Analyzing some Ramanujan formulas: mathematical connections with various equations concerning some sectors of Black Hole Physics II

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Abstract

The purpose of this paper is to show how using certain mathematical values and / or constants from the Ramanujan expressions, we obtain some mathematical connections with equations of various sectors of Black Hole Physics

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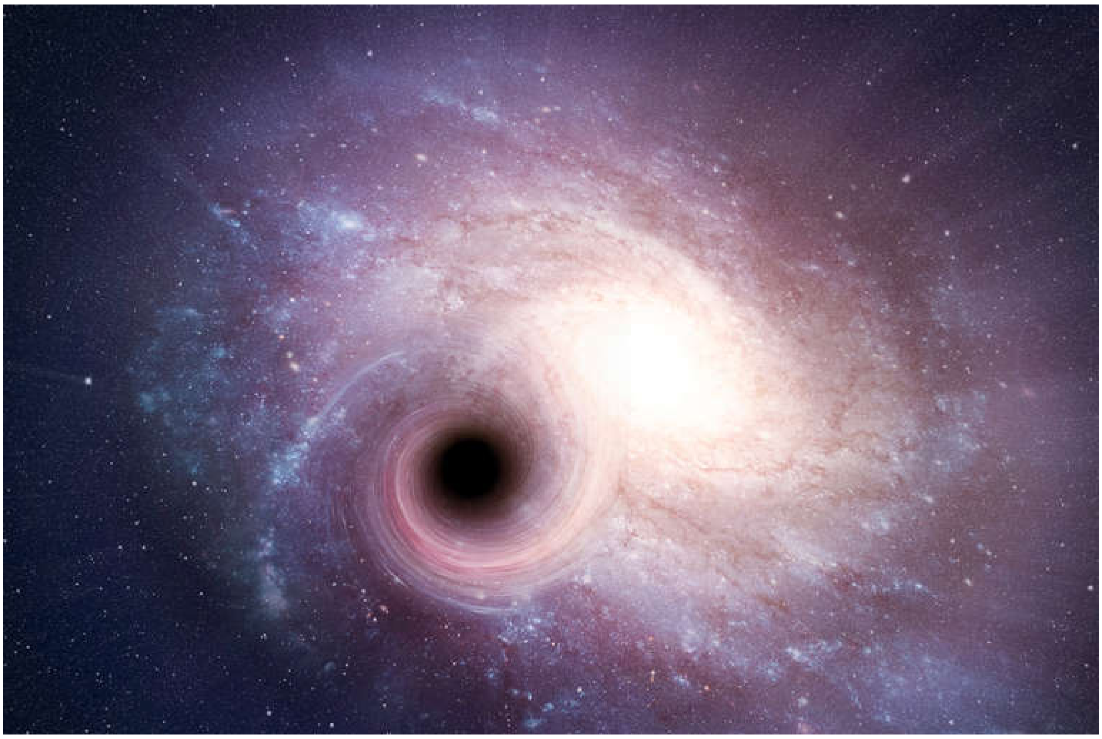

Monster black hole 100,000 times more massive than the sun is found in the heart of our galaxy (SMBH Sagittarius A = $1,9891*10^{35}$)
https://www.seeker.com/space/astronomy/new-class-of-black-hole-100000-times-larger-than-the-sun-detected-in-milky-way


(N.O.A – Pics. from the web)

From:

A Reissner-Nordstrom+Λ black hole in the Friedman-Robertson-Walker universe- arXiv:1703.05119v1 [physics.gen-ph] 5 Mar 2017
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- (Dated: March 16, 2017)

Now, for

$a(v) > \frac{\sqrt{k}}{4}$. For the present universe, assuming $a(v) = 1$ and thus $k<16$. Though constant k has an upper limit, it increases with the expansion of the universe and decreases with the contraction of the universe. We should observe a peculiar change when the constant k reaches this numerical value which is the limiting value for the expansion of the universe.

For $Q = 0$ in eqn.(64),

$$2\left(2 - \frac{\sqrt{1+\frac{kx^2}{4}}}{ax}\right)\left[\frac{M^2}{\left(\frac{ax}{\sqrt{1+\frac{kx^2}{4}}}\right)^3} - \frac{Q^2}{\left(\frac{ax}{\sqrt{1+\frac{kx^2}{4}}}\right)^3} + \Lambda e^{-\frac{2ax}{\sqrt{1+\frac{kx^2}{4}}}}\right] + \frac{\sqrt{1+\frac{kx^2}{4}}}{ax} = 0. \quad (64)$$

Hence at $x = R$ we get,

$$2\left(2 - \frac{\sqrt{1+\frac{kR^2}{4}}}{aR}\right)\left[\frac{M^2}{\left(\frac{aR}{\sqrt{1+\frac{kR^2}{4}}}\right)^3} - \frac{Q^2}{\left(\frac{aR}{\sqrt{1+\frac{kR^2}{4}}}\right)^3} + \Lambda e^{-\frac{2aR}{\sqrt{1+\frac{kR^2}{4}}}}\right] + \frac{\sqrt{1+\frac{kR^2}{4}}}{aR} - 0. \quad (65)$$

$$\Lambda = -e^{\frac{2aR}{\sqrt{1+\frac{kR^2}{4}}}} \cdot \left[\frac{M^2}{\left(\frac{aR}{\sqrt{1+\frac{kR^2}{4}}}\right)^3} + \frac{1}{2\left(\frac{2aR}{\sqrt{1+\frac{kR^2}{4}}} - 1\right)}\right], \qquad (67)$$

For k = 12, and a = 1, M = 13.12806e+39; R = 1.94973e+13, we obtain:

and:

(1+((12*(1.94973e+13)^2)/4))^1/2

Input interpretation:

$$\sqrt{1 + \frac{1}{4}\left(12\left(1.94973 \times 10^{13}\right)^2\right)}$$

Result:

$3.37703... \times 10^{13}$

3.37703e+13

Substituting in the eqs. (67), we obtain:

-exp(((2*1.94973e+13)/(3.37703e+13))) * [(((13.12806e+39)^2)) / (((1.94973e+13)/(3.37703e+13)))^3 + 1/((2((((2*1.94973e+13)/(3.37703e+13)-1)))))]

Input interpretation:

$$-\exp\left(\frac{2 \times 1.94973 \times 10^{13}}{3.37703 \times 10^{13}}\right)\left(\frac{\left(13.12806 \times 10^{39}\right)^2}{\left(\frac{1.94973 \times 10^{13}}{3.37703 \times 10^{13}}\right)^3} + \frac{1}{2\left(\frac{2 \times 1.94973 \times 10^{13}}{3.37703 \times 10^{13}} - 1\right)}\right)$$

Result:

$-2.84160... \times 10^{81}$

$-2.84160...*10^{81}$ which represents the Cosmological Constant inside the Schwarzschild black hole and also has a negative value.

From the previous expression, we have also that:

ln(((((-exp(((2*1.94973e+13)/(3.37703e+13))) * [((((13.12806e+39)^2)) / (((1.94973e+13)/(3.37703e+13)))^3 + 1/((2((((2*1.94973e+13)/(3.37703e+13)-1)))))])))))-47-1/4-1/golden ratio

Input interpretation:

$$\log\left(-\exp\left(\frac{2\times 1.94973\times 10^{13}}{3.37703\times 10^{13}}\right)\left(\frac{(13.12806\times 10^{39})^2}{\left(\frac{1.94973\times 10^{13}}{3.37703\times 10^{13}}\right)^3}+\frac{1}{2\left(\frac{2\times 1.94973\times 10^{13}}{3.37703\times 10^{13}}-1\right)}\right)\right)-47-\frac{1}{4}-\frac{1}{\phi}$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

139.686... +
3.14159... i

Polar coordinates:

$r = 139.721$ (radius), $\theta = 1.28839°$ (angle)

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

ln(((((-exp(((2*1.94973e+13)/(3.37703e+13))) * [((((13.12806e+39)^2)) / (((1.94973e+13)/(3.37703e+13)))^3 + 1/((2((((2*1.94973e+13)/(3.37703e+13)-1)))))])))))-55-8+1/golden ratio

Input interpretation:

$$\log\left(-\exp\left(\frac{2\times 1.94973\times 10^{13}}{3.37703\times 10^{13}}\right)\left(\frac{(13.12806\times 10^{39})^2}{\left(\frac{1.94973\times 10^{13}}{3.37703\times 10^{13}}\right)^3}+\frac{1}{2\left(\frac{2\times 1.94973\times 10^{13}}{3.37703\times 10^{13}}-1\right)}\right)\right)-55-8+\frac{1}{\phi}$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

125.172... +
3.14159... i

Polar coordinates:

$r = 125.211$ (radius), $\theta = 1.43772°$ (angle)

125.211 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*((((ln(((-exp(((2*1.94973e+13)/(3.37703e+13))) * [(((13.12806e+39)^2)) / (((1.94973e+13)/(3.37703e+13)))^3 + 1/((2((((2*1.94973e+13)/(3.37703e+13)-1)))))]))))-55-5+1/golden ratio))-1.618034

Input interpretation:

$$27\times\frac{1}{2}\left(\log\left(-\exp\left(\frac{2\times1.94973\times10^{13}}{3.37703\times10^{13}}\right)\left(\frac{(13.12806\times10^{39})^2}{\left(\frac{1.94973\times10^{13}}{3.37703\times10^{13}}\right)^3}+\frac{1}{2\left(\frac{2\times1.94973\times10^{13}}{3.37703\times10^{13}}-1\right)}\right)\right)-55-5+\frac{1}{\phi}\right)-1.618034$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

1728.70... +
42.4115... i

Polar coordinates:

$r = 1729.22$ (radius), $\theta = 1.4054°$ (angle)

1729.22

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 (taxicab number)

From Wikipedia:

*"The fundamental group of the complex form, compact real form, or any algebraic version of E_6 is the cyclic group **Z**/3**Z**, and its outer automorphism group is the cyclic group **Z**/2**Z**. Its fundamental representation is 27-dimensional (complex), and a basis is given by the 27 lines on a cubic surface. The dual representation, which is inequivalent, is also 27-dimensional. In particle physics, E_6 plays a role in some grand unified theories".*

From

$$\begin{aligned} 16\pi p(r) &= -16\pi\rho(r) \\ &= \frac{2Q^2}{r^4} - \frac{M}{r^3} + \frac{4\Lambda}{3}, \end{aligned} \qquad (30)$$

For M = 13.12806e+39; R= r = 1.94973e+13; Q = 0.00089 and
$\Lambda = -1.1056 * 10^{-46}$

We obtain:

$$\begin{aligned} 16\pi p(r) &= -16\pi\rho(r) \\ &= \frac{2Q^2}{r^4} - \frac{M}{r^3} + \frac{4\Lambda}{3}, \end{aligned} \qquad (30)$$

-16Pi*x = (2*0.00089^2)/(1.94973e+13)^4 – (13.12806e+39)/(1.94973e+13)^3 + (4*(-1.1056e-46))/3

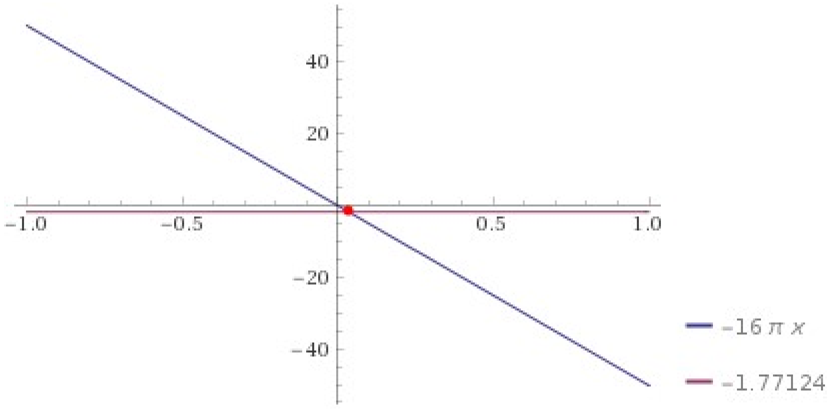
Input interpretation:

$$-16\pi x = \frac{2\times 0.00089^2}{(1.94973\times 10^{13})^4} - \frac{13.12806\times 10^{39}}{(1.94973\times 10^{13})^3} + \frac{1}{3}\left(4\left(-1.1056\times 10^{-46}\right)\right)$$

Result:

$$-16\pi x = -1.77124$$

Plot:



Alternate form:

$1.77124 - 16\pi x = 0$

Solution:

$x \approx 0.0352377$

0.0352377

Indeed, we have:

-16Pi*(0.0352377)

Input interpretation:

$-16\pi \times 0.0352377$

Result:

$-1.771239991190416915183601419951810220519593538309762662 20\ldots$

-1.77123999119…

(2*0.00089^2)/(1.94973e+13)^4 – (13.12806e+39)/(1.94973e+13)^3 + (4*(-1.1056e-46))/3

Input interpretation:

$$\frac{2\times 0.00089^2}{(1.94973\times 10^{13})^4} - \frac{13.12806\times 10^{39}}{(1.94973\times 10^{13})^3} + \frac{1}{3}\left(4\left(-1.1056\times 10^{-46}\right)\right)$$

Result:

−1.771238854952741730010014601996044807913462169699602887 49...

-1.7712388549…

We have also:

1+1/(-(((((2*0.00089^2)/(1.94973e+13)^4 – (13.12806e+39)/(1.94973e+13)^3 + (4*(-1.1056e-46))/3))))^11

Input interpretation:

$$1 + -\frac{1}{\left(\frac{2\times 0.00089^2}{(1.94973\times 10^{13})^4} - \frac{13.12806\times 10^{39}}{(1.94973\times 10^{13})^3} + \frac{1}{3}\left(4\left(-1.1056\times 10^{-46}\right)\right)\right)^{11}}$$

Result:

1.001857597267683517285996862255287161325131442715831071767...

1.00185759726768…..result very near to the value of the following Rogers-Ramanujan continued fraction:

$$\frac{e^{-\frac{2\pi}{5}}}{\sqrt{\varphi\sqrt{5}} - \varphi} = 1 + \frac{e^{-2\pi}}{1 + \frac{e^{-4\pi}}{1 + \frac{e^{-6\pi}}{1 + \frac{e^{-8\pi}}{1 + \ldots}}}} \approx 1.0018674362$$

and:

[1/(((((1+1/(-(((((2*0.00089^2)/(1.94973e+13)^4 – (13.12806e+39)/(1.94973e+13)^3 + (4*(-1.1056e-46))/3))))^11))))))]^1/3

Input interpretation:

$$\sqrt[3]{\frac{1}{1 + -\frac{1}{\left(\frac{2\times 0.00089^2}{(1.94973\times 10^{13})^4} - \frac{13.12806\times 10^{39}}{(1.94973\times 10^{13})^3} + \frac{1}{3}\left(4\left(-1.1056\times 10^{-46}\right)\right)\right)^{11}}}}$$

Result:

0.9993816...

0.9993816... result very near to the value of the following Rogers-Ramanujan continued fraction:

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

and to the dilaton value **$0.989117352243=\phi$**

47*log base 0.9993816[1/(((((1+1/(-(((((2*0.00089^2)/(1.94973e+13)^4 – (13.12806e+39)/(1.94973e+13)^3 + (4*(-1.1056e-46))/3))))^11))))))]-2+1/golden ratio

Input interpretation:

$$47\log_{0.9993816}\left(\frac{1}{1+-\frac{1}{\left(\frac{2\times0.00089^2}{(1.94973\times10^{13})^4}-\frac{13.12806\times10^{39}}{(1.94973\times10^{13})^3}+\frac{1}{3}\left(4\left(-1.1056\times10^{-46}\right)\right)\right)^{11}}}\right)-2+\frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

139.626...

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

47*log base 0.9993816[1/(((((1+1/(-(((((2*0.00089^2)/(1.94973e+13)^4 – (13.12806e+39)/(1.94973e+13)^3 + (4*(-1.1056e-46))/3))))^11))))))]-16+1/golden ratio

Input interpretation:

$$47 \log_{0.9993816}\left(\frac{1}{1+-\frac{1}{\left(\frac{2\times 0.00089^2}{(1.94973\times 10^{13})^4}-\frac{13.12806\times 10^{39}}{(1.94973\times 10^{13})^3}+\frac{1}{3}\left(4\left(-1.1056\times 10^{-46}\right)\right)\right)^{11}}}\right)-16+\frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

125.626...

125.626... 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

From:

$$\nu' = \frac{2}{\left(1-\frac{2M}{r}+\frac{Q^2}{r^2}-\frac{\Lambda r^2}{3}\right)} \cdot \left(\frac{M}{r^2}-\frac{Q^2}{r^3}-\frac{\Lambda r}{3}\right), \quad (37)$$

For M = 13.12806e+39; R = r = 1.94973e+13; Q = 0.00089 and

$\Lambda = -1.1056 * 10^{-46}$

2/[((1-((2*13.12806e+39)/(1.94973e+13))+((0.00089^2)/(1.94973e+13)^2)-(1/3((-1.1056e-46)*(1.94973e+13)^2))))]

Input interpretation:

$$\frac{2}{1-\frac{2\times 13.12806\times 10^{39}}{1.94973\times 10^{13}}+\frac{0.00089^2}{(1.94973\times 10^{13})^2}-\frac{1}{3}\left(-1.1056\times 10^{-46}\left(1.94973\times 10^{13}\right)^2\right)}$$

Result:

$-1.4851623164427950512109176842944294599651474761838 49... \times 10^{-27}$

-1.485162316…*10^{-27}

((13.12806e+39)/(1.94973e+13)^2)-((0.00089^2)/(1.94973e+13)^3)-(((1/3(-1.1056e-46)*(1.94973e+13))))

Input interpretation:

$$\frac{13.12806\times10^{39}}{(1.94973\times10^{13})^2}-\frac{0.00089^2}{(1.94973\times10^{13})^3}-\frac{1}{3}\left(-1.1056\times10^{-46}\right)\times1.94973\times10^{13}$$

Result:

$3.4534375326670091332524257699497484433331145959128445... \times 10^{13}$

3.45343753266…*10^{13}

Thence:

2/[((1-((2*13.12806e+39)/(1.94973e+13))+((0.00089^2)/(1.94973e+13)^2)-(1/3((-1.1056e-46)*(1.94973e+13)^2))))]*3.4534375326670091332524257699497484433331145959128445 × 10^13

Input interpretation:

$$\frac{2}{1-\frac{2\times13.12806\times10^{39}}{1.94973\times10^{13}}+\frac{0.00089^2}{(1.94973\times10^{13})^2}-\frac{1}{3}\left(-1.1056\times10^{-46}\left(1.94973\times10^{13}\right)^2\right)}\times 3.4534375326670091332524257699497484433331145959128445\times10^{13}$$

Result:

$-5.1289152857062259902653187915382189237555842380056 14... \times 10^{-14}$

-5.12891528570622599…*10^{-14}

From which:

[-1/((((((2/[((1-((2*13.12806e+39)/(1.94973e+13))+((0.00089^2)/(1.94973e+13)^2)-(1/3((-1.1056e-46)*(1.94973e+13)^2))))]*3.45343753266700913e+13))))))]^1/6-24-1/golden ratio

Input interpretation:

$$\left(-\left(1\middle/\left(2\middle/\left(1-\frac{2\times 13.12806\times 10^{39}}{1.94973\times 10^{13}}+\frac{0.00089^2}{(1.94973\times 10^{13})^2}-\frac{1}{3}\left(-1.1056\times 10^{-46}\,(1.94973\times 10^{13})^2\right)\right)\times 3.45343753266700913\times 10^{13}\right)\right)\right)\right)\wedge(1/6)-24-\frac{1}{\phi}$$

ϕ is the golden ratio

Result:

139.439...

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

[-1/((((((2/[((1-((2*13.12806e+39)/(1.94973e+13))+((0.00089^2)/(1.94973e+13)^2)-(1/3((-1.1056e-46)*(1.94973e+13)^2))))]*3.45343753266700913e+13))))))]^1/6-34-4-1/golden ratio

Input interpretation:

$$\left(-\left(1\middle/\left(2\middle/\left(1-\frac{2\times 13.12806\times 10^{39}}{1.94973\times 10^{13}}+\frac{0.00089^2}{(1.94973\times 10^{13})^2}-\frac{1}{3}\left(-1.1056\times 10^{-46}\,(1.94973\times 10^{13})^2\right)\right)\times 3.45343753266700913\times 10^{13}\right)\right)\right)\right)\wedge(1/6)-34-4-\frac{1}{\phi}$$

ϕ is the golden ratio

Result:

125.439...

125.439... 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(((((([-1/((((((2/[((1-((2*13.12806e+39)/(1.94973e+13))+((0.00089^2)/(1.94973e+13)^2)-(1/3((-1.1056e-46)*(1.94973e+13)^2))))]*3.4534375326700913e+13))))))]^1/6-34-golden ratio)))))-5

Input interpretation:

$$27\times\frac{1}{2}\left(\left(-\left(1/\left(2/\left(1-\frac{2\times 13.12806\times 10^{39}}{1.94973\times 10^{13}}+\frac{0.00089^2}{(1.94973\times 10^{13})^2}-\frac{1}{3}\left(-1.1056\times 10^{-46}\,(1.94973\times 10^{13})^2\right)\right)\times 3.4534375326700913\times 10^{13}\right)\right)\right)\wedge(1/6)-34-\phi\right)-5$$

ϕ is the golden ratio

Result:

1728.93…

1728.93… ≈ 1729

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 (taxicab number)

(((27*1/2(((((([-1/((((((2/[((1-((2*13.12806e+39)/(1.94973e+13))+((0.00089^2)/(1.94973e+13)^2)-(1/3((-1.1056e-46)*(1.94973e+13)^2))))]*3.4534375326e+13))))))]^1/6-34-golden ratio)))))-5)))^1/15 -0.16^2

Input interpretation:

$$\left(27\times\frac{1}{2}\left(\left(-\left(1/\left(2/\left(1-\frac{2\times 13.12806\times 10^{39}}{1.94973\times 10^{13}}+\frac{0.00089^2}{(1.94973\times 10^{13})^2}-\frac{1}{3}\left(-1.1056\times 10^{-46}\,(1.94973\times 10^{13})^2\right)\right)\times 3.4534375326\times 10^{13}\right)\right)\right)\wedge(1/6)-34-\phi\right)-5\right)\wedge(1/15)-0.16^2$$

ϕ is the golden ratio

Result:

1.6182108577806895738292338210179567084516443049249097022370...

1.61821085778… result that is a very good approximation to the value of the golden ratio 1,618033988749...

From:

Generating functions of wormholes

arXiv:1901.01757v1 [physics.gen-ph] 1 Jan 2019

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(Dated: January 8, 2019)

We have that:

The form of the shape function $b(r) = r_0[1+\beta^2(1-\frac{r_0}{r})]$, where r_0 is the throat radius, provides a wormhole solution provided the arbitrary constant β has the restriction $\beta^2<1$ since $b'(r_0) < 1$.

Here the generating functions are

$$Z(r) = \frac{1}{r} \quad \text{and} \quad \Pi(r) = \frac{3\beta^2 r_0^2}{r^4} - \frac{2r_0(1+\beta^2)}{r^3}. \tag{18}$$

The form $8\pi(P_r + \rho)$ is given by

$$8\pi(P_r + \rho) = \frac{2\beta^2 r_0^2}{r^4} - \frac{r_0}{r^3} - \frac{\beta^2 r_0}{r^3}. \tag{19}$$

From:

$$Z(r) = \frac{1}{r}$$

$$\Pi(r) = \frac{3\beta^2 r_0^2}{r^4} - \frac{2r_0(1+\beta^2)}{r^3}.$$

$\beta^2 < 1$

we obtain:

1/(1.94973e+13)

Input interpretation:

$$\frac{1}{1.94973 \times 10^{13}}$$

Result:

$5.1289152857062259902653187877295830704764249408892513... \times 10^{-14}$

Repeating decimal:

$5.1289152857062259902653187877295830704764249408892513... \times 10^{-14}$

(period 10192)

5.12891528570622599...× 10^{-14}

For **r = 1.94973e+13** and **$\beta^2 = 0.5^2$**

(3*0.5^2*x^2)/(1.94973e+13)^4 – (2*x(1+0.5^2))/(1.94973e+13) = y

Input interpretation:

$$\frac{3 \times 0.5^2\, x^2}{(1.94973 \times 10^{13})^4} - \frac{2\, x\,(1 + 0.5^2)}{1.94973 \times 10^{13}} = y$$

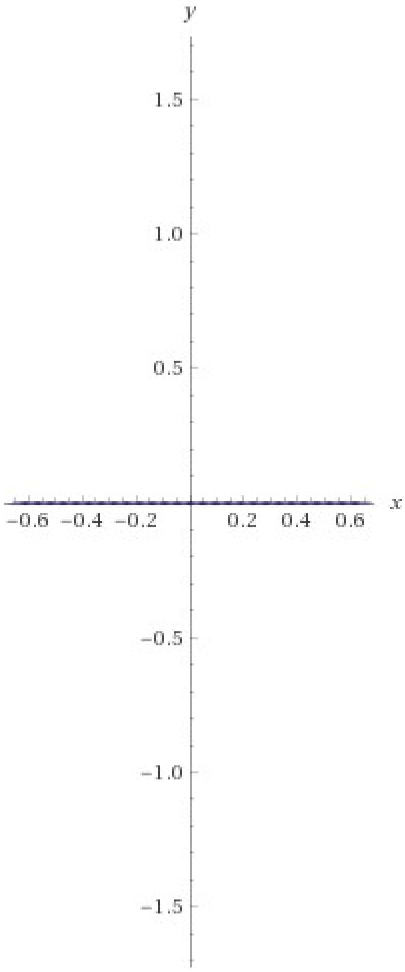
Result:

$5.18995 \times 10^{-54}\, x^2 - 1.28223 \times 10^{-13}\, x = y$

Geometric figure:

line

Implicit plot:



Alternate forms:

$(5.18995 \times 10^{-54}\, x - 1.28223 \times 10^{-13})\, x = y$

$2.27815 \times 10^{-27}\, (2.27815 \times 10^{-27}\, x - 5.62839 \times 10^{13})\, x = y$

$5.18995 \times 10^{-54}\, x^2 - 1.28223 \times 10^{-13}\, x - y = 0$

Alternate form assuming x and y are real:

$5.18995 \times 10^{-54}\, x^2 - 1.28223 \times 10^{-13}\, x + 0 = y$

Real solution:

$y \approx 3.40721 \times 10^{-64}\, (1.52323 \times 10^{10}\, x^2 - 3.76328 \times 10^{50}\, x)$

Solution:

$y \approx 3.40721 \times 10^{-64}\, x\, (15\,232\,265\,625\, x -$
$376\,328\,121\,043\,228\,610\,302\,385\,975\,708\,522\,214\,756\,492\,565\,807\,104)$

Integer solution:

$x = 0, \quad y = 0$

Partial derivatives:

$$\frac{\partial}{\partial x}(5.18995\times 10^{-54}\, x^2 - 1.28223\times 10^{-13}\, x) = 1.03799\times 10^{-53}\, x - 1.28223\times 10^{-13}$$

$$\frac{\partial}{\partial y}(5.18995\times 10^{-54}\, x^2 - 1.28223\times 10^{-13}\, x) = 0$$

Implicit derivatives:

$$\frac{\partial x(y)}{\partial y} = 1\,467\,476\,454\,883\,228\,089\,433\,232\,610\,286\,553\,682\,370\,173\,274\,290\,168\,791\,040\,000\,000 / (-188\,164\,060\,521\,614\,286\,264\,410\,022\,193\,656\,773\,292\,990\,987\,763\,712 + 15\,232\,265\,625\, x)$$

$$\frac{\partial y(x)}{\partial x} = -\frac{1}{7\,798\,920\,000\,000} + \frac{x}{96\,339\,998\,987\,066\,514\,567\,377\,931\,363\,152\,267\,926\,011\,385\,735\,020\,544}$$

Global minimum:

$$\min\{5.18995\times 10^{-54}\, x^2 - 1.28223\times 10^{-13}\, x\} = -\frac{183\,753\,965\,353\,138\,951\,430\,087\,912\,298\,492\,942\,668\,936\,511\,488}{232\,021\,916\,070\,556\,640\,625} \text{ at } x = \frac{188\,164\,060\,521\,614\,286\,264\,410\,022\,193\,656\,773\,292\,990\,987\,763\,712}{15\,232\,265\,625}$$

(3*0.5^2*x^2)/(1.94973e+13)^4 – (2*x(1+0.5^2))/(1.94973e+13) = (5.18995×10^-54 x - 1.28223×10^-13) x

Input interpretation:

$$\frac{3\times 0.5^2\, x^2}{(1.94973\times 10^{13})^4} - \frac{2\, x\,(1+0.5^2)}{1.94973\times 10^{13}} = (5.18995\times 10^{-54}\, x - 1.28223\times 10^{-13})\, x$$

Result:

$$5.18995\times 10^{-54}\, x^2 - 1.28223\times 10^{-13}\, x = (5.18995\times 10^{-54}\, x - 1.28223\times 10^{-13})\, x$$

Alternate forms:

$$2.30701\times 10^{-60}\, x^2 + 1.17857\times 10^{-19}\, x = 0$$

$$(5.18995\times 10^{-54}\, x - 1.28223\times 10^{-13})\, x = (5.18995\times 10^{-54}\, x - 1.28223\times 10^{-13})\, x$$

$$2.27815\times10^{-27}\,(2.27815\times10^{-27}\,x-5.62839\times10^{13})\,x = 2.27815\times10^{-27}\,(2.27815\times10^{-27}\,x-5.62839\times10^{13})\,x$$

Expanded form:

$$5.18995\times10^{-54}\,x^2-1.28223\times10^{-13}\,x = 5.18995\times10^{-54}\,x^2-1.28223\times10^{-13}\,x$$

Alternate form assuming x is real:

$$5.18995\times10^{-54}\,x^2-1.28223\times10^{-13}\,x+0 = 5.18995\times10^{-54}\,x^2-1.28223\times10^{-13}\,x+0$$

Solutions:

$x = -51\,086\,681\,842\,193\,045\,893\,000\,894\,180\,192\,294\,010\,880$

$x = 0$

Integer solution:

$x = -51\,086\,681\,842\,193\,045\,893\,000\,894\,180\,192\,294\,010\,880$

Thence **r_0 = -5.1086681842193045893e+40**

From

$$\Pi(r)=\frac{3\beta^2 r_0^2}{r^4}-\frac{2r_0(1+\beta^2)}{r^3}.$$

(3*0.5^2*(-5.1086681842193045893e+40)^2)/(1.94973e+13)^4 – (2*(-5.1086681842193045893e+40)(1+0.5^2))/(1.94973e+13)^3

Input interpretation:

$$\frac{3\times0.5^2\,(-5.1086681842193045893\times10^{40})^2}{(1.94973\times10^{13})^4}-\frac{2\,(-5.1086681842193045893\times10^{40})\,(1+0.5^2)}{(1.94973\times10^{13})^3}$$

Result:

$1.354499215842748995158870313318446868681176540890918 5\ldots\times10^{28}$

$1.354499215842748 99\ldots*10^{28}$

Multiplying the two results, we obtain:

5.12891528570622599 × 10^-14 * (((((3*0.5^2*(-5.10866818421930458 93e+40)^2)/(1.94973e+13)^4 – (2*(-5.10866818421930458 93e+40)(1+0.5^2))/(1.94973e+13)))))

Input interpretation:

$$5.12891528570622599\times10^{-14}\left(\frac{3\times0.5^2\,(-5.1086681842193045893\times10^{40})^2}{(1.94973\times10^{13})^4}-\frac{2\,(-5.1086681842193045893\times10^{40})\,(1+0.5^2)}{1.94973\times10^{13}}\right)$$

Result:

$$1.0306798245571620320462997555761541904197720739669351\ldots\times10^{15}$$

$1.030679824557\ldots*10^{15}$

From which, we obtain:

((((5.12891528570622599 × 10^-14 * (((((3*0.5^2*(-5.1086681842193045893e+40)^2)/(1.94973e+13)^4 – (2*(-5.1086681842193045893e+40)(1+0.5^2))/(1.94973e+13))))))))^1/7

Input interpretation:

$$\left(5.12891528570622599\times10^{-14}\left(\frac{3\times0.5^2\,(-5.1086681842193045893\times10^{40})^2}{(1.94973\times10^{13})^4}-\frac{2\,(-5.1086681842193045893\times10^{40})\,(1+0.5^2)}{1.94973\times10^{13}}\right)\right)\text{^}(1/7)$$

Result:

139.551...

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

We have that:

(((integrate[log base 139.551((((5.1289152857 × 10^-14 * (((((3*0.5^2*(-5.1086681842193e+40)^2)/(1.94973e+13)^4 – (2*(-5.1086681842193e+40)(1+0.5^2))/(1.94973e+13)))))))))]x,[0,4.277])))

Definite integral:

$$\int_0^{4.277} \log_{139.551}\left(5.1289152857\times 10^{-14}\left(\frac{3\times 0.5^2\,(-5.1086681842193\times 10^{40})^2}{(1.94973\times 10^{13})^4} - \frac{2\,(-5.1086681842193\times 10^{40})\,(1+0.5^2)}{1.94973\times 10^{13}}\right)\right) x\,dx = 64.0245$$

((((5.12891528570622599 × 10^-14 * (((((3*0.5^2*(-5.10866818421930458 93e+40)^2)/(1.94973e+13)^4 – (2*(-5.1086681842193045893e+40)(1+0.5^2))/(1.94973e+13)))))))))^1/7 - 11 – Pi

Input interpretation:

$$\left(5.12891528570622599\times 10^{-14}\left(\frac{3\times 0.5^2\,(-5.1086681842193045893\times 10^{40})^2}{(1.94973\times 10^{13})^4} - \frac{2\,(-5.1086681842193045893\times 10^{40})\,(1+0.5^2)}{1.94973\times 10^{13}}\right)\right)\hat{}\,(1/7) - 11 - \pi$$

Result:

125.409...

125.409... 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

We note that:

(((integrate[log base 125.409((((5.1289152857 × 10^-14 * (((((3*0.5^2*(-5.1086681842193e+40)^2)/(1.94973e+13)^4 – (2*(-5.1086681842193e+40)(1+0.5^2))/(1.94973e+13)))))))))]x,[0,4.23])))

Definite integral:

$$\int_0^{4.23} \log_{125.409}\left(5.1289152857\times 10^{-14}\left(\frac{3\times 0.5^2\,(-5.1086681842193\times 10^{40})^2}{(1.94973\times 10^{13})^4} - \frac{2\,(-5.1086681842193\times 10^{40})\,(1+0.5^2)}{1.94973\times 10^{13}}\right)\right) x\,dx = 64.0101$$

27*1/2(((((((5.12891528570622599 × 10^-14 * (((((3*0.5^2*(-5.1086681842193e+40)^2)/(1.94973e+13)^4 – (2*(-5.1086681842193e+40)(1+0.5^2))/(1.94973e+13)))))))))^1/7 - 11 - 1/2)))+1/3

Input interpretation:

$$27 \times \frac{1}{2}\left(\left(\left(5.12891528570622599 \times 10^{-14}\left(\frac{3 \times 0.5^2\,(-5.1086681842193 \times 10^{40})^2}{(1.94973 \times 10^{13})^4} - \frac{2\,(-5.1086681842193 \times 10^{40})\,(1+0.5^2)}{1.94973 \times 10^{13}}\right)\right)\right)\text{^}(1/7) - 11 - \frac{1}{2}\right) + \frac{1}{3}$$

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 (taxicab number)

[27*1/2(((((((5.12891528570622599 × 10^-14 * (((((3*0.5^2*(-5.1086681842193e+40)^2)/(1.94973e+13)^4 – (2*(-5.1086681842193e+40)(1+0.5^2))/(1.94973e+13)))))))))^1/7 - 11 - 1/2)))+1/3]^1/15 - 0.16^2

Input interpretation:

$$\left(27 \times \frac{1}{2}\left(\left(\left(5.12891528570622599 \times 10^{-14}\left(\frac{3 \times 0.5^2\,(-5.1086681842193 \times 10^{40})^2}{(1.94973 \times 10^{13})^4} - \frac{2\,(-5.1086681842193 \times 10^{40})\,(1+0.5^2)}{1.94973 \times 10^{13}}\right)\right)\right)\text{^}(1/7) - 11 - \frac{1}{2}\right) + \frac{1}{3}\right)\text{^}(1/15) - 0.16^2$$

Result:

1.618216341741066513904570168505155024216978193393542026793...

1.6182163417… result that is a very good approximation to the value of the golden ratio 1,618033988749...

Now, we have that:

From

$$\Pi(r) = \frac{3\beta^2 r_0^2}{r^4} - \frac{2r_0(1+\beta^2)}{r^3}. \quad (18)$$

We obtain:

$$8\pi(P_r + \rho) = \frac{2\beta^2 r_0^2}{r^4} - \frac{r_0}{r^3} - \frac{\beta^2 r_0}{r^3}. \quad (19)$$

(2*0.5^2*(-5.1086681842193045893e+40)^2)/(1.94973e+13)^4 – (-5.1086681842193045893e+40)/(1.94973e+13)^3 - ((0.5^2*(-5.1086681842193045893e+40)))/(1.94973e+13)^3

Input interpretation:

$$\frac{2\times 0.5^2\left(-5.1086681842193045893\times 10^{40}\right)^2}{\left(1.94973\times 10^{13}\right)^4} - -\frac{5.1086681842193045893\times 10^{40}}{\left(1.94973\times 10^{13}\right)^3} - \frac{0.5^2\left(-5.1086681842193045893\times 10^{40}\right)}{\left(1.94973\times 10^{13}\right)^3}$$

Result:

$9.029994772284993301059135419251054539292066982778554 5... \times 10^{27}$

$9.0299947722849933... \times 10^{27}$

From which:

Pi = (9.0299947722849933e+27)/((8(x+y)))

Input interpretation:

$$\pi = \frac{9.0299947722849933 \times 10^{27}}{8\,(x+y)}$$

Result:

$$\pi = \frac{1.1287493465356242 \times 10^{27}}{x+y}$$

Alternate forms:

$$y = 3.5929207602578262 \times 10^{26} - 1.0000000000000000\,x$$

$$\pi = \frac{1.1287493465356242 \times 10^{27}}{1.0000000000000000\,x + 1.0000000000000000\,y}$$

Real solution:

$$y \approx 0.31830988618379067\left(1.1287493465356242 \times 10^{27} - 3.1415926535897932\,x\right)$$

Solution:

$$y \approx 6.939957569099423 \times 10^{-7}\,(517\,715\,090\,399\,906\,952\,984\,217\,500\,000\,000 - 1\,440\,931\,x)$$

Solution for the variable y:

$$y \approx 0.31830988618379067\,(1\,128\,749\,346\,535\,624\,162\,500\,000\,000 - 3.1415926535897932\,x)$$

Implicit derivatives:

$$\frac{\partial x(y)}{\partial y} = -1$$

$$\frac{\partial y(x)}{\partial x} = -1$$

From

$$y \approx 0.31830988618379067\left(1.1287493465356242 \times 10^{27} - 3.1415926535897932\,x\right)$$

We obtain:

Pi = (9.0299947722849933e+27)/((8(x+((0.31830988618379067 (1.1287493465356242×10^27 - 3.1415926535897932 x))))))

Input interpretation:

$$\pi = (9.0299947722849933\times 10^{27})/(8\,(x + 0.31830988618379067\,(1.1287493465356242\times 10^{27} + x\times(-3.1415926535897932))))$$

Result:

True

(9.0299947722849933e+27)/((8(x+((0.31830988618379067 (1.1287493465356242×10^27 - 3.1415926535897932 x))))))

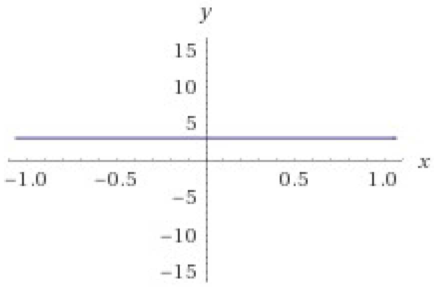
Input interpretation:

$$(9.0299947722849933\times 10^{27})/(8\,(x + 0.31830988618379067\,(1.1287493465356242\times 10^{27} + x\times(-3.1415926535897932))))$$

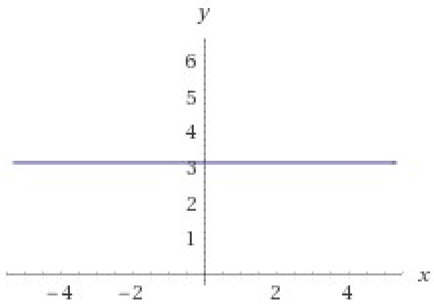
Result:

$$\frac{1.1287493465356242\times 10^{27}}{0.31830988618379067\,(1.1287493465356242\times 10^{27} - 3.1415926535897932\,x) + x}$$

Plots:



(x from −1.1 to 1.1)



(x from −5.3 to 5.3)

Alternate forms:

3.141592653589793

$$\frac{1.128749346535624\times 10^{27}}{0.\times 10^{-17}\,x + 3.592920760257826\times 10^{26}}$$

Roots:

(no roots exist)

Properties as a real function:

Domain

$\{x \in \mathbb{R} : x \neq -(89\,823\,019\,006\,445\,658\,175\,671\,437\,646\,553\,500\,000\,000\,000\,000\,000\,000\,000\,000 / 4\,268\,519\,700\,652\,639)\}$

Range

$\{y \in \mathbb{R} : y \neq 0\}$

Parity

even

$\mathbb{R}$ is the set of real numbers

Series expansion at x = 0:

3.141592653589793

Series expansion at x = ∞:

3.141592653589793

Indefinite integral:

$$\int ((9.02999477228449933 \times 10^{27}) / (8 (x + 0.31830988618379067 (1.12874934653562 42 \times 10^{27} - 3.1415926535897932 x)))) dx = 3.141592653589793 x + \text{constant}$$

Limit:

$$\lim_{x \to \pm\infty} 1.1287493465356242 \times 10^{27} / (0.31830988618379067 (1.1287493465356242 \times 10^{27} - 3.1415926535897932 x) + x) = 0$$

From:

$$\frac{1.128749346535624 \times 10^{27}}{0. \times 10^{-17} x + 3.592920760257826 \times 10^{26}}$$

We obtain:

Input interpretation:

$$\frac{1.128749346535624 \times 10^{27}}{3.592920760257826 \times 10^{26} + 0 \times 10^{-16} x}$$

Result:

3.141592653589792982936689657019144795302800380714842202376...

3.1415926535… ≈ π

1/6(((((9.0299947722849933e+27)/((8(x+((0.31830988618379067 (1.1287493465356242×10^27 - 3.1415926535897932 x)))))))))^2 - (5Pi/584)

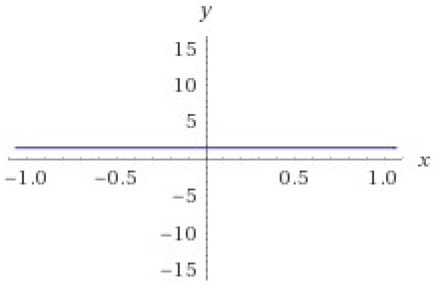
Input interpretation:

$$\frac{1}{6}\left((9.0299947722849933\times10^{27})/\left(8\left(x+0.31830988618379067\left(1.1287493465356242\times10^{27}+x\times(-3.1415926535897932)\right)\right)\right)\right)^2-5\times\frac{\pi}{584}$$

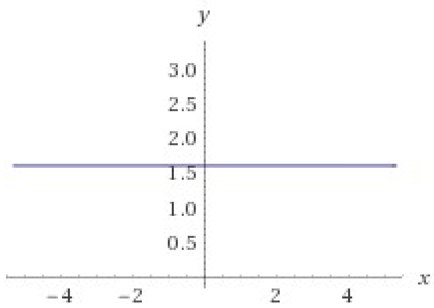
Result:

$$2.1234584788409976\times10^{53}/\left(0.31830988618379067\left(1.1287493465356242\times10^{27}-3.1415926535897932\,x\right)+x\right)^2-\frac{5\pi}{584}$$

Plots:



(x from −1.1 to 1.1)



(x from −5.3 to 5.3)

Alternate forms:

1.618036869471601

1.618036869471601 result that is a very good approximation to the value of the golden ratio 1,618033988749...

$$\frac{2.088736672674086\times10^{53}}{(0.\times10^{-17}\,x+3.592920760257826\times10^{26})^2}$$

Alternate form assuming x is real:

$$\frac{2.1234584788409976\times 10^{53}}{(0.\times 10^{-17}\,x+3.592920760257826\times 10^{26})^2}-\frac{5\pi}{584}$$

Roots:

(no roots exist)

Properties as a real function:

Domain

$\{x \in \mathbb{R} : x \neq -(89\,823\,019\,006\,445\,658\,175\,671\,437\,646\,553\,500\,000\,000\,000\,000\,000\,000\,000\,000\,000 / 4\,268\,519\,700\,652\,639)\}$

Range

$\{y \in \mathbb{R} : y > -\frac{5\pi}{584}\}$

Parity

even

$\mathbb{R}$ is the set of real numbers

Series expansion at x = 0:

1.618036869471601

Series expansion at x = ∞:

1.618036869471601

1.618036869471601

Indefinite integral:

$$\int\left(\frac{1}{6}\left((9.0299947722849933\times 10^{27})/\left(8\left(x+0.31830988618379067\left(1.1287493465356242\times 10^{27}-3.1415926535897932\,x\right)\right)\right)\right)^2-\frac{5\pi}{584}\right)dx=1.618036869471601\,x+\text{constant}$$

Limit:

$$\lim_{x\to\pm\infty}\left(-\frac{5\pi}{584}+2.1234584788409976\times 10^{53}/\left(0.31830988618379067\left(1.1287493465356242\times 10^{27}-3.1415926535897932\,x\right)+x\right)^2\right)=1.618036869471601$$

We have also:

(((((2*0.5^2*(-5.108668184219e+40)^2)/(1.94973e+13)^4 – (-5.108668184219e+40)/(1.94973e+13)^3 - ((0.5^2*(-5.108668184219e+40)))/(1.94973e+13)^3))))^1/128

Input interpretation:

$$\left(\frac{2\times 0.5^2\left(-5.108668184219\times 10^{40}\right)^2}{\left(1.94973\times 10^{13}\right)^4}-\frac{5.108668184219\times 10^{40}}{\left(1.94973\times 10^{13}\right)^3}-\frac{0.5^2\left(-5.108668184219\times 10^{40}\right)}{\left(1.94973\times 10^{13}\right)^3}\right)^{\wedge}(1/128)$$

Result:

1.653498512613571171428644652386508560175050443486348465701...

1.653498512613…. result very near to the 14th root of the following Ramanujan's class invariant $Q = \left(G_{505}/G_{101/5}\right)^3 = 1164{,}2696$ i.e. 1,65578...

From which:

log base 1.65349851261357(((((2*0.5^2*(-5.108668184219e+40)^2)/(1.94973e+13)^4 – (-5.108668184219e+40)/(1.94973e+13)^3 - ((0.5^2*(-5.108668184219e+40)))/(1.94973e+13)^3))))-Pi+1/golden ratio

Input interpretation:

$$\log_{1.65349851261357}\left(\frac{2\times 0.5^2\left(-5.108668184219\times 10^{40}\right)^2}{\left(1.94973\times 10^{13}\right)^4}-\frac{5.108668184219\times 10^{40}}{\left(1.94973\times 10^{13}\right)^3}-\frac{0.5^2\left(-5.108668184219\times 10^{40}\right)}{\left(1.94973\times 10^{13}\right)^3}\right)-\pi+\frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

125.476...

125.476… 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 log base 1.65349851261357(((((2*0.5^2*(-5.108668184219e+40)^2)/(1.94973e+13)^4 – (-5.108668184219e+40)/(1.94973e+13)^3 - ((0.5^2*(-5.108668184219e+40)))/(1.94973e+13)^3))))+11+1/golden ratio

Input interpretation:

$$\log_{1.65349851261357}\left(\frac{2\times 0.5^2\,(-5.108668184219\times 10^{40})^2}{(1.94973\times 10^{13})^4} - \frac{5.108668184219\times 10^{40}}{(1.94973\times 10^{13})^3} - \frac{0.5^2\,(-5.108668184219\times 10^{40})}{(1.94973\times 10^{13})^3}\right) + 11 + \frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

139.6180...

139.6180… result practically equal to the rest mass of Pion meson 139.57 MeV

We note that:

(((integrate [log base 1.65349851261357(((((2*0.5^2*(-5.1086681e+40)^2)/(1.94973e+13)^4 – (-5.1086681e+40)/(1.94973e+13)^3 - ((0.5^2*(-5.1086681e+40)))/(1.94973e+13)^3))))]x,[0,1])))

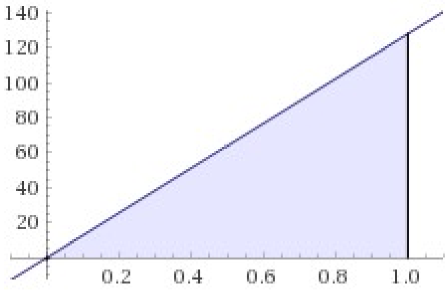
Definite integral:

$$\int_0^1 \log_{1.65349851261357}\left(\frac{2\times 0.5^2\,(-5.1086681\times 10^{40})^2}{(1.94973\times 10^{13})^4} - \frac{5.1086681\times 10^{40}}{(1.94973\times 10^{13})^3} - \frac{0.5^2\,(-5.1086681\times 10^{40})}{(1.94973\times 10^{13})^3}\right) x\,dx = 64.$$

Result = 64

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

Visual representation of the integral:



Indefinite integral:

$$\int \log_{1.65349851261357}\left(\frac{2\times 0.5^2\,(-5.1086681\times 10^{40})^2}{(1.94973\times 10^{13})^4} - -\frac{5.1086681\times 10^{40}}{(1.94973\times 10^{13})^3} - \frac{0.5^2\,(-5.1086681\times 10^{40})}{(1.94973\times 10^{13})^3}\right) x\,dx = 64.\,x^2 + \text{constant}$$

sqrt(((integrate [log base 1.65349851261357(((((2*0.5^2*(-5.1086681e+40)^2)/(1.94973e+13)^4 – (-5.1086681e+40)/(1.94973e+13)^3 - ((0.5^2*(-5.1086681e+40)))/(1.94973e+13)^3))))]x,[0,1]))),

Input interpretation:

$$\sqrt{\left(\int_0^1 \log_{1.65349851261357}\left(\frac{2\times 0.5^2\,(-5.1086681\times 10^{40})^2}{(1.94973\times 10^{13})^4} - -\frac{5.1086681\times 10^{40}}{(1.94973\times 10^{13})^3} - \frac{0.5^2\,(-5.1086681\times 10^{40})}{(1.94973\times 10^{13})^3}\right) x\,dx\right)}$$

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

Result:

8.

Computation result:

$$\sqrt{\left(\int_0^1 \log_{1.65349851261357}\left(\frac{2\times 0.5^2\,(-5.1086681\times 10^{40})^2}{(1.94973\times 10^{13})^4} - -\frac{5.1086681\times 10^{40}}{(1.94973\times 10^{13})^3} - \frac{0.5^2\,(-5.1086681\times 10^{40})}{(1.94973\times 10^{13})^3}\right) x\,dx\right)} = 8.$$

Result = 8

Now, we have (eq.33):

$$8\pi(P_r+\rho) = \frac{\beta^2 r_0^2}{r^4} - \frac{2\gamma^2}{r^2(r^2+\gamma^2)} - \frac{r_0+\beta^2 r_0 - \beta^2 r_0^2/r}{r^3}\left(1-\frac{2\gamma^2}{r^2+\gamma^2}\right).$$

For $r_0 = 2$ and $\gamma = 2$ $\beta^2 = 0.5^2$ and r = 1.94973e+13

We obtain:

(0.5^2 * 2^2)/(1.94973e+13)^4 – (2*4)/(((1.94973e+13)^2(((1.94973e+13)^2+4))))-(((2+0.5^2*2-(0.5^2*2^2)/(1.94973e+13))))/(1.94973e+13)^3 *((1-(2*2^2)/((1.94973e+13)^2+2^2)))

Input interpretation:

$$\frac{0.5^2\times 2^2}{(1.94973\times 10^{13})^4} - \frac{2\times 4}{(1.94973\times 10^{13})^2\,((1.94973\times 10^{13})^2+4)} - \frac{2+0.5^2\times 2-\frac{0.5^2\times 2^2}{1.94973\times 10^{13}}}{(1.94973\times 10^{13})^3}\left(1-\frac{2\times 2^2}{(1.94973\times 10^{13})^2+2^2}\right)$$

Result:

$-3.3730019038474834797123905941914216622595570289913 92\ldots\times 10^{-40}$

$-3.373001903847\ldots*10^{-40}$

Now, we have that (eq.32):

$$\Pi(r) = \left(1-\frac{r_0(1+\beta^2)}{r}+\frac{\beta^2 r_0^2}{r^2}\right)\left[\frac{\gamma^2(2r-3)}{r^2(r^2+\gamma^2)}+\frac{1}{r^2}-\frac{3\gamma^2 r^2+2\gamma^4}{r^2(r^2+\gamma^2)^2}\right]-\frac{1}{r^2}-\frac{r_0 r(1+\beta^2)-2\beta^2 r_0^2}{r^2}\left(\frac{1}{r^2+\gamma^2}\right),$$

For $r_0 = 2$ and $\gamma = 2$ $\beta^2 = 0.5^2$ and r = 1.94973e+13

We obtain:

((1-(((2(1+0.5^2)))/(((1.94973e+13))))+(0.5^2*2^2)/(1.94973e+13)^2))

Input interpretation:

$$1-\frac{2(1+0.5^2)}{1.94973\times10^{13}}+\frac{0.5^2\times2^2}{(1.94973\times10^{13})^2}$$

Result:

0.999999999999871777117857346980820567825404538200324551 46...

0.99999999999987177711785734698082056782540453820032455146

[4(((2*1.94973e+13-3)))/(((1.94973e+13)^2*(((1.94973e+13)^2+4))))+1/(1.94973e+13)^2-((3*4*(1.94973e+13)^2+2*2^4))/(((1.94973e+13)^2*(((1.94973e+13)^2+4))^2))]

Input interpretation:

$$4\times\frac{2\times1.94973\times10^{13}-3}{(1.94973\times10^{13})^2((1.94973\times10^{13})^2+4)}+\frac{1}{(1.94973\times10^{13})^2}-\frac{3\times4(1.94973\times10^{13})^2+2\times2^4}{(1.94973\times10^{13})^2((1.94973\times10^{13})^2+4)^2}$$

Result:

$2.630577200796177138386317357861663907466878723089 1122...\times10^{-27}$

$2.63057720079...*10^{-27}$

0.99999999999987177711785734698 08 [4(((2*1.94973e+13-3)))/(((1.94973e+13)^2*(((1.94973e+13)^2+4))))+1/(1.94973e+13)^2-((3*4*(1.94973e+13)^2+2*2^4))/(((1.94973e+13)^2*(((1.94973e+13)^2+4))^2))]

Input interpretation:

$$0.9999999999998717771178573469808\left(4\times\frac{2\times1.94973\times10^{13}-3}{(1.94973\times10^{13})^2((1.94973\times10^{13})^2+4)}+\frac{1}{(1.94973\times10^{13})^2}-\frac{3\times4(1.94973\times10^{13})^2+2\times2^4}{(1.94973\times10^{13})^2((1.94973\times10^{13})^2+4)^2}\right)$$

Result:

$2.630577200795839838195932519554465241713278250798 5131...\times10^{-27}$

$2.6305772007958398381959325195544652417132782507985131\times10^{-27}$

-1/(1.94973e+13)^2 – (((2*(1.94973e+13)*(1+0.5^2)-(2*0.5^2*2^2))))/(1.94973e+13)^2 * (1/((1.94973e+13)^2+2^2))

Input interpretation:

$$-\frac{1}{(1.94973\times 10^{13})^2} - \frac{2\times 1.94973\times 10^{13}\,(1+0.5^2) - 2\times 0.5^2\times 2^2}{(1.94973\times 10^{13})^2}\times\frac{1}{(1.94973\times 10^{13})^2+2^2}$$

Result:

$-2.630577200795435077967471155077888790400968897469797\ldots\times 10^{-27}$

$-2.63057720079\ldots*10^{-27}$

From

$2.630577200795839838195932519554465241713278250798 5131\times 10^{-27}$

(2.630577200795839838195932 5 × 10^-27) + ((-1/(1.94973e+13)^2 – (((2*(1.94973e+13)*(1+0.5^2)-(2*0.5^2*2^2))))/(1.94973e+13)^2 * (1/((1.94973e+13)^2+2^2))))

Input interpretation:

$$2.6305772007958398381959325\times 10^{-27} + \left(-\frac{1}{(1.94973\times 10^{13})^2} - \frac{2\times 1.94973\times 10^{13}\,(1+0.5^2) - 2\times 0.5^2\times 2^2}{(1.94973\times 10^{13})^2}\times\frac{1}{(1.94973\times 10^{13})^2+2^2}\right)$$

Result:

$4.047602284613449221112095990311025302024415019845 8536\ldots\times 10^{-40}$

$4.047602284613449221112095990311025302024415019845 8536\times 10^{-40}$

From the algebraic sum of the two results (eqs.32 and 33)

(4.047602284613 /10^40 - 3.373001903847/10^40)

Input interpretation:

$$\frac{4.047602284613}{10^{40}} - \frac{3.373001903847}{10^{40}}$$

Result:

$6.74600380766 \times 10^{-41}$

$6.74600380766*10^{-41}$

From which, we obtain:

1+(4.047602284613 /10^40 - 3.373001903847/10^40)^1/192

Input interpretation:

$$1 + \sqrt[192]{\frac{4.047602284613}{10^{40}} - \frac{3.373001903847}{10^{40}}}$$

Result:

1.61769812674436...

1.6176981267443622380497749220352334896454120556052044

From the following possible closed form

$$\frac{1}{12}\sqrt{\frac{1}{13}(3834 - 605\,e + 1204\,\pi - 1548\log(2))} \approx 1.61769812674436222379458$$

we obtain:

1/12 sqrt(1/13 (3834 - 605 e + 1204 π - 1548 log(2)))

Input:

$$\frac{1}{12}\sqrt{\frac{1}{13}(3834 - 605\,e + 1204\,\pi - 1548\log(2))}$$

log(x) is the natural logarithm

Decimal approximation:

1.6176981267443622379458759385995913484771810111197745642 39...

1.61769812674… result that is a very good approximation to the value of the golden ratio 1,618033988749...

Alternate form:

$$\frac{1}{12}\sqrt{\frac{1}{13}\left(2\left(602\pi - 9\left(86\log(2) - 213\right)\right) - 605e\right)}$$

Alternative representations:

$$\frac{1}{12}\sqrt{\frac{1}{13}\left(3834 - 605e + 1204\pi - 1548\log(2)\right)} = \frac{1}{12}\sqrt{\frac{1}{13}\left(3834 - 605e + 1204\pi - 1548\log_e(2)\right)}$$

$$\frac{1}{12}\sqrt{\frac{1}{13}\left(3834 - 605e + 1204\pi - 1548\log(2)\right)} = \frac{1}{12}\sqrt{\frac{1}{13}\left(3834 - 605e + 1204\pi - 1548\log(a)\log_a(2)\right)}$$

$$\frac{1}{12}\sqrt{\frac{1}{13}\left(3834 - 605e + 1204\pi - 1548\log(2)\right)} = \frac{1}{12}\sqrt{\frac{1}{13}\left(3834 - 605e + 1204\pi - 3096\coth^{-1}(3)\right)}$$

Series representations:

$$\frac{1}{12}\sqrt{\frac{1}{13}\left(3834 - 605e + 1204\pi - 1548\log(2)\right)} = \frac{\sqrt{3834 - 605e + 1204\pi - 1548\left(2i\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor + \log(x) - \sum_{k=1}^{\infty}\frac{(-1)^k(2-x)^k x^{-k}}{k}\right)}}{12\sqrt{13}} \text{ for } x < 0$$

$$\frac{1}{12}\sqrt{\frac{1}{13}\left(3834 - 605e + 1204\pi - 1548\log(2)\right)} = \frac{1}{12\sqrt{13}}\left(\sqrt{\left(3834 - 605e + 1204\pi - 1548\left(\log(z_0) + \left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right) + \log(z_0)\right) - \sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}\right)\right)}\right)$$

$$\frac{1}{12}\sqrt{\frac{1}{13}(3834-605e+1204\pi-1548\log(2))} = \frac{1}{12\sqrt{13}}\left(\sqrt{\left(3834-605e+1204\pi-1548\left(2i\pi\left\lfloor\frac{\pi-\arg\left(\frac{1}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}\right)\right)}\right)$$

Integral representations:

$$\frac{1}{12}\sqrt{\frac{1}{13}(3834-605e+1204\pi-1548\log(2))} = \frac{\sqrt{3834-605e+1204\pi-1548\int_1^2\frac{1}{t}\,dt}}{12\sqrt{13}}$$

$$\frac{1}{12}\sqrt{\frac{1}{13}(3834-605e+1204\pi-1548\log(2))} = \frac{\sqrt{3834-605e+1204\pi+\frac{774i}{\pi}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}}{12\sqrt{13}} \quad \text{for } -1<\gamma<0$$

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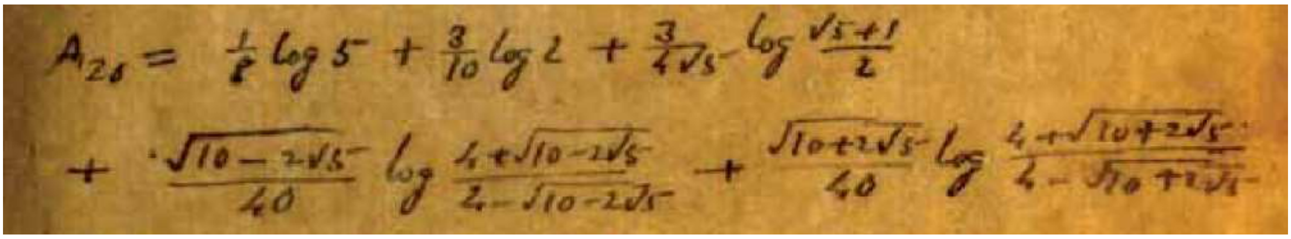


$$A_{26} = \frac{1}{8}\log 5 + \frac{3}{10}\log 2 + \frac{3}{4\sqrt{5}}\log\frac{\sqrt{5}+1}{2} + \frac{\sqrt{10-2\sqrt{5}}}{40}\log\frac{4+\sqrt{10-2\sqrt{5}}}{4-\sqrt{10-2\sqrt{5}}} + \frac{\sqrt{10+2\sqrt{5}}}{40}\log\frac{4+\sqrt{10+2\sqrt{5}}}{4-\sqrt{10+2\sqrt{5}}}$$

1/8 ln 5 + 3/10 ln 2 + 3/(4sqrt5) ln ((sqrt5+1)/2) + 1/40(10-2sqrt5)^1/2 ln ((((4+(10-2sqrt5)^1/2) / (4-(10-2sqrt5)^1/2)))) + 1/40(10+2sqrt5)^1/2 ln ((((4+(10+2sqrt5)^1/2) / (4-(10+2sqrt5)^1/2))))

Input:

$$\frac{1}{8}\log(5)+\frac{3}{10}\log(2)+\frac{3}{4\sqrt{5}}\log\left(\frac{1}{2}\left(\sqrt{5}+1\right)\right)+\frac{1}{40}\sqrt{10-2\sqrt{5}}\log\left(\frac{4+\sqrt{10-2\sqrt{5}}}{4-\sqrt{10-2\sqrt{5}}}\right)+\frac{1}{40}\sqrt{10+2\sqrt{5}}\log\left(\frac{4+\sqrt{10+2\sqrt{5}}}{4-\sqrt{10+2\sqrt{5}}}\right)$$

$\log(x)$ is the natural logarithm

Exact result:

$$\frac{3\log(2)}{10}+\frac{\log(5)}{8}+\frac{3\log\left(\frac{1}{2}\left(1+\sqrt{5}\right)\right)}{4\sqrt{5}}+\frac{1}{40}\sqrt{10-2\sqrt{5}}\log\left(\frac{4+\sqrt{10-2\sqrt{5}}}{4-\sqrt{10-2\sqrt{5}}}\right)+\frac{1}{40}\sqrt{10+2\sqrt{5}}\log\left(\frac{4+\sqrt{10+2\sqrt{5}}}{4-\sqrt{10+2\sqrt{5}}}\right)$$

Decimal approximation:

1.000301163885106499300594205362842555304287694349877380846...

1.0003011638851…

Alternate forms:

$$\frac{3\log(2)}{10}+\frac{\log(5)}{8}+\frac{3\log\left(\frac{1}{2}\left(1+\sqrt{5}\right)\right)}{4\sqrt{5}}+\frac{1}{20}\sqrt{\frac{1}{2}\left(5-\sqrt{5}\right)}\log\left(11-4\sqrt{5}+2\sqrt{2\left(25-11\sqrt{5}\right)}\right)+\frac{1}{20}\sqrt{\frac{1}{2}\left(5+\sqrt{5}\right)}\log\left(11+4\sqrt{5}+2\sqrt{2\left(25+11\sqrt{5}\right)}\right)$$

$$\frac{3\log(2)}{10}+\frac{\log(5)}{8}+\frac{1}{40}\sqrt{10-2\sqrt{5}}\left(\log\left(4+\sqrt{10-2\sqrt{5}}\right)-\log\left(4-\sqrt{10-2\sqrt{5}}\right)\right)+\frac{1}{40}\sqrt{10+2\sqrt{5}}\left(\log\left(4+\sqrt{10+2\sqrt{5}}\right)-\log\left(4-\sqrt{10+2\sqrt{5}}\right)\right)+\frac{3\operatorname{csch}^{-1}(2)}{4\sqrt{5}}$$

$$\frac{1}{40}\left(12\log(2)+5\log(5)+6\sqrt{5}\log\left(\frac{1}{2}\left(1+\sqrt{5}\right)\right)+\sqrt{2\left(5-\sqrt{5}\right)}\log\left(\frac{4+\sqrt{10-2\sqrt{5}}}{4-\sqrt{10-2\sqrt{5}}}\right)+\sqrt{2\left(5+\sqrt{5}\right)}\log\left(\frac{4+\sqrt{10+2\sqrt{5}}}{4-\sqrt{10+2\sqrt{5}}}\right)\right)$$

$\operatorname{csch}^{-1}(x)$ is the inverse hyperbolic cosecant function

Alternative representations:

$$\frac{\log(5)}{8} + \frac{1}{10}\log(2)\,3 + \frac{\log\left(\frac{1}{2}\left(\sqrt{5}+1\right)\right)3}{4\sqrt{5}} + \frac{1}{40}\sqrt{10-2\sqrt{5}}\,\log\left(\frac{4+\sqrt{10-2\sqrt{5}}}{4-\sqrt{10-2\sqrt{5}}}\right) + \frac{1}{40}\sqrt{10+2\sqrt{5}}\,\log\left(\frac{4+\sqrt{10+2\sqrt{5}}}{4-\sqrt{10+2\sqrt{5}}}\right) = \frac{1}{8}\log(a)\log_a(5) + \frac{3}{10}\log(a)\log_a(2) + \frac{1}{40}\log(a)\log_a\left(\frac{4+\sqrt{10-2\sqrt{5}}}{4-\sqrt{10-2\sqrt{5}}}\right)\sqrt{10-2\sqrt{5}} + \frac{3\log(a)\log_a\left(\frac{1}{2}\left(1+\sqrt{5}\right)\right)}{4\sqrt{5}} + \frac{1}{40}\log(a)\log_a\left(\frac{4+\sqrt{10+2\sqrt{5}}}{4-\sqrt{10+2\sqrt{5}}}\right)\sqrt{10+2\sqrt{5}}$$

$$\frac{\log(5)}{8} + \frac{1}{10}\log(2)\,3 + \frac{\log\left(\frac{1}{2}\left(\sqrt{5}+1\right)\right)3}{4\sqrt{5}} + \frac{1}{40}\sqrt{10-2\sqrt{5}}\,\log\left(\frac{4+\sqrt{10-2\sqrt{5}}}{4-\sqrt{10-2\sqrt{5}}}\right) + \frac{1}{40}\sqrt{10+2\sqrt{5}}\,\log\left(\frac{4+\sqrt{10+2\sqrt{5}}}{4-\sqrt{10+2\sqrt{5}}}\right) = \frac{\log_e(5)}{8} + \frac{3\log_e(2)}{10} + \frac{1}{40}\log_e\left(\frac{4+\sqrt{10-2\sqrt{5}}}{4-\sqrt{10-2\sqrt{5}}}\right)\sqrt{10-2\sqrt{5}} + \frac{3\log_e\left(\frac{1}{2}\left(1+\sqrt{5}\right)\right)}{4\sqrt{5}} + \frac{1}{40}\log_e\left(\frac{4+\sqrt{10+2\sqrt{5}}}{4-\sqrt{10+2\sqrt{5}}}\right)\sqrt{10+2\sqrt{5}}$$

$$\frac{\log(5)}{8} + \frac{1}{10}\log(2)\,3 + \frac{\log\left(\frac{1}{2}\left(\sqrt{5}+1\right)\right)3}{4\sqrt{5}} + \frac{1}{40}\sqrt{10-2\sqrt{5}}\,\log\left(\frac{4+\sqrt{10-2\sqrt{5}}}{4-\sqrt{10-2\sqrt{5}}}\right) + \frac{1}{40}\sqrt{10+2\sqrt{5}}\,\log\left(\frac{4+\sqrt{10+2\sqrt{5}}}{4-\sqrt{10+2\sqrt{5}}}\right) = -\frac{\mathrm{Li}_1(-4)}{8} - \frac{3\,\mathrm{Li}_1(-1)}{10} - \frac{1}{40}\mathrm{Li}_1\left(1-\frac{4+\sqrt{10-2\sqrt{5}}}{4-\sqrt{10-2\sqrt{5}}}\right)\sqrt{10-2\sqrt{5}} - \frac{3\,\mathrm{Li}_1\left(1+\frac{1}{2}\left(-1-\sqrt{5}\right)\right)}{4\sqrt{5}} - \frac{1}{40}\mathrm{Li}_1\left(1-\frac{4+\sqrt{10+2\sqrt{5}}}{4-\sqrt{10+2\sqrt{5}}}\right)\sqrt{10+2\sqrt{5}}$$

-(5 (272 - 65 π + 4 π^2))/(389 - 483 π + 60 π^2)

Input:

$$-\frac{5\left(272-65\pi+4\pi^2\right)}{389-483\pi+60\pi^2}$$

Decimal approximation:

1.0003011638851064984945274883412804685165134284392257977 25...

1.0003011638851…

Property:

$-\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}$ is a transcendental number

Alternate forms:

$$\frac{5(272-65\pi+4\pi^2)}{-389+483\pi-60\pi^2}$$

$$-\frac{5(272+\pi(4\pi-65))}{389-483\pi+60\pi^2}$$

$$\frac{492\pi-3691}{3(389-483\pi+60\pi^2)}-\frac{1}{3}$$

Alternative representations:

$$-\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}=-\frac{5(272-65\cos^{-1}(-1)+4\cos^{-1}(-1)^2)}{389-483\cos^{-1}(-1)+60\cos^{-1}(-1)^2}$$

$$-\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}=-\frac{5(272-65\pi+24\zeta(2))}{389-483\pi+360\zeta(2)}$$

$$-\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}=-\frac{5(272-11700^\circ+4(180^\circ)^2)}{389-86940^\circ+60(180^\circ)^2}$$

Series representations:

$$-\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}=-\frac{5\left(-272+65\pi-24\sum_{k=1}^{\infty}\frac{1}{k^2}\right)}{-389+483\pi-360\sum_{k=1}^{\infty}\frac{1}{k^2}}$$

$$-\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}=-\frac{5\left(-272+65\pi+48\sum_{k=1}^{\infty}\frac{(-1)^k}{k^2}\right)}{-389+483\pi+720\sum_{k=1}^{\infty}\frac{(-1)^k}{k^2}}$$

$$-\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}=-\frac{5\left(-272+65\pi-32\sum_{k=0}^{\infty}\frac{1}{(1+2k)^2}\right)}{-389+483\pi-480\sum_{k=0}^{\infty}\frac{1}{(1+2k)^2}}$$

1/(((-(5 (272 - 65 π + 4 π^2))/(389 - 483 π + 60 π^2))))

Input:

$$-\frac{1}{\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}}$$

Result:

$$-\frac{389-483\pi+60\pi^2}{5(272-65\pi+4\pi^2)}$$

Decimal approximation:

0.999698926787271948180850746057191678463012693318173215823...

0.999698926787… result very near to the value of the following Rogers-Ramanujan continued fraction:

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

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

Property:

$-\frac{389-483\pi+60\pi^2}{5(272-65\pi+4\pi^2)}$ is a transcendental number

1/(((1/(((-(5 (272 - 65 π + 4 π^2))/(389 - 483 π + 60 π^2)))))))^1/512

Input:

$$\frac{1}{\sqrt[512]{-\frac{1}{\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}}}}$$

Exact result:

$$\sqrt[512]{\frac{5(272-65\pi+4\pi^2)}{-389+483\pi-60\pi^2}}$$

Decimal approximation:

1.000000588122329910183597401947347023420199139991757058607...

1.0000005881223299… result very near to the following Rogers-Ramanujan continued fraction:

$$\frac{e^{-\frac{2\pi}{\sqrt{5}}}}{\frac{\sqrt{5}}{1+\sqrt[5]{\sqrt{(\varphi-1)^5}\sqrt[4]{5^3}}-1}-\varphi}=1+\frac{e^{-2\pi\sqrt{5}}}{1+\frac{e^{-4\pi\sqrt{5}}}{1+\frac{e^{-6\pi\sqrt{5}}}{1+\frac{e^{-8\pi\sqrt{5}}}{1+\dots}}}}\approx 1.0000007913$$

Property:

$\sqrt[512]{\frac{5(272-65\pi+4\pi^2)}{-389+483\pi-60\pi^2}}$ is a transcendental number

1/4log base 1.000000588122329911(((1/(((1/(((-(5 (272 - 65 π + 4 π^2))/(389 - 483 π + 60 π^2))))))))))-Pi+1/golden ratio

Input interpretation:

$$\frac{1}{4}\log_{1.000000588122329911}\left(\frac{1}{-\frac{1}{\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}}}\right)-\pi+\frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

125.476441335...

125.476441335… 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 representation:

$$\frac{1}{4}\log_{1.0000005881223299100000}\left(\frac{1}{-\frac{1}{\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}}}\right)-\pi+\frac{1}{\phi}=-\pi+\frac{1}{\phi}+\frac{\log\left(\frac{1}{-\frac{1}{\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}}}\right)}{4\log(1.0000005881223299100000)}$$

Series representations:

$$\frac{1}{4}\log_{1.0000005881223299100000}\left(\frac{1}{-\frac{1}{\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}}}\right)-\pi+\frac{1}{\phi}=\frac{1}{\phi}-\pi-\frac{\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{-1749+808\pi-80\pi^2}{389-483\pi+60\pi^2}\right)^k}{k}}{4\log(1.0000005881223299100000)}$$

$$\frac{1}{4}\log_{1.0000005881223299100000}\left(\frac{1}{-\frac{1}{\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}}}\right)-\pi+\frac{1}{\phi}=\frac{1.000000000000000}{\phi}-1.000000000000000\,\pi+425081.7573166259\log\left(-\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}\right)-0.2500000000000000\log\left(-\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}\right)\sum_{k=0}^{\infty}5.88122329910000\times10^{-7k}\,G(k)$$

$$\text{for}\left(G(0)=0\text{ and }G(k)=\frac{(-1)^{1+k}\,k}{2(1+k)(2+k)}+\sum_{j=1}^{k}\frac{(-1)^{1+j}\,G(-j+k)}{1+j}\right)$$

1/4log base 1.00000058812232991(((1/(((1/(((-(5 (272 - 65 π + 4 π^2))/(389 - 483 π + 60 π^2))))))))))+11+1/golden ratio

Input interpretation:

$$\frac{1}{4}\log_{1.00000058812232991}\left(\frac{1}{-\frac{1}{\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}}}\right)+11+\frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

139.618033989...

139.618033989… result practically equal to the rest mass of Pion meson 139.57 MeV

Alternative representation:

$$\frac{1}{4}\log_{1.00000058812232991 0000}\left(\frac{1}{-\frac{1}{\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}}}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}+\frac{\log\left(\frac{1}{-\frac{1}{\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}}}\right)}{4\log(1.00000058812232991 0000)}$$

Series representations:

$$\frac{1}{4}\log_{1.00000058812232991000}\left(\frac{1}{-\frac{1}{\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}}}\right)+11+\frac{1}{\phi}=$$
$$11+\frac{1}{\phi}-\frac{\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{-1749+808\pi-80\pi^2}{389-483\pi+60\pi^2}\right)^k}{k}}{4\log(1.00000058812232991000)}$$

$$\frac{1}{4}\log_{1.00000058812232991000}\left(\frac{1}{-\frac{1}{\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}}}\right)+11+\frac{1}{\phi}=$$
$$11.0000000000000+\frac{1.000000000000000}{\phi}+$$
$$425081.757316626\log\left(-\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}\right)-0.2500000000000000$$
$$\log\left(-\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}\right)\sum_{k=0}^{\infty}5.88122329910000\times10^{-7k}\,G(k)$$
$$\text{for}\left(G(0)=0\text{ and }G(k)=\frac{(-1)^{1+k}k}{2(1+k)(2+k)}+\sum_{j=1}^{k}\frac{(-1)^{1+j}G(-j+k)}{1+j}\right)$$

27*1/8 log base 1.00000058812232991(((1/(((1/(((-(5 (272 - 65 π + 4 π^2))/(389 - 483 π + 60 π^2))))))))))+1

Input interpretation:

$$27\times\frac{1}{8}\log_{1.00000058812232991}\left(\frac{1}{-\frac{1}{\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}}}\right)+1$$

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

Result:

1729.00000000...

1729

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 (taxicab number)

Alternative representation:

$$\frac{27}{8}\log_{1.0000005881223299100000}\left(\frac{1}{-\frac{\frac{1}{5(272-65\pi+4\pi^2)}}{389-483\pi+60\pi^2}}\right)+1 = 1+\frac{27\log\left(\frac{1}{-\frac{\frac{1}{5(272-65\pi+4\pi^2)}}{389-483\pi+60\pi^2}}\right)}{8\log(1.0000005881223299100000)}$$

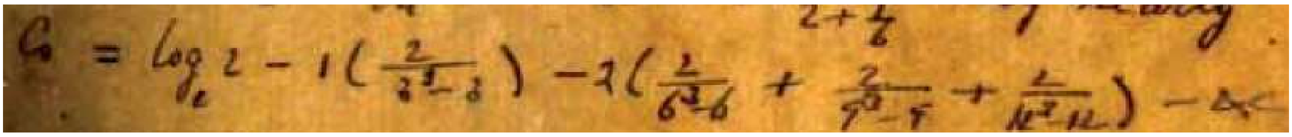
Series representations:

$$\frac{27}{8}\log_{1.0000005881223299100000}\left(\frac{1}{-\frac{\frac{1}{5(272-65\pi+4\pi^2)}}{389-483\pi+60\pi^2}}\right)+1 = 1-\frac{27\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{-1749+808\pi-80\pi^2}{389-483\pi+60\pi^2}\right)^k}{k}}{8\log(1.0000005881223299100000)}$$

$$\frac{27}{8}\log_{1.0000005881223299100000}\left(\frac{1}{-\frac{\frac{1}{5(272-65\pi+4\pi^2)}}{389-483\pi+60\pi^2}}\right)+1 = 1.000000000000000+\log\left(-\frac{5(272-65\pi+4\pi^2)}{389-483\pi+60\pi^2}\right)\left(5.73860372377445\times10^6 - 3.375000000000000\times\sum_{k=0}^{\infty}5.88122329910000\times10^{-7k}\,G(k)\right)$$

$$\text{for }\left(G(0)=0\text{ and }G(k)=\frac{(-1)^{1+k}k}{2(1+k)(2+k)}+\sum_{j=1}^{k}\frac{(-1)^{1+j}G(-j+k)}{1+j}\right)$$

From (page 99):



ln 2 – 1(2/(3^3-3))-2(((2/(6^3-6)+2/(9^3-9)+2/(12^3-12))))

Input:

$$\log(2) - 1 \times \frac{2}{3^3 - 3} - 2\left(\frac{2}{6^3 - 6} + \frac{2}{9^3 - 9} + \frac{2}{12^3 - 12}\right)$$

$\log(x)$ is the natural logarithm

Exact result:

$$\log(2) - \frac{4967}{45\,045}$$

Decimal approximation:

0.5828796702924350419069646111906663005652326240927449866 10...

0.582879670292435……= C_0

Property:

$-\frac{4967}{45\,045} + \log(2)$ is a transcendental number

Alternate form:

$$\frac{45\,045 \log(2) - 4967}{45\,045}$$

Alternative representations:

$$\log(2) - \frac{2}{3^3 - 3} - 2\left(\frac{2}{6^3 - 6} + \frac{2}{9^3 - 9} + \frac{2}{12^3 - 12}\right) = \log_e(2) - \frac{2}{24} - 2\left(\frac{2}{-6 + 6^3} + \frac{2}{-9 + 9^3} + \frac{2}{-12 + 12^3}\right)$$

$$\log(2) - \frac{2}{3^3 - 3} - 2\left(\frac{2}{6^3 - 6} + \frac{2}{9^3 - 9} + \frac{2}{12^3 - 12}\right) = \log(a) \log_a(2) - \frac{2}{24} - 2\left(\frac{2}{-6 + 6^3} + \frac{2}{-9 + 9^3} + \frac{2}{-12 + 12^3}\right)$$

$$\log(2) - \frac{2}{3^3-3} - 2\left(\frac{2}{6^3-6} + \frac{2}{9^3-9} + \frac{2}{12^3-12}\right) = 2\coth^{-1}(3) - \frac{2}{24} - 2\left(\frac{2}{-6+6^3} + \frac{2}{-9+9^3} + \frac{2}{-12+12^3}\right)$$

Series representations:

$$\log(2) - \frac{2}{3^3-3} - 2\left(\frac{2}{6^3-6} + \frac{2}{9^3-9} + \frac{2}{12^3-12}\right) = -\frac{4967}{45045} + 2 i \pi \left\lfloor \frac{\arg(2-x)}{2\pi} \right\rfloor + \log(x) - \sum_{k=1}^{\infty} \frac{(-1)^k (2-x)^k x^{-k}}{k} \quad \text{for } x < 0$$

$$\log(2) - \frac{2}{3^3-3} - 2\left(\frac{2}{6^3-6} + \frac{2}{9^3-9} + \frac{2}{12^3-12}\right) = -\frac{4967}{45045} + \left\lfloor \frac{\arg(2-z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) + \log(z_0) + \left\lfloor \frac{\arg(2-z_0)}{2\pi} \right\rfloor \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k (2-z_0)^k z_0^{-k}}{k}$$

$$\log(2) - \frac{2}{3^3-3} - 2\left(\frac{2}{6^3-6} + \frac{2}{9^3-9} + \frac{2}{12^3-12}\right) = -\frac{4967}{45045} + 2 i \pi \left\lfloor \frac{\pi - \arg\left(\frac{1}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor + \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k (2-z_0)^k z_0^{-k}}{k}$$

Integral representations:

$$\log(2) - \frac{2}{3^3-3} - 2\left(\frac{2}{6^3-6} + \frac{2}{9^3-9} + \frac{2}{12^3-12}\right) = -\frac{4967}{45045} + \int_1^2 \frac{1}{t}\, dt$$

$$\log(2) - \frac{2}{3^3-3} - 2\left(\frac{2}{6^3-6} + \frac{2}{9^3-9} + \frac{2}{12^3-12}\right) = -\frac{4967}{45045} - \frac{i}{2\pi} \int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{\Gamma(-s)^2\, \Gamma(1+s)}{\Gamma(1-s)}\, ds \quad \text{for } -1 < \gamma < 0$$

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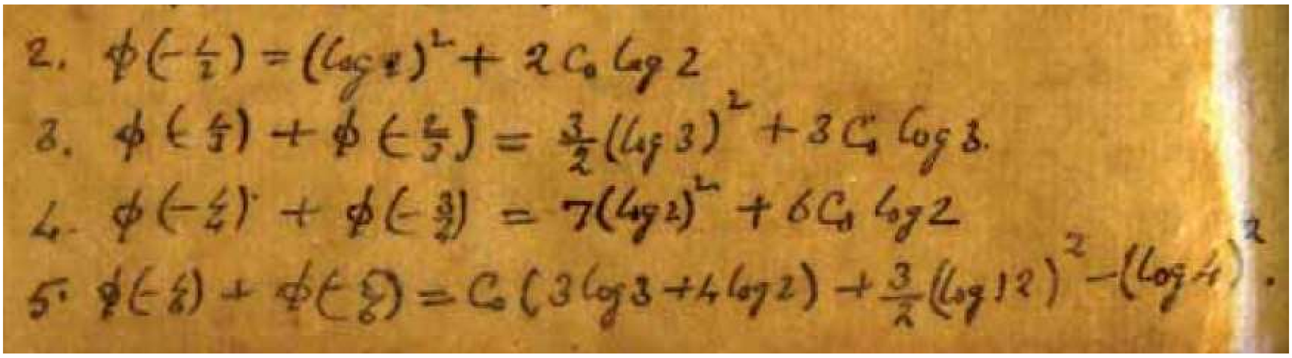

2. $\phi(-\frac{1}{2}) = (\log 2)^2 + 2C_0 \log 2$

3. $\phi(-\frac{1}{3}) + \phi(-\frac{2}{3}) = \frac{3}{2}(\log 3)^2 + 3C_0 \log 3.$

4. $\phi(-\frac{1}{4}) + \phi(-\frac{3}{4}) = 7(\log 2)^2 + 6C_0 \log 2$

5. $\phi(-\frac{1}{6}) + \phi(-\frac{5}{6}) = C_0(3\log 3 + 4\log 2) + \frac{3}{2}(\log 12)^2 - (\log 4)^2.$

For C_0 = 0.582879670292435……

(ln 2)^2+2*0.582879670292435 ln 2 + 3/2 (ln 3)^2 + 3*0.582879670292435 ln 3 + 7 (ln 2)^2 + 6*0.582879670292435 ln 2 + 0.582879670292435(3 ln 3 + 4 ln 2) + 3/2 (ln 12)^2- (ln 4)^2

Input interpretation:

$$\log^2(2) + 2\times 0.582879670292435 \log(2) + \frac{3}{2}\log^2(3) + 3\times 0.582879670292435 \log(3) + 7\log^2(2) + 6\times 0.582879670292435 \log(2) + 0.582879670292435 (3\log(3) + 4\log(2)) + \frac{3}{2}\log^2(12) - \log^2(4)$$

log(x) is the natural logarithm

Result:

21.6847864965481...

21.6847864…

Alternative representations:

$$\log^2(2) + 2\times 0.5828796702924350000 \log(2) + \frac{1}{2}\log^2(3)\,3 + 3\times 0.5828796702924350000 \log(3) + 7\log^2(2) + 6\times 0.5828796702924350000 \log(2) + 0.5828796702924350000 (3\log(3) + 4\log(2)) + \frac{1}{2}\log^2(12)\,3 - \log^2(4) =$$
$$4.663037362339480000 \log(a)\log_a(2) + 1.748639010877305000 \log(a)\log_a(3) + 0.5828796702924350000 (4\log(a)\log_a(2) + 3\log(a)\log_a(3)) + 8(\log(a)\log_a(2))^2 + \frac{3}{2}(\log(a)\log_a(3))^2 - (\log(a)\log_a(4))^2 + \frac{3}{2}(\log(a)\log_a(12))^2$$

$$\log^2(2) + 2\times 0.5828796702924350000 \log(2) + \frac{1}{2}\log^2(3)\,3 + 3\times 0.5828796702924350000 \log(3) + 7\log^2(2) + 6\times 0.5828796702924350000 \log(2) + 0.5828796702924350000\,(3\log(3) + 4\log(2)) + \frac{1}{2}\log^2(12)\,3 - \log^2(4) = 4.663037362339480000 \log_e(2) + 1.748639010877305000 \log_e(3) + 0.5828796702924350000\,(4\log_e(2) + 3\log_e(3)) + 8\log_e^2(2) + \frac{3}{2}\log_e^2(3) - \log_e^2(4) + \frac{3}{2}\log_e^2(12)$$

$$\log^2(2) + 2\times 0.5828796702924350000 \log(2) + \frac{1}{2}\log^2(3)\,3 + 3\times 0.5828796702924350000 \log(3) + 7\log^2(2) + 6\times 0.5828796702924350000 \log(2) + 0.5828796702924350000\,(3\log(3) + 4\log(2)) + \frac{1}{2}\log^2(12)\,3 - \log^2(4) = -1.748639010877305000\,\mathrm{Li}_1(-2) + 0.5828796702924350000\,(-3\,\mathrm{Li}_1(-2) - 4\,\mathrm{Li}_1(-1)) - 4.663037362339480000\,\mathrm{Li}_1(-1) + \frac{3}{2}(-\mathrm{Li}_1(-11))^2 - (-\mathrm{Li}_1(-3))^2 + \frac{3}{2}(-\mathrm{Li}_1(-2))^2 + 8(-\mathrm{Li}_1(-1))^2$$

From which:

7*5*1/(((ln 2)^2+2*0.582879670292435 ln 2 + 3/2 (ln 3)^2 + 3*0.582879670292435 ln 3 + 7 (ln 2)^2 + 6*0.582879670292435 ln 2 + 0.582879670292435((3 ln 3 + 4 ln 2)) + 3/2 (ln 12)^2- (ln 4)^2))+4/10^3

Input interpretation:

$$7\times 5\times 1 \Big/ \left(\log^2(2) + 2\times 0.582879670292435 \log(2) + \frac{3}{2}\log^2(3) + 3\times 0.582879670292435 \log(3) + 7\log^2(2) + 6\times 0.582879670292435 \log(2) + 0.582879670292435\,(3\log(3) + 4\log(2)) + \frac{3}{2}\log^2(12) - \log^2(4)\right) + \frac{4}{10^3}$$

$\log(x)$ is the natural logarithm

Result:

1.61803479833991...

1.61803479833991... result that is almost equal to the value of the golden ratio 1,618033988749...

Alternative representations:

$$(7\times 5)\Big/\Big(\log^2(2)+2\times 0.5828796702924350000\log(2)+\frac{3\log^2(3)}{2}+3\times 0.5828796702924350000\log(3)+7\log^2(2)+6\times 0.5828796702924350000\log(2)+0.5828796702924350000(3\log(3)+4\log(2))+\frac{3\log^2(12)}{2}-\log^2(4)\Big)+\frac{4}{10^3}=$$

$$\frac{4}{10^3}+35\Big/\Big(4.663037362339480000\log_e(2)+1.748639010877305000\log_e(3)+0.5828796702924350000(4\log_e(2)+3\log_e(3))+8\log_e^2(2)+\frac{3}{2}\log_e^2(3)-\log_e^2(4)+\frac{3}{2}\log_e^2(12)\Big)$$

$$(7\times 5)\Big/\Big(\log^2(2)+2\times 0.5828796702924350000\log(2)+\frac{3\log^2(3)}{2}+3\times 0.5828796702924350000\log(3)+7\log^2(2)+6\times 0.5828796702924350000\log(2)+0.5828796702924350000(3\log(3)+4\log(2))+\frac{3\log^2(12)}{2}-\log^2(4)\Big)+\frac{4}{10^3}=\frac{4}{10^3}+35\Big/\Big(4.663037362339480000\log(a)\log_a(2)+1.748639010877305000\log(a)\log_a(3)+0.5828796702924350000(4\log(a)\log_a(2)+3\log(a)\log_a(3))+8(\log(a)\log_a(2))^2+\frac{3}{2}(\log(a)\log_a(3))^2-(\log(a)\log_a(4))^2+\frac{3}{2}(\log(a)\log_a(12))^2\Big)$$

$$(7\times 5)\Big/\Big(\log^2(2)+2\times 0.5828796702924350000\log(2)+\frac{3\log^2(3)}{2}+3\times 0.5828796702924350000\log(3)+7\log^2(2)+6\times 0.5828796702924350000\log(2)+0.5828796702924350000(3\log(3)+4\log(2))+\frac{3\log^2(12)}{2}-\log^2(4)\Big)+\frac{4}{10^3}=\frac{4}{10^3}+35\Big/\Big(-1.748639010877305000\,\mathrm{Li}_1(-2)+0.5828796702924350000(-3\,\mathrm{Li}_1(-2)-4\,\mathrm{Li}_1(-1))-4.663037362339480000\,\mathrm{Li}_1(-1)+\frac{3}{2}(-\mathrm{Li}_1(-11))^2-(-\mathrm{Li}_1(-3))^2+\frac{3}{2}(-\mathrm{Li}_1(-2))^2+8(-\mathrm{Li}_1(-1))^2\Big)$$

Series representations:

$$(7\times 5)\Big/\left(\log^2(2)+2\times 0.5828796702924350000\log(2)+\frac{3\log^2(3)}{2}+3\times 0.5828796702924350000\log(3)+7\log^2(2)+6\times 0.5828796702924350000\log(2)+0.5828796702924350000\,(3\log(3)+4\log(2))+\frac{3\log^2(12)}{2}-\log^2(4)\right)+\frac{4}{10^3}=\frac{1}{250}+35\Big/$$

$$\left(4.663037362339480000\left(2\,i\,\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k(2-x)^k x^{-k}}{k}\right)+8\left(2\,i\,\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k(2-x)^k x^{-k}}{k}\right)^2+\right.$$

$$0.5828796702924350000\left(4\left(2\,i\,\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k(2-x)^k x^{-k}}{k}\right)+3\left(2\,i\,\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}}{k}\right)\right)+$$

$$1.748639010877305000\left(2\,i\,\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}}{k}\right)+$$

$$\frac{3}{2}\left(2\,i\,\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}}{k}\right)^2-\left(2\,i\,\pi\left\lfloor\frac{\arg(4-x)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k(4-x)^k x^{-k}}{k}\right)^2+$$

$$\left.\frac{3}{2}\left(2\,i\,\pi\left\lfloor\frac{\arg(12-x)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k(12-x)^k x^{-k}}{k}\right)^2\right)\quad\text{for } x<0$$

$$(7\times 5)\Big/\Bigg(\log^2(2)+2\times 0.5828796702924350000\log(2)+\frac{3\log^2(3)}{2}+3\times 0.5828796702924350000\log(3)+7\log^2(2)+6\times 0.5828796702924350000\log(2)+0.5828796702924350000\,(3\log(3)+4\log(2))+\frac{3\log^2(12)}{2}-\log^2(4)\Bigg)+$$

$$\frac{4}{10^3}=\frac{1}{250}+35\Big/\Bigg(4.663037362339480000\left(\log(z_0)+\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}\right)+$$

$$8\left(\log(z_0)+\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}\right)^2+$$

$$0.5828796702924350000\left(4\left(\log(z_0)+\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}\right)+3\left(\log(z_0)+\left\lfloor\frac{\arg(3-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(3-z_0)^k\,z_0^{-k}}{k}\right)\right)+1.748639010877305000$$

$$\left(\log(z_0)+\left\lfloor\frac{\arg(3-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(3-z_0)^k\,z_0^{-k}}{k}\right)+$$

$$\frac{3}{2}\left(\log(z_0)+\left\lfloor\frac{\arg(3-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(3-z_0)^k\,z_0^{-k}}{k}\right)^2-$$

$$\left(\log(z_0)+\left\lfloor\frac{\arg(4-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(4-z_0)^k\,z_0^{-k}}{k}\right)^2+$$

$$\frac{3}{2}\left(\log(z_0)+\left\lfloor\frac{\arg(12-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(12-z_0)^k\,z_0^{-k}}{k}\right)^2\Bigg)$$

$$(7\times 5)\Big/\Bigg(\log^2(2)+2\times 0.5828796702924350000\log(2)+\frac{3\log^2(3)}{2}+3\times 0.5828796702924350000\log(3)+7\log^2(2)+6\times 0.5828796702924350000\log(2)+0.5828796702924350000\,(3\log(3)+4\log(2))+\frac{3\log^2(12)}{2}-\log^2(4)\Bigg)+\frac{4}{10^3}=\frac{1}{250}+35\Bigg/\Bigg(4.663037362339480000\left(2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{2}{z_0}\right)-\arg(z_0)}{2\,\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}\right)+8\left(2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{2}{z_0}\right)-\arg(z_0)}{2\,\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}\right)^2+0.5828796702924350000\left(4\left(2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{2}{z_0}\right)-\arg(z_0)}{2\,\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}\right)+3\left(2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{3}{z_0}\right)-\arg(z_0)}{2\,\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(3-z_0)^k\,z_0^{-k}}{k}\right)\right)+1.748639010877305000\left(2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{3}{z_0}\right)-\arg(z_0)}{2\,\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(3-z_0)^k\,z_0^{-k}}{k}\right)+\frac{3}{2}\left(2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{3}{z_0}\right)-\arg(z_0)}{2\,\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(3-z_0)^k\,z_0^{-k}}{k}\right)^2-\left(2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{4}{z_0}\right)-\arg(z_0)}{2\,\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(4-z_0)^k\,z_0^{-k}}{k}\right)^2+\frac{3}{2}\left(2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{12}{z_0}\right)-\arg(z_0)}{2\,\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(12-z_0)^k\,z_0^{-k}}{k}\right)^2\Bigg)$$

or:

(34+1.0864055)/((ln 2)^2+2*0.582879670292435 ln 2 + 3/2 (ln 3)^2 + 3*0.582879670292435 ln 3 + 7 (ln 2)^2 + 6*0.582879670292435 ln 2 + 0.582879670292435(3 ln 3 + 4 ln 2) + 3/2 (ln 12)^2- (ln 4)^2)

Where 1.0864055 is the value of the following Ramanujan mock theta function:

$$\frac{0.5^{(2+1)\times(2+2)/2}\,(1+0.5)\,(1+0.5^2)\,(1+0.5^2)}{(1-0.5)\,(1-0.5^3)\,(1-0.5^{2\times2+1})}$$

0.0864055299539170506912442396313364055299539170506912442 39...

0.0864055...

From which, adding 1, we obtain:

$$1+\frac{0.5^{(2+1)\times(2+2)/2}\,(1+0.5)\,(1+0.5^2)\,(1+0.5^2)}{(1-0.5)\,(1-0.5^3)\,(1-0.5^{2\times2+1})}$$

1.0864055299539170506912442396313364055299539170506912442 39...

1.0864055...

Input interpretation:

$$(34+1.0864055)\Big/\Big(\log^2(2)+2\times0.582879670292435\log(2)+\frac{3}{2}\log^2(3)+3\times0.582879670292435\log(3)+7\log^2(2)+6\times0.582879670292435\log(2)+0.582879670292435\,(3\log(3)+4\log(2))+\frac{3}{2}\log^2(12)-\log^2(4)\Big)$$

log(x) is the natural logarithm

Result:

1.618019412...

1.618019412… result that is a very good approximation to the value of the golden ratio 1,618033988749...

Alternative representations:

$$(34 + 1.08641) \Big/ \Big(\log^2(2) + 2 \times 0.5828796702924350000 \log(2) + \frac{1}{2} \log^2(3)\, 3 + 3 \times 0.5828796702924350000 \log(3) + 7 \log^2(2) + 6 \times 0.5828796702924350000 \log(2) + 0.5828796702924350000 (3 \log(3) + 4 \log(2)) + \frac{1}{2} \log^2(12)\, 3 - \log^2(4)\Big) =$$

$$35.0864 \Big/ \Big(4.663037362339480000 \log_e(2) + 1.748639010877305000 \log_e(3) + 0.5828796702924350000 (4 \log_e(2) + 3 \log_e(3)) + 8 \log_e^2(2) + \frac{3}{2} \log_e^2(3) - \log_e^2(4) + \frac{3}{2} \log_e^2(12)\Big)$$

$$(34 + 1.08641) \Big/ \Big(\log^2(2) + 2 \times 0.5828796702924350000 \log(2) + \frac{1}{2} \log^2(3)\, 3 + 3 \times 0.5828796702924350000 \log(3) + 7 \log^2(2) + 6 \times 0.5828796702924350000 \log(2) + 0.5828796702924350000 (3 \log(3) + 4 \log(2)) + \frac{1}{2} \log^2(12)\, 3 - \log^2(4)\Big) =$$

$$35.0864 \Big/ \Big(4.663037362339480000 \log(a) \log_a(2) + 1.748639010877305000 \log(a) \log_a(3) + 0.5828796702924350000 (4 \log(a) \log_a(2) + 3 \log(a) \log_a(3)) + 8 (\log(a) \log_a(2))^2 + \frac{3}{2} (\log(a) \log_a(3))^2 - (\log(a) \log_a(4))^2 + \frac{3}{2} (\log(a) \log_a(12))^2\Big)$$

$$(34 + 1.08641) \Big/ \Big(\log^2(2) + 2 \times 0.5828796702924350000 \log(2) + \frac{1}{2} \log^2(3)\, 3 + 3 \times 0.5828796702924350000 \log(3) + 7 \log^2(2) + 6 \times 0.5828796702924350000 \log(2) + 0.5828796702924350000 (3 \log(3) + 4 \log(2)) + \frac{1}{2} \log^2(12)\, 3 - \log^2(4)\Big) =$$

$$35.0864 \Big/ \Big(-1.748639010877305000 \operatorname{Li}_1(-2) + 0.5828796702924350000 (-3 \operatorname{Li}_1(-2) - 4 \operatorname{Li}_1(-1)) - 4.663037362339480000 \operatorname{Li}_1(-1) + \frac{3}{2} (-\operatorname{Li}_1(-11))^2 - (-\operatorname{Li}_1(-3))^2 + \frac{3}{2} (-\operatorname{Li}_1(-2))^2 + 8 (-\operatorname{Li}_1(-1))^2\Big)$$

Series representations:

$$(34+1.08641)\Big/\left(\log^2(2)+2\times 0.5828796702924350000\log(2)+\frac{1}{2}\log^2(3)\,3+3\times 0.5828796702924350000\log(3)+7\log^2(2)+6\times 0.5828796702924350000\log(2)+0.5828796702924350000\,(3\log(3)+4\log(2))+\frac{1}{2}\log^2(12)\,3-\log^2(4)\right)=$$

$$1.09645\Big/\left(0.43716\,i\,\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor+i^2\pi^2\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor^2+0.21858\,i\,\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor+0.1875\,i^2\pi^2\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor^2-0.125\,i^2\pi^2\left\lfloor\frac{\arg(4-x)}{2\pi}\right\rfloor^2+0.1875\,i^2\pi^2\left\lfloor\frac{\arg(12-x)}{2\pi}\right\rfloor^2+0.32787\log(x)+i\,\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor\log(x)+0.1875\,i\,\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\log(x)-0.125\,i\,\pi\left\lfloor\frac{\arg(4-x)}{2\pi}\right\rfloor\log(x)+0.1875\,i\,\pi\left\lfloor\frac{\arg(12-x)}{2\pi}\right\rfloor\log(x)+0.3125\log^2(x)-0.21858\sum_{k=1}^{\infty}\frac{(-1)^k(2-x)^k x^{-k}}{k}-i\left(\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor\sum_{k=1}^{\infty}\frac{(-1)^k(2-x)^k x^{-k}}{k}\right)-0.5\log(x)\sum_{k=1}^{\infty}\frac{(-1)^k(2-x)^k x^{-k}}{k}+0.25\left(\sum_{k=1}^{\infty}\frac{(-1)^k(2-x)^k x^{-k}}{k}\right)^2-0.10929\sum_{k=1}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}}{k}-0.1875\,i\,\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\sum_{k=1}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}}{k}-0.09375\log(x)\sum_{k=1}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}}{k}+0.046875\left(\sum_{k=1}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}}{k}\right)^2+0.125\,i\,\pi\left\lfloor\frac{\arg(4-x)}{2\pi}\right\rfloor\sum_{k=1}^{\infty}\frac{(-1)^k(4-x)^k x^{-k}}{k}+0.0625\log(x)\sum_{k=1}^{\infty}\frac{(-1)^k(4-x)^k x^{-k}}{k}-0.03125\left(\sum_{k=1}^{\infty}\frac{(-1)^k(4-x)^k x^{-k}}{k}\right)^2-0.1875\,i\,\pi\left\lfloor\frac{\arg(12-x)}{2\pi}\right\rfloor\sum_{k=1}^{\infty}\frac{(-1)^k(12-x)^k x^{-k}}{k}-0.09375\log(x)\sum_{k=1}^{\infty}\frac{(-1)^k(12-x)^k x^{-k}}{k}+0.046875\left(\sum_{k=1}^{\infty}\frac{(-1)^k(12-x)^k x^{-k}}{k}\right)^2\right)\quad\text{for } x<0$$

$$(34 + 1.08641) \Big/ \Big(\log^2(2) + 2 \times 0.5828796702924350000 \log(2) + \frac{1}{2} \log^2(3)\, 3 + 3 \times 0.5828796702924350000 \log(3) + 7 \log^2(2) + 6 \times 0.5828796702924350000 \log(2) + 0.5828796702924350000\,(3 \log(3) + 4 \log(2)) + \frac{1}{2} \log^2(12)\, 3 - \log^2(4)\Big) =$$

$$1.09645 \Big/ \Bigg(0.43716\, i\, \pi \left\lfloor \frac{\pi - \arg\left(\frac{2}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor + i^2 \pi^2 \left\lfloor \frac{\pi - \arg\left(\frac{2}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor^2 +$$
$$0.21858\, i\, \pi \left\lfloor \frac{\pi - \arg\left(\frac{3}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor + 0.1875\, i^2 \pi^2 \left\lfloor \frac{\pi - \arg\left(\frac{3}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor^2 -$$
$$0.125\, i^2 \pi^2 \left\lfloor \frac{\pi - \arg\left(\frac{4}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor^2 + 0.1875\, i^2 \pi^2 \left\lfloor \frac{\pi - \arg\left(\frac{12}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor^2 +$$
$$0.32787 \log(z_0) + i\, \pi \left\lfloor \frac{\pi - \arg\left(\frac{2}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor \log(z_0) +$$
$$0.1875\, i\, \pi \left\lfloor \frac{\pi - \arg\left(\frac{3}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor \log(z_0) -$$
$$0.125\, i\, \pi \left\lfloor \frac{\pi - \arg\left(\frac{4}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor \log(z_0) + 0.1875\, i\, \pi \left\lfloor \frac{\pi - \arg\left(\frac{12}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor$$
$$\log(z_0) + 0.3125 \log^2(z_0) - 0.21858 \sum_{k=1}^{\infty} \frac{(-1)^k (2 - z_0)^k z_0^{-k}}{k} -$$
$$i \left(\pi \left\lfloor \frac{\pi - \arg\left(\frac{2}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor \sum_{k=1}^{\infty} \frac{(-1)^k (2 - z_0)^k z_0^{-k}}{k}\right) -$$
$$0.5 \log(z_0) \sum_{k=1}^{\infty} \frac{(-1)^k (2 - z_0)^k z_0^{-k}}{k} +$$
$$0.25 \left(\sum_{k=1}^{\infty} \frac{(-1)^k (2 - z_0)^k z_0^{-k}}{k}\right)^2 - 0.10929 \sum_{k=1}^{\infty} \frac{(-1)^k (3 - z_0)^k z_0^{-k}}{k} -$$
$$0.1875\, i\, \pi \left\lfloor \frac{\pi - \arg\left(\frac{3}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor \sum_{k=1}^{\infty} \frac{(-1)^k (3 - z_0)^k z_0^{-k}}{k} -$$
$$0.09375 \log(z_0) \sum_{k=1}^{\infty} \frac{(-1)^k (3 - z_0)^k z_0^{-k}}{k} + 0.046875 \left(\sum_{k=1}^{\infty} \frac{(-1)^k (3 - z_0)^k z_0^{-k}}{k}\right)^2 +$$
$$0.125\, i\, \pi \left\lfloor \frac{\pi - \arg\left(\frac{4}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor \sum_{k=1}^{\infty} \frac{(-1)^k (4 - z_0)^k z_0^{-k}}{k} +$$
$$0.0625 \log(z_0) \sum_{k=1}^{\infty} \frac{(-1)^k (4 - z_0)^k z_0^{-k}}{k} - 0.03125 \left(\sum_{k=1}^{\infty} \frac{(-1)^k (4 - z_0)^k z_0^{-k}}{k}\right)^2 -$$
$$0.1875\, i\, \pi \left\lfloor \frac{\pi - \arg\left(\frac{12}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor \sum_{k=1}^{\infty} \frac{(-1)^k (12 - z_0)^k z_0^{-k}}{k} -$$
$$0.09375 \log(z_0) \sum_{k=1}^{\infty} \frac{(-1)^k (12 - z_0)^k z_0^{-k}}{k} + 0.046875 \left(\sum_{k=1}^{\infty} \frac{(-1)^k (12 - z_0)^k z_0^{-k}}{k}\right)^2 \Bigg)$$

$$(34 + 1.08641) \Big/ \Big(\log^2(2) + 2 \times 0.5828796702924350000 \log(2) + \frac{1}{2} \log^2(3)\, 3 + 3 \times 0.5828796702924350000 \log(3) + 7 \log^2(2) + 6 \times 0.5828796702924350000 \log(2) + 0.5828796702924350000\, (3 \log(3) + 4 \log(2)) + \frac{1}{2} \log^2(12)\, 3 - \log^2(4)\Big) =$$

$$4.3858 \Big/ \Bigg(0.87432 \left\lfloor \frac{\arg(2 - z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) + 0.43716 \left\lfloor \frac{\arg(3 - z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) + \left\lfloor \frac{\arg(2 - z_0)}{2\pi} \right\rfloor^2 \log^2\left(\frac{1}{z_0}\right) + 0.1875 \left\lfloor \frac{\arg(3 - z_0)}{2\pi} \right\rfloor^2 \log^2\left(\frac{1}{z_0}\right) - 0.125 \left\lfloor \frac{\arg(4 - z_0)}{2\pi} \right\rfloor^2 \log^2\left(\frac{1}{z_0}\right) + 0.1875 \left\lfloor \frac{\arg(12 - z_0)}{2\pi} \right\rfloor^2 \log^2\left(\frac{1}{z_0}\right) + 1.31148 \log(z_0) + 0.87432 \left\lfloor \frac{\arg(2 - z_0)}{2\pi} \right\rfloor \log(z_0) + 0.43716 \left\lfloor \frac{\arg(3 - z_0)}{2\pi} \right\rfloor \log(z_0) + 2 \left\lfloor \frac{\arg(2 - z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) \log(z_0) + 2 \left\lfloor \frac{\arg(2 - z_0)}{2\pi} \right\rfloor^2 \log\left(\frac{1}{z_0}\right) \log(z_0) + 0.375 \left\lfloor \frac{\arg(3 - z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) \log(z_0) + 0.375 \left\lfloor \frac{\arg(3 - z_0)}{2\pi} \right\rfloor^2 \log\left(\frac{1}{z_0}\right) \log(z_0) - 0.25 \left\lfloor \frac{\arg(4 - z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) \log(z_0) - 0.25 \left\lfloor \frac{\arg(4 - z_0)}{2\pi} \right\rfloor^2 \log\left(\frac{1}{z_0}\right) \log(z_0) + 0.375 \left\lfloor \frac{\arg(12 - z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) \log(z_0) + 0.375 \left\lfloor \frac{\arg(12 - z_0)}{2\pi} \right\rfloor^2 \log\left(\frac{1}{z_0}\right) \log(z_0) + 1.25 \log^2(z_0) + 2 \left\lfloor \frac{\arg(2 - z_0)}{2\pi} \right\rfloor \log^2(z_0) + \left\lfloor \frac{\arg(2 - z_0)}{2\pi} \right\rfloor^2 \log^2(z_0) + 0.375 \left\lfloor \frac{\arg(3 - z_0)}{2\pi} \right\rfloor \log^2(z_0) + 0.1875 \left\lfloor \frac{\arg(3 - z_0)}{2\pi} \right\rfloor^2 \log^2(z_0) - 0.25 \left\lfloor \frac{\arg(4 - z_0)}{2\pi} \right\rfloor \log^2(z_0) - 0.125 \left\lfloor \frac{\arg(4 - z_0)}{2\pi} \right\rfloor^2 \log^2(z_0) + 0.375 \left\lfloor \frac{\arg(12 - z_0)}{2\pi} \right\rfloor \log^2(z_0) + 0.1875 \left\lfloor \frac{\arg(12 - z_0)}{2\pi} \right\rfloor^2 \log^2(z_0) - 0.87432 \sum_{k=1}^{\infty} \frac{(-1)^k (2 - z_0)^k z_0^{-k}}{k} - 2 \left\lfloor \frac{\arg(2 - z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) \sum_{k=1}^{\infty} \frac{(-1)^k (2 - z_0)^k z_0^{-k}}{k} - 2 \log(z_0) \sum_{k=1}^{\infty} \frac{(-1)^k (2 - z_0)^k z_0^{-k}}{k} - 2 \left\lfloor \frac{\arg(2 - z_0)}{2\pi} \right\rfloor \log(z_0) \sum_{k=1}^{\infty} \frac{(-1)^k (2 - z_0)^k z_0^{-k}}{k} + \left(\sum_{k=1}^{\infty} \frac{(-1)^k (2 - z_0)^k z_0^{-k}}{k}\right)^2 - 0.43716 \sum_{k=1}^{\infty} \frac{(-1)^k (3 - z_0)^k z_0^{-k}}{k} - 0.375 \left\lfloor \frac{\arg(3 - z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) \sum_{k=1}^{\infty} \frac{(-1)^k (3 - z_0)^k z_0^{-k}}{k} - 0.375 \log(z_0) \sum_{k=1}^{\infty} \frac{(-1)^k (3 - z_0)^k z_0^{-k}}{k} - 0.375 \left\lfloor \frac{\arg(3 - z_0)}{2\pi} \right\rfloor \log(z_0) \sum_{k=1}^{\infty} \frac{(-1)^k (3 - z_0)^k z_0^{-k}}{k} + 0.1875 \left(\sum_{k=1}^{\infty} \frac{(-1)^k (3 - z_0)^k z_0^{-k}}{k}\right)^2 + 0.25 \left\lfloor \frac{\arg(4 - z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) \sum_{k=1}^{\infty} \frac{(-1)^k (4 - z_0)^k z_0^{-k}}{k} + 0.25 \log(z_0) \sum_{k=1}^{\infty} \frac{(-1)^k (4 - z_0)^k z_0^{-k}}{k} + 0.25 \left\lfloor \frac{\arg(4 - z_0)}{2\pi} \right\rfloor \log(z_0) \sum_{k=1}^{\infty} \frac{(-1)^k (4 - z_0)^k z_0^{-k}}{k} - 0.125 \left(\sum_{k=1}^{\infty} \frac{(-1)^k (4 - z_0)^k z_0^{-k}}{k}\right)^2 - 0.375 \left\lfloor \frac{\arg(12 - z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) \sum_{k=1}^{\infty} \frac{(-1)^k (12 - z_0)^k z_0^{-k}}{k} - 0.375 \log(z_0) \sum_{k=1}^{\infty} \frac{(-1)^k (12 - z_0)^k z_0^{-k}}{k} - 0.375 \left\lfloor \frac{\arg(12 - z_0)}{2\pi} \right\rfloor \log(z_0) \sum_{k=1}^{\infty} \frac{(-1)^k (12 - z_0)^k z_0^{-k}}{k} + 0.1875 \left(\sum_{k=1}^{\infty} \frac{(-1)^k (12 - z_0)^k z_0^{-k}}{k}\right)^2\Bigg)$$

Integral representation:

$$(34+1.08641)\Big/\Big(\log^2(2)+2\times 0.5828796702924350000\log(2)+\frac{1}{2}\log^2(3)\,3+3\times 0.5828796702924350000\log(3)+7\log^2(2)+6\times 0.5828796702924350000\log(2)+0.5828796702924350000\,(3\log(3)+4\log(2))+\frac{1}{2}\log^2(12)\,3-\log^2(4)\Big)=$$

$$(17.5432\,i^2\,\pi^2)\Big/\Bigg(\left(\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)^2+0.1875\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{2^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)^2-0.125\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{3^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)^2+0.1875\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{11^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)^2+1.74864\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{2^{-s}\,(0.5+2^s)\,i\,\pi\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)\Bigg)\quad\text{for } -1<\gamma<0$$

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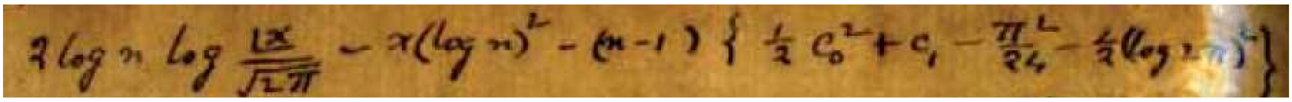
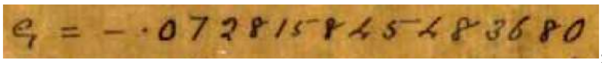

$$2\log n\log\frac{x}{\sqrt{2\pi}}-x(\log n)^2-(n-1)\left\{\frac{1}{2}c_0^2+c_1-\frac{\pi^2}{24}-\frac{1}{2}(\log 2\pi)^2\right\}$$

$C_0 = 0.582879670292435$; 
$c_1 = -.072815845483680$
; x = 2, n = 3, we obtain:

2 ln 3 (ln 2/(sqrt(2Pi))) – 2 (ln 3)^2 – (3-1) (((1/2*0.582879670292435^2-0.072815845483680 – (Pi^2)/24 – 1/2(ln((2Pi)))^2)))

Input interpretation:

$$2\log(3)\times\frac{\log(2)}{\sqrt{2\pi}}-2\log^2(3)-(3-1)\left(\frac{1}{2}\times 0.582879670292435^2-0.072815845483680-\frac{\pi^2}{24}-\frac{1}{2}\log^2(2\pi)\right)$$

log(x) is the natural logarithm

Result:

2.19983330532390...

2.1998333053239…

Alternative representations:

$$\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right) = -2\log_e^2(3) - 2\left(-0.0728158454836800000 + \frac{0.5828796702924350000^2}{2} - \frac{\pi^2}{24} - \frac{1}{2}\log_e^2(2\pi)\right) + \frac{2\log_e(2)\log_e(3)}{\sqrt{2\pi}}$$

$$\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right) = -2(\log(a)\log_a(3))^2 - 2\left(-0.0728158454836800000 + \frac{0.5828796702924350000^2}{2} - \frac{\pi^2}{24} - \frac{1}{2}(\log(a)\log_a(2\pi))^2\right) + \frac{2\log^2(a)\log_a(2)\log_a(3)}{\sqrt{2\pi}}$$

$$\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right) = -2(-\text{Li}_1(-2))^2 - 2\left(-0.0728158454836800000 + \frac{0.5828796702924350000^2}{2} - \frac{\pi^2}{24} - \frac{1}{2}(-\text{Li}_1(1-2\pi))^2\right) + \frac{2\,\text{Li}_1(-2)\,\text{Li}_1(-1)}{\sqrt{2\pi}}$$

Series representations:

$$\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right) = -0.194117019072857733 + 0.0833333333333333333\,\pi^2 - 2.00000000000000000\log^2(3) + \log^2(2\pi) + \frac{2\log(2)\log(3)}{\sqrt{-1+2\pi}\sum_{k=0}^{\infty}(-1+2\pi)^{-k}\binom{\frac{1}{2}}{k}}$$

$$\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right) =$$

$$-0.194117019072857733 + 0.0833333333333333333\,\pi^2 - 2.00000000000000000\log^2(3) + \log^2(2\pi) + \frac{2\log(2)\log(3)}{\exp\left(i\pi\left\lfloor\frac{\arg(2\pi-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(2\pi-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}} \quad \text{for } (x \in \mathbb{R} \text{ and } x < 0)$$

$$\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right) =$$

$$-0.194117019072857733 + \frac{\pi^2}{12} - 2\log^2(3) + \log^2(2\pi) + \frac{2\log(2)\log(3)\left(\frac{1}{z_0}\right)^{-1/2\lfloor\arg(2\pi-z_0)/(2\pi)\rfloor} z_0^{1/2(-1-\lfloor\arg(2\pi-z_0)/(2\pi)\rfloor)}}{\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(2\pi-z_0)^k z_0^{-k}}{k!}}$$

Integral representations:

$$\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right) =$$

$$\frac{1}{\sqrt{2\pi}}0.0833333333333333333\left(\int_0^1\int_0^1\frac{1}{(1+t_1)(1+2t_2)}\,dt_2\,dt_1 - 2.3294042288742928\sqrt{2\pi} + 1.0000000000000000\,\pi^2\sqrt{2\pi} - 24.000000000000000\left(\int_1^3\frac{1}{t}\,dt\right)^2\sqrt{2\pi} + 12.000000000000000\left(\int_1^{2\pi}\frac{1}{t}\,dt\right)^2\sqrt{2\pi}\right)$$

$$\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right) = \frac{1}{i^2\pi^2\sqrt{2\pi}}\, 0.0833333333333333 \left(6.00000000000000\left(\int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)\int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{2^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds - 2.329404228874293\, i^2\pi^2\sqrt{2\pi} + 1.000000000000000\, i^2\pi^4\sqrt{2\pi} - 6.00000000000000\left(\int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{2^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)^2\sqrt{2\pi} + 3.00000000000000\left(\int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{(-1+2\pi)^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)^2\sqrt{2\pi}\right) \text{ for } -1 < \gamma < 0$$

Subtracting $C_0 = 0.582879670292435$; we obtain:

2 ln 3 (ln 2/(sqrt(2Pi))) – 2 (ln 3)^2 – (3-1) (((1/2*0.582879670292435^2-0.072815845483680 – (Pi^2)/24 – 1/2(ln((2Pi)))^2))-0.582879670

Input interpretation:

$$2\log(3)\times\frac{\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{1}{2}\times 0.582879670292435^2 - 0.072815845483680 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right) - 0.582879670$$

log(x) is the natural logarithm

Result:

1.616953635323902039379912145264828435936089063414023486361...

1.61695363532… result that is near to the value of the golden ratio 1,618033988749...

Alternative representations:

$$\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right) - 0.58288 = -0.58288 - 2\log_e^2(3) - 2\left(-0.0728158454836800000 + \frac{0.5828796702924350000^2}{2} - \frac{\pi^2}{24} - \frac{1}{2}\log_e^2(2\pi)\right) + \frac{2\log_e(2)\log_e(3)}{\sqrt{2\pi}}$$

$$\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right) - 0.58288 = -0.58288 - 2(\log(a)\log_a(3))^2 - 2\left(-0.0728158454836800000 + \frac{0.5828796702924350000^2}{2} - \frac{\pi^2}{24} - \frac{1}{2}(\log(a)\log_a(2\pi))^2\right) + \frac{2\log^2(a)\log_a(2)\log_a(3)}{\sqrt{2\pi}}$$

$$\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right) - 0.58288 = -0.58288 - 2(-\text{Li}_1(-2))^2 - 2\left(-0.0728158454836800000 + \frac{0.5828796702924350000^2}{2} - \frac{\pi^2}{24} - \frac{1}{2}(-\text{Li}_1(1-2\pi))^2\right) + \frac{2\,\text{Li}_1(-2)\,\text{Li}_1(-1)}{\sqrt{2\pi}}$$

Series representations:

$$\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right) - 0.58288 = -0.776997 + 0.0833333\,\pi^2 - 2\log^2(3) + \log^2(2\pi) + \frac{2\log(2)\log(3)}{\sqrt{-1+2\pi}\,\sum_{k=0}^{\infty}(-1+2\pi)^{-k}\binom{\frac{1}{2}}{k}}$$

$$\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right) - 0.58288 = -0.776997 + 0.0833333\,\pi^2 - 2\log^2(3) + \log^2(2\pi) + \frac{2\log(2)\log(3)}{\exp\left(i\pi\left\lfloor\frac{\arg(2\pi-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(2\pi-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}} \quad \text{for } (x \in \mathbb{R} \text{ and } x < 0)$$

$$\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right) - 0.58288 = -0.776997 + \frac{\pi^2}{12} - 2\log^2(3) + \log^2(2\pi) + \frac{2\log(2)\log(3)}{\exp\left(i\pi\left\lfloor\frac{\arg(2\pi-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(2\pi-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}} \quad \text{for } (x \in \mathbb{R} \text{ and } x < 0)$$

Integral representations:

$$\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right) - 0.58288 = \frac{1}{\sqrt{2\pi}}\,0.0833333\left(\int_0^1\int_0^1 \frac{1}{(1+t_1)(1+2t_2)}\,dt_2\,dt_1 - 9.32396\sqrt{2\pi} + \pi^2\sqrt{2\pi} - 24\left(\int_1^3 \frac{1}{t}\,dt\right)^2\sqrt{2\pi} + 12\left(\int_1^{2\pi}\frac{1}{t}\,dt\right)^2\sqrt{2\pi}\right)$$

$$\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right) - 0.58288 = \frac{1}{i^2\pi^2\sqrt{2\pi}}\,0.0833333\left(6\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{2^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds - 9.32396\,i^2\pi^2\sqrt{2\pi} + i^2\pi^4\sqrt{2\pi} - 6\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{2^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)^2\sqrt{2\pi} + 3\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{(-1+2\pi)^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)^2\sqrt{2\pi}\right) \quad \text{for } -1 < \gamma < 0$$

We have also:

((((2/((2 ln 3 (ln 2/(sqrt(2Pi))) – 2 (ln 3)^2 – (3-1) (((1/2*0.582879670292435^2-0.072815845483680 – (Pi^2)/24 – 1/2(ln((2Pi)))^2))))))))^1/128

Input interpretation:

$$\left(2/\left(2\log(3)\times\frac{\log(2)}{\sqrt{2\pi}}-2\log^2(3)-(3-1)\left(\frac{1}{2}\times 0.582879670292435^2-0.072815845483680-\frac{\pi^2}{24}-\frac{1}{2}\log^2(2\pi)\right)\right)\right)\wedge(1/128)$$

log(x) is the natural logarithm

Result:

0.99925625791158988...

0.99925625791158988... 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 = ϕ**

sqrt[1/2log base 0.99925625791158988((((2/((2 ln 3 (ln 2/(sqrt(2Pi))) – 2 (ln 3)^2 – (3-1) (((1/2*0.582879670292435^2-0.072815845483680 – (Pi^2)/24 – 1/2(ln((2Pi)))^2)))))))))]

Input interpretation:

$$\sqrt{\left(\frac{1}{2}\log_{0.99925625791158988}\left(2/\left(2\log(3)\times\frac{\log(2)}{\sqrt{2\pi}}-2\log^2(3)-(3-1)\left(\frac{1}{2}\times 0.582879670292435^2-0.072815845483680-\frac{\pi^2}{24}-\frac{1}{2}\log^2(2\pi)\right)\right)\right)\right)}$$

log(x) is the natural logarithm

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

Result:

8.0000000000000...

$8.0000000000000\, e^0 \approx 8.0000$ (real, principal root)

$8.0000000000000\, e^{i\pi} \approx -8.0000$ (real root)

8

Alternative representations:

$$\sqrt{\left(\frac{1}{2}\log_{0.99925625791158988000}\left(2\Big/\left(\frac{2\log(3)\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right)\right)\right)\right)} = \sqrt{\left(\log\left(2\Big/\left(-2\log^2(3) - 2\left(-0.0728158454836800000 + \frac{0.5828796702924350000^2}{2} - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right) + \frac{2\log(2)\log(3)}{\sqrt{2\pi}}\right)\right)\Big/(2\log(0.99925625791158988000))\right)}$$

$$\sqrt{\left(\frac{1}{2}\log_{0.99925625791158988000}\left(2\Big/\left(\frac{2\log(3)\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right)\right)\right)\right)} = \sqrt{\left(\frac{1}{2}\log_{0.99925625791158988000}\left(2\Big/\left(-2\log_e^2(3) - 2\left(-0.0728158454836800000 + \frac{0.5828796702924350000^2}{2} - \frac{\pi^2}{24} - \frac{1}{2}\log_e^2(2\pi)\right) + \frac{2\log_e(2)\log_e(3)}{\sqrt{2\pi}}\right)\right)\right)}$$

$$\sqrt{\left(\frac{1}{2}\log_{0.99925625791158988000}\left(2\Big/\left(\frac{2\log(3)\log(2)}{\sqrt{2\pi}}-2\log^2(3)-(3-1)\left(\frac{0.5828796702924350000^2}{2}-0.0728158454836800000-\frac{\pi^2}{24}-\frac{1}{2}\log^2(2\pi)\right)\right)\right)\right)}=$$

$$\sqrt{\left(\frac{1}{2}\log_{0.99925625791158988000}\left(2\Big/\left(-2\left(\log(a)\log_a(3)\right)^2-2\left(-0.0728158454836800000+\frac{0.5828796702924350000^2}{2}-\frac{\pi^2}{24}-\frac{1}{2}\left(\log(a)\log_a(2\pi)\right)^2\right)+\frac{2\log^2(a)\log_a(2)\log_a(3)}{\sqrt{2\pi}}\right)\right)\right)}$$

Series representations:

$$\sqrt{\left(\frac{1}{2}\log_{0.99925625791158988000}\left(2\Big/\left(\frac{2\log(3)\log(2)}{\sqrt{2\pi}}-2\log^2(3)-(3-1)\left(\frac{0.5828796702924350000^2}{2}-0.0728158454836800000-\frac{\pi^2}{24}-\frac{1}{2}\log^2(2\pi)\right)\right)\right)\right)}=$$

$$\exp\left(i\pi\left\lfloor\frac{1}{2\pi}\arg\left(\frac{1}{2}\left(-2x+\log_{0.99925625791158988000}\left(-\left(\left(1.00000000000000000\sqrt{2\pi}\right)\Big/\left(-1.00000000000000000\log(2)\log(3)+\left(0.097058509536428866-0.0416666666666666667\pi^2+\log^2(3)-0.500000000000000000\log^2(2\pi)\right)\sqrt{2\pi}\right)\right)\right)\right)\right)\right\rfloor\right)$$

$$\sqrt{x}\sum_{k=0}^{\infty}\frac{1}{k!}\left(-\frac{1}{2}\right)^k x^{-k}\left(-2x+\log_{0.99925625791158988000}\left(-\left(\left(1.00000000000000000\sqrt{2\pi}\right)\Big/\left(-1.00000000000000000\log(2)\log(3)+\left(0.097058509536428866-0.0416666666666666667\pi^2+\log^2(3)-0.500000000000000000\log^2(2\pi)\right)\sqrt{2\pi}\right)\right)\right)\right)^k\left(-\frac{1}{2}\right)_k \quad \text{for } (x\in\mathbb{R} \text{ and } x<0)$$

$$\sqrt{\left(\frac{1}{2}\log_{0.99925625791158988000}\left(2\Big/\left(\frac{2\log(3)\log(2)}{\sqrt{2\pi}}-2\log^2(3)-(3-1)\left(\frac{0.58287967029243500000^2}{2}-0.072815845483680000-\frac{\pi^2}{24}-\frac{1}{2}\log^2(2\pi)\right)\right)\right)\right)}=$$

$$\left(\frac{1}{z_0}\right)^{1/2\left\lfloor\arg\left(\frac{1}{2}\left(\log_{0.99925625791158988000}\left(-\frac{1.00000000000000000\sqrt{2\pi}}{-1.00000000000000000\log(2)\log(3)+(0.097058509536428866-0.0416666666666666667\pi^2+\log^2(3)-0.500000000000000000\log^2(2\pi))\sqrt{2\pi}}\right)-2z_0\right)\right)/(2\pi)\right\rfloor} z_0^{1/2\left(1+\left\lfloor\arg\left(\frac{1}{2}\left(\log_{0.99925625791158988000}\left(-\frac{1.00000000000000000\sqrt{2\pi}}{-1.00000000000000000\log(2)\log(3)+(0.097058509536428866-0.0416666666666666667\pi^2+\log^2(3)-0.500000000000000000\log^2(2\pi))\sqrt{2\pi}}\right)-2z_0\right)\right)/(2\pi)\right\rfloor\right)} \sum_{k=0}^{\infty}\frac{1}{k!}\left(-\frac{1}{2}\right)^k\left(-\frac{1}{2}\right)_k \left(\log_{0.99925625791158988000}\left(-\left(\left(1.00000000000000000\sqrt{2\pi}\right)\Big/\left(-1.00000000000000000\log(2)\log(3)+(0.097058509536428866-0.0416666666666666667\pi^2+\log^2(3)-0.500000000000000000\log^2(2\pi))\sqrt{2\pi}\right)\right)\right)-2z_0\right)^k z_0^{-k}$$

Integral representations:

$$\sqrt{\left(\frac{1}{2}\log_{0.99925625791158988000}\left(2\Big/\left(\frac{2\log(3)\log(2)}{\sqrt{2\pi}}-2\log^2(3)-(3-1)\left(\frac{0.58287967029243500000^2}{2}-0.072815845483680000-\frac{\pi^2}{24}-\frac{1}{2}\log^2(2\pi)\right)\right)\right)\right)}=$$

$$\sqrt{\left(\frac{1}{2}\log_{0.99925625791158988000}\left(-\left(\left(1.00000000000000000\sqrt{2\pi}\right)\Big/\left(\int_0^1\int_0^1\frac{1}{(1+t_1)(1+2t_2)}\,dt_2\,dt_1+\left(0.097058509536428866-0.0416666666666666667\pi^2+\left(\int_1^3\frac{1}{t}\,dt\right)^2-0.500000000000000000\left(\int_1^{2\pi}\frac{1}{t}\,dt\right)^2\right)\sqrt{2\pi}\right)\right)\right)\right)}$$

$$\sqrt{\left(\frac{1}{2}\log_{0.999256257911589880000}\left(2\Big/\left(\frac{2\log(3)\log(2)}{\sqrt{2\pi}}-2\log^2(3)-(3-1)\left(\frac{0.5828796702924350000^2}{2}-0.0728158454836800000-\frac{\pi^2}{24}-\frac{1}{2}\log^2(2\pi)\right)\right)\right)\right)}=$$

$$\sqrt{\left(\frac{1}{2}\log_{0.999256257911589880000}\left(2\Big/\left(-\frac{\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{2^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)^2}{2\,i^2\,\pi^2}-2\left(0.097058509536428866-\frac{\pi^2}{24}-\frac{\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{(-1+2\pi)^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)^2}{8\,i^2\,\pi^2}\right)+\frac{\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{2^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}{2\,i^2\,\pi^2\,\sqrt{2\pi}}\right)\right)\right)} \quad \text{for } -1<\gamma<0$$

$\Gamma(x)$ is the gamma function

[log base 0.99925625791158988((((2/((2 ln 3 (ln 2/(sqrt(2Pi))) – 2 (ln 3)^2 – (3-1) (((1/2*0.582879670292435^2-0.072815845483680 – (Pi^2)/24 – 1/2(ln((2Pi)))^2))))))))))]-Pi+1/golden ratio

Input interpretation:

$$\log_{0.99925625791158988}\left(2\Big/\left(2\log(3)\times\frac{\log(2)}{\sqrt{2\pi}}-2\log^2(3)-(3-1)\left(\frac{1}{2}\times 0.582879670292435^2-0.072815845483680-\frac{\pi^2}{24}-\frac{1}{2}\log^2(2\pi)\right)\right)\right)-\pi+\frac{1}{\phi}$$

$\log(x)$ is the natural logarithm

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

ϕ is the golden ratio

Result:

125.47644133516...

125.47644... 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:

$$\log_{0.99925625791158988000}\left(2\Big/\left(\frac{(2\log(3))\log(2)}{\sqrt{2\pi}}-2\log^2(3)-(3-1)\left(\frac{0.5828796702924350000^2}{2}-0.07281584548368000000-\frac{\pi^2}{24}-\frac{1}{2}\log^2(2\pi)\right)\right)\right)-\pi+\frac{1}{\phi}=$$

$$-\pi+\frac{1}{\phi}+\log\left(2\Big/\left(-2\log^2(3)-2\left(-0.07281584548368000000+\frac{0.5828796702924350000^2}{2}-\frac{\pi^2}{24}-\frac{1}{2}\log^2(2\pi)\right)+\frac{2\log(2)\log(3)}{\sqrt{2\pi}}\right)\right)\Big/\log(0.99925625791158988000)$$

$$\log_{0.99925625791158988000}\left(2\Big/\left(\frac{(2\log(3))\log(2)}{\sqrt{2\pi}}-2\log^2(3)-(3-1)\left(\frac{0.5828796702924350000^2}{2}-0.07281584548368000000-\frac{\pi^2}{24}-\frac{1}{2}\log^2(2\pi)\right)\right)\right)-\pi+\frac{1}{\phi}=-\pi+\log_{0.99925625791158988000}\left(2\Big/\left(-2\log_e^2(3)-2\left(-0.07281584548368000000+\frac{0.5828796702924350000^2}{2}-\frac{\pi^2}{24}-\frac{1}{2}\log_e^2(2\pi)\right)+\frac{2\log_e(2)\log_e(3)}{\sqrt{2\pi}}\right)\right)+\frac{1}{\phi}$$

$$\log_{0.99925625791158988000}\left(2\Big/\left(\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.58287967029243500000^2}{2} - 0.07281584548368000000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right)\right)\right) - \pi + \frac{1}{\phi} =$$

$$-\pi + \log_{0.99925625791158988000}\left(2\Big/\left(-2(\log(a)\log_a(3))^2 - 2\left(-0.07281584548368000000 + \frac{0.58287967029243500000^2}{2} - \frac{\pi^2}{24} - \frac{1}{2}(\log(a)\log_a(2\pi))^2\right) + \frac{2\log^2(a)\log_a(2)\log_a(3)}{\sqrt{2\pi}}\right)\right) + \frac{1}{\phi}$$

Series representation:

$$\log_{0.99925625791158988000}\left(2\Big/\left(\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.58287967029243500000^2}{2} - 0.07281584548368000000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right)\right)\right) - \pi + \frac{1}{\phi} =$$

$$\frac{1}{\phi} - \pi - \left(\sum_{k=1}^{\infty} \frac{1}{k}(-1)^k \left(-1 - \left(1.00000000000000000\sqrt{2\pi}\right)\Big/\left(-1.00000000000000000\log(2)\log(3) + (0.097058509536428866 - 0.0416666666666666667\pi^2 + \log^2(3) - 0.500000000000000000\log^2(2\pi))\sqrt{2\pi}\right)\right)^k\right)\Big/\log(0.99925625791158988000)$$

Integral representations:

$$\log_{0.99925625791158988 0000}\Bigg(2\Big/\left(\frac{(2\log(3))\log(2)}{\sqrt{2\pi}}-2\log^2(3)-(3-1)\left(\frac{0.5828796702924350000^2}{2}-0.0728158454836800000-\frac{\pi^2}{24}-\frac{1}{2}\log^2(2\pi)\right)\right)\Bigg)-\pi+\frac{1}{\phi}=$$

$$-\frac{1}{\phi}\left(-1+\phi\pi-\phi\log_{0.99925625791158988 0000}\left(-\left(\left(1.00000000000000000\sqrt{2\pi}\right)\Big/\left(\int_0^1\int_0^1\frac{1}{(1+t_1)(1+2t_2)}\,dt_2\,dt_1+\left(0.097058509536428866-0.0416666666666666667\pi^2+\left(\int_1^3\frac{1}{t}\,dt\right)^2-0.500000000000000000\left(\int_1^{2\pi}\frac{1}{t}\,dt\right)^2\right)\sqrt{2\pi}\right)\right)\right)\right)$$

$$\log_{0.99925625791158988 0000}\Bigg(2\Big/\left(\frac{(2\log(3))\log(2)}{\sqrt{2\pi}}-2\log^2(3)-(3-1)\left(\frac{0.5828796702924350000^2}{2}-0.0728158454836800000-\frac{\pi^2}{24}-\frac{1}{2}\log^2(2\pi)\right)\right)\Bigg)-$$

$$\pi+\frac{1}{\phi}=-\frac{1}{\phi}\left(-1+\phi\pi-\phi\log_{0.99925625791158988 0000}\left(2\Big/\left(-\frac{\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{2^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)^2}{2\,i^2\,\pi^2}-2\left(0.097058509536428866-\frac{\pi^2}{24}-\frac{\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{(-1+2\pi)^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)^2}{8\,i^2\,\pi^2}\right)+\frac{\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{2^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}{2\,i^2\,\pi^2\,\sqrt{2\pi}}\right)\right)\right)\quad\text{for } -1<\gamma<0$$

$\Gamma(x)$ is the gamma function

[log base 0.99925625791158988((((2/((2 ln 3 (ln 2/(sqrt(2Pi))) – 2 (ln 3)^2 – (3-1) (((1/2*0.582879670292435^2-0.072815845483680 – (Pi^2)/24 – 1/2(ln((2Pi)))^2)))))))))]+11+1/golden ratio

Input interpretation:

$$\log_{0.99925625791158988}\left(2\Big/\left(2\log(3)\times\frac{\log(2)}{\sqrt{2\pi}}-2\log^2(3)-(3-1)\left(\frac{1}{2}\times 0.582879670292435^2-0.072815845483680-\frac{\pi^2}{24}-\frac{1}{2}\log^2(2\pi)\right)\right)\right)+11+\frac{1}{\phi}$$

log(x) is the natural logarithm

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

ϕ is the golden ratio

Result:

139.61803398875...

139.61803398… result practically equal to the rest mass of Pion meson 139.57 MeV

Alternative representations:

$$\log_{0.99925625791158988 0000}\left(2\Big/\left(\frac{(2\log(3))\log(2)}{\sqrt{2\pi}}-2\log^2(3)-(3-1)\left(\frac{0.5828796702924350000^2}{2}-0.0728158454836800000-\frac{\pi^2}{24}-\frac{1}{2}\log^2(2\pi)\right)\right)\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}+\log\left(2\Big/\left(-2\log^2(3)-2\left(-0.0728158454836800000+\frac{0.5828796702924350000^2}{2}-\frac{\pi^2}{24}-\frac{1}{2}\log^2(2\pi)\right)+\frac{2\log(2)\log(3)}{\sqrt{2\pi}}\right)\right)\Big/\log(0.999256257911589880000)$$

$$\log_{0.99925625791158988000\bigl(}\left(2\Big/\left(\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right)\right)\right) +$$

$$11 + \frac{1}{\phi} = 11 + \log_{0.99925625791158988000}\left(2\Big/\left(-2\log_e^2(3) - 2\left(-0.0728158454836800000 + \frac{0.5828796702924350000^2}{2} - \frac{\pi^2}{24} - \frac{1}{2}\log_e^2(2\pi)\right) + \frac{2\log_e(2)\log_e(3)}{\sqrt{2\pi}}\right)\right) + \frac{1}{\phi}$$

$$\log_{0.99925625791158988000}\left(2\Big/\left(\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right)\right)\right) + 11 + \frac{1}{\phi} =$$

$$11 + \log_{0.99925625791158988000}\left(2\Big/\left(-2(\log(a)\log_a(3))^2 - 2\left(-0.0728158454836800000 + \frac{0.5828796702924350000^2}{2} - \frac{\pi^2}{24} - \frac{1}{2}(\log(a)\log_a(2\pi))^2\right) + \frac{2\log^2(a)\log_a(2)\log_a(3)}{\sqrt{2\pi}}\right)\right) + \frac{1}{\phi}$$

Series representation:

$$\log_{0.99925625791158988000}\left(2\Big/\left(\frac{(2\log(3))\log(2)}{\sqrt{2\pi}} - 2\log^2(3) - (3-1)\left(\frac{0.5828796702924350000^2}{2} - 0.0728158454836800000 - \frac{\pi^2}{24} - \frac{1}{2}\log^2(2\pi)\right)\right)\right) + 11 + \frac{1}{\phi} =$$

$$11 + \frac{1}{\phi} - \left(\sum_{k=1}^{\infty} \frac{1}{k}(-1)^k \left(-1 - \left(1.00000000000000000\sqrt{2\pi}\right)\Big/\left(-1.00000000000000000\log(2)\log(3) + (0.097058509536428866 - 0.0416666666666666667\pi^2 + \log^2(3) - 0.500000000000000000\log^2(2\pi))\sqrt{2\pi}\right)\right)^k\right)\Big/\log(0.99925625791158988000)$$

Integral representations:

$$\log_{0.99925625791158988000}\left(2\Big/\left(\frac{(2\log(3))\log(2)}{\sqrt{2\pi}}-2\log^2(3)-(3-1)\left(\frac{0.58287967029243500000^2}{2}-0.07281584548368000000-\frac{\pi^2}{24}-\frac{1}{2}\log^2(2\pi)\right)\right)\right)+11+\frac{1}{\phi}=$$

$$\frac{1}{\phi}\left(1+11\phi+\phi\log_{0.99925625791158988000}\left(-\left(\left(1.00000000000000000\sqrt{2\pi}\right)\Big/\left(\int_0^1\int_0^1\frac{1}{(1+t_1)(1+2t_2)}\,dt_2\,dt_1+\left(0.097058509536428866-0.0416666666666666667\pi^2+\left(\int_1^3\frac{1}{t}\,dt\right)^2-0.500000000000000000\left(\int_1^{2\pi}\frac{1}{t}\,dt\right)^2\right)\sqrt{2\pi}\right)\right)\right)\right)$$

$$\log_{0.99925625791158988000}\left(2\Big/\left(\frac{(2\log(3))\log(2)}{\sqrt{2\pi}}-2\log^2(3)-(3-1)\left(\frac{0.58287967029243500000^2}{2}-0.07281584548368000000-\frac{\pi^2}{24}-\frac{1}{2}\log^2(2\pi)\right)\right)\right)+$$

$$11+\frac{1}{\phi}=\frac{1}{\phi}\left(1+11\phi+\phi\log_{0.99925625791158988000}\left(2\Big/\left(-\frac{\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{2^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)^2}{2\,i^2\,\pi^2}-2\left(0.097058509536428866-\frac{\pi^2}{24}-\frac{\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{(-1+2\pi)^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)^2}{8\,i^2\,\pi^2}\right)+\frac{\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{2^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}{2\,i^2\,\pi^2\sqrt{2\pi}}\right)\right)\right)\quad \text{for } -1<\gamma<0$$

$\Gamma(x)$ is the gamma function

Appendix

DILATON VALUE CALCULATIONS

from:

Modular equations and approximations to π - *Srinivasa Ramanujan*
Quarterly Journal of Mathematics, XLV, 1914, 350 – 372

We have that:

5. Since G_n and g_n can be expressed as roots of algebraical equations with rational coefficients, the same is true of G_n^{24} or g_n^{24}. So let us suppose that

$$1 = ag_n^{-24} - bg_n^{-48} + \cdots,$$

or

$$g_n^{24} = a - bg_n^{-24} + \cdots.$$

But we know that

$$\begin{aligned} 64e^{-\pi\sqrt{n}}g_n^{24} &= 1 - 24e^{-\pi\sqrt{n}} + 276e^{-2\pi\sqrt{n}} - \cdots, \\ 64g_n^{24} &= e^{\pi\sqrt{n}} - 24 + 276e^{-\pi\sqrt{n}} - \cdots, \\ 64a - 64bg_n^{-24} + \cdots &= e^{\pi\sqrt{n}} - 24 + 276e^{-\pi\sqrt{n}} - \cdots, \\ 64a - 4096be^{-\pi\sqrt{n}} + \cdots &= e^{\pi\sqrt{n}} - 24 + 276e^{-\pi\sqrt{n}} - \cdots, \end{aligned}$$

that is

$$e^{\pi\sqrt{n}} = (64a + 24) - (4096b + 276)e^{-\pi\sqrt{n}} + \cdots \tag{13}$$

Similarly, if

$$1 = aG_n^{-24} - bG_n^{-48} + \cdots,$$

then

$$e^{\pi\sqrt{n}} = (64a - 24) - (4096b + 276)e^{-\pi\sqrt{n}} + \cdots \tag{14}$$

From (13) and (14) we can find whether $e^{\pi\sqrt{n}}$ is very nearly an integer for given values of n, and ascertain also the number of 9's or 0's in the decimal part. But if G_n and g_n be simple quadratic surds we may work independently as follows. We have, for example,

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

Hence

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

so that

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

Hence

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

Again

$$G_{37} = (6+\sqrt{37})^{\frac{1}{4}},$$

$$
\begin{aligned}
64G_{37}^{24} &= e^{\pi\sqrt{37}} + 24 + 276e^{-\pi\sqrt{37}} + \cdots, \\
64G_{37}^{-24} &= \qquad\qquad\quad 4096e^{-\pi\sqrt{37}} - \cdots,
\end{aligned}
$$

so that

$$64(G_{37}^{24} + G_{37}^{-24}) = e^{\pi\sqrt{37}} + 24 + 4372e^{-\pi\sqrt{37}} - \cdots = 64\{(6+\sqrt{37})^{6} + (6-\sqrt{37})^{6}\}.$$

Hence

$$e^{\pi\sqrt{37}} = 199148647.999978\ldots.$$

Similarly, from

$$g_{58} = \sqrt{\left(\frac{5+\sqrt{29}}{2}\right)},$$

we obtain

$$64(g_{58}^{24} + g_{58}^{-24}) = e^{\pi\sqrt{58}} - 24 + 4372e^{-\pi\sqrt{58}} + \cdots = 64\left\{\left(\frac{5+\sqrt{29}}{2}\right)^{12} + \left(\frac{5-\sqrt{29}}{2}\right)^{12}\right\}.$$

Hence

$$e^{\pi\sqrt{58}} = 24591257751.99999982\ldots.$$

From:

An Update on Brane Supersymmetry Breaking
J. Mourad and A. Sagnotti - arXiv:1711.11494v1 [hep-th] 30 Nov 2017

Now, we have that:

From the following vacuum equations:

$$T\, e^{\gamma_E\, \phi} \;=\; -\,\frac{\beta_E^{(p)}\, h^2}{\gamma_E}\; e^{-2\,(8-p)\,C+2\,\beta_E^{(p)}\,\phi}$$

$$16\, k'\, e^{\;\;2C} \;=\; \frac{h^2\left(p\;+\;1\;-\;\frac{2\,\beta_E^{(p)}}{\gamma_E}\right)e^{-2\,(8-p)\,C+2\,\beta_E^{(p)}\,\phi}}{(7\;-\;p)}$$

$$(A')^2\;-\;k\, e^{-2A}\;+\;\frac{h^2}{16(p\;+\;1)}\;\left(7\;-\;p\;+\;\frac{2\,\beta_E^{(p)}}{\gamma_E}\right)\;e^{-2\,(8-p)\,C+2\,\beta_E^{(p)}\,\phi}$$

We have obtained, from the results almost equals of the equations, putting

$4096\, e^{-\pi\sqrt{18}}$ instead of

$$e^{-2\,(8-p)\,C+2\,\beta_E^{(p)}\,\phi}$$

a new possible mathematical connection between the two exponentials. Thence, also the values concerning p, C, β_E and ϕ correspond to the exponents of e (i.e. of exp). Thence we obtain for p = 5 and $\beta_E = 1/2$:

$$e^{-6C+\phi} = 4096e^{-\pi\sqrt{18}}$$

Therefore with respect to the exponential of the vacuum equation, the Ramanujan's exponential has a coefficient of 4096 which is equal to 64^2, while -6C+ϕ is equal to -$\pi\sqrt{18}$. From this it follows that it is possible to establish mathematically, the dilaton value.

phi = -Pi*sqrt(18) + 6C, for C = 1, we obtain:

exp((-Pi*sqrt(18))

Input:

$\exp\left(-\pi\sqrt{18}\right)$

Exact result:

$e^{-3\sqrt{2}\,\pi}$

Decimal approximation:

$1.6272016226072509292942156739117979541838581136954016\ldots \times 10^{-6}$

$1.6272016\ldots * 10^{-6}$

Now:

$e^{-6C+\phi} = 4096e^{-\pi\sqrt{18}}$

$e^{-\pi\sqrt{18}}$ = 1.6272016… * 10^{-6}

$\frac{1}{4096}e^{-6C+\phi}$ = 1.6272016… * 10^{-6}

0.000244140625 $e^{-6C+\phi} = e^{-\pi\sqrt{18}}$ = 1.6272016… * 10^{-6}

$\ln\left(e^{-\pi\sqrt{18}}\right) = -13.328648814475 = -\pi\sqrt{18}$

(1.6272016* 10^-6) *1/ (0.000244140625)

Input interpretation:

$\frac{1.6272016}{10^6} \times \frac{1}{0.000244140625}$

Result:

0.0066650177536

0.006665017...

0.000244140625 $e^{-6C+\phi} = e^{-\pi\sqrt{18}}$

Dividing both sides by 0.000244140625, we obtain:

$\frac{0.000244140625}{0.000244140625}e^{-6C+\phi} = \frac{1}{0.000244140625}e^{-\pi\sqrt{18}}$

$e^{-6C+\phi}$ = 0.0066650177536

((((exp((-Pi*sqrt(18)))))))*1/0.000244140625

Input interpretation:

$\exp\left(-\pi\sqrt{18}\right) \times \frac{1}{0.000244140625}$

Result:

0.00666501785...

0.00666501785…

$e^{-6C+\phi} = 0.0066650177536$

$$\exp\left(-\pi\sqrt{18}\right) \times \frac{1}{0.000244140625} =$$

$$e^{-\pi\sqrt{18}} \times \frac{1}{0.000244140625}$$

= 0.00666501785…

ln(0.00666501784619)

Input interpretation:

log(0.00666501784619)

Result:

-5.010882647757...

-5.010882647757…

Now:

$-6C + \phi = -5.010882647757 \ldots$

For C = 1, we obtain:

$\phi = -5.010882647757 + 6 = \mathbf{0.989117352243} = \boldsymbol{\phi}$

Observations

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.

In mathematics, the **Fibonacci numbers**, commonly denoted F_n, form a sequence, called the **Fibonacci sequence**, such that each number is the sum of the two preceding ones, starting from 0 and 1. Fibonacci numbers are strongly related to the golden ratio: Binet's formula expresses the *n*th Fibonacci number in terms of *n* and the golden ratio, and implies that the ratio of two consecutive Fibonacci numbers tends to the golden ratio as *n* increases.
Fibonacci numbers are also closely related to Lucas numbers ,in that the Fibonacci and Lucas numbers form a complementary pair of Lucas sequences

The beginning of the sequence is thus:

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, 1597, 2584, 4181, 6765, 10946, 17711, 28657, 46368, 75025, 121393, 196418, 317811, 514229, 832040, 1346269, 2178309, 3524578, 5702887, 9227465, 14930352, 24157817, 39088169, 63245986, 102334155...

The **Lucas numbers** or **Lucas series** are an integer sequence named after the mathematician François Édouard Anatole Lucas (1842–91), who studied both that sequence and the closely related Fibonacci numbers. Lucas numbers and Fibonacci numbers form complementary instances of Lucas sequences.

The Lucas sequence has the same recursive relationship as the Fibonacci sequence, where each term is the sum of the two previous terms, but with different starting values. This produces a sequence where the ratios of successive terms approach the golden ratio, and in fact the terms themselves are roundings of integer powers of the golden ratio.[1] The sequence also has a variety of relationships with the Fibonacci numbers, like the fact that adding any two Fibonacci numbers two terms apart in the Fibonacci sequence results in the Lucas number in between.

The sequence of Lucas numbers is:

2, 1, 3, 4, 7, 11, 18, 29, 47, 76, 123, 199, 322, 521, 843, 1364, 2207, 3571, 5778, 9349, 15127, 24476, 39603, 64079, 103682, 167761, 271443, 439204, 710647, 1149851, 1860498, 3010349, 4870847, 7881196, 12752043, 20633239, 33385282, 54018521, 87403803……

All Fibonacci-like integer sequences appear in shifted form as a row of the Wythoff array; the Fibonacci sequence itself is the first row and the Lucas sequence is the second row. Also like all Fibonacci-like integer sequences, the ratio between two consecutive Lucas numbers converges to the golden ratio.

A **Lucas prime** is a Lucas number that is prime. The first few Lucas primes are:

2, 3, 7, 11, 29, 47, 199, 521, 2207, 3571, 9349, 3010349, 54018521, 370248451, 6643838879, ... (sequence A005479 in the OEIS).

In geometry, a **golden spiral** is a logarithmic spiral whose growth factor is φ, the golden ratio.[1] That is, a golden spiral gets wider (or further from its origin) by a factor of φ for every quarter turn it makes. Approximate logarithmic spirals can occur in nature, for example the arms of spiral galaxies[3] - golden spirals are one special case of these logarithmic spirals

References

A Reissner-Nordstrom+Λ black hole in the Friedman-Robertson-Walker universe- arXiv:1703.05119v1 [physics.gen-ph] 5 Mar 2017
Safiqul Islam and Priti Mishra†
Harish-Chandra Research Institute, Allahabad 211019, Uttar Pradesh, India
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Farook Rahaman‡
Department of Mathematics,Jadavpur University,Kolkata-700 032,West Bengal,India - (Dated: March 16, 2017)

Generating functions of wormholes
arXiv:1901.01757v1 [physics.gen-ph] 1 Jan 2019

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(Dated: January 8, 2019)

Manuscript Book 2 of Srinivasa Ramanujan