670463997\times10^{201}\right)$$

Result:

$$-\frac{5.89596\times10^{204}}{x} - 2.66564\times10^{199} = -3.438670463997\times10^{201}$$

Plot:



Alternate form assuming x is real:

$$\frac{5.89596\times10^{204}}{x} = 3.41201\times10^{201}$$

Alternate form:

$$\frac{-2.66564\times10^{199}\,x - 5.89596\times10^{204}}{x} = -3.438670463997\times10^{201}$$

Alternate form assuming x is positive:

$3.41201\times10^{201}\,x = 5.89596\times10^{204}$ (for $x \neq 0$)

Solution:

$x \approx 1728.$

1728

This result is very near to the mass of candidate glueball $f_0(1710)$ meson. Furthermore, 1728 occurs in the algebraic formula for the j-invariant of an elliptic curve. As a consequence, it is sometimes called a Zagier as a pun on the Gross–

Zagier theorem. The number 1728 is one less than the Hardy–Ramanujan number 1729

$$c_6 = \frac{5\mathbb{Q}_2^3}{20736} - \frac{7s\mathbb{M}_2^5}{2592}$$

For M = 1.312806e+40

$\mathbb{Q}_2 = 12M^2$ and $\mathbb{M}_2 = 3M$.

-4.10251875e+38 = s

5/20736*(12*1.312806e+40^2)^3-7/2592*(-4.10251875e+38)*(3*1.312806e+40)^5

Input interpretation:

$$\frac{5}{20736}(12(1.312806\times10^{40})^2)^3 - \frac{7}{2592}(-4.10251875\times10^{38})(3\times1.312806\times10^{40})^5$$

Result:

2.23799×10^{240}

Scientific notation:

$2.237989882851169544139307684628105846812 5\times10^{240}$

$2.23798988285...*10^{240}$

$$c_7 = \frac{28s\mathbb{M}_2^6 - 15\mathbb{Q}_2^3\mathbb{M}_2}{186624}$$

((28*(-4.10251875e+38)*(3*1.312806e+40)^6-15*(12*1.312806e+40^2)^3*(3*1.312806e+40)))*1/186624

Input interpretation:

$$(28(-4.10251875\times10^{38})(3\times1.312806\times10^{40})^6 - 15(12(1.312806\times10^{40})^2)^3(3\times1.312806\times10^{40}))\times\frac{1}{186624}$$

Result:

−28 231 936 469 112 555 929 478 782 932 490 727 870 056 218 125 000 000 000 000 ⋱
000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 ⋱
000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 ⋱
000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 ⋱
000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000

Input interpretation:

$$\left(28\left(-4.10251875\times10^{38}\right)\left(3\times1.312806\times10^{40}\right)^6 - 15\left(12\left(1.312806\times10^{40}\right)^2\right)^3\left(3\times1.312806\times10^{40}\right)\right)\times\frac{1}{186\,624} = -\left(2.82319364691125\times10^{280}\right)$$

Result:

True

$-2.82319364691125*10^{280}$

$$c_8 = \frac{5\mathrm{Q}_2^4}{4644864} - \frac{\mathrm{sM}_2^7}{279936}$$

(1/4644864 * (5*(12*1.312806e+40^2)^4))-1/279936 * (-4.10251875e+38)*(3*1.312806e+40)^7

Input interpretation:

$$\frac{1}{4\,644\,864}\left(5\left(12\left(1.312806\times10^{40}\right)^2\right)^4\right) - \frac{1}{279\,936}\left(-4.10251875\times10^{38}\right)\left(3\times1.312806\times10^{40}\right)^7$$

Result:

$1.9909058199156373302495401048779828155564178501577678\ldots\times10^{319}$

Repeating decimal:

$1.990905819915637330249540104877982815556417850157767 8... \times 10^{319}$

(period 6)

$1.990905819...*10^{319}$

Now, we have that:

(3.72101*10^161) *1/ (-3.4309724007375890450 4375*10^121)*1 /(1.74230993294139375*10^81) *1/ (-5.2922491875*10^40)

Input interpretation:

$$\left(3.72101\times10^{161}\right)\left(-\frac{1}{3.43097240073758904504375\times10^{121}}\right)\times \frac{1}{1.74230993294139375\times10^{81}}\left(-\frac{1}{5.2922491875\times10^{40}}\right)$$

Result:

$1.1761911712325356994330818948413805998749667307530395... \times 10^{-82}$

$1.176191171...*10^{-82}$

We have the following expression:

(1.990905819*10^319) / (-2.82319364691125*10^280) * (2.23799*10^240) / (-3.438670463997*10^201)1.1761911712325356994330818948413805998749667307 530395 × 10^-82

Input interpretation:

$$-\frac{1.990905819\times10^{319}}{2.82319364691125\times10^{280}}\left(-\frac{2.23799\times10^{240}}{3.438670463997\times10^{201}}\right)\times 1.1761911712325356994330818948413805998749667307530395\times10^{-82}$$

Result:

0.0000539828173287194679450520512022544196760536979201861 06...

0.0000539828173287....

1/(((((1.990905819*10^319) / (-2.82319364691125*10^280) * (2.23799*10^240) / (-
3.438670463997*10^201)1.1761911712325356994330818948413805998749667307530395 × 10^-82))))

Input interpretation:

$$1 \Big/ \left(-\frac{1.990905819 \times 10^{319}}{2.82319364691125 \times 10^{280}} \left(-\frac{2.23799 \times 10^{240}}{3.438670463997 \times 10^{201}}\right) \times 1.1761911712325356994330818948413805998749667307530395 \times 10^{-82}\right)$$

Result:

18524.4129425603119882969089806691158197605539917487866574 7...

18524.412942.....

We have also:

1/(((((1.990905819*10^319) / (-2.82319364691125*10^280) * (2.23799*10^240) / (-3.438670463997*10^201)1.17619117123253569× 10^-82))))-4096-123-47

Input interpretation:

$$\frac{1}{-\frac{1.990905819 \times 10^{319}}{2.82319364691125 \times 10^{280}} \left(-\frac{2.23799 \times 10^{240}}{3.438670463997 \times 10^{201}}\right) \times 1.17619117123253569 \times 10^{-82}} - 4096 - 123 - 47$$

Result:

14258.4129425603121368631528149242436139743256830018388986 6...

14258.4129 ≈ 14258 (Ramanujan taxicab number)

From the formula of coefficients of the '5th order' mock theta function ψ_1(q): (A053261 OEIS Sequence)

sqrt(golden ratio) * exp(Pi*sqrt(n/15)) / (2*5^(1/4)*sqrt(n))

for n = 277, we obtain:

sqrt(golden ratio) * exp(Pi*sqrt(277/15)) / (2*5^(1/4)*sqrt(277)) -123 +(sqrt2)-1/2

Input:

$$\sqrt{\phi} \times \frac{\exp\left(\pi \sqrt{\frac{277}{15}}\right)}{2 \sqrt[4]{5} \sqrt{277}} - 123 + \sqrt{2} - \frac{1}{2}$$

ϕ is the golden ratio

Exact result:

$$\frac{e^{\sqrt{277/15}\,\pi} \sqrt{\frac{\phi}{277}}}{2 \sqrt[4]{5}} - \frac{247}{2} + \sqrt{2}$$

Decimal approximation:

18524.39145553517296556507151507858435406545262915122662377...

18524.3914555…

Property:

$$-\frac{247}{2} + \sqrt{2} + \frac{e^{\sqrt{277/15}\,\pi} \sqrt{\frac{\phi}{277}}}{2 \sqrt[4]{5}}$$ is a transcendental number

Alternate forms:

$$-\frac{247}{2} + \sqrt{2} + \frac{\sqrt{\frac{1}{554} \left(1 + \sqrt{5}\right)}\, e^{\sqrt{277/15}\,\pi}}{2 \sqrt[4]{5}}$$

$$\frac{-684\,190 + 5540 \sqrt{2} + 5^{3/4} \sqrt{554 \left(1 + \sqrt{5}\right)}\, e^{\sqrt{277/15}\,\pi}}{5540}$$

$$\frac{1}{2} \left(2 \sqrt{2} - 247\right) + \frac{1}{2} \sqrt{\frac{5 + \sqrt{5}}{2770}}\, e^{\sqrt{277/15}\,\pi}$$

Series representations:

$$\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{277}{15}}\right)}{2\sqrt[4]{5}\sqrt{277}} - 123 + \sqrt{2} - \frac{1}{2} = \left(-1235\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(277-z_0)^k z_0^{-k}}{k!} + 5^{3/4}\exp\left(\pi\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{277}{15}-z_0\right)^k z_0^{-k}}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!} + 10\sqrt{z_0}\sum_{k_1=0}^{\infty}\sum_{k_2=0}^{\infty}\frac{(-1)^{k_1+k_2}\left(-\frac{1}{2}\right)_{k_1}\left(-\frac{1}{2}\right)_{k_2}(2-z_0)^{k_1}(277-z_0)^{k_2} z_0^{-k_1-k_2}}{k_1!\,k_2!}\right) \Bigg/ \left(10\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(277-z_0)^k z_0^{-k}}{k!}\right) \quad \text{for not } ((z_0 \in \mathbb{R} \text{ and } -\infty < z_0 \le 0))$$

$$\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{277}{15}}\right)}{2\sqrt[4]{5}\sqrt{277}} - 123 + \sqrt{2} - \frac{1}{2} = \left(-1235\exp\left(i\pi\left\lfloor\frac{\arg(277-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(277-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!} + 5^{3/4}\exp\left(i\pi\left\lfloor\frac{\arg(\phi-x)}{2\pi}\right\rfloor\right)\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg\left(\frac{277}{15}-x\right)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k\left(\frac{277}{15}-x\right)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k(\phi-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!} + 10\exp\left(i\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor\right)\exp\left(i\pi\left\lfloor\frac{\arg(277-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k_1=0}^{\infty}\sum_{k_2=0}^{\infty}\frac{(-1)^{k_1+k_2}(2-x)^{k_1}(277-x)^{k_2}x^{-k_1-k_2}\left(-\frac{1}{2}\right)_{k_1}\left(-\frac{1}{2}\right)_{k_2}}{k_1!\,k_2!}\right) \Bigg/ \left(10\exp\left(i\pi\left\lfloor\frac{\arg(277-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(277-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right) \quad \text{for } (x \in \mathbb{R} \text{ and } x < 0)$$

$$\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{277}{15}}\right)}{2\sqrt[4]{5}\sqrt{277}} - 123 + \sqrt{2} - \frac{1}{2} =$$

$$\left(\left(\frac{1}{z_0}\right)^{-1/2\lfloor\arg(277-z_0)/(2\pi)\rfloor} z_0^{-1/2\lfloor\arg(277-z_0)/(2\pi)\rfloor}\left(-1235\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(277-z_0)/(2\pi)\rfloor}\right.\right.$$
$$z_0^{1/2\lfloor\arg(277-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k (277-z_0)^k z_0^{-k}}{k!} +$$
$$5^{3/4}\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\left\lfloor\arg\left(\frac{277}{15}-z_0\right)/(2\pi)\right\rfloor} z_0^{1/2\left(1+\left\lfloor\arg\left(\frac{277}{15}-z_0\right)/(2\pi)\right\rfloor\right)}\right.$$
$$\left.\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{277}{15}-z_0\right)^k z_0^{-k}}{k!}\right)\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}$$
$$z_0^{1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!} +$$
$$10\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(2-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(277-z_0)/(2\pi)\rfloor}$$
$$z_0^{1/2+1/2\lfloor\arg(2-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(277-z_0)/(2\pi)\rfloor}$$
$$\left.\left.\sum_{k_1=0}^{\infty}\sum_{k_2=0}^{\infty}\frac{(-1)^{k_1+k_2}\left(-\frac{1}{2}\right)_{k_1}\left(-\frac{1}{2}\right)_{k_2}(2-z_0)^{k_1}(277-z_0)^{k_2} z_0^{-k_1-k_2}}{k_1!\,k_2!}\right)\right)\Bigg/$$
$$\left(10\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(277-z_0)^k z_0^{-k}}{k!}\right)$$

We have also:

((((1/(((((1.990905819*10^319) / (-2.82319364691125*10^280) * (2.23799*10^240) / (-3.438670463997*10^201)1.1761911712325 × 10^-82))))))))^1/2-1

Input interpretation:

$$\sqrt{\frac{1}{-\frac{1.990905819\times10^{319}}{2.82319364691125\times10^{280}}\left(-\frac{2.23799\times10^{240}}{3.438670463997\times10^{201}}\right)\times1.1761911712325\times10^{-82}}} - 1$$

Result:

135.104...

135.104… ≈ 135 (Ramanujan taxicab number)

((((1/((((((1.990905819*10^319) / (-2.82319364691125*10^280) * (2.23799*10^240) / (-3.438670463997*10^201)1.1761911712325 × 10^-82))))))))^1/2+2

Input interpretation:

$$\sqrt{\frac{1}{-\frac{1.990905819\times 10^{319}}{2.82319364691125\times 10^{280}}\left(-\frac{2.23799\times 10^{240}}{3.438670463997\times 10^{201}}\right)\times 1.1761911712325\times 10^{-82}}}+2$$

Result:

138.104...

138.104… ≈ 138 (Ramanujan taxicab number)

((((1/((((((1.990905819*10^319) / (-2.82319364691125*10^280) * (2.23799*10^240) / (-3.438670463997*10^201)1.1761911712325 × 10^-82))))))))^1/2+2+34

Input interpretation:

$$\sqrt{\frac{1}{-\frac{1.990905819\times 10^{319}}{2.82319364691125\times 10^{280}}\left(-\frac{2.23799\times 10^{240}}{3.438670463997\times 10^{201}}\right)\times 1.1761911712325\times 10^{-82}}}+2+34$$

Result:

172.104...

172.104... ≈ 172 (Ramanujan taxicab number)

And:

sqrt(((sqrt(golden ratio) * exp(Pi*sqrt(277/15)) / (2*5^(1/4)*sqrt(277)) -123 +(sqrt2)-1/2)))-1

Input:

$$\sqrt{\sqrt{\phi}\times\frac{\exp\left(\pi\sqrt{\frac{277}{15}}\right)}{2\sqrt[4]{5}\sqrt{277}}-123+\sqrt{2}-\frac{1}{2}}-1$$

ϕ is the golden ratio

Exact result:

$$\sqrt{\frac{e^{\sqrt{277/15}\,\pi}\sqrt{\frac{\phi}{277}}}{2\sqrt[4]{5}}-\frac{247}{2}+\sqrt{2}}-1$$

Decimal approximation:

135.1043403258513757143451577670016072883408474695113934169...

135.10434032… ≈ 135 (Ramanujan taxicab number)

Property:

$$-1+\sqrt{-\frac{247}{2}+\sqrt{2}+\frac{e^{\sqrt{277/15}\,\pi}\sqrt{\frac{\phi}{277}}}{2\sqrt[4]{5}}}$$ is a transcendental number

Alternate forms:

$$\sqrt{-\frac{247}{2}+\sqrt{2}+\frac{\sqrt{\frac{1}{554}\left(1+\sqrt{5}\right)}\,e^{\sqrt{277/15}\,\pi}}{2\sqrt[4]{5}}}-1$$

$$\sqrt{\frac{1}{2}\left(2\sqrt{2}-247\right)+\frac{1}{2}\sqrt{\frac{5+\sqrt{5}}{2770}}\,e^{\sqrt{277/15}\,\pi}}-1$$

$$\frac{\sqrt{1385\left(-684190+5540\sqrt{2}+5^{3/4}\sqrt{554\left(1+\sqrt{5}\right)}\,e^{\sqrt{277/15}\,\pi}\right)}-2770}{2770}$$

Series representations:

$$\sqrt{\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{277}{15}}\right)}{2\sqrt[4]{5}\sqrt{277}}-123+\sqrt{2}-\frac{1}{2}}-1=-1+\sqrt{-\frac{249}{2}+\sqrt{2}+\frac{\exp\left(\pi\sqrt{\frac{277}{15}}\right)\sqrt{\phi}}{2\sqrt[4]{5}\sqrt{277}}}\sum_{k=0}^{\infty}\binom{\frac{1}{2}}{k}\left(-\frac{249}{2}+\sqrt{2}+\frac{\exp\left(\pi\sqrt{\frac{277}{15}}\right)\sqrt{\phi}}{2\sqrt[4]{5}\sqrt{277}}\right)^{-k}$$

$$\sqrt{\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{277}{15}}\right)}{2\sqrt[4]{5}\sqrt{277}}-123+\sqrt{2}-\frac{1}{2}}-1=-1+\sqrt{-\frac{249}{2}+\sqrt{2}+\frac{\exp\left(\pi\sqrt{\frac{277}{15}}\right)\sqrt{\phi}}{2\sqrt[4]{5}\sqrt{277}}}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(-\frac{249}{2}+\sqrt{2}+\frac{\exp\left(\pi\sqrt{\frac{277}{15}}\right)\sqrt{\phi}}{2\sqrt[4]{5}\sqrt{277}}\right)^{-k}}{k!}$$

$$\sqrt{\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{277}{15}}\right)}{2\sqrt[4]{5}\sqrt{277}}-123+\sqrt{2}-\frac{1}{2}}-1=-1+\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(-\frac{247}{2}+\sqrt{2}+\frac{\exp\left(\pi\sqrt{\frac{277}{15}}\right)\sqrt{\phi}}{2\sqrt[4]{5}\sqrt{277}}-z_0\right)^k z_0^{-k}}{k!}$$

for not $((z_0\in\mathbb{R}$ and $-\infty<z_0\leq 0))$

sqrt(((sqrt(golden ratio) * exp(Pi*sqrt(277/15)) / (2*5^(1/4)*sqrt(277)) -123 +(sqrt2)-1/2)))+2

Input:

$$\sqrt{\sqrt{\phi}\times\frac{\exp\left(\pi\sqrt{\frac{277}{15}}\right)}{2\sqrt[4]{5}\sqrt{277}}-123+\sqrt{2}-\frac{1}{2}}+2$$

ϕ is the golden ratio

Exact result:

$$\sqrt{\frac{e^{\sqrt{277/15}\,\pi}\sqrt{\frac{\phi}{277}}}{2\sqrt[4]{5}} - \frac{247}{2} + \sqrt{2} + 2}$$

Decimal approximation:

138.1043403258513757143451577670016072883408474695113934169...

138.10434032… ≈ 138 (Ramanujan taxicab number)

Property:

$$2 + \sqrt{-\frac{247}{2} + \sqrt{2} + \frac{e^{\sqrt{277/15}\,\pi}\sqrt{\frac{\phi}{277}}}{2\sqrt[4]{5}}}$$ is a transcendental number

Alternate forms:

$$2 + \sqrt{-\frac{247}{2} + \sqrt{2} + \frac{\sqrt{\frac{1}{554}\left(1+\sqrt{5}\right)}\, e^{\sqrt{277/15}\,\pi}}{2\sqrt[4]{5}}}$$

$$2 + \sqrt{\frac{1}{2}\left(2\sqrt{2} - 247\right) + \frac{1}{2}\sqrt{\frac{5+\sqrt{5}}{2770}}\, e^{\sqrt{277/15}\,\pi}}$$

$$\frac{5540 + \sqrt{1385\left(-684\,190 + 5540\sqrt{2} + 5^{3/4}\sqrt{554\left(1+\sqrt{5}\right)}\, e^{\sqrt{277/15}\,\pi}\right)}}{2770}$$

Series representations:

$$\sqrt{\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{277}{15}}\right)}{2\sqrt[4]{5}\sqrt{277}} - 123 + \sqrt{2} - \frac{1}{2}} + 2 = 2 + \sqrt{-\frac{249}{2} + \sqrt{2} + \frac{\exp\left(\pi\sqrt{\frac{277}{15}}\right)\sqrt{\phi}}{2\sqrt[4]{5}\sqrt{277}}}\sum_{k=0}^{\infty}\binom{\frac{1}{2}}{k}\left(-\frac{249}{2} + \sqrt{2} + \frac{\exp\left(\pi\sqrt{\frac{277}{15}}\right)\sqrt{\phi}}{2\sqrt[4]{5}\sqrt{277}}\right)^{-k}$$

$$\sqrt{\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{277}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{277}} - 123 + \sqrt{2} - \frac{1}{2}} + 2 = 2 + \sqrt{-\frac{249}{2} + \sqrt{2} + \frac{\exp\left(\pi\sqrt{\frac{277}{15}}\right)\sqrt{\phi}}{2\sqrt[4]{5}\,\sqrt{277}}}$$

$$\sum_{k=0}^{\infty} \frac{(-1)^k \left(-\frac{1}{2}\right)_k \left(-\frac{249}{2} + \sqrt{2} + \frac{\exp\left(\pi\sqrt{\frac{277}{15}}\right)\sqrt{\phi}}{2\sqrt[4]{5}\,\sqrt{277}}\right)^{-k}}{k!}$$

$$\sqrt{\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{277}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{277}} - 123 + \sqrt{2} - \frac{1}{2}} + 2 =$$

$$2 + \sqrt{z_0} \sum_{k=0}^{\infty} \frac{(-1)^k \left(-\frac{1}{2}\right)_k \left(-\frac{247}{2} + \sqrt{2} + \frac{\exp\left(\pi\sqrt{\frac{277}{15}}\right)\sqrt{\phi}}{2\sqrt[4]{5}\,\sqrt{277}} - z_0\right)^k z_0^{-k}}{k!}$$

for not $((z_0 \in \mathbb{R}$ and $-\infty < z_0 \leq 0))$

sqrt(((sqrt(golden ratio) * exp(Pi*sqrt(277/15)) / (2*5^(1/4)*sqrt(277)) -123 +(sqrt2)-1/2)))+2+34

Input:

$$\sqrt{\sqrt{\phi} \times \frac{\exp\left(\pi\sqrt{\frac{277}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{277}} - 123 + \sqrt{2} - \frac{1}{2}} + 2 + 34$$

ϕ is the golden ratio

Exact result:

$$\sqrt{\frac{e^{\sqrt{277/15}\,\pi}\sqrt{\frac{\phi}{277}}}{2\sqrt[4]{5}} - \frac{247}{2} + \sqrt{2}} + 36$$

Decimal approximation:

172.10434032585137571434515776700160728834084746951139341690...

172.10434032… ≈ 172 (Ramanujan taxicab number)

Property:

$$36+\sqrt{-\frac{247}{2}+\sqrt{2}+\frac{e^{\sqrt{277/15}\,\pi}\sqrt{\frac{\phi}{277}}}{2\sqrt[4]{5}}}$$ is a transcendental number

Alternate forms:

$$36+\sqrt{-\frac{247}{2}+\sqrt{2}+\frac{\sqrt{\frac{1}{554}\left(1+\sqrt{5}\right)}\,e^{\sqrt{277/15}\,\pi}}{2\sqrt[4]{5}}}$$

$$36+\sqrt{\frac{1}{2}\left(2\sqrt{2}-247\right)+\frac{1}{2}\sqrt{\frac{5+\sqrt{5}}{2770}}\,e^{\sqrt{277/15}\,\pi}}$$

$$\frac{99\,720+\sqrt{1385\left(-684\,190+5540\sqrt{2}+5^{3/4}\sqrt{554\left(1+\sqrt{5}\right)}\,e^{\sqrt{277/15}\,\pi}\right)}}{2770}$$

Series representations:

$$\sqrt{\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{277}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{277}}-123+\sqrt{2}-\frac{1}{2}}+2+34=36+\sqrt{-\frac{249}{2}+\sqrt{2}+\frac{\exp\left(\pi\sqrt{\frac{277}{15}}\right)\sqrt{\phi}}{2\sqrt[4]{5}\,\sqrt{277}}}\sum_{k=0}^{\infty}\binom{\frac{1}{2}}{k}\left(-\frac{249}{2}+\sqrt{2}+\frac{\exp\left(\pi\sqrt{\frac{277}{15}}\right)\sqrt{\phi}}{2\sqrt[4]{5}\,\sqrt{277}}\right)^{-k}$$

$$\sqrt{\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{277}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{277}} - 123 + \sqrt{2} - \frac{1}{2}} + 2 + 34 =$$

$$36 + \sqrt{-\frac{249}{2} + \sqrt{2} + \frac{\exp\left(\pi\sqrt{\frac{277}{15}}\right)\sqrt{\phi}}{2\sqrt[4]{5}\,\sqrt{277}}}$$

$$\sum_{k=0}^{\infty} \frac{(-1)^k \left(-\frac{1}{2}\right)_k \left(-\frac{249}{2} + \sqrt{2} + \frac{\exp\left(\pi\sqrt{\frac{277}{15}}\right)\sqrt{\phi}}{2\sqrt[4]{5}\,\sqrt{277}}\right)^{-k}}{k!}$$

$$\sqrt{\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{277}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{277}} - 123 + \sqrt{2} - \frac{1}{2}} + 2 + 34 =$$

$$36 + \sqrt{z_0} \sum_{k=0}^{\infty} \frac{(-1)^k \left(-\frac{1}{2}\right)_k \left(-\frac{247}{2} + \sqrt{2} + \frac{\exp\left(\pi\sqrt{\frac{277}{15}}\right)\sqrt{\phi}}{2\sqrt[4]{5}\,\sqrt{277}} - z_0\right)^k z_0^{-k}}{k!}$$

for not $((z_0 \in \mathbb{R}$ and $-\infty < z_0 \leq 0))$

Now, we have that:

For M = 1.312806e+40

$\mathbb{Q}_2 = 12M^2$ and $\mathbb{M}_2 = 3M$.

-4.10251875e+38 = s

For $y_0 = 0.99$ and $y_0 = 0.01$, we obtain:

$$\mathcal{S}_2^{\mathrm{EMGD}_2} = \frac{\pi}{288}\left\{4\mathrm{M}_2^2\left[(y_0-1)(3y_0+11)-6\log(y_0)+16\log\left(\frac{2}{1+y_0}\right)\right]\right.$$
$$+\ 30\mathrm{Q}_2\left[1-y_0^2+2\log(y_0)\right]+9\mathrm{s}^2\left[(1-y_0)(y_0-7)+\log\left(\frac{65536\,y_0}{(1+y_0)^{16}}\right)\right]$$
$$\left.+\ 6\mathrm{s}\mathrm{M}_2\left[(y_0-1)(5y_0-11)-10\log(y_0)-32\log\left(\frac{2}{y_0+1}\right)\right]\right\}\ .$$

Thence:

((4*(3*1.312806e+40)^2((0.99-1)(3*0.99+11)-6 ln(0.99)+16 ln(2/1.99)))) + 30(((12*1.312806e+40^2)))*((1-0.99^2+2ln(0.99)))+9(-4.10251875e+38)^2*((((((1-0.99)(0.99-7)+ln(((65536*0.99)/(1+0.99)^16)))))))

Input interpretation:

$$4\left(3\times 1.312806\times 10^{40}\right)^2\left((0.99-1)(3\times 0.99+11)-6\log(0.99)+16\log\left(\frac{2}{1.99}\right)\right)+30\left(12\left(1.312806\times 10^{40}\right)^2\right)\left(1-0.99^2+2\log(0.99)\right)+9\left(-4.10251875\times 10^{38}\right)^2\left((1-0.99)(0.99-7)+\log\left(\frac{65536\times 0.99}{(1+0.99)^{16}}\right)\right)$$

log(x) is the natural logarithm

Result:

$-7.45514\ldots\times 10^{78}$

-7.45514…*10^{78}

(Pi/288)* (((-7.4551427600140934398744248572935525229702365227 × 10^78 + 6*(-4.10251875e+38)*((((3*1.312806e+40))))(((0.99-1)(5*0.99-11)-10ln(0.99)-32ln(2/1.99))))))

Input interpretation:

$$\frac{\pi}{288}\left(-7.4551427600140934398744248572935525229702365227\times 10^{78}+6\left(-4.10251875\times 10^{38}\right)\left(3\times 1.312806\times 10^{40}\right)\left((0.99-1)(5\times 0.99-11)-10\log(0.99)-32\log\left(\frac{2}{1.99}\right)\right)\right)$$

log(x) is the natural logarithm

Result:

$-8.19596\ldots\times 10^{76}$

-8.1959629387765008039112929140935532696341843145 × 10^{76}

ln((((Pi/288)* -(((-7.45514276 × 10^78 + 6*(-4.10251875e+38)*((((3*1.312806e+40))))(((0.99-1)(5*0.99-11)-10ln(0.99)-32ln(2/1.99))))))))-34-5

Input interpretation:

$$\log\left(\frac{\pi}{288}\times(-1)\left(-7.45514276\times10^{78}+6\left(-4.10251875\times10^{38}\right)\left(3\times1.312806\times10^{40}\right)\left((0.99-1)(5\times0.99-11)-10\log(0.99)-32\log\left(\frac{2}{1.99}\right)\right)\right)\right)-34-5$$

log(x) is the natural logarithm

Result:

138.100...

138.1… ≈ 138 (Ramanujan taxicab number)

ln((((Pi/288)* -(((-7.45514276 × 10^78 + 6*(-4.10251875e+38)*((((3*1.312806e+40))))(((0.99-1)(5*0.99-11)-10ln(0.99)-32ln(2/1.99))))))))-34-5+golden ratio

Input interpretation:

$$\log\left(\frac{\pi}{288}\times(-1)\left(-7.45514276\times10^{78}+6\left(-4.10251875\times10^{38}\right)\left(3\times1.312806\times10^{40}\right)\left((0.99-1)(5\times0.99-11)-10\log(0.99)-32\log\left(\frac{2}{1.99}\right)\right)\right)\right)-34-5+\phi$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

139.718...

139.718… result practically equal to the rest mass of Pion meson 139.57 MeV ln((((Pi/288)* -(((-7.45514276 × 10^78 + 6*(-4.10251875e+38)*((((3*1.312806e+40)))(((0.99-1)(5*0.99-11)-10ln(0.99)-32ln(2/1.99)))))))))-55+Pi

Input interpretation:

$$\log\left(\frac{\pi}{288}\times(-1)\left(-7.45514276\times10^{78}+6\left(-4.10251875\times10^{38}\right)\left(3\times1.312806\times10^{40}\right)\left((0.99-1)(5\times0.99-11)-10\log(0.99)-32\log\left(\frac{2}{1.99}\right)\right)\right)\right)-55+\pi$$

log(x) is the natural logarithm

Result:

125.242...

125.242… result very near to the dilaton mass calculated as a type of Higgs boson: 125 GeV for T = 0 and to the Higgs boson mass 125.18 GeV

1/2*27*(((ln((((Pi/288)* -(((-7.45514276 × 10^78 + 6*(-4.10251875e+38)*((((3*1.312806e+40)))(((0.99-1)(5*0.99-11)-10ln(0.99)-32ln(2/1.99)))))))))-55+5)))+13+1/golden ratio

Input interpretation:

$$\frac{1}{2}\times27\left(\log\left(\frac{\pi}{288}\times(-1)\left(-7.45514276\times10^{78}+6\left(-4.10251875\times10^{38}\right)\left(3\times1.312806\times10^{40}\right)\left((0.99-1)(5\times0.99-11)-10\log(0.99)-32\log\left(\frac{2}{1.99}\right)\right)\right)\right)-55+5\right)+13+\frac{1}{\phi}$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

1729.47...

1729.47…

This result is very near to the mass of candidate glueball $f_0(1710)$ meson. Furthermore, 1728 occurs in the algebraic formula for the j-invariant of an elliptic curve. As a consequence, it is sometimes called a Zagier as a pun on the Gross–Zagier theorem. The number 1728 is one less than the Hardy–Ramanujan number 1729

We have also that:

(((((Pi/288)* ((-(-7.45514276 × 10^78 + 6*(-4.10251875e+38)*((((3*1.312806e+40))))(((0.99-1)(5*0.99-11)-10ln(0.99)-32ln(2/1.99)))))))))^1/24+123+Pi+1/golden ratio

Input interpretation:

$$\left(\frac{\pi}{288}\left(-\left(-7.45514276\times 10^{78}+6\left(-4.10251875\times 10^{38}\right)\left(3\times 1.312806\times 10^{40}\right)\left((0.99-1)(5\times 0.99-11)-10\log(0.99)-32\log\left(\frac{2}{1.99}\right)\right)\right)\right)\right)\text{^}(1/24)+123+\pi+\frac{1}{\phi}$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

1729.02...

1729.02…

This result is very near to the mass of candidate glueball $f_0(1710)$ meson. Furthermore, 1728 occurs in the algebraic formula for the j-invariant of an elliptic curve. As a consequence, it is sometimes called a Zagier as a pun on the Gross–Zagier theorem. The number 1728 is one less than the Hardy–Ramanujan number 1729

(((((Pi/288)* ((-(-7.45514276 × 10^78 + 6*(-4.10251875e+38)*((((3*1.312806e+40))))(((0.99-1)(5*0.99-11)-10ln(0.99)-32ln(2/1.99)))))))))^1/36+sqrt2-1/(2golden ratio)

Input interpretation:

$$\left(\frac{\pi}{288}\left(-\left(-7.45514276\times 10^{78}+6\left(-4.10251875\times 10^{38}\right)\left(3\times 1.312806\times 10^{40}\right)\left((0.99-1)(5\times 0.99-11)-10\log(0.99)-32\log\left(\frac{2}{1.99}\right)\right)\right)\right)\right)\text{^}(1/36)+\sqrt{2}-\frac{1}{2\phi}$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

138.032...

138.032… ≈ 138 (Ramanujan taxicab number)

(((((Pi/288)* ((-(-7.45514276 × 10^78 + 6*(-4.10251875e+38)*((((3*1.312806e+40))))(((0.99-1)(5*0.99-11)-10ln(0.99)-32ln(2/1.99))))))))))^1/36-3+sqrt2-1/(2golden ratio)

Input interpretation:

$$\left(\frac{\pi}{288}\left(-\left(-7.45514276\times 10^{78}+6\left(-4.10251875\times 10^{38}\right)\left(3\times 1.312806\times 10^{40}\right)\left((0.99-1)(5\times 0.99-11)-10\log(0.99)-32\log\left(\frac{2}{1.99}\right)\right)\right)\right)\right)\wedge(1/36)-3+\sqrt{2}-\frac{1}{2\phi}$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

135.032...

135.032… ≈ 135 (Ramanujan taxicab number)

(((((Pi/288)* ((-(-7.45514276 × 10^78 + 6*(-4.10251875e+38)*((((3*1.312806e+40))))(((0.99-1)(5*0.99-11)-10ln(0.99)-32ln(2/1.99))))))))))^1/36+34+sqrt2-1/(2golden ratio)

Input interpretation:

$$\left(\frac{\pi}{288}\left(-\left(-7.45514276\times 10^{78}+6\left(-4.10251875\times 10^{38}\right)\left(3\times 1.312806\times 10^{40}\right)\left((0.99-1)(5\times 0.99-11)-10\log(0.99)-32\log\left(\frac{2}{1.99}\right)\right)\right)\right)\right)\wedge(1/36)+34+\sqrt{2}-\frac{1}{2\phi}$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

172.032...

172.032 ≈ 172 (Ramanujan taxicab number)

From

$$135^3 + 138^3 = 172^3 - 1$$

We have:

135.032^3 + 138.032^3 > 172.032^3-1

Input interpretation:

$135.032^3 + 138.032^3 > 172.032^3 - 1$

Result:

True

Difference:

738.07

738.07

From which:

135.032^3 + 138.032^3 -(172.032^3-1) + 47-3

Input interpretation:

$135.032^3 + 138.032^3 - (172.032^3 - 1) + 47 - 3$

Result:

782.070304768

782.070304768 result practically equal to the rest mass of Omega meson 782.65

Now, we have that:

$$\Phi_2^{\mathrm{EMCD}_2} = \frac{1}{4}\left\{28 - 10\zeta + \zeta^2 - 48(\zeta - 4)\left[\frac{y_0 - 1 + 2\log\left(\frac{2}{1+y_0}\right)}{-7 + 8y_0 - y_0^2 \log\left(\frac{65536\, y_0}{(1+y_0)^{16}}\right)}\right]\right\}, \qquad (75)$$

For $\zeta = -10$ and $y_0 = 0.99$, we obtain:

1/4[(28-10(-10)+(-10)^2-48(-10-4)*(((((0.99-1+2ln(2/1.99))/((((-7+8*0.99-0.99^2ln((65536*0.99)/(1+0.99)^16)))))))]

Input:

$$\frac{1}{4}\left(28-10\times(-10)+(-10)^2-48\,(-10-4)\times\frac{0.99-1+2\log\left(\frac{2}{1.99}\right)}{-7+8\times0.99-0.99^2\log\left(\frac{65\,536\times0.99}{(1+0.99)^{16}}\right)}\right)$$

$\log(x)$ is the natural logarithm

Result:

57.0050...

57.005…

Alternative representations:

$$\frac{1}{4}\left(28-10\,(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48\,(-10-4)}{-7+8\times0.99-0.99^2\log\left(\frac{65\,536\times0.99}{(1+0.99)^{16}}\right)}\right)=$$
$$\frac{1}{4}\left(128+(-10)^2+\frac{672\left(-0.01+2\log_e\left(\frac{2}{1.99}\right)\right)}{0.92-\log_e\left(\frac{64880.6}{1.99^{16}}\right)0.99^2}\right)$$

$$\frac{1}{4}\left(28-10\,(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48\,(-10-4)}{-7+8\times0.99-0.99^2\log\left(\frac{65\,536\times0.99}{(1+0.99)^{16}}\right)}\right)=$$
$$\frac{1}{4}\left(128+(-10)^2+\frac{672\left(-0.01+2\log(a)\log_a\left(\frac{2}{1.99}\right)\right)}{0.92-\log(a)\log_a\left(\frac{64880.6}{1.99^{16}}\right)0.99^2}\right)$$

$$\frac{1}{4}\left(28-10\,(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48\,(-10-4)}{-7+8\times0.99-0.99^2\log\left(\frac{65\,536\times0.99}{(1+0.99)^{16}}\right)}\right)=$$
$$\frac{1}{4}\left(128+(-10)^2+\frac{672\left(-0.01-2\,\mathrm{Li}_1\left(1-\frac{2}{1.99}\right)\right)}{0.92+\mathrm{Li}_1\left(1-\frac{64880.6}{1.99^{16}}\right)0.99^2}\right)$$

Series representations:

$$\frac{1}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=$$
$$\frac{57\left(0.908608+\sum_{k=1}^{\infty}\frac{(-0.0726694)^k}{k}-6.01442\sum_{k=1}^{\infty}\frac{(-0.00502513)^k}{k}\right)}{0.93868+\sum_{k=1}^{\infty}\frac{(-0.0726694)^k}{k}}$$

$$\frac{1}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=$$
$$\left(57\left(-0.454304-6.01442\,i\,\pi\left\lfloor\frac{\arg(1.00503-x)}{2\,\pi}\right\rfloor+i\,\pi\left\lfloor\frac{\arg(1.07267-x)}{2\,\pi}\right\rfloor-2.50721\log(x)+3.00721\sum_{k=1}^{\infty}\frac{(-1)^k(1.00503-x)^k x^{-k}}{k}-0.5\sum_{k=1}^{\infty}\frac{(-1)^k(1.07267-x)^k x^{-k}}{k}\right)\right)\Big/$$
$$\left(-0.46934+i\,\pi\left\lfloor\frac{\arg(1.07267-x)}{2\,\pi}\right\rfloor+0.5\log(x)-0.5\sum_{k=1}^{\infty}\frac{(-1)^k(1.07267-x)^k x^{-k}}{k}\right)\quad\text{for } x<0$$

$$\frac{1}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=$$
$$\left(57\left(-0.454304-6.01442\,i\,\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{1.00503}{z_0}\right)+\arg(z_0)}{2\,\pi}\right\rfloor+i\,\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{1.07267}{z_0}\right)+\arg(z_0)}{2\,\pi}\right\rfloor-2.50721\log(z_0)+3.00721\sum_{k=1}^{\infty}\frac{(-1)^k(1.00503-z_0)^k z_0^{-k}}{k}-0.5\sum_{k=1}^{\infty}\frac{(-1)^k(1.07267-z_0)^k z_0^{-k}}{k}\right)\right)\Big/$$
$$\left(-0.46934+i\,\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{1.07267}{z_0}\right)+\arg(z_0)}{2\,\pi}\right\rfloor+0.5\log(z_0)-0.5\sum_{k=1}^{\infty}\frac{(-1)^k(1.07267-z_0)^k z_0^{-k}}{k}\right)$$

Integral representation:

$$\frac{1}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=$$

$$\left(55.1739\left(i\pi-0.550293\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{2.62183\,s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds+\right.\right.$$
$$\left.\left.3.30969\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{5.2933\,s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)\right)\bigg/$$
$$\left(i\pi-0.532663\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{2.62183\,s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)\quad\text{for } -1<\gamma<0$$

21+2*1/4[28-10(-10)+(-10)^2-48(-10-4)*(0.99-1+2ln(2/1.99))/((-7+8*0.99-0.99^2ln((65536*0.99)/(1+0.99)^16)))]

Input:

$$21+2\times\frac{1}{4}\left(28-10\times(-10)+(-10)^2-48(-10-4)\times\frac{0.99-1+2\log\left(\frac{2}{1.99}\right)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)$$

$\log(x)$ is the natural logarithm

Result:

135.010...

135.01… ≈ 135 (Ramanujan taxicab number)

Alternative representations:

$$21+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=$$
$$21+\frac{2}{4}\left(128+(-10)^2+\frac{672\left(-0.01+2\log_e\left(\frac{2}{1.99}\right)\right)}{0.92-\log_e\left(\frac{64880.6}{1.99^{16}}\right)0.99^2}\right)$$

$$21+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=$$
$$21+\frac{2}{4}\left(128+(-10)^2+\frac{672\left(-0.01+2\log(a)\log_a\left(\frac{2}{1.99}\right)\right)}{0.92-\log(a)\log_a\left(\frac{64880.6}{1.99^{16}}\right)0.99^2}\right)$$

$$21+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=$$

$$21+\frac{2}{4}\left(128+(-10)^2+\frac{672\left(-0.01-2\,\mathrm{Li}_1\left(1-\frac{2}{1.99}\right)\right)}{0.92+\mathrm{Li}_1\left(1-\frac{64880.6}{1.99^{16}}\right)0.99^2}\right)$$

Series representations:

$$21+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=$$

$$\frac{135\left(0.913285+\sum_{k=1}^{\infty}\frac{(-0.0726694)^k}{k}-5.07885\sum_{k=1}^{\infty}\frac{(-0.00502513)^k}{k}\right)}{0.93868+\sum_{k=1}^{\infty}\frac{(-0.0726694)^k}{k}}$$

$$21+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=$$

$$\left(135\left(-0.456643-5.07885\,i\,\pi\left\lfloor\frac{\arg(1.00503-x)}{2\pi}\right\rfloor+i\,\pi\left\lfloor\frac{\arg(1.07267-x)}{2\pi}\right\rfloor-2.03942\log(x)+2.53942\sum_{k=1}^{\infty}\frac{(-1)^k(1.00503-x)^k x^{-k}}{k}-0.5\sum_{k=1}^{\infty}\frac{(-1)^k(1.07267-x)^k x^{-k}}{k}\right)\right)\Big/$$

$$\left(-0.46934+i\,\pi\left\lfloor\frac{\arg(1.07267-x)}{2\pi}\right\rfloor+0.5\log(x)-0.5\sum_{k=1}^{\infty}\frac{(-1)^k(1.07267-x)^k x^{-k}}{k}\right)\quad \text{for } x<0$$

$$21+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=$$

$$\left(135\left(-0.456643-5.07885\,i\,\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{1.00503}{z_0}\right)+\arg(z_0)}{2\pi}\right\rfloor+\right.\right.$$

$$i\,\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{1.07267}{z_0}\right)+\arg(z_0)}{2\pi}\right\rfloor-2.03942\log(z_0)+2.53942$$

$$\left.\left.\sum_{k=1}^{\infty}\frac{(-1)^k\,(1.00503-z_0)^k\,z_0^{-k}}{k}-0.5\sum_{k=1}^{\infty}\frac{(-1)^k\,(1.07267-z_0)^k\,z_0^{-k}}{k}\right)\right)\Big/$$

$$\left(-0.46934+i\,\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{1.07267}{z_0}\right)+\arg(z_0)}{2\pi}\right\rfloor+0.5\log(z_0)-\right.$$

$$\left.0.5\sum_{k=1}^{\infty}\frac{(-1)^k\,(1.07267-z_0)^k\,z_0^{-k}}{k}\right)$$

Integral representation:

$$21+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=$$

$$\left(131.348\left(i\,\pi-0.547474\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{e^{2.62183\,s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds+\right.\right.$$

$$\left.\left.2.78054\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{e^{5.2933\,s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)\right)\Big/$$

$$\left(i\,\pi-0.532663\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{e^{2.62183\,s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)\quad\text{for } -1<\gamma<0$$

24+2*1/4[28-10(-10)+(-10)^2-48(-10-4)*(0.99-1+2ln(2/1.99))/((-7+8*0.99-0.99^2ln((65536*0.99)/(1+0.99)^16)))]

Input:

$$24+2\times\frac{1}{4}\left(28-10\times(-10)+(-10)^2-48(-10-4)\times\frac{0.99-1+2\log\left(\frac{2}{1.99}\right)}{-7+8\times 0.99-0.99^2\log\left(\frac{65536\times 0.99}{(1+0.99)^{16}}\right)}\right)$$

log(x) is the natural logarithm

Result:

138.010...

138.01… ≈ 138 (Ramanujan taxicab number)

Alternative representations:

$$24+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=24+\frac{2}{4}\left(128+(-10)^2+\frac{672\left(-0.01+2\log_e\left(\frac{2}{1.99}\right)\right)}{0.92-\log_e\left(\frac{64880.6}{1.99^{16}}\right)0.99^2}\right)$$

$$24+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=24+\frac{2}{4}\left(128+(-10)^2+\frac{672\left(-0.01+2\log(a)\log_a\left(\frac{2}{1.99}\right)\right)}{0.92-\log(a)\log_a\left(\frac{64880.6}{1.99^{16}}\right)0.99^2}\right)$$

$$24+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=24+\frac{2}{4}\left(128+(-10)^2+\frac{672\left(-0.01-2\operatorname{Li}_1\left(1-\frac{2}{1.99}\right)\right)}{0.92+\operatorname{Li}_1\left(1-\frac{64880.6}{1.99^{16}}\right)0.99^2}\right)$$

Series representations:

$$24+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=\frac{138\left(0.913838+\sum_{k=1}^{\infty}\frac{(-0.0726694)^k}{k}-4.96844\sum_{k=1}^{\infty}\frac{(-0.00502513)^k}{k}\right)}{0.93868+\sum_{k=1}^{\infty}\frac{(-0.0726694)^k}{k}}$$

$$24+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=$$

$$\left(138\left(-0.456919-4.96844\,i\,\pi\left\lfloor\frac{\arg(1.00503-x)}{2\,\pi}\right\rfloor+i\,\pi\left\lfloor\frac{\arg(1.07267-x)}{2\,\pi}\right\rfloor-1.98422\log(x)+2.48422\sum_{k=1}^{\infty}\frac{(-1)^k\,(1.00503-x)^k\,x^{-k}}{k}-0.5\sum_{k=1}^{\infty}\frac{(-1)^k\,(1.07267-x)^k\,x^{-k}}{k}\right)\right)\Big/$$
$$\left(-0.46934+i\,\pi\left\lfloor\frac{\arg(1.07267-x)}{2\,\pi}\right\rfloor+0.5\log(x)-0.5\sum_{k=1}^{\infty}\frac{(-1)^k\,(1.07267-x)^k\,x^{-k}}{k}\right)\quad \text{for } x<0$$

$$24+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=$$

$$\left(138\left(-0.456919-4.96844\,i\,\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{1.00503}{z_0}\right)+\arg(z_0)}{2\,\pi}\right\rfloor+i\,\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{1.07267}{z_0}\right)+\arg(z_0)}{2\,\pi}\right\rfloor-1.98422\log(z_0)+2.48422\sum_{k=1}^{\infty}\frac{(-1)^k\,(1.00503-z_0)^k\,z_0^{-k}}{k}-0.5\sum_{k=1}^{\infty}\frac{(-1)^k\,(1.07267-z_0)^k\,z_0^{-k}}{k}\right)\right)\Big/$$
$$\left(-0.46934+i\,\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{1.07267}{z_0}\right)+\arg(z_0)}{2\,\pi}\right\rfloor+0.5\log(z_0)-0.5\sum_{k=1}^{\infty}\frac{(-1)^k\,(1.07267-z_0)^k\,z_0^{-k}}{k}\right)$$

Integral representation:

$$24+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=$$

$$\left(134.348\left(i\pi-0.547143\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{2.62183\,s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds+\right.\right.$$
$$\left.\left.2.71845\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{5.2933\,s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)\right)\Big/$$
$$\left(i\pi-0.532663\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{2.62183\,s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)\quad\text{for } -1<\gamma<0$$

55+3+2*1/4[28-10(-10)+(-10)^2-48(-10-4)*(0.99-1+2ln(2/1.99))/((-7+8*0.99-0.99^2ln((65536*0.99)/(1+0.99)^16)))]

Input:

$$55+3+2\times\frac{1}{4}\left(28-10\times(-10)+(-10)^2-48(-10-4)\times\frac{0.99-1+2\log\left(\frac{2}{1.99}\right)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)$$

$\log(x)$ is the natural logarithm

Result:

172.010...

172.01... ≈ 172 (Ramanujan taxicab number)

Alternative representations:

$$55+3+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=$$
$$58+\frac{2}{4}\left(128+(-10)^2+\frac{672\left(-0.01+2\log_e\left(\frac{2}{1.99}\right)\right)}{0.92-\log_e\left(\frac{64880.6}{1.99^{16}}\right)0.99^2}\right)$$

$$55+3+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99\ -1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=$$
$$58+\frac{2}{4}\left(128+(-10)^2+\frac{672\left(-0.01+2\log(a)\log_a\left(\frac{2}{1.99}\right)\right)}{0.92-\log(a)\log_a\left(\frac{64880.6}{1.99^{16}}\right)0.99^2}\right)$$

$$55+3+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99\ -1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=$$
$$58+\frac{2}{4}\left(128+(-10)^2+\frac{672\left(-0.01-2\,\mathrm{Li}_1\left(1-\frac{2}{1.99}\right)\right)}{0.92+\mathrm{Li}_1\left(1-\frac{64880.6}{1.99^{16}}\right)0.99^2}\right)$$

Series representations:

$$55+3+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99\ -1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=$$
$$\frac{172\left(0.918748+\sum_{k=1}^{\infty}\frac{(-0.0726694)^k}{k}-3.9863\sum_{k=1}^{\infty}\frac{(-0.00502513)^k}{k}\right)}{0.93868+\sum_{k=1}^{\infty}\frac{(-0.0726694)^k}{k}}$$

$$55+3+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99\ -1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times 0.99-0.99^2\log\left(\frac{65\,536\times 0.99}{(1+0.99)^{16}}\right)}\right)=$$
$$\left(172\left(-0.459374-3.9863\,i\,\pi\left\lfloor\frac{\arg(1.00503-x)}{2\pi}\right\rfloor+i\,\pi\left\lfloor\frac{\arg(1.07267-x)}{2\pi}\right\rfloor-\right.\right.$$
$$1.49315\log(x)+1.99315\sum_{k=1}^{\infty}\frac{(-1)^k(1.00503-x)^k x^{-k}}{k}-$$
$$\left.\left.0.5\sum_{k=1}^{\infty}\frac{(-1)^k(1.07267-x)^k x^{-k}}{k}\right)\right)\Bigg/$$
$$\left(-0.46934+i\,\pi\left\lfloor\frac{\arg(1.07267-x)}{2\pi}\right\rfloor+0.5\log(x)-\right.$$
$$\left.0.5\sum_{k=1}^{\infty}\frac{(-1)^k(1.07267-x)^k x^{-k}}{k}\right)\ \text{for } x<0$$

$$55+3+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times0.99-0.99^2\log\left(\frac{65536\times0.99}{(1+0.99)^{16}}\right)}\right)=$$

$$\left(172\left(-0.459374-3.9863\,i\,\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{1.00503}{z_0}\right)+\arg(z_0)}{2\pi}\right\rfloor+\right.\right.$$
$$i\,\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{1.07267}{z_0}\right)+\arg(z_0)}{2\pi}\right\rfloor-1.49315\log(z_0)+1.99315$$
$$\left.\left.\sum_{k=1}^{\infty}\frac{(-1)^k\,(1.00503-z_0)^k\,z_0^{-k}}{k}-0.5\sum_{k=1}^{\infty}\frac{(-1)^k\,(1.07267-z_0)^k\,z_0^{-k}}{k}\right)\right)\Big/$$
$$\left(-0.46934+i\,\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{1.07267}{z_0}\right)+\arg(z_0)}{2\pi}\right\rfloor+0.5\log(z_0)-\right.$$
$$\left.0.5\sum_{k=1}^{\infty}\frac{(-1)^k\,(1.07267-z_0)^k\,z_0^{-k}}{k}\right)$$

Integral representation:

$$55+3+\frac{2}{4}\left(28-10(-10)+(-10)^2-\frac{\left(0.99-1+2\log\left(\frac{2}{1.99}\right)\right)48(-10-4)}{-7+8\times0.99-0.99^2\log\left(\frac{65536\times0.99}{(1+0.99)^{16}}\right)}\right)=$$

$$\left(168.348\left(i\,\pi-0.544219\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{e^{2.62183\,s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds+\right.\right.$$
$$\left.\left.2.16942\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{e^{5.2933\,s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)\right)\Big/$$
$$\left(i\,\pi-0.532663\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{e^{2.62183\,s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)\quad\text{for } -1<\gamma<0$$

$$\mathcal{L}=2\pi\mathring{r}^2+\left[\frac{4\pi\mathring{r}^2\left(3y^2-1\right)}{3y_0^2-1}\right]\varepsilon+\frac{2\pi\mathring{r}^2}{5\left(3y_0^2-1\right)^3}\left[-5+249y_0^2-270y_0^4-225y^4\left(3y_0^2-1\right)\right.$$
$$\left.+6y^2\left(-34-15y_0^2+135y_0^4\right)+279y^2\left(y^2-1\right)\left(3y_0^2-1\right)\right]\varepsilon^2+\cdots\,. \tag{102}$$

2Pi*3.36^2+((4Pi*3.36^2(3-1)*1/(3*0.5773^2-1)))*0.0864055+(2Pi*3.36^2)/(5(3*0.5773^2-1)^3)

Input interpretation:

$$2\pi\times3.36^2+\left(4\pi\times3.36^2\left((3-1)\times\frac{1}{3\times0.5773^2-1}\right)\right)\times0.0864055+\frac{2\pi\times3.36^2}{5\left(3\times0.5773^2-1\right)^3}$$

Result:

$-2.68700\ldots \times 10^{12}$

$-2.687\ldots*10^{12}$

Alternative representations:

$$2\pi\, 3.36^2 + \frac{0.0864055 \times 4\left((3-1)\pi\, 3.36^2\right)}{3 \times 0.5773^2 - 1} + \frac{2\left(\pi\, 3.36^2\right)}{5\left(3 \times 0.5773^2 - 1\right)^3} = -2\, i \log(-1)\, 3.36^2 - \frac{0.691244\, i \log(-1)\, 3.36^2}{-1 + 3 \times 0.5773^2} - \frac{2\, i \log(-1)\, 3.36^2}{5\left(-1 + 3 \times 0.5773^2\right)^3}$$

$$2\pi\, 3.36^2 + \frac{0.0864055 \times 4\left((3-1)\pi\, 3.36^2\right)}{3 \times 0.5773^2 - 1} + \frac{2\left(\pi\, 3.36^2\right)}{5\left(3 \times 0.5773^2 - 1\right)^3} = 360^\circ\, 3.36^2 + \frac{124.424^\circ\, 3.36^2}{-1 + 3 \times 0.5773^2} + \frac{360^\circ\, 3.36^2}{5\left(-1 + 3 \times 0.5773^2\right)^3}$$

$$2\pi\, 3.36^2 + \frac{0.0864055 \times 4\left((3-1)\pi\, 3.36^2\right)}{3 \times 0.5773^2 - 1} + \frac{2\left(\pi\, 3.36^2\right)}{5\left(3 \times 0.5773^2 - 1\right)^3} = 2\cos^{-1}(-1)\, 3.36^2 + \frac{0.691244 \cos^{-1}(-1)\, 3.36^2}{-1 + 3 \times 0.5773^2} + \frac{2\cos^{-1}(-1)\, 3.36^2}{5\left(-1 + 3 \times 0.5773^2\right)^3}$$

Series representations:

$$2\pi\, 3.36^2 + \frac{0.0864055 \times 4\left((3-1)\pi\, 3.36^2\right)}{3 \times 0.5773^2 - 1} + \frac{2\left(\pi\, 3.36^2\right)}{5\left(3 \times 0.5773^2 - 1\right)^3} = -3.42119 \times 10^{12} \sum_{k=0}^{\infty} \frac{(-1)^k}{1 + 2k}$$

$$2\pi\, 3.36^2 + \frac{0.0864055 \times 4\left((3-1)\pi\, 3.36^2\right)}{3 \times 0.5773^2 - 1} + \frac{2\left(\pi\, 3.36^2\right)}{5\left(3 \times 0.5773^2 - 1\right)^3} = 1.7106 \times 10^{12} - 1.7106 \times 10^{12} \sum_{k=1}^{\infty} \frac{2^k}{\binom{2k}{k}}$$

$$2\pi\, 3.36^2 + \frac{0.0864055 \times 4\left((3-1)\pi\, 3.36^2\right)}{3 \times 0.5773^2 - 1} + \frac{2\left(\pi\, 3.36^2\right)}{5\left(3 \times 0.5773^2 - 1\right)^3} = -8.55299 \times 10^{11} \sum_{k=0}^{\infty} \frac{2^{-k}(-6 + 50k)}{\binom{3k}{k}}$$

Integral representations:

$$2\pi\,3.36^2 + \frac{0.0864055\times 4\left((3-1)\pi\,3.36^2\right)}{3\times 0.5773^2-1} + \frac{2\left(\pi\,3.36^2\right)}{5\left(3\times 0.5773^2-1\right)^3} = -1.7106\times 10^{12}\int_0^\infty \frac{1}{1+t^2}\,dt$$

$$2\pi\,3.36^2 + \frac{0.0864055\times 4\left((3-1)\pi\,3.36^2\right)}{3\times 0.5773^2-1} + \frac{2\left(\pi\,3.36^2\right)}{5\left(3\times 0.5773^2-1\right)^3} = -3.42119\times 10^{12}\int_0^1 \sqrt{1-t^2}\,dt$$

$$2\pi\,3.36^2 + \frac{0.0864055\times 4\left((3-1)\pi\,3.36^2\right)}{3\times 0.5773^2-1} + \frac{2\left(\pi\,3.36^2\right)}{5\left(3\times 0.5773^2-1\right)^3} = -1.7106\times 10^{12}\int_0^\infty \frac{\sin(t)}{t}\,dt$$

$$\mathcal{L} = 2\pi\mathring{r}^2 + \left[\frac{4\pi\mathring{r}^2\left(3y^2-1\right)}{3y_0^2-1}\right]\varepsilon + \frac{2\pi\mathring{r}^2}{5\left(3y_0^2-1\right)^3}\left[-5+249y_0^2-270y_0^4-225y^4\left(3y_0^2-1\right)\right.$$
$$\left. +6y^2\left(-34-15y_0^2+135y_0^4\right)+279y^2\left(y^2-1\right)\left(3y_0^2-1\right)\right]\varepsilon^2+\cdots\,. \qquad (102)$$

[((((-5+249*0.5773^2-270*0.5773^4-225(3*0.5773^2-1)+6(-34-15*0.5773^2+135*0.5773^4)+279*(1-1)(3*0.5773^2-1))))]*0.0864055^2

Input interpretation:

$$\left(-5+249\times 0.5773^2-270\times 0.5773^4-225\left(3\times 0.5773^2-1\right)+6\left(-34-15\times 0.5773^2+135\times 0.5773^4\right)+279\,(1-1)\left(3\times 0.5773^2-1\right)\right)\times 0.0864055^2$$

Result:

$-0.716659785694325300630013126 5$

-0.71665978…

(((2Pi*3.36^2+((4Pi*3.36^2(3-1)*1/(3*0.5773^2-1)))*0.0864055+(2Pi*3.36^2)/(5(3*0.5773^2-1)^3))))*(-0.71665978569432530063001312650)

Input interpretation:

$$\left(2\pi\times 3.36^2+\left(4\pi\times 3.36^2\left((3-1)\times\frac{1}{3\times 0.5773^2-1}\right)\right)\times 0.0864055+\frac{2\pi\times 3.36^2}{5\left(3\times 0.5773^2-1\right)^3}\right)\times(-0.71665978569432530063001312650)$$

Result:

$$1.925664733540036222581740504698618183425606798569384 3\ldots\times 10^{12}$$

1.925664733…*10^{12}

Alternative representations:

$$\left(2\pi\, 3.36^2+\frac{\left(4(3-1)\pi\, 3.36^2\right)0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\, 3.36^2}{5\left(3\times 0.5773^2-1\right)^3}\right)(-1)\,0.716659785694325300630013126500000 = -0.716659785694325300630013126500000\left(-2\,i\log(-1)\,3.36^2-\frac{0.691244\,i\log(-1)\,3.36^2}{-1+3\times 0.5773^2}-\frac{2\,i\log(-1)\,3.36^2}{5\left(-1+3\times 0.5773^2\right)^3}\right)$$

$$\left(2\pi\, 3.36^2+\frac{\left(4(3-1)\pi\, 3.36^2\right)0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\, 3.36^2}{5\left(3\times 0.5773^2-1\right)^3}\right)(-1)\,0.716659785694325300630013126500000 = -0.716659785694325300630013126500000\left(360^\circ\, 3.36^2+\frac{124.424^\circ\, 3.36^2}{-1+3\times 0.5773^2}+\frac{360^\circ\, 3.36^2}{5\left(-1+3\times 0.5773^2\right)^3}\right)$$

$$\left(2\pi\, 3.36^2+\frac{\left(4(3-1)\pi\, 3.36^2\right)0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\, 3.36^2}{5\left(3\times 0.5773^2-1\right)^3}\right)(-1)\,0.716659785694325300630013126500000 = -0.716659785694325300630013126500000\left(2\cos^{-1}(-1)\,3.36^2+\frac{0.691244\cos^{-1}(-1)\,3.36^2}{-1+3\times 0.5773^2}+\frac{2\cos^{-1}(-1)\,3.36^2}{5\left(-1+3\times 0.5773^2\right)^3}\right)$$

Series representations:

$$\left(2\pi\, 3.36^2 + \frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5(3\times 0.5773^2 - 1)^3}\right)(-1)$$
$$0.716659785694325300630013126500000 = 2.45183\times 10^{12} \sum_{k=0}^{\infty} \frac{(-1)^k}{1+2k}$$

$$\left(2\pi\, 3.36^2 + \frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5(3\times 0.5773^2 - 1)^3}\right)$$
$$(-1)\, 0.716659785694325300630013126500000 =$$
$$-1.22592\times 10^{12} + 1.22592\times 10^{12} \sum_{k=1}^{\infty} \frac{2^k}{\binom{2k}{k}}$$

$$\left(2\pi\, 3.36^2 + \frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5(3\times 0.5773^2 - 1)^3}\right)(-1)$$
$$0.716659785694325300630013126500000 = 6.12958\times 10^{11} \sum_{k=0}^{\infty} \frac{2^{-k}(-6+50k)}{\binom{3k}{k}}$$

Integral representations:

$$\left(2\pi\, 3.36^2 + \frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5(3\times 0.5773^2 - 1)^3}\right)(-1)$$
$$0.716659785694325300630013126500000 = 1.22592\times 10^{12} \int_0^{\infty} \frac{1}{1+t^2}\, dt$$

$$\left(2\pi\, 3.36^2 + \frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5(3\times 0.5773^2 - 1)^3}\right)(-1)$$
$$0.716659785694325300630013126500000 = 2.45183\times 10^{12} \int_0^{1} \sqrt{1-t^2}\, dt$$

$$\left(2\pi\, 3.36^2 + \frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5(3\times 0.5773^2 - 1)^3}\right)(-1)$$
$$0.716659785694325300630013126500000 = 1.22592\times 10^{12} \int_0^{\infty} \frac{\sin(t)}{t}\, dt$$

(((([(((2Pi*3.36^2+((4Pi*3.36^2(3-1)*1/(3*0.5773^2-1)))*0.0864055+(2Pi*3.36^2)/(5(3*0.5773^2-1)^3))))]*(-0.716659785694)))))^1/4

Input interpretation:

$$\left(\left(2\pi\times 3.36^2+\left(4\pi\times 3.36^2\left((3-1)\times\frac{1}{3\times 0.5773^2-1}\right)\right)\times 0.0864055+\frac{2\pi\times 3.36^2}{5\,(3\times 0.5773^2-1)^3}\right)\times(-0.716659785694)\right)\,\hat{}\,(1/4)$$

Result:

1178.00...

1178.00...

1/10^27((((((((((([(((2Pi*3.36^2+((4Pi*3.36^2(3-1)*1/(3*0.5773^2-1)))*0.0864055+(2Pi*3.36^2)/(5(3*0.5773^2-1)^3))))]*(-0.716659785694)))))^1/4)))^1/15+16/10^3+54/10^3)))

Input interpretation:

$$\frac{1}{10^{27}}\left(\left(\left(\left(2\pi\times 3.36^2+\left(4\pi\times 3.36^2\left((3-1)\times\frac{1}{3\times 0.5773^2-1}\right)\right)\times 0.0864055+\frac{2\pi\times 3.36^2}{5\,(3\times 0.5773^2-1)^3}\right)\times(-0.716659785694)\right)\,\hat{}\,(1/4)\right)\,\hat{}\,(1/15)+\frac{16}{10^3}+\frac{54}{10^3}\right)$$

Result:

$1.67230\ldots\times 10^{-27}$

$1.6723\ldots*10^{-27}$ result practically equal to the proton mass

Alternative representations:

$$\frac{1}{10^{27}}\left(\left(\left(\left(2\pi\,3.36^2+\frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\,3.36^2}{5\,(3\times 0.5773^2-1)^3}\right)(-0.7166597856940000)\right)\,\hat{}\,(1/4)\right)\,\hat{}\,(1/15)+\frac{16}{10^3}+\frac{54}{10^3}\right)=$$

$$\frac{\frac{70}{10^3}+\sqrt[15]{\sqrt[4]{-0.7166597856940000\left(360\,^\circ\,3.36^2+\frac{124.424\,^\circ\,3.36^2}{-1+3\times 0.5773^2}+\frac{360\,^\circ\,3.36^2}{5\,(-1+3\times 0.5773^2)^3}\right)}}}{10^{27}}$$

$$\frac{1}{10^{27}}\left(\left(\left(\left(2\pi\, 3.36^2+\frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\, 3.36^2}{5(3\times 0.5773^2-1)^3}\right)(-0.7166597856940000)\right)\hat{}\,(1/4)\right)\hat{}\,(1/15)+\frac{16}{10^3}+\frac{54}{10^3}\right)=\frac{1}{10^{27}}\left(\frac{70}{10^3}+\left(\left(-0.7166597856940000\left(2\cos^{-1}(-1)\, 3.36^2+\frac{0.691244\cos^{-1}(-1)\, 3.36^2}{-1+3\times 0.5773^2}+\frac{2\cos^{-1}(-1)\, 3.36^2}{5(-1+3\times 0.5773^2)^3}\right)\right)\hat{}\,(1/4)\right)\hat{}\,(1/15)\right)$$

$$\frac{1}{10^{27}}\left(\left(\left(\left(2\pi\, 3.36^2+\frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\, 3.36^2}{5(3\times 0.5773^2-1)^3}\right)(-0.7166597856940000)\right)\hat{}\,(1/4)\right)\hat{}\,(1/15)+\frac{16}{10^3}+\frac{54}{10^3}\right)=\frac{1}{10^{27}}\left(\frac{70}{10^3}+\left(\left(-0.7166597856940000\left(4E(0)\, 3.36^2+\frac{1.38249\, E(0)\, 3.36^2}{-1+3\times 0.5773^2}+\frac{4E(0)\, 3.36^2}{5(-1+3\times 0.5773^2)^3}\right)\right)\hat{}\,(1/4)\right)\hat{}\,(1/15)\right)$$

Series representations:

$$\frac{1}{10^{27}}\left(\left(\left(\left(2\pi\, 3.36^2+\frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\, 3.36^2}{5(3\times 0.5773^2-1)^3}\right)(-0.7166597856940000)\right)\hat{}\,(1/4)\right)\hat{}\,(1/15)+\frac{16}{10^3}+\frac{54}{10^3}\right)=7.\times 10^{-29}+1.60876\times 10^{-27}\sqrt[60]{\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}}$$

$$\frac{1}{10^{27}}\left(\left(\left(\left(2\pi\, 3.36^2+\frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\, 3.36^2}{5(3\times 0.5773^2-1)^3}\right)(-0.7166597856940000)\right)\hat{}\,(1/4)\right)\hat{}\,(1/15)+\frac{16}{10^3}+\frac{54}{10^3}\right)=7.\times 10^{-29}+1.59028\times 10^{-27}\sqrt[60]{-1+\sum_{k=1}^{\infty}\frac{2^k}{\binom{2k}{k}}}$$

$$\frac{1}{10^{27}}\left(\left(\left(\left(2\pi\,3.36^2+\frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\pi\,3.36^2}{5\,(3\times0.5773^2-1)^3}\right)(-0.7166597856940000)\right)^\wedge(1/4)\right)^\wedge(1/15)+\frac{16}{10^3}+\frac{54}{10^3}\right)=$$
$$7.\times10^{-29}+1.57202\times10^{-27}\sqrt[60]{\sum_{k=0}^{\infty}\frac{2^{-k}\,(-6+50\,k)}{\binom{3k}{k}}}$$

Integral representations:

$$\frac{1}{10^{27}}\left(\left(\left(\left(2\pi\,3.36^2+\frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\pi\,3.36^2}{5\,(3\times0.5773^2-1)^3}\right)(-0.7166597856940000)\right)^\wedge(1/4)\right)^\wedge(1/15)+\frac{16}{10^3}+\frac{54}{10^3}\right)=7.\times10^{-29}+1.59028\times10^{-27}\sqrt[60]{\int_0^\infty\frac{1}{1+t^2}\,dt}$$

$$\frac{1}{10^{27}}\left(\left(\left(\left(2\pi\,3.36^2+\frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\pi\,3.36^2}{5\,(3\times0.5773^2-1)^3}\right)(-0.7166597856940000)\right)^\wedge(1/4)\right)^\wedge(1/15)+\frac{16}{10^3}+\frac{54}{10^3}\right)=$$
$$7.\times10^{-29}+1.60876\times10^{-27}\sqrt[60]{\int_0^1\sqrt{1-t^2}\,dt}$$

$$\frac{1}{10^{27}}\left(\left(\left(\left(2\pi\,3.36^2+\frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\pi\,3.36^2}{5\,(3\times0.5773^2-1)^3}\right)(-0.7166597856940000)\right)^\wedge(1/4)\right)^\wedge(1/15)+\frac{16}{10^3}+\frac{54}{10^3}\right)=7.\times10^{-29}+1.59028\times10^{-27}\sqrt[60]{\int_0^\infty\frac{\sin(t)}{t}\,dt}$$

(((((((([(((2Pi*3.36^2+((4Pi*3.36^2(3-1)*1/(3*0.5773^2-1)))*0.0864055+(2Pi*3.36^2)/(5(3*0.5773^2-1)^3))))]*(-0.716659785694)))))^1/4)))^1/15+16/10^3

Input interpretation:

$$\left(\left(\left(2\pi\times 3.36^2+\left(4\pi\times 3.36^2\left((3-1)\times\frac{1}{3\times 0.5773^2-1}\right)\right)\times 0.0864055+\frac{2\pi\times 3.36^2}{5\,(3\times 0.5773^2-1)^3}\right)\times(-0.716659785694)\right)^\wedge(1/4)\right)^\wedge(1/15)+\frac{16}{10^3}$$

Result:

1.618296969473608327069009820429020945912738165738601166552...

1.61829696947… result that is a very good approximation to the value of the golden ratio 1,618033988749...

Alternative representations:

$$\left(\left(\left(2\pi\,3.36^2+\frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\,3.36^2}{5\,(3\times 0.5773^2-1)^3}\right)(-1)\,0.7166597856940000\right)^\wedge(1/4)\right)^\wedge(1/15)+\frac{16}{10^3}=\frac{16}{10^3}+\left(\left(-0.7166597856940000\left(360\,°\,3.36^2+\frac{124.424\,°\,3.36^2}{-1+3\times 0.5773^2}+\frac{360\,°\,3.36^2}{5\,(-1+3\times 0.5773^2)^3}\right)\right)^\wedge(1/4)\right)^\wedge(1/15)$$

$$\left(\left(\left(2\pi\,3.36^2+\frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\,3.36^2}{5\,(3\times 0.5773^2-1)^3}\right)(-1)\,0.7166597856940000\right)^\wedge(1/4)\right)^\wedge(1/15)+\frac{16}{10^3}=\frac{16}{10^3}+\left(\left(-0.7166597856940000\left(2\cos^{-1}(-1)\,3.36^2+\frac{0.691244\cos^{-1}(-1)\,3.36^2}{-1+3\times 0.5773^2}+\frac{2\cos^{-1}(-1)\,3.36^2}{5\,(-1+3\times 0.5773^2)^3}\right)\right)^\wedge(1/4)\right)^\wedge(1/15)$$

$$\left(\left(\left(2\pi\, 3.36^2 + \frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5(3\times 0.5773^2 - 1)^3}\right)(-1)\, 0.7166597856940000\right)\wedge(1/4)\right)\wedge(1/15) + \frac{16}{10^3} = \frac{16}{10^3} + \left(\left(-0.7166597856940000\left(4E(0)\, 3.36^2 + \frac{1.38249\, E(0)\, 3.36^2}{-1+3\times 0.5773^2} + \frac{4E(0)\, 3.36^2}{5(-1+3\times 0.5773^2)^3}\right)\right)\wedge(1/4)\right)\wedge(1/15)$$

Series representations:

$$\left(\left(\left(2\pi\, 3.36^2 + \frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5(3\times 0.5773^2 - 1)^3}\right)(-1)\, 0.7166597856940000\right)\wedge(1/4)\right)\wedge(1/15) + \frac{16}{10^3} = 0.016 + 1.60876\sqrt[60]{\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}}$$

$$\left(\left(\left(2\pi\, 3.36^2 + \frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5(3\times 0.5773^2 - 1)^3}\right)(-1)\, 0.7166597856940000\right)\wedge(1/4)\right)\wedge(1/15) + \frac{16}{10^3} = 0.016 + 1.59028\sqrt[60]{-1 + \sum_{k=1}^{\infty}\frac{2^k}{\binom{2k}{k}}}$$

$$\left(\left(\left(2\pi\, 3.36^2 + \frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5(3\times 0.5773^2 - 1)^3}\right)(-1)\, 0.7166597856940000\right)\wedge(1/4)\right)\wedge(1/15) + \frac{16}{10^3} = 0.016 + 1.57202\sqrt[60]{\sum_{k=0}^{\infty}\frac{2^{-k}(-6+50k)}{\binom{3k}{k}}}$$

Integral representations:

$$\left(\left(\left(2\pi\,3.36^2+\frac{(4(3-1)\pi\,3.36^2)\,0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\,3.36^2}{5(3\times 0.5773^2-1)^3}\right)(-1)\,0.7166597856940000\right)^\wedge(1/4)\right)^\wedge(1/15)+\frac{16}{10^3}=0.016+1.59028\sqrt[60]{\int_0^\infty \frac{1}{1+t^2}\,dt}$$

$$\left(\left(\left(2\pi\,3.36^2+\frac{(4(3-1)\pi\,3.36^2)\,0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\,3.36^2}{5(3\times 0.5773^2-1)^3}\right)(-1)\,0.7166597856940000\right)^\wedge(1/4)\right)^\wedge(1/15)+\frac{16}{10^3}=0.016+1.60876\sqrt[60]{\int_0^1 \sqrt{1-t^2}\,dt}$$

$$\left(\left(\left(2\pi\,3.36^2+\frac{(4(3-1)\pi\,3.36^2)\,0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\,3.36^2}{5(3\times 0.5773^2-1)^3}\right)(-1)\,0.7166597856940000\right)^\wedge(1/4)\right)^\wedge(1/15)+\frac{16}{10^3}=0.016+1.59028\sqrt[60]{\int_0^\infty \frac{\sin(t)}{t}\,dt}$$

1/8(((([(((2Pi*3.36^2+((4Pi*3.36^2(3-1)*1/(3*0.5773^2-1)))*0.0864055+(2Pi*3.36^2)/(5(3*0.5773^2-1)^3))))]*(-0.716659785694)))))^1/4-8-4-1/4

Input interpretation:

$$\frac{1}{8}\left(\left(2\pi\times 3.36^2+\left(4\pi\times 3.36^2\left((3-1)\times\frac{1}{3\times 0.5773^2-1}\right)\right)\times 0.0864055+\frac{2\pi\times 3.36^2}{5(3\times 0.5773^2-1)^3}\right)\times(-0.716659785694)\right)^\wedge(1/4)-8-4-\frac{1}{4}$$

Result:

135.000...

135 (Ramanujan taxicab number)

Alternative representations:

$$\frac{1}{8}\left(\left(2\pi\,3.36^2+\frac{(4(3-1)\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\pi\,3.36^2}{5(3\times0.5773^2-1)^3}\right)(-0.7166597856940000)\right)\text{^}(1/4)-8-4-\frac{1}{4}=-12-\frac{1}{4}+\frac{1}{8}\left(-0.7166597856940000\left(360^\circ\,3.36^2+\frac{124.424^\circ\,3.36^2}{-1+3\times0.5773^2}+\frac{360^\circ\,3.36^2}{5(-1+3\times0.5773^2)^3}\right)\right)\text{^}(1/4)$$

$$\frac{1}{8}\left(\left(2\pi\,3.36^2+\frac{(4(3-1)\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\pi\,3.36^2}{5(3\times0.5773^2-1)^3}\right)(-0.7166597856940000)\right)\text{^}(1/4)-8-4-\frac{1}{4}=-12-\frac{1}{4}+\frac{1}{8}\left(-0.7166597856940000\left(2\cos^{-1}(-1)\,3.36^2+\frac{0.691244\cos^{-1}(-1)\,3.36^2}{-1+3\times0.5773^2}+\frac{2\cos^{-1}(-1)\,3.36^2}{5(-1+3\times0.5773^2)^3}\right)\right)\text{^}(1/4)$$

$$\frac{1}{8}\left(\left(2\pi\,3.36^2+\frac{(4(3-1)\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\pi\,3.36^2}{5(3\times0.5773^2-1)^3}\right)(-0.7166597856940000)\right)\text{^}(1/4)-8-4-\frac{1}{4}=-12-\frac{1}{4}+\frac{1}{8}\left(-0.7166597856940000\left(4E(0)\,3.36^2+\frac{1.38249\,E(0)\,3.36^2}{-1+3\times0.5773^2}+\frac{4E(0)\,3.36^2}{5(-1+3\times0.5773^2)^3}\right)\right)\text{^}(1/4)$$

Series representations:

$$\frac{1}{8}\left(\left(2\pi\,3.36^2+\frac{(4(3-1)\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\pi\,3.36^2}{5(3\times0.5773^2-1)^3}\right)(-0.7166597856940000)\right)\text{^}(1/4)-8-4-\frac{1}{4}=-12.25+156.417\sqrt[4]{\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}}$$

$$\frac{1}{8}\left(\left(2\pi\, 3.36^2+\frac{(4\,(3-1)\,\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\, 3.36^2}{5\,(3\times 0.5773^2-1)^3}\right.\right.$$
$$\left.(-0.7166597856940000)\right)\char`^(1/4)-$$
$$8-4-\frac{1}{4}=-12.25+131.53\sqrt[4]{-1+\sum_{k=1}^{\infty}\frac{2^k}{\binom{2k}{k}}}$$

$$\frac{1}{8}\left(\left(2\pi\, 3.36^2+\frac{(4\,(3-1)\,\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\, 3.36^2}{5\,(3\times 0.5773^2-1)^3}\right.\right.$$
$$\left.(-0.7166597856940000)\right)\char`^(1/4)-$$
$$8-4-\frac{1}{4}=-12.25+110.603\sqrt[4]{\sum_{k=0}^{\infty}\frac{2^{-k}\,(-6+50\,k)}{\binom{3k}{k}}}$$

Integral representations:

$$\frac{1}{8}\left(\left(2\pi\, 3.36^2+\frac{(4\,(3-1)\,\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\, 3.36^2}{5\,(3\times 0.5773^2-1)^3}\right.\right.$$
$$\left.(-0.7166597856940000)\right)\char`^(1/4)-$$
$$8-4-\frac{1}{4}=-12.25+131.53\sqrt[4]{\int_0^{\infty}\frac{1}{1+t^2}\,dt}$$

$$\frac{1}{8}\left(\left(2\pi\, 3.36^2+\frac{(4\,(3-1)\,\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\, 3.36^2}{5\,(3\times 0.5773^2-1)^3}\right.\right.$$
$$\left.(-0.7166597856940000)\right)\char`^(1/4)-$$
$$8-4-\frac{1}{4}=-12.25+156.417\sqrt[4]{\int_0^{1}\sqrt{1-t^2}\,dt}$$

$$\frac{1}{8}\left(\left(2\pi\, 3.36^2+\frac{(4\,(3-1)\,\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\, 3.36^2}{5\,(3\times 0.5773^2-1)^3}\right.\right.$$
$$\left.(-0.7166597856940000)\right)\char`^(1/4)-$$
$$8-4-\frac{1}{4}=-12.25+131.53\sqrt[4]{\int_0^{\infty}\frac{\sin(t)}{t}\,dt}$$

1/8(((([(((2Pi*3.36^2+((4Pi*3.36^2(3-1)*1/(3*0.5773^2-1)))*0.0864055+(2Pi*3.36^2)/(5(3*0.5773^2-1)^3))))]*(-0.716659785694)))))^1/4-5-4-1/4

Input interpretation:

$$\frac{1}{8}\left(\left(2\pi\times3.36^2+\left(4\pi\times3.36^2\left((3-1)\times\frac{1}{3\times0.5773^2-1}\right)\right)\times0.0864055+\frac{2\pi\times3.36^2}{5\,(3\times0.5773^2-1)^3}\right)\times(-0.716659785694)\right)\hat{}\,(1/4)-5-4-\frac{1}{4}$$

Result:

138.000...

138 (Ramanujan taxicab number)

Alternative representations:

$$\frac{1}{8}\left(\left(2\pi\,3.36^2+\frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\pi\,3.36^2}{5\,(3\times0.5773^2-1)^3}\right)(-0.7166597856940000)\right)\hat{}\,(1/4)-5-4-\frac{1}{4}=-9-\frac{1}{4}+\frac{1}{8}\left(-0.7166597856940000\left(360\,^\circ\,3.36^2+\frac{124.424\,^\circ\,3.36^2}{-1+3\times0.5773^2}+\frac{360\,^\circ\,3.36^2}{5\,(-1+3\times0.5773^2)^3}\right)\right)\hat{}\,(1/4)$$

$$\frac{1}{8}\left(\left(2\pi\,3.36^2+\frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\pi\,3.36^2}{5\,(3\times0.5773^2-1)^3}\right)(-0.7166597856940000)\right)\hat{}\,(1/4)-5-4-\frac{1}{4}=-9-\frac{1}{4}+\frac{1}{8}\left(-0.7166597856940000\left(2\cos^{-1}(-1)\,3.36^2+\frac{0.691244\cos^{-1}(-1)\,3.36^2}{-1+3\times0.5773^2}+\frac{2\cos^{-1}(-1)\,3.36^2}{5\,(-1+3\times0.5773^2)^3}\right)\right)\hat{}\,(1/4)$$

$$\frac{1}{8}\left(\left(2\pi\,3.36^2+\frac{(4(3-1)\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\pi\,3.36^2}{5(3\times0.5773^2-1)^3}\right)\right.$$
$$\left.(-0.7166597856940000)\right)\,\hat{}\,(1/4)-$$
$$5-4-\frac{1}{4}=-9-\frac{1}{4}+\frac{1}{8}\left(-0.7166597856940000\right.$$
$$\left.\left(4\,E(0)\,3.36^2+\frac{1.38249\,E(0)\,3.36^2}{-1+3\times0.5773^2}+\frac{4\,E(0)\,3.36^2}{5(-1+3\times0.5773^2)^3}\right)\right)\,\hat{}\,(1/4)$$

Series representations:

$$\frac{1}{8}\left(\left(2\pi\,3.36^2+\frac{(4(3-1)\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\pi\,3.36^2}{5(3\times0.5773^2-1)^3}\right)\right.$$
$$\left.(-0.7166597856940000)\right)\,\hat{}\,(1/4)-$$
$$5-4-\frac{1}{4}=-9.25+156.417\sqrt[4]{\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}}$$

$$\frac{1}{8}\left(\left(2\pi\,3.36^2+\frac{(4(3-1)\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\pi\,3.36^2}{5(3\times0.5773^2-1)^3}\right)\right.$$
$$\left.(-0.7166597856940000)\right)\,\hat{}\,(1/4)-$$
$$5-4-\frac{1}{4}=-9.25+131.53\sqrt[4]{-1+\sum_{k=1}^{\infty}\frac{2^k}{\binom{2k}{k}}}$$

$$\frac{1}{8}\left(\left(2\pi\,3.36^2+\frac{(4(3-1)\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\pi\,3.36^2}{5(3\times0.5773^2-1)^3}\right)\right.$$
$$\left.(-0.7166597856940000)\right)\,\hat{}\,(1/4)-$$
$$5-4-\frac{1}{4}=-9.25+110.603\sqrt[4]{\sum_{k=0}^{\infty}\frac{2^{-k}(-6+50k)}{\binom{3k}{k}}}$$

Integral representations:

$$\frac{1}{8}\left(\left(2\,\pi\,3.36^2+\frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\,\pi\,3.36^2}{5\,(3\times0.5773^2-1)^3}\right)(-0.7166597856940000)\right)\hat{}\,(1/4)-5-4-\frac{1}{4}=-9.25+131.53\sqrt[4]{\int_0^\infty\frac{1}{1+t^2}\,dt}$$

$$\frac{1}{8}\left(\left(2\,\pi\,3.36^2+\frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\,\pi\,3.36^2}{5\,(3\times0.5773^2-1)^3}\right)(-0.7166597856940000)\right)\hat{}\,(1/4)-5-4-\frac{1}{4}=-9.25+156.417\sqrt[4]{\int_0^1\sqrt{1-t^2}\,dt}$$

$$\frac{1}{8}\left(\left(2\,\pi\,3.36^2+\frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\,\pi\,3.36^2}{5\,(3\times0.5773^2-1)^3}\right)(-0.7166597856940000)\right)\hat{}\,(1/4)-5-4-\frac{1}{4}=-9.25+131.53\sqrt[4]{\int_0^\infty\frac{\sin(t)}{t}\,dt}$$

1/8(((([(((2Pi*3.36^2+((4Pi*3.36^2(3-1)*1/(3*0.5773^2-1)))*0.0864055+(2Pi*3.36^2)/(5(3*0.5773^2-1)^3))))]*(-0.716659785694)))))^1/4-5-4+34-1/4

Input interpretation:

$$\frac{1}{8}\left(\left(2\,\pi\times3.36^2+\left(4\,\pi\times3.36^2\left((3-1)\times\frac{1}{3\times0.5773^2-1}\right)\right)\times0.0864055+\frac{2\,\pi\times3.36^2}{5\,(3\times0.5773^2-1)^3}\right)\times(-0.716659785694)\right)\hat{}\,(1/4)-5-4+34-\frac{1}{4}$$

Result:

172.000...

172 (Ramanujan taxicab number)

Alternative representations:

$$\frac{1}{8}\left(\left(2\pi\, 3.36^2+\frac{(4(3-1)\pi\, 3.36^2)\,0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\, 3.36^2}{5(3\times 0.5773^2-1)^3}\right)(-0.7166597856940000)\right)\wedge(1/4)-5-4+34-\frac{1}{4}=25-\frac{1}{4}+\frac{1}{8}\left(-0.7166597856940000\left(360^\circ\, 3.36^2+\frac{124.424^\circ\, 3.36^2}{-1+3\times 0.5773^2}+\frac{360^\circ\, 3.36^2}{5(-1+3\times 0.5773^2)^3}\right)\right)\wedge(1/4)$$

$$\frac{1}{8}\left(\left(2\pi\, 3.36^2+\frac{(4(3-1)\pi\, 3.36^2)\,0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\, 3.36^2}{5(3\times 0.5773^2-1)^3}\right)(-0.7166597856940000)\right)\wedge(1/4)-5-4+34-\frac{1}{4}=25-\frac{1}{4}+\frac{1}{8}\left(-0.7166597856940000\left(2\cos^{-1}(-1)\, 3.36^2+\frac{0.691244\cos^{-1}(-1)\, 3.36^2}{-1+3\times 0.5773^2}+\frac{2\cos^{-1}(-1)\, 3.36^2}{5(-1+3\times 0.5773^2)^3}\right)\right)\wedge(1/4)$$

$$\frac{1}{8}\left(\left(2\pi\, 3.36^2+\frac{(4(3-1)\pi\, 3.36^2)\,0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\, 3.36^2}{5(3\times 0.5773^2-1)^3}\right)(-0.7166597856940000)\right)\wedge(1/4)-5-4+34-\frac{1}{4}=25-\frac{1}{4}+\frac{1}{8}\left(-0.7166597856940000\left(4E(0)\, 3.36^2+\frac{1.38249\,E(0)\, 3.36^2}{-1+3\times 0.5773^2}+\frac{4E(0)\, 3.36^2}{5(-1+3\times 0.5773^2)^3}\right)\right)\wedge(1/4)$$

Series representations:

$$\frac{1}{8}\left(\left(2\pi\, 3.36^2+\frac{(4(3-1)\pi\, 3.36^2)\,0.0864055}{3\times 0.5773^2-1}+\frac{2\pi\, 3.36^2}{5(3\times 0.5773^2-1)^3}\right)(-0.7166597856940000)\right)\wedge(1/4)-5-4+34-\frac{1}{4}=\frac{99}{4}+156.417\sqrt[4]{\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}}$$

$$\frac{1}{8}\left(\left(2\pi\, 3.36^2 + \frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5(3\times 0.5773^2 - 1)^3}\right.\right.$$
$$\left.(-0.7166597856940000)\right)\,\hat{}\,(1/4) -$$
$$5 - 4 + 34 - \frac{1}{4} = 24.75 + 131.53 \sqrt[4]{-1 + \sum_{k=1}^{\infty} \frac{2^k}{\binom{2k}{k}}}$$

$$\frac{1}{8}\left(\left(2\pi\, 3.36^2 + \frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5(3\times 0.5773^2 - 1)^3}\right.\right.$$
$$\left.(-0.7166597856940000)\right)\,\hat{}\,(1/4) -$$
$$5 - 4 + 34 - \frac{1}{4} = \frac{99}{4} + 110.603 \sqrt[4]{\sum_{k=0}^{\infty} \frac{2^{-k}(-6 + 50k)}{\binom{3k}{k}}}$$

Integral representations:

$$\frac{1}{8}\left(\left(2\pi\, 3.36^2 + \frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5(3\times 0.5773^2 - 1)^3}\right.\right.$$
$$\left.(-0.7166597856940000)\right)\,\hat{}\,(1/4) -$$
$$5 - 4 + 34 - \frac{1}{4} = \frac{99}{4} + 131.53 \sqrt[4]{\int_0^{\infty} \frac{1}{1 + t^2}\, dt}$$

$$\frac{1}{8}\left(\left(2\pi\, 3.36^2 + \frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5(3\times 0.5773^2 - 1)^3}\right.\right.$$
$$\left.(-0.7166597856940000)\right)\,\hat{}\,(1/4) -$$
$$5 - 4 + 34 - \frac{1}{4} = \frac{99}{4} + 156.417 \sqrt[4]{\int_0^{1} \sqrt{1 - t^2}\, dt}$$

$$\frac{1}{8}\left(\left(2\pi\, 3.36^2 + \frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5(3\times 0.5773^2 - 1)^3}\right.\right.$$
$$\left.(-0.7166597856940000)\right)\,\hat{}\,(1/4) -$$
$$5 - 4 + 34 - \frac{1}{4} = \frac{99}{4} + 131.53 \sqrt[4]{\int_0^{\infty} \frac{\sin(t)}{t}\, dt}$$

We have also:

(((([(((2Pi*3.36^2+((4Pi*3.36^2(3-1)*1/(3*0.5773^2-1)))*0.0864055+(2Pi*3.36^2)/(5(3*0.5773^2-1)^3))))]*(-0.716659785694)))))^1/3 - 843-123-7

Input interpretation:

$$\left(\left(2\pi\times3.36^2+\left(4\pi\times3.36^2\left((3-1)\times\frac{1}{3\times0.5773^2-1}\right)\right)\times0.0864055+\frac{2\pi\times3.36^2}{5(3\times0.5773^2-1)^3}\right)\times(-0.716659785694)\right)^\wedge(1/3)-843-123-7$$

Result:

11468.1...

11468.1 ≈ 11468 (Ramanujan taxicab number)

Alternative representations:

$$\left(\left(2\pi\,3.36^2+\frac{(4(3-1)\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\pi\,3.36^2}{5(3\times0.5773^2-1)^3}\right)(-1)\,0.7166597856940000\right)^\wedge(1/3)-843-123-7=-973+\left(-0.7166597856940000\left(360^\circ\,3.36^2+\frac{124.424^\circ\,3.36^2}{-1+3\times0.5773^2}+\frac{360^\circ\,3.36^2}{5(-1+3\times0.5773^2)^3}\right)\right)^\wedge(1/3)$$

$$\left(\left(2\pi\,3.36^2+\frac{(4(3-1)\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\pi\,3.36^2}{5(3\times0.5773^2-1)^3}\right)(-1)\,0.7166597856940000\right)^\wedge(1/3)-843-123-7=-973+\left(-0.7166597856940000\left(2\cos^{-1}(-1)\,3.36^2+\frac{0.691244\cos^{-1}(-1)\,3.36^2}{-1+3\times0.5773^2}+\frac{2\cos^{-1}(-1)\,3.36^2}{5(-1+3\times0.5773^2)^3}\right)\right)^\wedge(1/3)$$

$$\left(\left(2\,\pi\,3.36^2+\frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\,\pi\,3.36^2}{5\,(3\times0.5773^2-1)^3}\right)(-1)\,0.7166597856940000\right)\wedge(1/3)-843-123-7=-973+\left(-0.7166597856940000\left(4\,E(0)\,3.36^2+\frac{1.38249\,E(0)\,3.36^2}{-1+3\times0.5773^2}+\frac{4\,E(0)\,3.36^2}{5\,(-1+3\times0.5773^2)^3}\right)\right)\wedge(1/3)$$

Series representations:

$$\left(\left(2\,\pi\,3.36^2+\frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\,\pi\,3.36^2}{5\,(3\times0.5773^2-1)^3}\right)(-1)\,0.7166597856940000\right)\wedge(1/3)-843-123-7=-973+13\,484.4\sqrt[3]{\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2\,k}}$$

$$\left(\left(2\,\pi\,3.36^2+\frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\,\pi\,3.36^2}{5\,(3\times0.5773^2-1)^3}\right)(-1)\,0.7166597856940000\right)\wedge(1/3)-843-123-7=-973.+10\,702.5\sqrt[3]{-1+\sum_{k=1}^{\infty}\frac{2^k}{\binom{2\,k}{k}}}$$

$$\left(\left(2\,\pi\,3.36^2+\frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times0.5773^2-1}+\frac{2\,\pi\,3.36^2}{5\,(3\times0.5773^2-1)^3}\right)(-1)\,0.7166597856940000\right)\wedge(1/3)-843-123-7=-973+8494.61\sqrt[3]{\sum_{k=0}^{\infty}\frac{2^{-k}\,(-6+50\,k)}{\binom{3\,k}{k}}}$$

Integral representations:

$$\left(\left(2\pi\, 3.36^2 + \frac{(4\,(3-1)\,\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5\,(3\times 0.5773^2 - 1)^3}\right)(-1)\, 0.7166597856940000\right)\hat{}\,(1/3) - 843 - 123 - 7 = -973 + 10\,702.5\sqrt[3]{\int_0^\infty \frac{1}{1+t^2}\,dt}$$

$$\left(\left(2\pi\, 3.36^2 + \frac{(4\,(3-1)\,\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5\,(3\times 0.5773^2 - 1)^3}\right)(-1)\, 0.7166597856940000\right)\hat{}\,(1/3) - 843 - 123 - 7 = -973 + 13\,484.4\sqrt[3]{\int_0^1 \sqrt{1-t^2}\,dt}$$

$$\left(\left(2\pi\, 3.36^2 + \frac{(4\,(3-1)\,\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5\,(3\times 0.5773^2 - 1)^3}\right)(-1)\, 0.7166597856940000\right)\hat{}\,(1/3) - 843 - 123 - 7 = -973 + 10\,702.5\sqrt[3]{\int_0^\infty \frac{\sin(t)}{t}\,dt}$$

(((([(((2Pi*3.36^2+((4Pi*3.36^2(3-1)*1/(3*0.5773^2-1)))*0.0864055+(2Pi*3.36^2)/(5(3*0.5773^2-1)^3))))]*(-0.716659785694)))))^1/3 - 843-123-322+8

Input interpretation:

$$\left(\left(2\pi\times 3.36^2 + \left(4\pi\times 3.36^2\left((3-1)\times\frac{1}{3\times 0.5773^2 - 1}\right)\right)\times 0.0864055 + \frac{2\pi\times 3.36^2}{5\,(3\times 0.5773^2 - 1)^3}\right)\times(-0.716659785694)\right)\hat{}\,(1/3) - 843 - 123 - 322 + 8$$

Result:

11161.1...

11161.1… ≈ 11161 (Ramanujan taxicab number)

Alternative representations:

$$\left(\left(2\pi\, 3.36^2 + \frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5(3\times 0.5773^2-1)^3}\right)(-1)\, 0.7166597856940000\right)\hat{}\,(1/3) - 843 - 123 - 322 + 8 = -1280 + \left(-0.7166597856940000\left(360\,{}^\circ\, 3.36^2 + \frac{124.424\,{}^\circ\, 3.36^2}{-1+3\times 0.5773^2} + \frac{360\,{}^\circ\, 3.36^2}{5(-1+3\times 0.5773^2)^3}\right)\right)\hat{}\,(1/3)$$

$$\left(\left(2\pi\, 3.36^2 + \frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5(3\times 0.5773^2-1)^3}\right)(-1)\, 0.7166597856940000\right)\hat{}\,(1/3) - 843 - 123 - 322 + 8 = -1280 + \left(-0.7166597856940000\left(2\cos^{-1}(-1)\, 3.36^2 + \frac{0.691244\cos^{-1}(-1)\, 3.36^2}{-1+3\times 0.5773^2} + \frac{2\cos^{-1}(-1)\, 3.36^2}{5(-1+3\times 0.5773^2)^3}\right)\right)\hat{}\,(1/3)$$

$$\left(\left(2\pi\, 3.36^2 + \frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5(3\times 0.5773^2-1)^3}\right)(-1)\, 0.7166597856940000\right)\hat{}\,(1/3) - 843 - 123 - 322 + 8 = -1280 + \left(-0.7166597856940000\left(4E(0)\, 3.36^2 + \frac{1.38249\, E(0)\, 3.36^2}{-1+3\times 0.5773^2} + \frac{4E(0)\, 3.36^2}{5(-1+3\times 0.5773^2)^3}\right)\right)\hat{}\,(1/3)$$

Series representations:

$$\left(\left(2\pi\, 3.36^2 + \frac{(4(3-1)\pi\, 3.36^2)\, 0.0864055}{3\times 0.5773^2 - 1} + \frac{2\pi\, 3.36^2}{5(3\times 0.5773^2-1)^3}\right)(-1)\, 0.7166597856940000\right)\hat{}\,(1/3) - 843 - 123 - 322 + 8 = -1280 + 13484.4\sqrt[3]{\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}}$$

$$\left(\left(2\,\pi\,3.36^2 + \frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times 0.5773^2 - 1} + \frac{2\,\pi\,3.36^2}{5\,(3\times 0.5773^2 - 1)^3}\right)\right.$$
$$\left.(-1)\,0.7166597856940000\right)\text{^}(1/3) -$$
$$843 - 123 - 322 + 8 = -1280 + 10\,702.5\,\sqrt[3]{-1 + \sum_{k=1}^{\infty} \frac{2^k}{\binom{2k}{k}}}$$

$$\left(\left(2\,\pi\,3.36^2 + \frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times 0.5773^2 - 1} + \frac{2\,\pi\,3.36^2}{5\,(3\times 0.5773^2 - 1)^3}\right)\right.$$
$$\left.(-1)\,0.7166597856940000\right)\text{^}(1/3) -$$
$$843 - 123 - 322 + 8 = -1280 + 8494.61\,\sqrt[3]{\sum_{k=0}^{\infty} \frac{2^{-k}\,(-6 + 50\,k)}{\binom{3k}{k}}}$$

Integral representations:

$$\left(\left(2\,\pi\,3.36^2 + \frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times 0.5773^2 - 1} + \frac{2\,\pi\,3.36^2}{5\,(3\times 0.5773^2 - 1)^3}\right)\right.$$
$$\left.(-1)\,0.7166597856940000\right)\text{^}(1/3) -$$
$$843 - 123 - 322 + 8 = -1280 + 10\,702.5\,\sqrt[3]{\int_0^{\infty} \frac{1}{1+t^2}\,dt}$$

$$\left(\left(2\,\pi\,3.36^2 + \frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times 0.5773^2 - 1} + \frac{2\,\pi\,3.36^2}{5\,(3\times 0.5773^2 - 1)^3}\right)\right.$$
$$\left.(-1)\,0.7166597856940000\right)\text{^}(1/3) -$$
$$843 - 123 - 322 + 8 = -1280 + 13\,484.4\,\sqrt[3]{\int_0^{1} \sqrt{1-t^2}\,dt}$$

$$\left(\left(2\,\pi\,3.36^2 + \frac{(4\,(3-1)\,\pi\,3.36^2)\,0.0864055}{3\times 0.5773^2 - 1} + \frac{2\,\pi\,3.36^2}{5\,(3\times 0.5773^2 - 1)^3}\right)\right.$$
$$\left.(-1)\,0.7166597856940000\right)\text{^}(1/3) -$$
$$843 - 123 - 322 + 8 = -1280 + 10\,702.5\,\sqrt[3]{\int_0^{\infty} \frac{\sin(t)}{t}\,dt}$$

Now, from:

One-loop corrections to η/s in AdS4/CFT3
Ibere Kuntz, Roldao da Rocha - arXiv:1909.10121v1 [hep-th] 23 Sep 2019

	c_1	c_2	c_3
real scalar	$5(6\xi-1)^2/(11520\pi^2)$	$-2/(11520\pi^2)$	$2/(11520\pi^2)$
Dirac spinor	$-5/(11520\pi^2)$	$8/(11520\pi^2)$	$7/(11520\pi^2)$
vector	$-50/(11520\pi^2)$	$176/(11520\pi^2)$	$-26/(11520\pi^2)$
graviton	$430/(11520\pi^2)$	$-1444/(11520\pi^2)$	$424/(11520\pi^2)$

Table 1: Values of the coefficients c_i for each spin (ξ is the non-minimal coupling coefficient of scalars to gravity) extracted from [39]. Each value must be multiplied by the number of fields of its category present in the action $S[\Phi]$. The total value of each coefficient is then given by summing up all contributions.

$$m^2 = -2\Lambda$$

$$\beta = \frac{4\pi b^2 r_+}{b^2 + 3r_+^2}.$$

$r^2_+ = 1$; $b^2 = 2$

$c_1 = 430/(11520\text{Pi}^\wedge 2)$ $c_2 = -1444/(11520\text{Pi}^\wedge 2)$ $c_3 = 424/(11520\text{Pi}^\wedge 2)$

(Note that 11520 = 11468 + 52, where 52 = 34 + 21 – 3)

The entropy is finally given by

$$\begin{aligned} S &= (\beta\partial_\beta - 1)\Delta\Gamma \\ &= \frac{A_+}{4} + \frac{8\pi(12c_1 + 3c_2 + 2c_3)A_+}{b^2}\log\left(\frac{M^2}{m^2}\right) + \Xi\left(\frac{r_+}{b}\right), \end{aligned} \tag{41}$$

where $A_+ = 4\pi r_+^2$ is the horizon area and

$$\Xi\left(\frac{r_+}{b}\right) = 64\pi^2(12c_1 + 3c_2 + 2c_3)\frac{r_+^2}{b^2}\frac{(1 - r_+^2/b^2)(1 + 3r_+^2/b^2)}{(1 + r_+^2/b^2)(1 - 3r_+^2/b^2)}. \tag{42}$$

$$\Xi\left(\frac{r_+}{b}\right) = 64\pi^2(12c_1 + 3c_2 + 2c_3)\frac{r_+^2}{b^2}\frac{(1 - r_+^2/b^2)(1 + 3r_+^2/b^2)}{(1 + r_+^2/b^2)(1 - 3r_+^2/b^2)}.$$

$$\begin{aligned} S &= (\beta\partial_\beta - 1)\Delta\Gamma \\ &= \frac{A_+}{4} + \frac{8\pi(12c_1 + 3c_2 + 2c_3)A_+}{b^2}\log\left(\frac{M^2}{m^2}\right) + \Xi\left(\frac{r_+}{b}\right), \end{aligned}$$

64Pi^2(((12*430/(11520Pi^2)+3*-1444/(11520Pi^2)+2*424/(11520Pi^2)))*1/2*(((1-1/2)(1+3/2))/((1+1/2)(1-3/2))))

Input:

$$64\pi^2\left(\left(12\times\frac{430}{11520\pi^2} + 3\left(-\frac{1444}{11520\pi^2}\right) + 2\times\frac{424}{11520\pi^2}\right)\times\frac{1}{2}\times\frac{\left(1-\frac{1}{2}\right)\left(1+\frac{3}{2}\right)}{\left(1+\frac{1}{2}\right)\left(1-\frac{3}{2}\right)}\right)$$

Exact result:

$$-\frac{419}{54}$$

Decimal approximation:

−7.759259259259259259259259259259259259259259259259259259259259259259...

-7.75925…

Alternative representations:

$$\frac{(64\pi^2)\left(\frac{12\times 430}{11520\pi^2}+\frac{3(-1444)}{11520\pi^2}+\frac{2\times 424}{11520\pi^2}\right)\left(\left(1-\frac{1}{2}\right)\left(1+\frac{3}{2}\right)\right)}{2\left(\left(1+\frac{1}{2}\right)\left(1-\frac{3}{2}\right)\right)} = -\frac{402240\,\zeta(2)}{\frac{3(69120\,\zeta(2))}{4}}$$

$$\frac{(64\pi^2)\left(\frac{12\times 430}{11520\pi^2}+\frac{3(-1444)}{11520\pi^2}+\frac{2\times 424}{11520\pi^2}\right)\left(\left(1-\frac{1}{2}\right)\left(1+\frac{3}{2}\right)\right)}{2\left(\left(1+\frac{1}{2}\right)\left(1-\frac{3}{2}\right)\right)} = -\frac{67040\,(180\,°)^2}{\frac{3}{4}\left(11520\,(180\,°)^2\right)}$$

$$\frac{(64\pi^2)\left(\frac{12\times 430}{11520\pi^2}+\frac{3(-1444)}{11520\pi^2}+\frac{2\times 424}{11520\pi^2}\right)\left(\left(1-\frac{1}{2}\right)\left(1+\frac{3}{2}\right)\right)}{2\left(\left(1+\frac{1}{2}\right)\left(1-\frac{3}{2}\right)\right)} = -\frac{67040\cos^{-1}(-1)^2}{\frac{3}{4}\left(11520\cos^{-1}(-1)^2\right)}$$

Or, for r = 1.94973e+13

$$\Xi\left(\frac{r_+}{b}\right) = 64\pi^2(12c_1+3c_2+2c_3)\frac{r_+^2}{b^2}\frac{(1-r_+^2/b^2)(1+3r_+^2/b^2)}{(1+r_+^2/b^2)(1-3r_+^2/b^2)}.$$

64Pi^2(((12*430/(11520Pi^2)+3*-1444/(11520Pi^2)+2*424/(11520Pi^2)))*(1.94973e+13)^2/2*(((1-1.94973e+13^2/2)(1+3*1.94973e+13^2/2))/((1+1.94973e+13^2/2)(1-3*1.94973e+13^2/2))))

Input interpretation:

$$64\pi^2\left(\left(12\times\frac{430}{11520\pi^2}+3\left(-\frac{1444}{11520\pi^2}\right)+2\times\frac{424}{11520\pi^2}\right)\left(\frac{1}{2}(1.94973\times 10^{13})^2\right)\times\frac{\left(1-\frac{1}{2}(1.94973\times 10^{13})^2\right)\left(1+3\left(\frac{1}{2}(1.94973\times 10^{13})^2\right)\right)}{\left(1+\frac{1}{2}(1.94973\times 10^{13})^2\right)\left(1-3\left(\frac{1}{2}(1.94973\times 10^{13})^2\right)\right)}\right)$$

Result:

$1.769784803938999999999999998758518518518518518518518518518518518518518...\times 10^{27}$

$1.7697848039...*10^{27}$

We have that:

((12*430/(11520Pi^2)+3*-1444/(11520Pi^2)+2*424/(11520Pi^2)))

Input:

$$12\times\frac{430}{11520\,\pi^2}+3\left(-\frac{1444}{11520\,\pi^2}\right)+2\times\frac{424}{11520\,\pi^2}$$

Result:

$$\frac{419}{2880\,\pi^2}$$

Decimal approximation:

0.014740824981298446609369963571137458576710530065163647210...

0.014740824981….

Property:

$\frac{419}{2880\,\pi^2}$ is a transcendental number

Alternative representations:

$$\frac{12\times430}{11520\,\pi^2}+\frac{3\,(-1444)}{11520\,\pi^2}+\frac{2\times424}{11520\,\pi^2}=\frac{1676}{11520\,(180\,°)^2}$$

$$\frac{12\times430}{11520\,\pi^2}+\frac{3\,(-1444)}{11520\,\pi^2}+\frac{2\times424}{11520\,\pi^2}=\frac{1676}{69120\,\zeta(2)}$$

$$\frac{12\times430}{11520\,\pi^2}+\frac{3\,(-1444)}{11520\,\pi^2}+\frac{2\times424}{11520\,\pi^2}=\frac{1676}{11520\,(-i\log(-1))^2}$$

Series representations:

$$\frac{12\times430}{11520\,\pi^2}+\frac{3\,(-1444)}{11520\,\pi^2}+\frac{2\times424}{11520\,\pi^2}=\frac{419}{46080\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^2}$$

$$\frac{12\times430}{11520\,\pi^2}+\frac{3\,(-1444)}{11520\,\pi^2}+\frac{2\times424}{11520\,\pi^2}=\frac{419}{46080\left(\sum_{k=0}^{\infty}\frac{(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)}{1+2k}\right)^2}$$

$$\frac{12\times430}{11520\,\pi^2}+\frac{3\,(-1444)}{11520\,\pi^2}+\frac{2\times424}{11520\,\pi^2}=\frac{419}{2880\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^2}$$

Integral representations:

$$\frac{12\times 430}{11520\,\pi^2}+\frac{3\,(-1444)}{11520\,\pi^2}+\frac{2\times 424}{11520\,\pi^2}=\frac{419}{46\,080\left(\int_0^1\sqrt{1-t^2}\,dt\right)^2}$$

$$\frac{12\times 430}{11520\,\pi^2}+\frac{3\,(-1444)}{11520\,\pi^2}+\frac{2\times 424}{11520\,\pi^2}=\frac{419}{11520\left(\int_0^\infty\frac{1}{1+t^2}\,dt\right)^2}$$

$$\frac{12\times 430}{11520\,\pi^2}+\frac{3\,(-1444)}{11520\,\pi^2}+\frac{2\times 424}{11520\,\pi^2}=\frac{419}{11520\left(\int_0^1\frac{1}{\sqrt{1-t^2}}\,dt\right)^2}$$

From

$$\begin{aligned}S&=(\beta\partial_\beta-1)\Delta\Gamma\\&=\frac{A_+}{4}+\frac{8\pi(12c_1+3c_2+2c_3)A_+}{b^2}\log\left(\frac{M^2}{m^2}\right)+\Xi\left(\frac{r_+}{b}\right),\end{aligned}$$

We obtain:

4Pi/4+1/2(((8Pi*((419/(2880 π^2)))*4Pi))) ln ((1.312806e+40^2)/(-2*1.1056e-52))-7.7592

Input interpretation:

$$4\times\frac{\pi}{4}+\frac{1}{2}\left(8\,\pi\times\frac{419}{2880\,\pi^2}\times 4\,\pi\right)\log\left(-\frac{(1.312806\times 10^{40})^2}{2\times 1.1056\times 10^{-52}}\right)-7.7592$$

log(x) is the natural logarithm

Result:

702.3100... +
7.312930... i

Polar coordinates:

$r = 702.348$ (radius), $\theta = 0.596581°$ (angle)

702.348

Or for r = 1.94973e+13:

$$S = (\beta\partial_\beta - 1)\Delta\Gamma$$
$$= \frac{A_+}{4} + \frac{8\pi(12c_1 + 3c_2 + 2c_3)A_+}{b^2}\log\left(\frac{M^2}{m^2}\right) + \Xi\left(\frac{r_+}{b}\right),$$

((4Pi*(1.94973e+13)^2))/4+1/2(((8Pi*((419/(2880 π^2)))*4Pi*(1.94973e+13)^2)))) ln ((1.312806e+40^2)/(-2*1.1056e-52))+ 1.7697848039389 × 10^27

Input interpretation:

$$\frac{1}{4}\left(4\pi\left(1.94973\times10^{13}\right)^2\right)+ \frac{1}{2}\left(8\pi\times\frac{419}{2880\pi^2}\times4\left(\pi\left(1.94973\times10^{13}\right)^2\right)\right)\log\left(-\frac{\left(1.312806\times10^{40}\right)^2}{2\times1.1056\times10^{-52}}\right)+ 1.7697848039389\times10^{27}$$

log(x) is the natural logarithm

Result:

$2.71699\ldots\times10^{29} +$
$2.77997\ldots\times10^{27}\,i$

Polar coordinates:

$r = 2.71713\times10^{29}$ (radius), $\theta = 0.586219°$ (angle)

$2.71713*10^{29}$

(((((4Pi*(1.94973e+13)^2))/4+1/2(((8Pi*((419/(2880 π^2)))*4Pi*(1.94973e+13)^2)))) ln ((1.312806e+40^2)/(-2*1.1056e-52))+ 1.7697848039389e+27))^1/11-13-golden ratio

Input interpretation:

$$\left(\left(\frac{1}{4}\left(4\pi\left(1.94973\times10^{13}\right)^2\right)+\frac{1}{2}\left(8\pi\times\frac{419}{2880\pi^2}\times4\left(\pi\left(1.94973\times10^{13}\right)^2\right)\right)\right)\log\left(-\frac{\left(1.312806\times10^{40}\right)^2}{2\times1.1056\times10^{-52}}\right)+1.7697848039389\times10^{27}\right)\hat{}\,(1/11)-13-\phi$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

$497.338\ldots +$
$0.480093\ldots\,i$

Polar coordinates:

$r = 497.338$ (radius), $\theta = 0.0553091°$ (angle)

497.338 result practically equal to the rest mass of Kaon meson 497.614

(((((4Pi*(1.94973e+13)^2))/4+1/2(((8Pi*((419/(2880 π^2)))*4Pi*(1.94973e+13)^2)))) ln ((1.312806e+40^2)/(-2*1.1056e-52))+ 1.7697848039389e+27))^1/14+5

Input interpretation:

$$\left(\left(\frac{1}{4}\left(4\pi\left(1.94973\times10^{13}\right)^2\right)+\frac{1}{2}\left(8\pi\times\frac{419}{2880\pi^2}\times4\left(\pi\left(1.94973\times10^{13}\right)^2\right)\right)\right)\log\left(-\frac{\left(1.312806\times10^{40}\right)^2}{2\times1.1056\times10^{-52}}\right)+1.7697848039389\times10^{27}\right)\hat{}\,(1/14)+5$$

log(x) is the natural logarithm

Result:

139.488... +
0.0990924... i

Polar coordinates:

$r = 139.488$ (radius), $\theta = 0.040703°$ (angle)

139.488 result practically equal to the rest mass of Pion meson 139.57 MeV

(((((4Pi*(1.94973e+13)^2))/4+1/2(((8Pi*((419/(2880 π^2)))*4Pi*(1.94973e+13)^2)))) ln ((1.312806e+40^2)/(-2*1.1056e-52))+ 1.7697848039389e+27))^1/14-11+golden ratio

Input interpretation:

$$\left(\left(\frac{1}{4}\left(4\pi\left(1.94973\times10^{13}\right)^2\right)+\frac{1}{2}\left(8\pi\times\frac{419}{2880\pi^2}\times4\left(\pi\left(1.94973\times10^{13}\right)^2\right)\right)\right)\log\left(-\frac{\left(1.312806\times10^{40}\right)^2}{2\times1.1056\times10^{-52}}\right)+1.7697848039389\times10^{27}\right)\hat{}\,(1/14)-11+\phi$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

125.106... +
0.0990924... i

Polar coordinates:

$r = 125.106$ (radius), $\theta = 0.0453822°$ (angle)

125.106 result very near to the dilaton mass calculated as a type of Higgs boson: 125 GeV for T = 0 and to the Higgs boson mass 125.18 GeV

(((((4Pi*(1.94973e+13)^2))/4+1/2(((8Pi*((419/(2880 π^2)))*4Pi*(1.94973e+13)^2)))) ln ((1.312806e+40^2)/(-2*1.1056e-52))+ 1.7697848039389e+27))^1/9-322+golden ratio^2

Input interpretation:

$$\left(\left(\frac{1}{4}\left(4\pi\left(1.94973\times 10^{13}\right)^2\right)+\frac{1}{2}\left(8\pi\times\frac{419}{2880\,\pi^2}\times 4\left(\pi\left(1.94973\times 10^{13}\right)^2\right)\right)\right) \log\left(-\frac{\left(1.312806\times 10^{40}\right)^2}{2\times 1.1056\times 10^{-52}}\right)+1.7697848039389\times 10^{27}\right)\text{^}(1/9)-322+\phi^2$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

1728.40... +
2.34708... i

Polar coordinates:

$r = 1728.4$ (radius), $\theta = 0.0778045°$ (angle)

1728.4

This result is very near to the mass of candidate glueball $f_0(1710)$ meson. Furthermore, 1728 occurs in the algebraic formula for the j-invariant of an elliptic curve. As a consequence, it is sometimes called a Zagier as a pun on the Gross–Zagier theorem. The number 1728 is one less than the Hardy–Ramanujan number 1729

1/Pi*ln(((((4Pi*(1.94973e+13)^2))/4+1/2(((8Pi*((419/(2880 π^2)))*4Pi*(1.94973e+13)^2)))) ln ((1.312806e+40^2)/(-2*1.1056e-52))+ 1.7697848039389e+27))

Input interpretation:

$$\frac{1}{\pi}\log\left(\left(\frac{1}{4}\left(4\pi\left(1.94973\times10^{13}\right)^2\right)+\frac{1}{2}\left(8\pi\times\frac{419}{2880\pi^2}\times4\left(\pi\left(1.94973\times10^{13}\right)^2\right)\right)\right)\log\left(-\frac{\left(1.312806\times10^{40}\right)^2}{2\times1.1056\times10^{-52}}\right)+1.7697848039389\times10^{27}\right)$$

log(x) is the natural logarithm

Result:

21.84262... +
0.003283490... i

Polar coordinates:

$r = 21.8426$ (radius), $\theta = 0.00861298°$ (angle)

21.8426 result very near to the black hole entropy 21.7656

1/e*ln(((((4Pi*(1.94973e+13)^2))/4+1/2(((8Pi*((419/(2880 π^2)))*4Pi*(1.94973e+13)^2)))) ln ((1.312806e+40^2)/(-2*1.1056e-52))+ 1.7697848039389e+27))

Input interpretation:

$$\frac{1}{e}\log\left(\left(\frac{1}{4}\left(4\pi\left(1.94973\times10^{13}\right)^2\right)+\frac{1}{2}\left(8\pi\times\frac{419}{2880\pi^2}\times4\left(\pi\left(1.94973\times10^{13}\right)^2\right)\right)\right)\log\left(-\frac{\left(1.312806\times10^{40}\right)^2}{2\times1.1056\times10^{-52}}\right)+1.7697848039389\times10^{27}\right)$$

log(x) is the natural logarithm

Result:

25.24412... +
0.003794819... i

Polar coordinates:

$r = 25.2441$ (radius), $\theta = 0.00861298°$ (angle)

25.2441 result very near to the black hole entropy 25.1327

Now, we have:

$$\Delta\Gamma^{(1)} = \frac{96\pi^2}{3}(12c_1 + 3c_2 + 2c_3)\left[\log\left(\frac{r_+^2}{m^2}\right) + 2\log\left(1 + \frac{r_+^2}{b^2}\right)\right]\frac{r_+^2(b^2 - r_+^2)}{b^2(b^2 + 3r_+^2)}. \qquad (40)$$

(96Pi^2)/3 * (419/(2880 π^2)) [(((ln((1.94973e+13)^2 / (-2*1.1056e-52))+2ln(1+((1.94973e+13)^2)/2))))] (((1.94973e+13)^2(2-(1.94973e+13)^2)))/(((2(2+3*(1.94973e+13)^2))))

Input interpretation:

$$\left(\left(\frac{1}{3}(96\pi^2)\right)\times\frac{419}{2880\pi^2}\right)\left(\log\left(-\frac{(1.94973\times10^{13})^2}{2\times1.1056\times10^{-52}}\right)+2\log\left(1+\frac{1}{2}(1.94973\times10^{13})^2\right)\right)\times\frac{(1.94973\times10^{13})^2(2-(1.94973\times10^{13})^2)}{2(2+3(1.94973\times10^{13})^2)}$$

log(x) is the natural logarithm

Result:

$-8.88321\ldots\times10^{28} - 9.26657\ldots\times10^{26}\,i$

Polar coordinates:

$r = 8.88369\times10^{28}$ (radius), $\theta = -179.402°$ (angle)

$8.88369*10^{28}$

-3+((((((96Pi^2)/3 * (419/(2880 π^2)) [(((ln((1.94973e+13)^2 / (-2*1.1056e-52))+2ln(1+((1.94973e+13)^2)/2))))] (((1.94973e+13)^2(2-(1.94973e+13)^2)))/(((2(2+3*(1.94973e+13)^2)))))))))^1/10

Input interpretation:

$$-3+\left(\left(\left(\frac{1}{3}(96\pi^2)\right)\times\frac{419}{2880\pi^2}\right)\left(\log\left(-\frac{(1.94973\times10^{13})^2}{2\times1.1056\times10^{-52}}\right)+2\log\left(1+\frac{1}{2}(1.94973\times10^{13})^2\right)\right)\times\frac{(1.94973\times10^{13})^2(2-(1.94973\times10^{13})^2)}{2(2+3(1.94973\times10^{13})^2)}\right)^{\wedge}(1/10)$$

log(x) is the natural logarithm

Result:

$743.814\ldots - 241.794\ldots\,i$

Polar coordinates:

$r = 782.128$ (radius), $\theta = -18.0079°$ (angle)

782.128 result practically equal to the rest mass of Omega meson 782.65

1/e ln[((((((((((((96Pi^2)/3 * (419/(2880 π^2)) (((ln((1.94973e+13)^2 / (-2*1.1056e-52))+2ln(1+((1.94973e+13)^2)/2))))* (((1.94973e+13)^2(2-(1.94973e+13)^2)))/(((2(2+3*(1.94973e+13)^2)))))))))))))]

Input interpretation:

$$\frac{1}{e}\log\left(\left(\frac{1}{3}(96\pi^2)\right)\times\frac{419}{2880\pi^2}\left(\left(\log\left(-\frac{(1.94973\times10^{13})^2}{2\times1.1056\times10^{-52}}\right)+2\log\left(1+\frac{1}{2}(1.94973\times10^{13})^2\right)\right)\times\frac{(1.94973\times10^{13})^2\left(2-(1.94973\times10^{13})^2\right)}{2\left(2+3(1.94973\times10^{13})^2\right)}\right)\right)$$

$\log(x)$ is the natural logarithm

Result:

$24.5216\ldots - 1.15189\ldots i$

Polar coordinates:

$r = 24.5486$ (radius), $\theta = -2.68946°$ (angle)

24.5486 result very near to the black hole entropy 24.4233

2 ln[((((((((96Pi^2)/3 * (419/(2880 π^2)) (((ln((1.94973e+13)^2 / (-2*1.1056e-52))+2ln(1+((1.94973e+13)^2)/2))))* (((1.94973e+13)^2(2-(1.94973e+13)^2)))/(((2(2+3*(1.94973e+13)^2))))))))))]+golden ratio

Input interpretation:

$$2\log\left(\left(\frac{1}{3}(96\pi^2)\right)\times\frac{419}{2880\pi^2}\left(\left(\log\left(-\frac{(1.94973\times10^{13})^2}{2\times1.1056\times10^{-52}}\right)+2\log\left(1+\frac{1}{2}(1.94973\times10^{13})^2\right)\right)\times\frac{(1.94973\times10^{13})^2\left(2-(1.94973\times10^{13})^2\right)}{2\left(2+3(1.94973\times10^{13})^2\right)}\right)\right)+\phi$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

134.931... −
6.26232... i

Polar coordinates:

$r = 135.076$ (radius), $\theta = -2.65726°$ (angle)

135.076 ≈ 135 (Ramanujan taxicab number)

2 ln[(((((((96Pi^2)/3 * (419/(2880 π^2)) (((ln((1.94973e+13)^2 / (-2*1.1056e-52))+2ln(1+((1.94973e+13)^2)/2))))* (((1.94973e+13)^2(2-(1.94973e+13)^2)))/(((2(2+3*(1.94973e+13)^2))))))))))]+4+0.618034

Input interpretation:

$$2 \log\left(\left(\frac{1}{3}\left(96\,\pi^2\right)\right) \times \frac{419}{2880\,\pi^2} \left(\left(\log\left(-\frac{(1.94973 \times 10^{13})^2}{2 \times 1.1056 \times 10^{-52}}\right) + 2 \log\left(1 + \frac{1}{2}\left(1.94973 \times 10^{13}\right)^2\right)\right) \times \frac{(1.94973 \times 10^{13})^2 \left(2 - (1.94973 \times 10^{13})^2\right)}{2\left(2 + 3\left(1.94973 \times 10^{13}\right)^2\right)}\right)\right) + 4 + 0.618034$$

log(x) is the natural logarithm

Result:

137.931... −
6.26232... i

Polar coordinates:

$r = 138.073$ (radius), $\theta = -2.59954°$ (angle)

138.073 ≈ 138 (Ramanujan taxicab number)

2 ln[((((96Pi^2)/3 * (419/(2880 π^2)) (((ln((1.94973e+13)^2 / (-2*1.1056e-52))+2ln(1+((1.94973e+13)^2)/2))))* (((1.94973e+13)^2(2-(1.94973e+13)^2)))/(((2(2+3*(1.94973e+13)^2)))))))]+4+34+0.618034

Input interpretation:

$$2\log\left(\left(\frac{1}{3}\left(96\pi^2\right)\right)\times\frac{419}{2880\pi^2}\left(\left(\log\left(-\frac{\left(1.94973\times10^{13}\right)^2}{2\times1.1056\times10^{-52}}\right)+2\log\left(1+\frac{1}{2}\left(1.94973\times10^{13}\right)^2\right)\right)\times\frac{\left(1.94973\times10^{13}\right)^2\left(2-\left(1.94973\times10^{13}\right)^2\right)}{2\left(2+3\left(1.94973\times10^{13}\right)^2\right)}\right)\right)+4+34+0.618034$$

log(x) is the natural logarithm

Result:

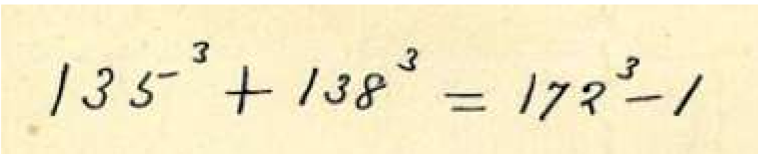
171.931... −
6.26232... i

Polar coordinates:

$r = 172.045$ (radius), $\theta = -2.08599°$ (angle)

172.045 ≈ 172 (Ramanujan taxicab number)

From



We obtain:

135.076^3+138.073^3 > 172.045^3-1

From which:

1/Pi(135.076^3+138.073^3 - (172.045^3-1))+golden ratio^2

Input interpretation:

$$\frac{1}{\pi}\left(135.076^3+138.073^3-\left(172.045^3-1\right)\right)+\phi^2$$

ϕ is the golden ratio

Result:

1382.68…

1382.68… result practically equal to the rest mass of Sigma baryon 1382.8

Alternative representations:

$$\frac{135.076^3+138.073^3-(172.045^3-1)}{\pi}+\phi^2=\frac{1+135.076^3+138.073^3-172.045^3}{\pi}+(-2\cos(216\,°))^2$$

$$\frac{135.076^3+138.073^3-(172.045^3-1)}{\pi}+\phi^2=\frac{1+135.076^3+138.073^3-172.045^3}{\pi}+\left(2\cos\left(\frac{\pi}{5}\right)\right)^2$$

$$\frac{135.076^3+138.073^3-(172.045^3-1)}{\pi}+\phi^2=\frac{1+135.076^3+138.073^3-172.045^3}{180\,°}+(-2\cos(216\,°))^2$$

Series representations:

$$\frac{135.076^3+138.073^3-(172.045^3-1)}{\pi}+\phi^2=\phi^2+\frac{1083.9}{\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}}$$

$$\frac{135.076^3+138.073^3-(172.045^3-1)}{\pi}+\phi^2=\phi^2+\frac{2167.8}{-1+\sum_{k=1}^{\infty}\frac{2^k}{\binom{2k}{k}}}$$

$$\frac{135.076^3+138.073^3-(172.045^3-1)}{\pi}+\phi^2=\phi^2+\frac{4335.6}{\sum_{k=0}^{\infty}\frac{2^{-k}(-6+50k)}{\binom{3k}{k}}}$$

Integral representations:

$$\frac{135.076^3+138.073^3-(172.045^3-1)}{\pi}+\phi^2=\phi^2+\frac{2167.8}{\int_0^{\infty}\frac{1}{1+t^2}\,dt}$$

$$\frac{135.076^3 + 138.073^3 - (172.045^3 - 1)}{\pi} + \phi^2 = \phi^2 + \frac{1083.9}{\int_0^1 \sqrt{1-t^2}\, dt}$$

$$\frac{135.076^3 + 138.073^3 - (172.045^3 - 1)}{\pi} + \phi^2 = \phi^2 + \frac{2167.8}{\int_0^\infty \frac{\sin(t)}{t}\, dt}$$

1/4(135.076^3+138.073^3 - (172.045^3-1))-64-1/golden ratio

Input interpretation:

$$\frac{1}{4}(135.076^3 + 138.073^3 - (172.045^3 - 1)) - 64 - \frac{1}{\phi}$$

ϕ is the golden ratio

Result:

1019.28...

1019.28… result practically equal to the rest mass of Phi meson 1019.445

Alternative representations:

$$\frac{1}{4}(135.076^3 + 138.073^3 - (172.045^3 - 1)) - 64 - \frac{1}{\phi} = -64 + \frac{1}{4}(1 + 135.076^3 + 138.073^3 - 172.045^3) - \frac{1}{2\sin(54°)}$$

$$\frac{1}{4}(135.076^3 + 138.073^3 - (172.045^3 - 1)) - 64 - \frac{1}{\phi} = -64 + \frac{1}{4}(1 + 135.076^3 + 138.073^3 - 172.045^3) - -\frac{1}{2\cos(216°)}$$

$$\frac{1}{4}(135.076^3 + 138.073^3 - (172.045^3 - 1)) - 64 - \frac{1}{\phi} = -64 + \frac{1}{4}(1 + 135.076^3 + 138.073^3 - 172.045^3) - -\frac{1}{2\sin(666°)}$$

From:

GUP black hole remnants in quadratic gravity
Ibere Kuntz and Roldao da Rocha - arXiv:1909.05552v1 [hep-th] 12 Sep 2019

We have:

$$r_\pm = -\frac{4\alpha_2}{\alpha_3 m_p} \pm \sqrt{2}\sqrt{\frac{8\alpha_2^2}{\alpha_3^2 m_p^2} + \frac{f_{\alpha_2,\alpha_3}}{3^{2/3}\alpha_3 m_p^4} + \frac{1}{\sqrt[3]{3} f_{\alpha_2,\alpha_3}}} + \frac{1}{2}\left(\frac{256\alpha_2^3}{\alpha_3^3\sqrt{\frac{4\alpha_2^2}{\alpha_3^2 m_p^2} + \frac{\sqrt[3]{3}\alpha_3 m_p^4 + f_{\alpha_2,\alpha_3}^2}{6\alpha_3 m_p^4 \sqrt[3]{12\alpha_2^2 m_p^6 + \sqrt{144\alpha_2^4 m_p^{12} - \frac{\alpha_3^3}{3}}}}}} - \frac{128\alpha_2^2}{\alpha_3^2 m_p^2} + \frac{8 f_{\alpha_2,\alpha_3}}{3^{2/3}\alpha_3} + \frac{8}{\sqrt[3]{3} f_{\alpha_2,\alpha_3}} \right). \quad (27)$$

Eq. (27) is displayed for $\alpha_1 = 0$, where $f_{\alpha_2,\alpha_3} = \sqrt[3]{36\alpha_2^2 m_p^6 + \sqrt{1296\alpha_2^4 m_p^8 - 3\alpha_3^3 m_p^{12}}}$. For $\alpha_1 \neq 0$, the general solution having dozens of pages is opted not to be displayed here.

$\alpha_1 = -3.4118$, $\alpha_2 = 1.6734$ and $\alpha_3 = 2.1376$

$m_p = 1.220910\times10^{19}$ GeV/c^2 or $2.176435(24)\times10^{-8}$ kg

(128*1.6734^2)/(2.1376^2*(1.220910e+19)^2)+(8*6.9408e+18)/(3^(2/3)2.1376)+8/((3^(1/3)*(6.9408e+18))

Input interpretation:

$$\frac{128\times1.6734^2}{2.1376^2\,(1.220910\times10^{19})^2} + \frac{8\times6.9408\times10^{18}}{3^{2/3}\times2.1376} + \frac{8}{\sqrt[3]{3}\times6.9408\times10^{18}}$$

Result:

$1.24880... \times 10^{19}$

1.24880e+19

(((((3^(1/3)2.1376*(1.220910e+19)^4+6.9408e+18)))))/(((((((6*2.1376*(1.220910e+19)^4))*(((12*1.6734^2*(1.220910e+19)^6+sqrt(144*1.6734^4*(1.220910e+19)^12-1/3*2.1376^3))))^1/3)))))

Input interpretation:

$$\left(\sqrt[3]{3}\times 2.1376\,(1.220910\times 10^{19})^4+6.9408\times 10^{18}\right)/\left(\left(6\times 2.1376\,(1.220910\times 10^{19})^4\right)\left(12\times 1.6734^2\,(1.220910\times 10^{19})^6+\sqrt{144\times 1.6734^4\,(1.220910\times 10^{19})^{12}-\frac{1}{3}\times 2.1376^3}\right)\hat{}\,(1/3)\right)$$

Result:

$3.96629... \times 10^{-40}$

3.96629e-40

$f_{\alpha_2,\alpha_3} =$

(((((36*1.6734^2*(1.220910e+9)^6+sqrt(((1296*1.6734^4*(1.220910e+9)^8-3*2.1376^3*(1.220910e+9)^12)))))^1/3

Input interpretation:

$$\left(36\times 1.6734^2\,(1.220910\times 10^9)^6+\sqrt{1296\times 1.6734^4\,(1.220910\times 10^9)^8-3\times 2.1376^3\,(1.220910\times 10^9)^{12}}\right)\hat{}\,(1/3)$$

Result:

$6.93969... \times 10^{18} +$
$1.24107... \times 10^{17}\, i$

Polar coordinates:

$r = 6.9408\times 10^{18}$ (radius), $\theta = 1.02455°$ (angle)

6.9408e+18

4(1.6734)/(2.1376*1.220910e+19)+sqrt2*(((((8*1.6734^2)/(2.1376^2*(1.220910e+19)^2))+(6.9408e+18)/(3^(2/3)*2.1376*(1.220910e+19)^4))+1/(3^(1/3)*6.9408e+18))
)))^1/2

Input interpretation:

$$-4\times\frac{1.6734}{2.1376\times 1.220910\times 10^{19}}+\sqrt{2}\sqrt{\left(\left(\frac{8\times 1.6734^2}{2.1376^2\left(1.220910\times 10^{19}\right)^2}+\frac{6.9408\times 10^{18}}{3^{2/3}\times 2.1376\left(1.220910\times 10^{19}\right)^4}\right)+\frac{1}{\sqrt[3]{3}\times 6.9408\times 10^{18}}\right)}$$

Result:

$4.46982...\times 10^{-10}$

4.46982e-10

And, with minus sign:

Input interpretation:

$$4\times\frac{1.6734}{2.1376\times 1.220910\times 10^{19}}-\sqrt{2}\sqrt{\left(\left(\frac{8\times 1.6734^2}{2.1376^2\left(1.220910\times 10^{19}\right)^2}+\frac{6.9408\times 10^{18}}{3^{2/3}\times 2.1376\left(1.220910\times 10^{19}\right)^4}\right)+\frac{1}{\sqrt[3]{3}\times 6.9408\times 10^{18}}\right)}$$

Result:

$-4.46982...\times 10^{-10}$

-4.46982e-10

((256*1.6734^3)) /
[2.1376^3*((((4*1.6734^2)/(2.1376^2*(1.220910e+19)^2)+3.96629 × 10^-40)))^1/2]

Input interpretation:

$$\frac{256\times 1.6734^3}{2.1376^3\sqrt{\frac{4\times 1.6734^2}{2.1376^2\left(1.220910\times 10^{19}\right)^2}+3.96629\times 10^{-40}}}$$

Result:

$9.46379... \times 10^{20}$

9.46379e+20

(4.46982e-10) +1/2 ((9.46379e+20) – (1.24880e+19))

Input interpretation:

$$4.46982 \times 10^{-10} + \frac{1}{2}(9.46379 \times 10^{20} - 1.24880 \times 10^{19})$$

Result:

$4.669455000000000000000000000000446982 \times 10^{20}$

Repeating decimal:

$4.669455000000000000000000000000446982 \times 10^{20}$

$4.669455*10^{20} = r_+$

Or, with minus sign:

(-4.46982e-10) +1/2 ((9.46379e+20) – (1.24880e+19))

Input interpretation:

$$-4.46982 \times 10^{-10} + \frac{1}{2}(9.46379 \times 10^{20} - 1.24880 \times 10^{19})$$

Result:

$4.669454999999999999999999999999553018 \times 10^{20}$

$4.669454999*10^{20} = r_-$

3ln((((4.46982e-10) +1/2 ((9.46379e+20) – (1.24880e+19)))))-Pi

Input interpretation:

$$3 \log\left(4.46982 \times 10^{-10} + \frac{1}{2}(9.46379 \times 10^{20} - 1.24880 \times 10^{19})\right) - \pi$$

$\log(x)$ is the natural logarithm

Result:

139.63664...

139.63664… result practically equal to the rest mass of Pion meson 139.57 MeV

3ln((((4.46982e-10) +1/2 ((9.46379e+20) – (1.24880e+19))))))-Pi-13-golden ratio

Input interpretation:

$$3 \log\left(4.46982 \times 10^{-10} + \frac{1}{2} (9.46379 \times 10^{20} - 1.24880 \times 10^{19})\right) - \pi - 13 - \phi$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

125.01861...

125.01861… result very near to the dilaton mass calculated as a type of Higgs boson: 125 GeV for T = 0 and to the Higgs boson mass 125.18 GeV

27* 1/2(((3ln((((4.46982e-10) +1/2 ((9.46379e+20) – (1.24880e+19))))))-13-golden ratio)))-1

Input interpretation:

$$27 \times \frac{1}{2} \left(3 \log\left(4.46982 \times 10^{-10} + \frac{1}{2} (9.46379 \times 10^{20} - 1.24880 \times 10^{19})\right) - 13 - \phi\right) - 1$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

1729.1627...

1729.1627…

This result is very near to the mass of candidate glueball $f_0(1710)$ meson. Furthermore, 1728 occurs in the algebraic formula for the j-invariant of an elliptic curve. As a consequence, it is sometimes called a Zagier as a pun on the Gross–Zagier theorem. The number 1728 is one less than the Hardy–Ramanujan number 1729

From:

A de Sitter tachyonic braneworld revisited
Nandinii Barbosa-Cendejas, Roberto Cartas-Fuentevilla, Alfredo Herrera-Aguilar, Refugio Rigel Mora-Luna, Roldao da Rocha - arXiv:1709.09016v1 [hep-th] 17 Sep 2017

We have:

$$V(T) = -\Lambda_5 \operatorname{sech}\left(\sqrt{-\frac{2}{3}\kappa_5^2\Lambda_5}\, T\right)\sqrt{6\operatorname{sech}^2\left(\sqrt{-\frac{2}{3}\kappa_5^2\Lambda_5}\, T\right) - 1}$$
$$= -\Lambda_5\sqrt{(1+\operatorname{sech}[H(2w+c)])\left(1+\frac{3}{2}\operatorname{sech}[H(2w+c)]\right)}, \qquad (2.8)$$

where H, c and $s > 0$ are arbitrary constants. $\Lambda_5 < 0$

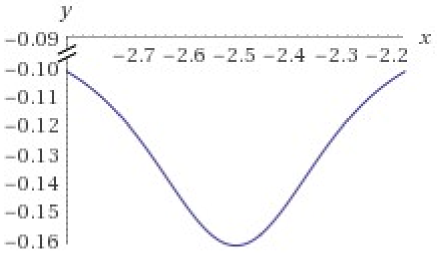
-0.0864055*(((1+sech(3(2x+5))(1+3/2*sech(3(2x+5)))))^1/2

Input interpretation:

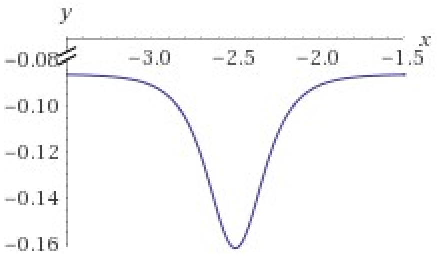
$$-0.0864055\sqrt{1+\operatorname{sech}(3(2x+5))\left(1+\frac{3}{2}\operatorname{sech}(3(2x+5))\right)}$$

sech(x) is the hyperbolic secant function

Plots:



(x from -2.8 to -2.2)



(x from -3.5 to -1.5)

Alternate forms:

$$-0.0610979 \sqrt{\operatorname{sech}(6x+15)(3\operatorname{sech}(6x+15)+2)+2}$$

$$-0.0610979 \sqrt{3\operatorname{sech}^2(6x+15)+2\operatorname{sech}(6x+15)+2}$$

$$-0.0610979 \sqrt{3\operatorname{sech}^2(3(2x+5))+2\operatorname{sech}(3(2x+5))+2}$$

Derivative:

$$\frac{d}{dx}\left(-0.0864055 \sqrt{\operatorname{sech}(3(2x+5))\left(\frac{3}{2}\operatorname{sech}(3(2x+5))+1\right)+1}\right) = \frac{\tanh(6x+15)\operatorname{sech}(6x+15)(1.09976\operatorname{sech}(6x+15)+0.366587)}{\sqrt{3\operatorname{sech}^2(6x+15)+2\operatorname{sech}(6x+15)+2}}$$

tanh(x) is the hyperbolic tangent function

For x = -2.5, we obtain:

-0.0864055*(((1+sech(3(2(-2.5)+5))(1+3/2*sech(3(2(-2.5)+5))))))^1/2

Input interpretation:

$$-0.0864055 \sqrt{1+\operatorname{sech}(3(2\times(-2.5)+5))\left(1+\frac{3}{2}\operatorname{sech}(3(2\times(-2.5)+5))\right)}$$

sech(x) is the hyperbolic secant function

Result:

$-0.161650\ldots$

-0.16165…

Alternative representations:

$$\sqrt{1+\operatorname{sech}(3(2(-2.5)+5))\left(1+\frac{3}{2}\operatorname{sech}(3(2(-2.5)+5))\right)}\,(-1)\,0.0864055 = -0.0864055 \sqrt{1+\frac{1+\frac{3}{2\cos(0)}}{\cos(0)}}$$

$$\sqrt{1+\text{sech}(3(2(-2.5)+5))\left(1+\frac{3}{2}\,\text{sech}(3(2(-2.5)+5))\right)}\,(-1)\,0.0864055 = -0.0864055\sqrt{1+\frac{1+\frac{3}{2\cosh(0)}}{\cosh(0)}}$$

$$\sqrt{1+\text{sech}(3(2(-2.5)+5))\left(1+\frac{3}{2}\,\text{sech}(3(2(-2.5)+5))\right)}\,(-1)\,0.0864055 = -0.0864055\sqrt{1+\frac{2\left(1+\frac{3}{2e^0}\right)}{2e^0}}$$

Series representations:

$$\sqrt{1+\text{sech}(3(2(-2.5)+5))\left(1+\frac{3}{2}\,\text{sech}(3(2(-2.5)+5))\right)}\,(-1)\,0.0864055 = -0.0864055\sqrt{1-2\sum_{k=1}^{\infty}(-1)^k q^{-1+2k}+6\left(\sum_{k=1}^{\infty}(-1)^k q^{-1+2k}\right)^2} \quad \text{for } q=1$$

$$\sqrt{1+\text{sech}(3(2(-2.5)+5))\left(1+\frac{3}{2}\,\text{sech}(3(2(-2.5)+5))\right)}\,(-1)\,0.0864055 = -0.0864055\sqrt{\frac{\pi^2+4\pi\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}+24\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^2}{\pi^2}}$$

$$\sqrt{1+\text{sech}(3(2(-2.5)+5))\left(1+\frac{3}{2}\,\text{sech}(3(2(-2.5)+5))\right)}\,(-1)\,0.0864055 = -0.0864055\sqrt{\left(1+2i\sum_{k=0}^{\infty}\frac{\left(-1+2^{-1+2k}\right)\left(0-\frac{i\pi}{2}\right)^{-1+2k}B_{2k}}{(2k)!}+6i^2\left(\sum_{k=0}^{\infty}\frac{\left(-1+2^{-1+2k}\right)\left(0-\frac{i\pi}{2}\right)^{-1+2k}B_{2k}}{(2k)!}\right)^2\right)}$$

Integral representation:

$$\sqrt{1+\text{sech}(3(2(-2.5)+5))\left(1+\frac{3}{2}\,\text{sech}(3(2(-2.5)+5))\right)}\,(-1)\,0.0864055 = -0.0864055\sqrt{\frac{\pi^2+2\pi\int_0^{\infty}\frac{1}{1+t^2}\,dt+6\left(\int_0^{\infty}\frac{1}{1+t^2}\,dt\right)^2}{\pi^2}}$$

For

$\Lambda_5 < 0$

-0.864055*(((1+sech(3(2(-2.5)+5))(1+3/2*sech(3(2(-2.5)+5))))))^1/2

Input interpretation:

$$-0.864055\sqrt{1+\operatorname{sech}(3\,(2\times(-2.5)+5))\left(1+\frac{3}{2}\operatorname{sech}(3\,(2\times(-2.5)+5))\right)}$$

sech(x) is the hyperbolic secant function

Result:

−1.616498886664478961960283005450888003464398847505123955 79...

-1.61649888…

Alternative representations:

$$\sqrt{1+\operatorname{sech}(3\,(2\,(-2.5)+5))\left(1+\frac{3}{2}\operatorname{sech}(3\,(2\,(-2.5)+5))\right)}\,(-1)\,0.864055 = -0.864055\sqrt{1+\frac{1+\frac{3}{2\cos(0)}}{\cos(0)}}$$

$$\sqrt{1+\operatorname{sech}(3\,(2\,(-2.5)+5))\left(1+\frac{3}{2}\operatorname{sech}(3\,(2\,(-2.5)+5))\right)}\,(-1)\,0.864055 = -0.864055\sqrt{1+\frac{1+\frac{3}{2\cosh(0)}}{\cosh(0)}}$$

$$\sqrt{1+\operatorname{sech}(3\,(2\,(-2.5)+5))\left(1+\frac{3}{2}\operatorname{sech}(3\,(2\,(-2.5)+5))\right)}\,(-1)\,0.864055 = -0.864055\sqrt{1+\frac{2\left(1+\frac{3}{2e^0}\right)}{2e^0}}$$

Series representations:

$$\sqrt{1+\operatorname{sech}(3\,(2\,(-2.5)+5))\left(1+\frac{3}{2}\operatorname{sech}(3\,(2\,(-2.5)+5))\right)}\,(-1)\,0.864055 = -0.864055\sqrt{1-2\sum_{k=1}^{\infty}(-1)^k\,q^{-1+2k}+6\left(\sum_{k=1}^{\infty}(-1)^k\,q^{-1+2k}\right)^2} \quad \text{for } q=1$$

$$\sqrt{1+\operatorname{sech}(3(2(-2.5)+5))\left(1+\frac{3}{2}\operatorname{sech}(3(2(-2.5)+5))\right)}\,(-1)\,0.864055 = -0.864055\sqrt{\frac{\pi^2+4\pi\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}+24\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^2}{\pi^2}}$$

$$\sqrt{1+\operatorname{sech}(3(2(-2.5)+5))\left(1+\frac{3}{2}\operatorname{sech}(3(2(-2.5)+5))\right)}\,(-1)\,0.864055 = -0.864055\sqrt{\left(1+2i\sum_{k=0}^{\infty}\frac{\left(-1+2^{-1+2k}\right)\left(0-\frac{i\pi}{2}\right)^{-1+2k}B_{2k}}{(2k)!}+6i^2\left(\sum_{k=0}^{\infty}\frac{\left(-1+2^{-1+2k}\right)\left(0-\frac{i\pi}{2}\right)^{-1+2k}B_{2k}}{(2k)!}\right)^2\right)}$$

Integral representation:

$$\sqrt{1+\operatorname{sech}(3(2(-2.5)+5))\left(1+\frac{3}{2}\operatorname{sech}(3(2(-2.5)+5))\right)}\,(-1)\,0.864055 = -0.864055\sqrt{\frac{\pi^2+2\pi\int_0^{\infty}\frac{1}{1+t^2}\,dt+6\left(\int_0^{\infty}\frac{1}{1+t^2}\,dt\right)^2}{\pi^2}}$$

From the inverse, we obtain:

-1/(((-0.864055*(((1+sech(3(2(-2.5)+5))(1+3/2*sech(3(2(-2.5)+5))))))^1/2)))

Input interpretation:

$$\frac{-1}{-0.864055\sqrt{1+\operatorname{sech}(3(2\times(-2.5)+5))\left(1+\frac{3}{2}\operatorname{sech}(3(2\times(-2.5)+5))\right)}}$$

sech(x) is the hyperbolic secant function

Result:

0.618621...

0.618621… result practically equal to the value of golden ratio conjugate 0.61803398...

Alternative representations:

$$-\frac{1}{\sqrt{1+\operatorname{sech}(3(2(-2.5)+5))\left(1+\frac{3}{2}\operatorname{sech}(3(2(-2.5)+5))\right)}\,(-1)\,0.864055} = \frac{-1}{-0.864055\sqrt{1+\frac{1+\frac{3}{2\cos(0)}}{\cos(0)}}}$$

$$-\frac{1}{\sqrt{1+\operatorname{sech}(3(2(-2.5)+5))\left(1+\frac{3}{2}\operatorname{sech}(3(2(-2.5)+5))\right)}\,(-1)\,0.864055} = \frac{-1}{-0.864055\sqrt{1+\frac{1+\frac{3}{2\cosh(0)}}{\cosh(0)}}}$$

$$-\frac{1}{\sqrt{1+\operatorname{sech}(3(2(-2.5)+5))\left(1+\frac{3}{2}\operatorname{sech}(3(2(-2.5)+5))\right)}\,(-1)\,0.864055} = \frac{-1}{-0.864055\sqrt{1+\frac{2\left(1+\frac{3}{2e^0}\right)}{2e^0}}}$$

Series representations:

$$-\frac{1}{\sqrt{1+\operatorname{sech}(3(2(-2.5)+5))\left(1+\frac{3}{2}\operatorname{sech}(3(2(-2.5)+5))\right)}\,(-1)\,0.864055} = \frac{1.15733}{\sqrt{1-2\sum_{k=1}^{\infty}(-1)^k q^{-1+2k}+6\left(\sum_{k=1}^{\infty}(-1)^k q^{-1+2k}\right)^2}} \quad \text{for } q=1$$

$$-\frac{1}{\sqrt{1+\operatorname{sech}(3(2(-2.5)+5))\left(1+\frac{3}{2}\operatorname{sech}(3(2(-2.5)+5))\right)}\,(-1)\,0.864055} = \frac{1.15733}{\sqrt{\frac{\pi^2+4\pi\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}+24\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^2}{\pi^2}}}$$

$$-\frac{1}{\sqrt{1+\text{sech}(3\,(2\,(-2.5)+5))\left(1+\frac{3}{2}\,\text{sech}(3\,(2\,(-2.5)+5))\right)}}\,(-1)\,0.864055 =$$

$$\frac{1.15733}{\sqrt{1+2\,i\sum_{k=0}^{\infty}\frac{\left(-1+2^{-1+2k}\right)\left(0-\frac{i\pi}{2}\right)^{-1+2k}B_{2k}}{(2k)!}+6\,i^2\left(\sum_{k=0}^{\infty}\frac{\left(-1+2^{-1+2k}\right)\left(0-\frac{i\pi}{2}\right)^{-1+2k}B_{2k}}{(2k)!}\right)^2}}$$

Now, we have that:

$$f(w) = -\frac{1}{2}\ln\left[\frac{\cosh\left[H\,(2w+c)\right]}{s}\right], \tag{3.14}$$

$$T(w) = \pm\frac{1}{\sqrt{2b}}\,i\,\text{EllipticF}\left(iH\left(w+\frac{c}{2}\right),2\right), \tag{3.15}$$

$$\begin{aligned} V(T) &= \frac{3\sqrt{6}\,b^2}{k_5^2}\sec\left[2\text{JacobiAmplitude}\left(i\sqrt{2}bT,2\right)\right] \\ &= \frac{3\sqrt{6}\,b^2}{k_5^2}\,\text{sech}\left(H\,(2w+c)\right), \end{aligned} \tag{3.16}$$

where b is an arbitrary constant

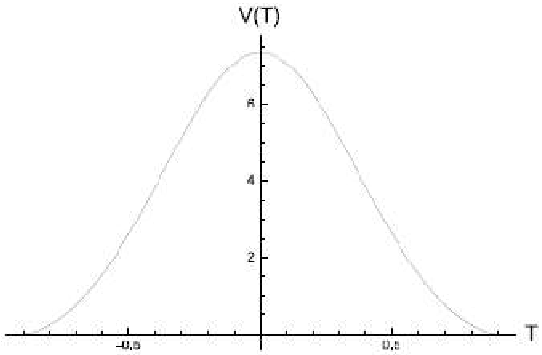


Figure 2. The shape of the self–interaction potential of the tachyonic scalar field $V(T)$. We set $n=1/2$, $c=0$, $H=1$, $2\kappa_5^2=1$ and $s=1$ for simplicity.

For b = 5 and w = 8, we obtain:

(3*sqrt6 * 5^2)/0.5 * sech(2*8)

Input:

$$\frac{3\sqrt{6}\times 5^2}{0.5}\,\text{sech}(2\times 8)$$

sech(x) is the hyperbolic secant function

Result:

0.0000826961...

0.0000826961…

Alternative representations:

$$\frac{\text{sech}(2\times 8)\left(3\sqrt{6}\;5^2\right)}{0.5}=\frac{3\times 5^2\sqrt{6}}{0.5\cosh(16)}$$

$$\frac{\text{sech}(2\times 8)\left(3\sqrt{6}\;5^2\right)}{0.5}=\frac{6\times 5^2\,e^{16}\sqrt{6}}{0.5\left(1+e^{32}\right)}$$

$$\frac{\text{sech}(2\times 8)\left(3\sqrt{6}\;5^2\right)}{0.5}=\frac{6\times 5^2\sqrt{6}}{0.5\left(\frac{1}{e^{16}}+e^{16}\right)}$$

Series representations:

$$\frac{\text{sech}(2\times 8)\left(3\sqrt{6}\;5^2\right)}{0.5}=-300\sqrt{5}\sum_{k_1=1}^{\infty}\sum_{k_2=0}^{\infty}(-1)^{k_1}\,5^{-k_2}\,q^{-1+2k_1}\binom{\frac{1}{2}}{k_2}\quad\text{for } q=e^{16}$$

$$\frac{\text{sech}(2\times 8)\left(3\sqrt{6}\;5^2\right)}{0.5}=150\exp\left(i\pi\left\lfloor\frac{\arg(6-x)}{2\pi}\right\rfloor\right)\text{sech}(16)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k\,(6-x)^k\,x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\quad\text{for } (x\in\mathbb{R}\text{ and }x<0)$$

$$\frac{\operatorname{sech}(2\times 8)\left(3\sqrt{6}\ 5^2\right)}{0.5} = -300\exp\left(i\pi\left\lfloor\frac{\arg(6-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k_1=1}^{\infty}\sum_{k_2=0}^{\infty}\frac{(-1)^{k_1+k_2}\,q^{-1+2k_1}\,(6-x)^{k_2}\,x^{-k_2}\left(-\frac{1}{2}\right)_{k_2}}{k_2!}$$

for $\left(x\in\mathbb{R} \text{ and } x<0 \text{ and } q=e^{16}\right)$

Integral representation:

$$\frac{\operatorname{sech}(2\times 8)\left(3\sqrt{6}\ 5^2\right)}{0.5} = \frac{300\sqrt{6}}{\pi}\int_0^\infty \frac{t^{(32\,i)/\pi}}{1+t^2}\,dt$$

(((3*sqrt6 * 5^2)/0.5 * sech(2*8)))^1/4096

Input:

$$\sqrt[4096]{\frac{3\sqrt{6}\times 5^2}{0.5}\operatorname{sech}(2\times 8)}$$

$\operatorname{sech}(x)$ is the hyperbolic secant function

Result:

0.9977076272...

0.9977076272… result very near to the value of the following Rogers-Ramanujan continued fraction:

$$\frac{e^{-\frac{\pi}{\sqrt{5}}}}{\frac{\sqrt{5}}{1+\sqrt[5]{\sqrt{\varphi^5\sqrt[4]{5^3}}-1}}-\varphi+1} = 1-\cfrac{e^{-\pi\sqrt{5}}}{1+\cfrac{e^{-2\pi\sqrt{5}}}{1+\cfrac{e^{-3\pi\sqrt{5}}}{1+\cfrac{e^{-4\pi\sqrt{5}}}{1+\ldots}}}} \approx 0.9991104684$$

and to the dilaton value **0.989117352243** = $\boldsymbol{\phi}$

2*sqrt(((log base 0.9977076272(((3*sqrt6 * 5^2)/0.5 * sech(2*8))))))-Pi+1/golden ratio

Input interpretation:

$$2\sqrt{\log_{0.9977076272}\left(\frac{3\sqrt{6}\times 5^2}{0.5}\,\text{sech}(2\times 8)\right)} - \pi + \frac{1}{\phi}$$

sech(x) is the hyperbolic secant function

$\log_b(x)$ is the base- b logarithm

ϕ is the golden ratio

Result:

125.4764...

125.4764... result very near to the dilaton mass calculated as a type of Higgs boson: 125 GeV for T = 0 and to the Higgs boson mass 125.18 GeV

Alternative representations:

$$2\sqrt{\log_{0.997708}\left(\frac{\text{sech}(2\times 8)\left(3\sqrt{6}\ 5^2\right)}{0.5}\right)} - \pi + \frac{1}{\phi} = -\pi + \frac{1}{\phi} + 2\sqrt{\log_{0.997708}\left(\frac{6\times 5^2\, e^{16}\sqrt{6}}{0.5\left(1+e^{32}\right)}\right)}$$

$$2\sqrt{\log_{0.997708}\left(\frac{\text{sech}(2\times 8)\left(3\sqrt{6}\ 5^2\right)}{0.5}\right)} - \pi + \frac{1}{\phi} = -\pi + \frac{1}{\phi} + 2\sqrt{\frac{\log\left(\frac{3\times 5^2\,\text{sech}(16)\sqrt{6}}{0.5}\right)}{\log(0.997708)}}$$

$$2\sqrt{\log_{0.997708}\left(\frac{\text{sech}(2\times 8)\left(3\sqrt{6}\ 5^2\right)}{0.5}\right)} - \pi + \frac{1}{\phi} = -\pi + \frac{1}{\phi} + 2\sqrt{\log_{0.997708}\left(\frac{6\times 5^2\sqrt{6}}{0.5\left(\frac{1}{e^{16}}+e^{16}\right)}\right)}$$

$$2\sqrt{\log_{0.997708}\left(\frac{\operatorname{sech}(2\times 8)\left(3\sqrt{6}\ 5^2\right)}{0.5}\right)}-\pi+\frac{1}{\phi}=$$
$$-\pi+\frac{1}{\phi}+2\sqrt{\log_{0.997708}\left(\frac{3\times 5^2\sqrt{6}}{0.5\cos(-16\,i)}\right)}$$

Series representations:

$$2\sqrt{\log_{0.997708}\left(\frac{\operatorname{sech}(2\times 8)\left(3\sqrt{6}\ 5^2\right)}{0.5}\right)}-\pi+\frac{1}{\phi}=$$
$$\frac{1}{\phi}-\pi+2\sqrt{\log_{0.997708}\left(-300\sqrt{6}\sum_{k=1}^{\infty}(-1)^k q^{-1+2k}\right)}\quad\text{for } q=e^{16}$$

$$2\sqrt{\log_{0.997708}\left(\frac{\operatorname{sech}(2\times 8)\left(3\sqrt{6}\ 5^2\right)}{0.5}\right)}-\pi+\frac{1}{\phi}=$$
$$\frac{1}{\phi}-\pi+2\sqrt{-\frac{\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+150\operatorname{sech}(16)\sqrt{6}\right)^k}{k}}{\log(0.997708)}}$$

$$2\sqrt{\log_{0.997708}\left(\frac{\operatorname{sech}(2\times 8)\left(3\sqrt{6}\ 5^2\right)}{0.5}\right)}-\pi+\frac{1}{\phi}=$$
$$\frac{1}{\phi}-\pi+2\sqrt{-1+\log_{0.997708}\left(150\operatorname{sech}(16)\sqrt{6}\right)}\sum_{k=0}^{\infty}\binom{\frac{1}{2}}{k}\left(-1+\log_{0.997708}\left(150\operatorname{sech}(16)\sqrt{6}\right)\right)^{-k}$$

Integral representation:

$$2\sqrt{\log_{0.997708}\left(\frac{\operatorname{sech}(2\times 8)\left(3\sqrt{6}\ 5^2\right)}{0.5}\right)}-\pi+\frac{1}{\phi}=$$
$$\frac{1}{\phi}-\pi+2\sqrt{\log_{0.997708}\left(\frac{300\sqrt{6}}{\pi}\int_0^{\infty}\frac{t^{(32\,i)/\pi}}{1+t^2}\,dt\right)}$$

2*sqrt(((log base 0.9977076272(((3*sqrt6 * 5^2)/0.5 * sech(2*8))))))+11+1/golden ratio

Input interpretation:

$$2\sqrt{\log_{0.9977076272}\left(\frac{3\sqrt{6}\times 5^2}{0.5}\,\mathrm{sech}(2\times 8)\right)}+11+\frac{1}{\phi}$$

sech(x) is the hyperbolic secant function

$\log_b(x)$ is the base- b logarithm

ϕ is the golden ratio

Result:

139.6180...

139.618… result practically equal to the rest mass of Pion meson 139.57 MeV

Alternative representations:

$$2\sqrt{\log_{0.997708}\left(\frac{\mathrm{sech}(2\times 8)\left(3\sqrt{6}\;5^2\right)}{0.5}\right)}+11+\frac{1}{\phi}=$$
$$11+\frac{1}{\phi}+2\sqrt{\log_{0.997708}\left(\frac{6\times 5^2\,e^{16}\sqrt{6}}{0.5\left(1+e^{32}\right)}\right)}$$

$$2\sqrt{\log_{0.997708}\left(\frac{\mathrm{sech}(2\times 8)\left(3\sqrt{6}\;5^2\right)}{0.5}\right)}+11+\frac{1}{\phi}=11+\frac{1}{\phi}+2\sqrt{\frac{\log\left(\frac{3\times 5^2\,\mathrm{sech}(16)\sqrt{6}}{0.5}\right)}{\log(0.997708)}}$$

$$2\sqrt{\log_{0.997708}\left(\frac{\mathrm{sech}(2\times 8)\left(3\sqrt{6}\;5^2\right)}{0.5}\right)}+11+\frac{1}{\phi}=$$
$$11+\frac{1}{\phi}+2\sqrt{\log_{0.997708}\left(\frac{6\times 5^2\sqrt{6}}{0.5\left(\frac{1}{e^{16}}+e^{16}\right)}\right)}$$

$$2\sqrt{\log_{0.997708}\left(\frac{\operatorname{sech}(2\times 8)\left(3\sqrt{6}\ 5^2\right)}{0.5}\right)} + 11 + \frac{1}{\phi} = 11 + \frac{1}{\phi} + 2\sqrt{\log_{0.997708}\left(\frac{3\times 5^2\sqrt{6}}{0.5\cos(-16\,i)}\right)}$$

Series representations:

$$2\sqrt{\log_{0.997708}\left(\frac{\operatorname{sech}(2\times 8)\left(3\sqrt{6}\ 5^2\right)}{0.5}\right)} + 11 + \frac{1}{\phi} = 11 + \frac{1}{\phi} + 2\sqrt{\log_{0.997708}\left(-300\sqrt{6}\sum_{k=1}^{\infty}(-1)^k q^{-1+2k}\right)} \quad \text{for } q = e^{16}$$

$$2\sqrt{\log_{0.997708}\left(\frac{\operatorname{sech}(2\times 8)\left(3\sqrt{6}\ 5^2\right)}{0.5}\right)} + 11 + \frac{1}{\phi} = 11 + \frac{1}{\phi} + 2\sqrt{-\frac{\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+150\operatorname{sech}(16)\sqrt{6}\right)^k}{k}}{\log(0.997708)}}$$

$$2\sqrt{\log_{0.997708}\left(\frac{\operatorname{sech}(2\times 8)\left(3\sqrt{6}\ 5^2\right)}{0.5}\right)} + 11 + \frac{1}{\phi} = 11 + \frac{1}{\phi} + 2\sqrt{-1+\log_{0.997708}\left(150\operatorname{sech}(16)\sqrt{6}\right)}\sum_{k=0}^{\infty}\binom{\frac{1}{2}}{k}\left(-1+\log_{0.997708}\left(150\operatorname{sech}(16)\sqrt{6}\right)\right)^{-k}$$

Integral representation:

$$2\sqrt{\log_{0.997708}\left(\frac{\operatorname{sech}(2\times 8)\left(3\sqrt{6}\ 5^2\right)}{0.5}\right)} + 11 + \frac{1}{\phi} = 11 + \frac{1}{\phi} + 2\sqrt{\log_{0.997708}\left(\frac{300\sqrt{6}}{\pi}\int_0^{\infty}\frac{t^{(32\,i)/\pi}}{1+t^2}\,dt\right)}$$

Appendix

From:

Three-dimensional AdS gravity and extremal CFTs at c = 8m

Spyros D. Avramis, Alex Kehagiasb and Constantina Mattheopoulou

Received: September 7, 2007 -Accepted: October 28, 2007 - Published: November 9, 2007

m	L_0	d	S	S_{BH}
3	1	196883	12.1904	12.5664
	2	21296876	16.8741	17.7715
	3	842609326	20.5520	21.7656
4	2/3	139503	11.8458	11.8477
	5/3	69193488	18.0524	18.7328
	8/3	6928824200	22.6589	23.6954
5	1/3	20619	9.9340	9.3664
	4/3	86645620	18.2773	18.7328
	7/3	24157197490	23.9078	24.7812

m	L_0	d	S	S_{BH}
6	1	42987519	17.5764	17.7715
	2	40448921875	24.4233	25.1327
	3	8463511703277	29.7668	30.7812
7	2/3	7402775	15.8174	15.6730
	5/3	33934039437	24.2477	24.7812
	8/3	16953652012291	30.4615	31.3460
8	1/3	278511	12.5372	11.8477
	4/3	13996384631	23.3621	23.6954
	7/3	19400406113385	30.5963	31.3460

Table 1: Degeneracies, microscopic entropies and semiclassical entropies for the first few values of m and L_0.

Conclusion

Modular equations and approximations to π

S. Ramanujan - Quarterly Journal of Mathematics, XLV, 1914, 350 – 372

Note that:

$$g_{22} = \sqrt{(1 + \sqrt{2})}.$$

Hence

$$\begin{aligned} 64 g_{22}^{24} &= e^{\pi\sqrt{22}} - 24 + 276 e^{-\pi\sqrt{22}} - \cdots, \\ 64 g_{22}^{-24} &= 4096 e^{-\pi\sqrt{22}} + \cdots, \end{aligned}$$

so that

$$64(g_{22}^{24} + g_{22}^{-24}) = e^{\pi\sqrt{22}} - 24 + 4372 e^{-\pi\sqrt{22}} + \cdots = 64\{(1+\sqrt{2})^{12} + (1-\sqrt{2})^{12}\}.$$

Hence

$$e^{\pi\sqrt{22}} = 2508951.9982\ldots.$$

Thence:

$$64 g_{22}^{-24} = 4096 e^{-\pi\sqrt{22}} + \cdots$$

And

$$64(g_{22}^{24} + g_{22}^{-24}) = e^{\pi\sqrt{22}} - 24 + 4372 e^{-\pi\sqrt{22}} + \cdots = 64\{(1+\sqrt{2})^{12} + (1-\sqrt{2})^{12}\}$$

That are connected with 64, 128, 256, 512, 1024 and $4096 = 64^2$

All the results of the most important connections are signed in blue throughout the drafting of the paper. We highlight as in the development of the various equations we use always the constants π, ϕ, 1/ϕ, the Fibonacci and Lucas numbers, linked to the golden ratio, that play a fundamental role in the development, and therefore, in the final results of the analyzed expressions.

Furthermore, we note that: $\sqrt[128]{\frac{125.476}{139.618}} = 0.9991660072$

result very near to the value of the following Rogers-Ramanujan continued fraction:

$$\frac{e^{-\frac{\pi}{\sqrt{5}}}}{\frac{\sqrt{5}}{1+\sqrt[5]{\sqrt{\varphi^5\sqrt[4]{5^3}}-1}}-\varphi+1} = 1-\frac{e^{-\pi\sqrt{5}}}{1+\frac{e^{-2\pi\sqrt{5}}}{1+\frac{e^{-3\pi\sqrt{5}}}{1+\frac{e^{-4\pi\sqrt{5}}}{1+\dots}}}} \approx 0.9991104684$$

It therefore seems possible a theory that connects two physical parameters, which are the values of the mass of the Higgs boson and the meson π (Pion), with the Rogers-Ramanujan continued fractions, which are also mock theta functions. Is this what Srinivasa Ramanujan had begun to guess just before his untimely death?

References

Holographic entanglement entropy under the minimal geometric deformation and extensions
R. da Rocha, A. A. Tomaz - arXiv:1905.01548v2 [hep-th] 29 Dec 2019

One-loop corrections to η/s in AdS4/CFT3
Ibere Kuntz, Roldao da Rocha - arXiv:1909.10121v1 [hep-th] 23 Sep 2019

GUP black hole remnants in quadratic gravity
Ibere Kuntz and Roldao da Rocha - arXiv:1909.05552v1 [hep-th] 12 Sep 2019

A de Sitter tachyonic braneworld revisited
Nandinii Barbosa-Cendejas, Roberto Cartas-Fuentevilla, Alfredo Herrera-Aguilar, Refugio Rigel Mora-Luna, Roldao da Rocha - arXiv:1709.09016v1 [hep-th] 17 Sep 2017