On various Ramanujan's equations of Manuscript Book 1 and some formulas concerning the Eisenstein series: new possible mathematical connections with some parameters of Particle Physics and Cosmology. III

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Abstract

In this research thesis, we continue to analyze and deepen further Ramanujan's equations of Manuscript Book 1 and some formulas concerning the Eisenstein series and describe new possible mathematical connections with some parameters of Particle Physics and Cosmology.

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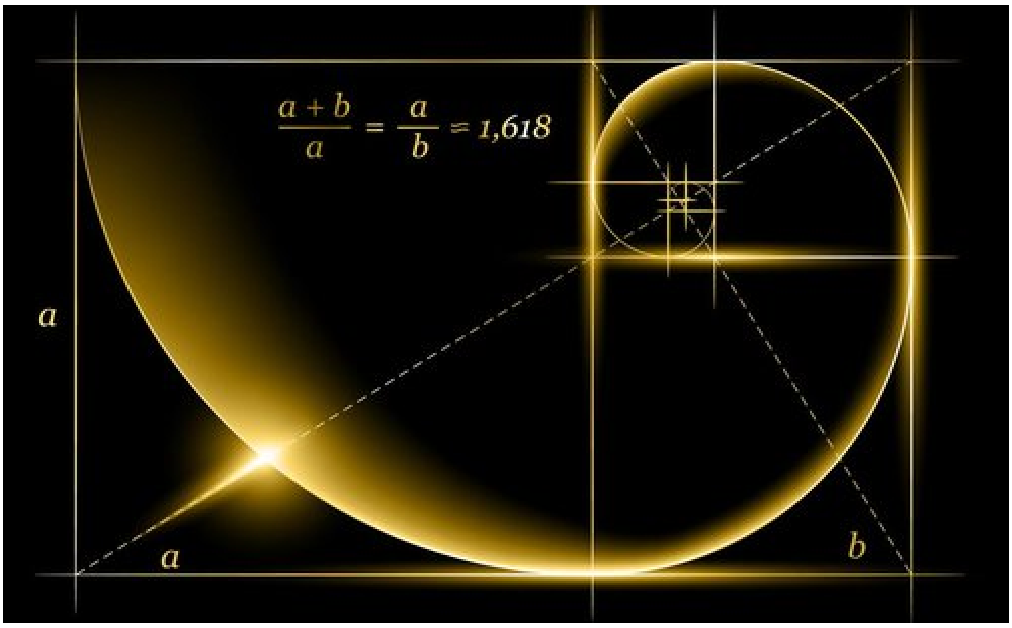
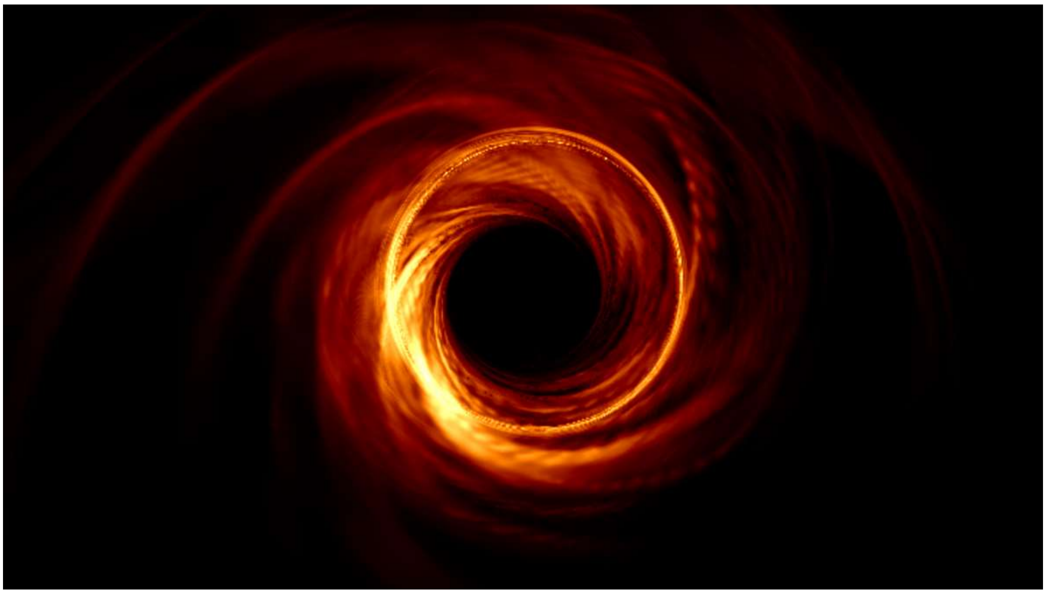
From : http://scienceofhindu.blogspot.com/2016/04/man-who-knew-infinity-by-ramana.html (modified by A. Nardelli)



https://kindtrainer.com/fractalbliss



https://www.cambridgesciencefestival.org/event/photographing-black-holes-first-results-from-the-event-horizon-telescope/

from: **Manuscript Book 1 of Srinivasa Ramanujan**

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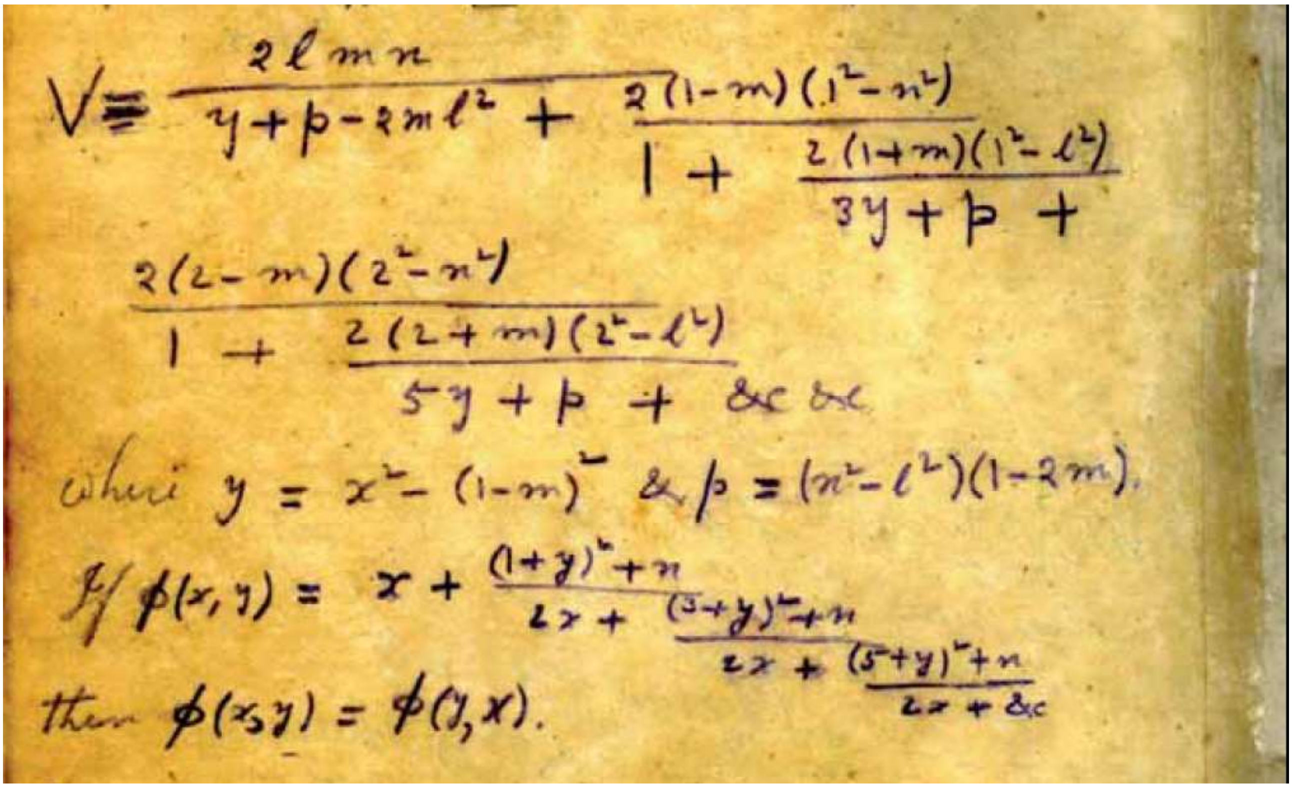

For x = 2, l = 3, m = 5, n = 8

y = 2^2-(1-5)^2 = -12

p = (8^2-3^2)(1-2*5) = - 495

2*3*5*8/((((-12-495-2*5*3^2)+(((2(1-5)(1-8^2))/(1+(((((((-96/(-36-495+(2(2-5)(4-64))/(1+((((((-70)/(-60-495)))))))))))))))))

Input:

$$\frac{2\times 3\times 5\times 8}{\left(-12-495-2\times 5\times 3^{2}\right)+\frac{2(1-5)\left(1-8^{2}\right)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}$$

Exact result:

$$-\frac{204880}{213791}$$

Decimal approximation:

-0.95831910604281751804332268430382944090256371877207178973...

-0.958319106…

Continued fraction:

$$\cfrac{1}{-1+\cfrac{1}{-22+\cfrac{1}{-1+\cfrac{1}{-121+\cfrac{1}{-14+\cfrac{1}{-1+\cfrac{1}{-1+-\frac{1}{2}}}}}}}}$$

(-1/(10^52))[(2*3*5*8)/((((-12-495-2*5*3^2)+(((2(1-5)(1-8^2))/(1+(((((((-96/(-36-495+(2(2-5)(4-64))/(1+((((((-70)/(-60-495)))))))))))))))))))))-0.144-0.003-0.0003]

Where 144 and 3 are Fibonacci numbers

Input:

$$-\frac{\frac{2\times 3\times 5\times 8}{(-12-495-2\times 5\times 3^2)+\frac{2(1-5)(1-8^2)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}-0.144-0.003-0.0003}{10^{52}}$$

Result:

$1.1056191060428175180433226843038294409025637187720717... \times 10^{-52}$

$1.105619106...*10^{-52}$ result practically equal to the value of Cosmological Constant $1.1056*10^{-52}$ m^{-2}

[-(2*3*5*8)/((((-12-495-2*5*3^2)+(((2(1-5)(1-8^2))/(1+(((((((-96/(-36-495+(2(2-5)(4-64))/(1+((((((-70)/(-60-495)))))))))))))))))))))]^1/64

Input:

$$\sqrt[64]{-\frac{2\times3\times5\times8}{(-12-495-2\times5\times3^2)+\frac{2(1-5)(1-8^2)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}}$$

Result:

$$\sqrt[64]{\frac{12\,805}{213\,791}}\ \sqrt[16]{2}$$

Decimal approximation:

0.999334995270014233707606973481877009422036043201135085501...

0.999334995… 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 $\mathbf{0.989117352243 = \phi}$

Alternate forms:

$$\frac{\sqrt[16]{2}\ \sqrt[64]{12\,805}\ 213\,791^{63/64}}{213\,791}$$

root of $213\,791\,x^{64}-204\,880$ near $x=0.999335$

2log base 0.99933499527[-(2*3*5*8)/((((-12-495-2*5*3^2)+(((2(1-5)(1-8^2))/(1+((((((-96/(-36-495+(2(2-5)(4-64))/(1+((((((-70)/(-60-495)))))))))))))))))))]-Pi+1/golden ratio

Input interpretation:

$$2\log_{0.99933499527}\left(-\frac{2\times3\times5\times8}{\left(-12-495-2\times5\times3^2\right)+\frac{2(1-5)\left(1-8^2\right)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}\right)-\pi+\frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

125.47644...

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 representation:

$$2\log_{0.999334995270000}\left(-\frac{2\times3\times5\times8}{\left(-12-495-2\times5\times3^2\right)+\frac{2(1-5)\left(1-8^2\right)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}\right)-\pi+\frac{1}{\phi}=$$

$$-\pi+\frac{1}{\phi}+\frac{2\log\left(-\frac{240}{-597-\frac{8\left(1-8^2\right)}{1-\frac{96}{-531+\frac{360}{1--\frac{70}{555}}}}}\right)}{\log(0.999334995270000)}$$

Series representations:

$$2\log_{0.999334995270000}\left(-\frac{2\times3\times5\times8}{\left(-12-495-2\times5\times3^2\right)+\frac{2(1-5)\left(1-8^2\right)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}\right)-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-\pi-\frac{2\sum_{k=1}^{\infty}\frac{(-1)^k\left(-\frac{8911}{213\,791}\right)^k}{k}}{\log(0.999334995270000)}$$

$$2\log_{0.999334995270000}\left(-\frac{2\times3\times5\times8}{\left(-12-495-2\times5\times3^2\right)+\frac{2(1-5)\left(1-8^2\right)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}\right)-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-1.00000000000\,\pi-3006.49740532\log\left(\frac{204\,880}{213\,791}\right)-2\log\left(\frac{204\,880}{213\,791}\right)\sum_{k=0}^{\infty}(-0.000665004730000)^k\,G(k)$$

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

2log base 0.99933499527[-(2*3*5*8)/((((-12-495-2*5*3^2)+(((2(1-5)(1-8^2))/(1+(((((((-96/(-36-495+(2(2-5)(4-64))/(1+((((((-70)/(-60-495))))))))))))))))))))))]+11+1/golden ratio

Input interpretation:

$$2\log_{0.99933499527}\left(-\frac{2\times3\times5\times8}{\left(-12-495-2\times5\times3^2\right)+\frac{2(1-5)\left(1-8^2\right)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}\right)+11+\frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

139.61803...

139.61803…. result practically equal to the rest mass of Pion meson 139.57 MeV

Alternative representation:

$$2\log_{0.999334995270000}\left(-\frac{2\times3\times5\times8}{\left(-12-495-2\times5\times3^2\right)+\frac{2(1-5)\left(1-8^2\right)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}+\frac{2\log\left(-\frac{240}{-597-\frac{8\left(1-8^2\right)}{1-\frac{96}{-531+\frac{360}{1--\frac{70}{555}}}}}\right)}{\log(0.999334995270000)}$$

Series representations:

$$2\log_{0.999334995270000}\left(-\frac{2\times3\times5\times8}{\left(-12-495-2\times5\times3^2\right)+\frac{2(1-5)\left(1-8^2\right)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}-\frac{2\sum_{k=1}^{\infty}\frac{(-1)^k\left(-\frac{8911}{213\,791}\right)^k}{k}}{\log(0.999334995270000)}$$

$$2 \log_{0.999334995270000}\left(-\frac{2\times 3\times 5\times 8}{(-12-495-2\times 5\times 3^2)+\frac{2(1-5)(1-8^2)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}-3006.49740532 \log\left(\frac{204880}{213791}\right)-$$
$$2 \log\left(\frac{204880}{213791}\right)\sum_{k=0}^{\infty}(-0.000665004730000)^k\, G(k)$$
$$\text{for } \left(G(0)=0 \text{ and } G(k)=\frac{(-1)^{1+k}\, k}{2(1+k)(2+k)}+\sum_{j=1}^{k}\frac{(-1)^{1+j}\, G(-j+k)}{1+j}\right)$$

7log base 0.99933499527[-(2*3*5*8)/((((-12-495-2*5*3^2)+(((2(1-5)(1-8^2))/(1+((((((-96/(-36-495+(2(2-5)(4-64))/(1+((((((-70)/(-60-495)))))))))))))))))))]+34+golden ratio

Input interpretation:

$$7 \log_{0.99933499527}\left(-\frac{2\times 3\times 5\times 8}{(-12-495-2\times 5\times 3^2)+\frac{2(1-5)(1-8^2)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}\right)+34+\phi$$

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

ϕ is the golden ratio

Result:

483.61803...

483.61803…. result practically equal to Holographic Ricci dark energy model, where

$\chi^2_{\rm RDE} = 483.130.$

Alternative representation:

$$7 \log_{0.999334995270000}\left(-\frac{2\times 3\times 5\times 8}{\left(-12-495-2\times 5\times 3^2\right)+\frac{2(1-5)\left(1-8^2\right)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}\right)+34+\phi =$$

$$34+\phi+\frac{7\log\left(-\frac{240}{-597-\frac{8\left(1-8^2\right)}{1-\frac{96}{-531+\frac{360}{1--\frac{70}{555}}}}}\right)}{\log(0.999334995270000)}$$

Series representations:

$$7 \log_{0.999334995270000}\left(-\frac{2\times 3\times 5\times 8}{\left(-12-495-2\times 5\times 3^2\right)+\frac{2(1-5)\left(1-8^2\right)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}\right)+34+\phi =$$

$$34+\phi-\frac{7\sum_{k=1}^{\infty}\frac{(-1)^k\left(-\frac{8911}{213791}\right)^k}{k}}{\log(0.999334995270000)}$$

$$7 \log_{0.999334995270000}\left(-\frac{2\times 3\times 5\times 8}{\left(-12-495-2\times 5\times 3^2\right)+\frac{2(1-5)\left(1-8^2\right)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}\right)+34+\phi =$$

$$34.0000000000+\phi-10522.7409186\log\left(\frac{204880}{213791}\right)-$$
$$7.0000000000\log\left(\frac{204880}{213791}\right)\sum_{k=0}^{\infty}(-0.000665004730000)^k\, G(k)$$

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

27log base 0.99933499527[-(2*3*5*8)/((((-12-495-2*5*3^2)+(((2(1-5)(1-8^2))/(1+(((((((-96/(-36-495+(2(2-5)(4-64))/(1+((((((-70)/(-60-495))))))))))))))))))))]+1/golden ratio

Input interpretation:

$$27\log_{0.99933499527}\left(-\frac{2\times3\times5\times8}{(-12-495-2\times5\times3^2)+\frac{2(1-5)(1-8^2)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}\right)+\frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

1728.6180...

1728.6180….

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

Alternative representation:

$$27\log_{0.999334995270000}\left(-\frac{2\times3\times5\times8}{(-12-495-2\times5\times3^2)+\frac{2(1-5)(1-8^2)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}\right)+\frac{1}{\phi}=$$

$$\frac{1}{\phi}+\frac{27\log\left(-\frac{240}{-597-\frac{8(1-8^2)}{1-\frac{96}{-531+\frac{360}{1--\frac{70}{555}}}}}\right)}{\log(0.999334995270000)}$$

Series representations:

$$27 \log_{0.999334995270000}\left(-\frac{2\times 3\times 5\times 8}{(-12-495-2\times 5\times 3^2)+\frac{2(1-5)(1-8^2)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}\right)+\frac{1}{\phi} = \frac{1}{\phi}-\frac{27\sum_{k=1}^{\infty}\frac{(-1)^k\left(-\frac{8911}{213\,791}\right)^k}{k}}{\log(0.999334995270000)}$$

$$27 \log_{0.999334995270000}\left(-\frac{2\times 3\times 5\times 8}{(-12-495-2\times 5\times 3^2)+\frac{2(1-5)(1-8^2)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}\right)+\frac{1}{\phi} = \frac{1}{\phi}-40\,587.7149718\log\left(\frac{204\,880}{213\,791}\right)-27\log\left(\frac{204\,880}{213\,791}\right)\sum_{k=0}^{\infty}(-0.000665004730000)^k\,G(k)$$

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

[-(2*3*5*8)/((((-12-495-2*5*3^2)+(((2(1-5)(1-8^2))/(1+(((((((-96/(-36-495+(2(2-5)(4-64))/(1+((((((-70)/(-60-495))))))))))))))))))))]-21/10^3+golden ratio/10^3

Input:

$$-\frac{2\times 3\times 5\times 8}{(-12-495-2\times 5\times 3^2)+\frac{2(1-5)(1-8^2)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}-\frac{21}{10^3}+\frac{\phi}{10^3}$$

ϕ is the golden ratio

Result:

$$\frac{\phi}{1000}+\frac{200\,390\,389}{213\,791\,000}$$

Decimal approximation:

0.938937140031567412891527271138195079020284027951877552600...

0.93893714…. result very near to the rest mass of neutron 0.93956 in GeV

convert 938.937 MeV (megaelectronvolts) to gigaelectronvolts

0.938937 GeV (gigaelectronvolts)

Alternate forms:

$$\frac{400994569 + 213791\sqrt{5}}{427582000}$$

$$\frac{213791\,\phi + 200390389}{213791000}$$

$$\frac{400994569}{427582000} + \frac{1}{400\sqrt{5}}$$

Alternative representations:

$$-\frac{2\times3\times5\times8}{\left(-12-495-2\times5\times3^2\right)+\frac{2(1-5)(1-8^2)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}-\frac{21}{10^3}+\frac{\phi}{10^3}=$$

$$-\frac{21}{10^3}-\frac{240}{-597-\frac{8(1-8^2)}{1-\frac{96}{-531+\frac{360}{1--\frac{70}{555}}}}}+\frac{2\sin(54°)}{10^3}$$

$$-\frac{2\times3\times5\times8}{\left(-12-495-2\times5\times3^2\right)+\frac{2(1-5)(1-8^2)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}-\frac{21}{10^3}+\frac{\phi}{10^3}=$$

$$-\frac{21}{10^3}-\frac{2\cos(216°)}{10^3}-\frac{240}{-597-\frac{8(1-8^2)}{1-\frac{96}{-531+\frac{360}{1--\frac{70}{555}}}}}$$

$$-\frac{2\times3\times5\times8}{(-12-495-2\times5\times3^2)+\frac{2(1-5)(1-8^2)}{1-\frac{96}{-36-495+\frac{2(2-5)(4-64)}{1-\frac{70}{-60-495}}}}}-\frac{21}{10^3}+\frac{\phi}{10^3}=$$

$$-\frac{21}{10^3}-\frac{240}{-597-\frac{8(1-8^2)}{1-\frac{96}{-531+\frac{360}{1--\frac{70}{555}}}}}-\frac{2\sin(666^\circ)}{10^3}$$

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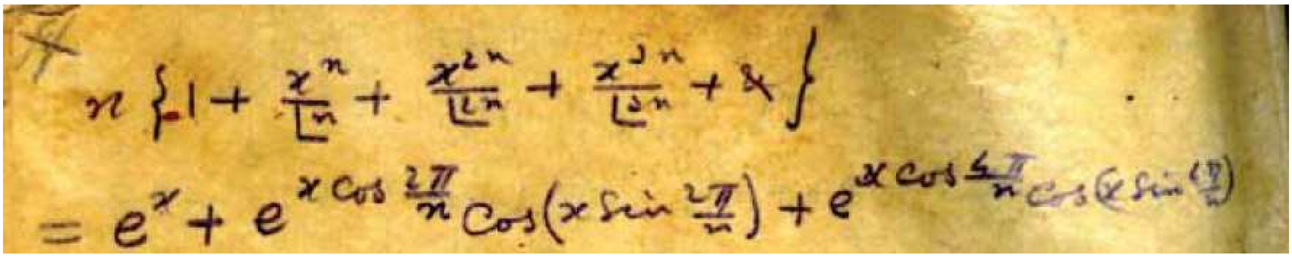

For x = 2, n = 8

e^2 + e^(2cos(Pi/4)) cos(2sin(Pi/4))+e^(2cos(Pi/2)) cos(2sin(Pi/2))

Input:

$$e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)$$

Exact result:

$$e^2+\cos(2)+e^{\sqrt{2}}\cos\left(\sqrt{2}\right)$$

Decimal approximation:

7.614344723945993624243270519851027251262587392333962847858...

7.614344723…

Alternate form:

$$\frac{e^{-2i}}{2}+\frac{e^{2i}}{2}+e^2+\frac{1}{2}e^{(1-i)\sqrt{2}}+\frac{1}{2}e^{(1+i)\sqrt{2}}$$

Continued fraction:

$$7+\cfrac{1}{1+\cfrac{1}{1+\cfrac{1}{1+\cfrac{1}{1+\cfrac{1}{2+\cfrac{1}{5+\cfrac{1}{3+\cfrac{1}{3+\cfrac{1}{1+\cfrac{1}{1+\cfrac{1}{1+\cfrac{1}{2848+\cfrac{1}{11+\cfrac{1}{3+\cfrac{1}{1+\cfrac{1}{1+\cfrac{1}{4+\cfrac{1}{1+\cfrac{1}{19+\cfrac{1}{1+\cfrac{1}{\ldots}}}}}}}}}}}}}}}}}}}}}$$

Alternative representations:

$$e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)=$$
$$e^2+\cosh\left(2\,i\sin\left(\frac{\pi}{2}\right)\right)e^{2\cosh((i\,\pi)/2)}+\cosh\left(2\,i\sin\left(\frac{\pi}{4}\right)\right)e^{2\cosh((i\,\pi)/4)}$$

$$e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)=$$
$$e^2+\cosh\left(-2\,i\sin\left(\frac{\pi}{2}\right)\right)e^{2\cosh(-(i\,\pi)/2)}+\cosh\left(-2\,i\sin\left(\frac{\pi}{4}\right)\right)e^{2\cosh(-(i\,\pi)/4)}$$

$$e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)=e^2+$$
$$\frac{1}{2}\,e^{e^{-(i\,\pi)/2}+e^{(i\,\pi)/2}}\left(e^{-2\,i\sin(\pi/2)}+e^{2\,i\sin(\pi/2)}\right)+\frac{1}{2}\,e^{e^{-(i\,\pi)/4}+e^{(i\,\pi)/4}}\left(e^{-2\,i\sin(\pi/4)}+e^{2\,i\sin(\pi/4)}\right)$$

Integral representations:

$$e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)=$$
$$1+e^2+e^{\sqrt{2}}+\int_0^1\left(-2\sin(2\,t)-\sqrt{2}\,e^{\sqrt{2}}\sin\left(\sqrt{2}\,t\right)\right)dt$$

$$e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)=$$
$$e^2+\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}-\frac{i\,e^{-1/s+s}\left(1+e^{\sqrt{2}+1/(2\,s)}\right)}{2\sqrt{\pi}\sqrt{s}}\,ds\quad\text{for }\gamma>0$$

$$e^2 + e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right) + e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right) = e^2 + \int_{-i\infty+\gamma}^{i\infty+\gamma} -\frac{i\left(1+2^s e^{\sqrt{2}}\right)\Gamma(s)}{2\sqrt{\pi}\,\Gamma\left(\frac{1}{2}-s\right)}\,ds \quad \text{for } 0<\gamma<\frac{1}{2}$$

$$e^2 + e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right) + e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right) = e^2 + \int_{\frac{\pi}{2}}^{2}\left(-\sin(t) - \frac{e^{\sqrt{2}}\left(\sqrt{2}-\frac{\pi}{2}\right)\sin\left(\frac{-\pi+\frac{\pi}{\sqrt{2}}-\sqrt{2}\,t+\frac{\pi t}{2}}{-2+\frac{\pi}{2}}\right)}{2-\frac{\pi}{2}}\right)dt$$

Half-argument formula:

$$e^2 + e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right) + e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right) = e^2 - \sqrt{\frac{1}{2}(1+\cos(4))} + e^{\sqrt{2}}\sqrt{\frac{1}{2}\left(1+\cos\left(2\sqrt{2}\right)\right)}$$

Multiple-argument formulas:

$$e^2 + e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right) + e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right) = -1 + e^2 + 2\cos^2(1) + e^{\sqrt{2}}\left(-1+2\cos^2\left(\frac{1}{\sqrt{2}}\right)\right)$$

$$e^2 + e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right) + e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right) = 1 + e^2 - 2\sin^2(1) + e^{\sqrt{2}}\left(1-2\sin^2\left(\frac{1}{\sqrt{2}}\right)\right)$$

$$e^2 + e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right) + e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right) = e^2 - 3\cos\left(\frac{2}{3}\right) + 4\cos^3\left(\frac{2}{3}\right) + e^{\sqrt{2}}\left(-3\cos\left(\frac{\sqrt{2}}{3}\right) + 4\cos^3\left(\frac{\sqrt{2}}{3}\right)\right)$$

1/10^27 * (((1/ (((e^2 + e^(2cos(Pi/4)) cos(2sin(Pi/4))+e^(2cos(Pi/2)) cos(2sin(Pi/2))))-7)+(34+8+3)/10^3)))

Input:

$$\frac{1}{10^{27}}\left(\frac{1}{\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)-7}+\frac{34+8+3}{10^3}\right)$$

Exact result:

$$\frac{\frac{9}{200}+\frac{1}{-7+e^2+\cos(2)+e^{\sqrt{2}}\cos\left(\sqrt{2}\right)}}{1\,000\,000\,000\,000\,000\,000\,000\,000\,000}$$

Decimal approximation:

$1.6727506113780980581129426358897811289548374116773891\ldots\times 10^{-27}$

1.672750611…*10^{-27} result very near to the rest mass of proton in kg

Alternate forms:

$$\frac{9}{200\,000\,000\,000\,000\,000\,000\,000\,000\,000}+\frac{1}{1\,000\,000\,000\,000\,000\,000\,000\,000\,000\left(-7+e^2+\cos(2)+e^{\sqrt{2}}\cos\left(\sqrt{2}\right)\right)}$$

$$\frac{137+9\,e^2+9\cos(2)+9\,e^{\sqrt{2}}\cos\left(\sqrt{2}\right)}{200\,000\,000\,000\,000\,000\,000\,000\,000\,000\left(-7+e^2+\cos(2)+e^{\sqrt{2}}\cos\left(\sqrt{2}\right)\right)}$$

$$\frac{9}{200\,000\,000\,000\,000\,000\,000\,000\,000\,000}+1\Big/\left(1\,000\,000\,000\,000\,000\,000\,000\,000\,000\left(-7+\frac{1}{2}\left(e^{-2i}+e^{2i}\right)+e^2+\frac{1}{2}e^{\sqrt{2}}\left(e^{-i\sqrt{2}}+e^{i\sqrt{2}}\right)\right)\right)$$

Alternative representations:

$$\frac{\frac{1}{\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)-7}+\frac{34+8+3}{10^3}}{10^{27}}=\frac{\frac{45}{10^3}+\frac{1}{-7+e^2+\cosh\left(2\,i\sin\left(\frac{\pi}{2}\right)\right)e^{2\cosh((i\pi)/2)}+\cosh\left(2\,i\sin\left(\frac{\pi}{4}\right)\right)e^{2\cosh((i\pi)/4)}}}{10^{27}}$$

$$\frac{\frac{1}{\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)-7}+\frac{34+8+3}{10^3}}{10^{27}}=\frac{\frac{45}{10^3}+\frac{1}{-7+e^2+\cosh\left(-2\,i\sin\left(\frac{\pi}{2}\right)\right)e^{2\cosh(-(i\pi)/2)}+\cosh\left(-2\,i\sin\left(\frac{\pi}{4}\right)\right)e^{2\cosh(-(i\pi)/4)}}}{10^{27}}$$

$$\frac{\frac{1}{\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)-7}+\frac{34+8+3}{10^3}}{10^{27}} = \frac{1}{10^{27}}$$

$$\left(\frac{45}{10^3}+1\Big/\left(-7+e^2+\frac{1}{2}e^{e^{-(i\pi)/2}+e^{(i\pi)/2}}\left(e^{-2i\sin(\pi/2)}+e^{2i\sin(\pi/2)}\right)+\frac{1}{2}e^{e^{-(i\pi)/4}+e^{(i\pi)/4}}\left(e^{-2i\sin(\pi/4)}+e^{2i\sin(\pi/4)}\right)\right)\right)$$

Series representations:

$$\frac{\frac{1}{\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)-7}+\frac{34+8+3}{10^3}}{10^{27}} =$$

$$\frac{9}{200\,000\,000\,000\,000\,000\,000\,000\,000\,000}+\frac{1}{1\,000\,000\,000\,000\,000\,000\,000\,000\,000\left(-7+e^2+\sum_{k=0}^{\infty}\frac{(-4)^k+(-2)^k e^{\sqrt{2}}}{(2k)!}\right)}$$

$$\frac{\frac{1}{\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)-7}+\frac{34+8+3}{10^3}}{10^{27}} =$$

$$\frac{9}{200\,000\,000\,000\,000\,000\,000\,000\,000\,000}+1\Big/\left(1\,000\,000\,000\,000\,000\,000\,000\,000\,000\left(-7+e^2+\sum_{k=0}^{\infty}\frac{\cos\left(\frac{k\pi}{2}+z_0\right)\left((2-z_0)^k+e^{\sqrt{2}}\left(\sqrt{2}-z_0\right)^k\right)}{k!}\right)\right)$$

$$\frac{\frac{1}{\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)-7}+\frac{34+8+3}{10^3}}{10^{27}} =$$

$$\frac{9}{200\,000\,000\,000\,000\,000\,000\,000\,000\,000}+1\Big/\left(1\,000\,000\,000\,000\,000\,000\,000\,000\,000\left(-7+e^2+\sum_{k=0}^{\infty}\left(\frac{(-1)^{-1+k}\left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}+\frac{(-1)^{-1+k}e^{\sqrt{2}}\left(\sqrt{2}-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}\right)\right)\right)$$

Integral representations:

$$\frac{\frac{1}{\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)-7}+\frac{34+8+3}{10^3}}{10^{27}} =$$

$$\frac{9}{200\,000\,000\,000\,000\,000\,000\,000\,000\,000} + 1\Big/\left(1\,000\,000\,000\,000\,000\,000\,000\,000\,000\left(-7+e^2+\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma} -\frac{i\,e^{-1/s+s}\left(1+e^{\sqrt{2}+1/(2\,s)}\right)}{2\sqrt{\pi}\sqrt{s}}\,ds\right)\right) \text{ for } \gamma>0$$

$$\frac{\frac{1}{\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)-7}+\frac{34+8+3}{10^3}}{10^{27}} =$$

$$\frac{9}{200\,000\,000\,000\,000\,000\,000\,000\,000\,000} + \frac{1}{1\,000\,000\,000\,000\,000\,000\,000\,000\,000\left(-7+e^2+\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma} -\frac{i\left(1+2^s\,e^{\sqrt{2}}\right)\Gamma(s)}{2\sqrt{\pi}\,\Gamma\left(\frac{1}{2}-s\right)}\,ds\right)}$$

$$\text{for } 0<\gamma<\frac{1}{2}$$

$$\frac{\frac{1}{\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)-7}+\frac{34+8+3}{10^3}}{9^{10^{27}}} =$$

$$\frac{9^{10^{27}}}{200\,000\,000\,000\,000\,000\,000\,000\,000\,000} + 1\Big/\left(1\,000\,000\,000\,000\,000\,000\,000\,000\,000\left(-7+e^2+\int_{\frac{\pi}{2}}^{2}\left(-\sin(t)-\frac{e^{\sqrt{2}}\left(\sqrt{2}-\frac{\pi}{2}\right)\sin\left(\frac{-\pi+\frac{\pi}{\sqrt{2}}-\sqrt{2}\,t+\frac{\pi\,t}{2}}{-2+\frac{\pi}{2}}\right)}{2-\frac{\pi}{2}}\right)dt\right)\right)$$

(((e^2 + e^(2cos(Pi/4)) cos(2sin(Pi/4))+e^(2cos(Pi/2)) cos(2sin(Pi/2))))))^3 + 55 + 1/golden ratio

Input:

$$\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)^3+55+\frac{1}{\phi}$$

ϕ is the golden ratio

Exact result:

$$\frac{1}{\phi}+55+\left(e^2+\cos(2)+e^{\sqrt{2}}\cos\left(\sqrt{2}\right)\right)^3$$

Decimal approximation:

497.0843822870373467827192910974907335342370480432952132541...

497.0843822…. result practically equal to the rest mass of Kaon meson 497.614

Alternate forms:

$$\frac{1}{2}\left(109+\sqrt{5}\right)+\left(e^2+\cos(2)+e^{\sqrt{2}}\cos\left(\sqrt{2}\right)\right)^3$$

$$55+\frac{2}{1+\sqrt{5}}+\left(e^2+\cos(2)+e^{\sqrt{2}}\cos\left(\sqrt{2}\right)\right)^3$$

$$\frac{1}{\phi}+55+\left(\frac{1}{2}\left(e^{-2i}+e^{2i}\right)+e^2+\frac{1}{2}e^{\sqrt{2}}\left(e^{-i\sqrt{2}}+e^{i\sqrt{2}}\right)\right)^3$$

Alternative representations:

$$\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)^3+55+\frac{1}{\phi}=$$
$$55+\frac{1}{\phi}+\left(e^2+\cosh\left(2i\sin\left(\frac{\pi}{2}\right)\right)e^{2\cosh((i\pi)/2)}+\cosh\left(2i\sin\left(\frac{\pi}{4}\right)\right)e^{2\cosh((i\pi)/4)}\right)^3$$

$$\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)^3+55+\frac{1}{\phi}=$$
$$55+\frac{1}{\phi}+\left(e^2+\cosh\left(-2i\sin\left(\frac{\pi}{2}\right)\right)e^{2\cosh(-(i\pi)/2)}+\cosh\left(-2i\sin\left(\frac{\pi}{4}\right)\right)e^{2\cosh(-(i\pi)/4)}\right)^3$$

$$\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)^3+55+\frac{1}{\phi}=$$
$$55+\frac{1}{\phi}+\left(e^2+\frac{1}{2}e^{e^{-(i\pi)/2}+e^{(i\pi)/2}}\left(e^{-2i\sin(\pi/2)}+e^{2i\sin(\pi/2)}\right)+\frac{1}{2}e^{e^{-(i\pi)/4}+e^{(i\pi)/4}}\left(e^{-2i\sin(\pi/4)}+e^{2i\sin(\pi/4)}\right)\right)^3$$

Series representations:

$$\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)^3+55+\frac{1}{\phi}=$$
$$55+\frac{1}{\phi}+\left(e^2+\sum_{k=0}^{\infty}\frac{(-4)^k+(-2)^k e^{\sqrt{2}}}{(2k)!}\right)^3$$

$$\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)^3+55+\frac{1}{\phi}=$$
$$55+\frac{1}{\phi}+\left(e^2+\sum_{k=0}^{\infty}\frac{\cos\left(\frac{k\pi}{2}+z_0\right)\left((2-z_0)^k+e^{\sqrt{2}}\left(\sqrt{2}-z_0\right)^k\right)}{k!}\right)^3$$

$$\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)^3+55+\frac{1}{\phi}=$$
$$55+\frac{1}{\phi}+\left(e^2+\sum_{k=0}^{\infty}\left(\frac{(-1)^{-1+k}\left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}+\frac{(-1)^{-1+k}e^{\sqrt{2}}\left(\sqrt{2}-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}\right)\right)^3$$

4*(((((e^2 + e^(2cos(Pi/4)) cos(2sin(Pi/4))+e^(2cos(Pi/2)) cos(2sin(Pi/2))))))^3))-47+11-1/golden ratio

Input:

$$4\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)^3-47+11-\frac{1}{\phi}$$

ϕ is the golden ratio

Exact result:

$$-\frac{1}{\phi}-36+4\left(e^2+\cos(2)+e^{\sqrt{2}}\cos\left(\sqrt{2}\right)\right)^3$$

Decimal approximation:

1729.247359204399912889854230218134743548346646274152038705...

1729.24735….

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

Alternate forms:

$$-36-\frac{2}{1+\sqrt{5}}+4\left(e^2+\cos(2)+e^{\sqrt{2}}\cos\left(\sqrt{2}\right)\right)^3$$

$$\frac{1}{2}\left(-71-\sqrt{5}\right)+4\left(e^2+\cos(2)+e^{\sqrt{2}}\cos\left(\sqrt{2}\right)\right)^3$$

$$-\frac{1}{\phi}-36+4\left(\frac{1}{2}\left(e^{-2i}+e^{2i}\right)+e^2+\frac{1}{2}e^{\sqrt{2}}\left(e^{-i\sqrt{2}}+e^{i\sqrt{2}}\right)\right)^3$$

Alternative representations:

$$4\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)^3-47+11-\frac{1}{\phi}=$$
$$-36-\frac{1}{\phi}+4\left(e^2+\cosh\left(2i\sin\left(\frac{\pi}{2}\right)\right)e^{2\cosh((i\pi)/2)}+\cosh\left(2i\sin\left(\frac{\pi}{4}\right)\right)e^{2\cosh((i\pi)/4)}\right)^3$$

$$4\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)^3-47+11-\frac{1}{\phi}=$$
$$-36-\frac{1}{\phi}+4\left(e^2+\cosh\left(-2i\sin\left(\frac{\pi}{2}\right)\right)e^{2\cosh(-(i\pi)/2)}+\cosh\left(-2i\sin\left(\frac{\pi}{4}\right)\right)e^{2\cosh(-(i\pi)/4)}\right)^3$$

$$4\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)^3-47+11-\frac{1}{\phi}=$$
$$-36-\frac{1}{\phi}+4\left(e^2+\frac{1}{2}e^{e^{-(i\pi)/2}+e^{(i\pi)/2}}\left(e^{-2i\sin(\pi/2)}+e^{2i\sin(\pi/2)}\right)+\frac{1}{2}e^{e^{-(i\pi)/4}+e^{(i\pi)/4}}\left(e^{-2i\sin(\pi/4)}+e^{2i\sin(\pi/4)}\right)\right)^3$$

Series representations:

$$4\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)^3-47+11-\frac{1}{\phi}=$$
$$-36-\frac{1}{\phi}+4\left(e^2+\sum_{k=0}^{\infty}\frac{(-4)^k+(-2)^k e^{\sqrt{2}}}{(2k)!}\right)^3$$

$$4\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)^3-47+11-\frac{1}{\phi}=$$
$$-36-\frac{1}{\phi}+4\left(e^2+\sum_{k=0}^{\infty}\frac{\cos\left(\frac{k\pi}{2}+z_0\right)\left((2-z_0)^k+e^{\sqrt{2}}\left(\sqrt{2}-z_0\right)^k\right)}{k!}\right)^3$$

$$4\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)^3-47+11-\frac{1}{\phi}=$$
$$-36-\frac{1}{\phi}+4\left(e^2+\sum_{k=0}^{\infty}\left(\frac{(-1)^{-1+k}\left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}+\frac{(-1)^{-1+k}e^{\sqrt{2}}\left(\sqrt{2}-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}\right)\right)^3$$

18*(((e^2 + e^(2cos(Pi/4)) cos(2sin(Pi/4))+e^(2cos(Pi/2)) cos(2sin(Pi/2)))))

Input:

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)$$

Exact result:

$$18\left(e^2+\cos(2)+e^{\sqrt{2}}\cos\left(\sqrt{2}\right)\right)$$

Decimal approximation:

137.0582050310278852363788693573184905227265730620113312614...

137.05820503…. this result is practically equal to the inverse of fine-structure constant 137,035

Alternate forms:

$$18 e^2+18\cos(2)+18 e^{\sqrt{2}}\cos\left(\sqrt{2}\right)$$

$$9 e^{-2 i}+9 e^{2 i}+18 e^2+9 e^{(1-i)\sqrt{2}}+9 e^{(1+i)\sqrt{2}}$$

Alternative representations:

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)=18\left(e^2+\cosh\left(2 i\sin\left(\frac{\pi}{2}\right)\right)e^{2\cosh((i\pi)/2)}+\cosh\left(2 i\sin\left(\frac{\pi}{4}\right)\right)e^{2\cosh((i\pi)/4)}\right)$$

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)=18\left(e^2+\cosh\left(-2 i\sin\left(\frac{\pi}{2}\right)\right)e^{2\cosh(-(i\pi)/2)}+\cosh\left(-2 i\sin\left(\frac{\pi}{4}\right)\right)e^{2\cosh(-(i\pi)/4)}\right)$$

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)=18\left(e^2+\frac{1}{2}e^{e^{-(i\pi)/2}+e^{(i\pi)/2}}\left(e^{-2 i\sin(\pi/2)}+e^{2 i\sin(\pi/2)}\right)+\frac{1}{2}e^{e^{-(i\pi)/4}+e^{(i\pi)/4}}\left(e^{-2 i\sin(\pi/4)}+e^{2 i\sin(\pi/4)}\right)\right)$$

Series representations:

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)=$$
$$18\,e^2+\sum_{k=0}^{\infty}\frac{9\,(-1)^k\,2^{1+k}\left(2^k+e^{\sqrt{2}}\right)}{(2\,k)!}$$

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)=$$
$$18\,e^2+\sum_{k=0}^{\infty}\frac{18\cos\left(\frac{k\pi}{2}+z_0\right)\left((2-z_0)^k+e^{\sqrt{2}}\left(\sqrt{2}-z_0\right)^k\right)}{k!}$$

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)=$$
$$18\,e^2+\sum_{k=0}^{\infty}\left(\frac{18\,(-1)^{-1+k}\left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2\,k)!}+\frac{18\,(-1)^{-1+k}\,e^{\sqrt{2}}\left(\sqrt{2}-\frac{\pi}{2}\right)^{1+2k}}{(1+2\,k)!}\right)$$

Integral representations:

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)=$$
$$18+18\,e^2+18\,e^{\sqrt{2}}+\int_0^1-18\left(2\sin(2\,t)+\sqrt{2}\,e^{\sqrt{2}}\sin\left(\sqrt{2}\,t\right)\right)dt$$

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)=$$
$$18\,e^2+\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}-\frac{9\,i\,e^{-1/s+s}\left(1+e^{\sqrt{2}+1/(2\,s)}\right)}{\sqrt{\pi}\,\sqrt{s}}\,ds\quad\text{for }\gamma>0$$

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)=$$
$$18\,e^2+\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}-\frac{9\,i\left(1+2^s\,e^{\sqrt{2}}\right)\Gamma(s)}{\sqrt{\pi}\,\Gamma\left(\frac{1}{2}-s\right)}\,ds\quad\text{for }0<\gamma<\frac{1}{2}$$

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)=$$
$$18\,e^2+\int_{\frac{\pi}{2}}^{2}\left(-18\sin(t)-\frac{18\,e^{\sqrt{2}}\left(\sqrt{2}-\frac{\pi}{2}\right)\sin\left(\frac{-\pi+\frac{\pi}{\sqrt{2}}-\sqrt{2}\,t+\frac{\pi t}{2}}{-2+\frac{\pi}{2}}\right)}{2-\frac{\pi}{2}}\right)dt$$

18*(((e^2 + e^(2cos(Pi/4)) cos(2sin(Pi/4))+e^(2cos(Pi/2)) cos(2sin(Pi/2))))) + golden ratio^2

Input:

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)+\phi^2$$

ϕ is the golden ratio

Exact result:

$$\phi^2+18\left(e^2+\cos(2)+e^{\sqrt{2}}\cos\left(\sqrt{2}\right)\right)$$

Decimal approximation:

139.676239019777780084583456191684128640446882241817094 1235...

139.676239…. result practically equal to the rest mass of Pion meson 139.57 MeV

Alternate forms:

$$\frac{1}{2}\left(3+\sqrt{5}+36e^2+36\cos(2)+36e^{\sqrt{2}}\cos\left(\sqrt{2}\right)\right)$$

$$\frac{1}{2}\left(3+\sqrt{5}\right)+18\left(e^2+\cos(2)+e^{\sqrt{2}}\cos\left(\sqrt{2}\right)\right)$$

$$\frac{3}{2}+\frac{\sqrt{5}}{2}+18e^2+18\cos(2)+18e^{\sqrt{2}}\cos\left(\sqrt{2}\right)$$

Alternative representations:

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)+\phi^2 = 18\left(e^2+\cosh\left(2i\sin\left(\frac{\pi}{2}\right)\right)e^{2\cosh((i\pi)/2)}+\cosh\left(2i\sin\left(\frac{\pi}{4}\right)\right)e^{2\cosh((i\pi)/4)}\right)+\phi^2$$

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)+\phi^2 = 18\left(e^2+\cosh\left(-2i\sin\left(\frac{\pi}{2}\right)\right)e^{2\cosh(-(i\pi)/2)}+\cosh\left(-2i\sin\left(\frac{\pi}{4}\right)\right)e^{2\cosh(-(i\pi)/4)}\right)+\phi^2$$

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)+\phi^2 = 18\left(e^2+\frac{1}{2}e^{e^{-(i\pi)/2}+e^{(i\pi)/2}}\left(e^{-2i\sin(\pi/2)}+e^{2i\sin(\pi/2)}\right)+\frac{1}{2}e^{e^{-(i\pi)/4}+e^{(i\pi)/4}}\left(e^{-2i\sin(\pi/4)}+e^{2i\sin(\pi/4)}\right)\right)+\phi^2$$

Series representations:

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)+\phi^2 = 18e^2+\phi^2+\sum_{k=0}^{\infty}\frac{9(-1)^k\,2^{1+k}\left(2^k+e^{\sqrt{2}}\right)}{(2k)!}$$

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)+\phi^2 = 18e^2+\phi^2+\sum_{k=0}^{\infty}\frac{18\cos\left(\frac{k\pi}{2}+z_0\right)\left((2-z_0)^k+e^{\sqrt{2}}\left(\sqrt{2}-z_0\right)^k\right)}{k!}$$

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)+\phi^2 = 18e^2+\phi^2+\sum_{k=0}^{\infty}\left(\frac{18(-1)^{-1+k}\left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}+\frac{18(-1)^{-1+k}e^{\sqrt{2}}\left(\sqrt{2}-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}\right)$$

Integral representations:

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)+\phi^2 = \frac{39}{2}+\frac{\sqrt{5}}{2}+18e^2+18e^{\sqrt{2}}+\int_0^1 -18\left(2\sin(2t)+\sqrt{2}\,e^{\sqrt{2}}\sin\left(\sqrt{2}\,t\right)\right)dt$$

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)+\phi^2 = \frac{3}{2}+\frac{\sqrt{5}}{2}+18e^2+\int_{-i\infty+\gamma}^{i\infty+\gamma}-\frac{9\,i\,e^{-1/s+s}\left(1+e^{\sqrt{2}+1/(2s)}\right)}{\sqrt{\pi}\,\sqrt{s}}\,ds \quad \text{for } \gamma>0$$

$$18\left(e^2+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)+\phi^2 = \frac{3}{2}+\frac{\sqrt{5}}{2}+18e^2+\int_{-i\infty+\gamma}^{i\infty+\gamma}-\frac{9\,i\left(1+2^s e^{\sqrt{2}}\right)\Gamma(s)}{\sqrt{\pi}\,\Gamma\left(\frac{1}{2}-s\right)}\,ds \quad \text{for } 0<\gamma<\frac{1}{2}$$

$$18\left(e^{2}+e^{2\cos(\pi/4)}\cos\left(2\sin\left(\frac{\pi}{4}\right)\right)+e^{2\cos(\pi/2)}\cos\left(2\sin\left(\frac{\pi}{2}\right)\right)\right)+\phi^{2}=$$

$$18\,e^{2}+\phi^{2}+\int_{\frac{\pi}{2}}^{2}\left(-18\sin(t)-\frac{18\,e^{\sqrt{2}}\left(\sqrt{2}-\frac{\pi}{2}\right)\sin\left(\frac{-\pi+\frac{\pi}{\sqrt{2}}-\sqrt{2}\,t+\frac{\pi t}{2}}{-2+\frac{\pi}{2}}\right)}{2-\frac{\pi}{2}}\right)dt$$

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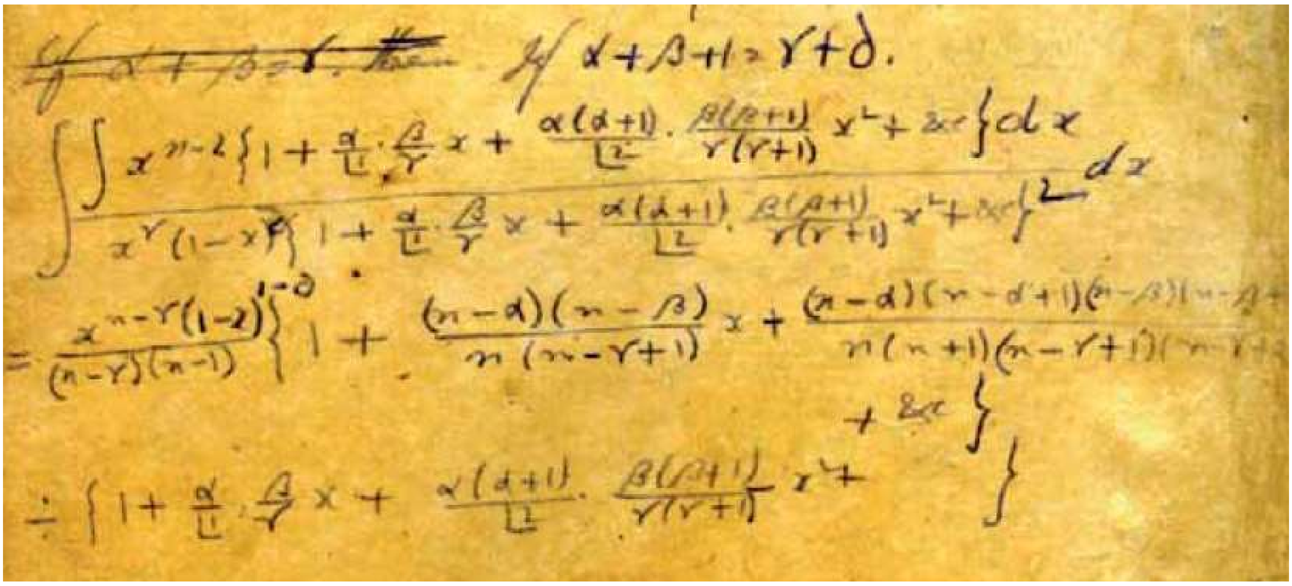

~~If α + β = γ, then~~ If $\alpha+\beta+1=\gamma+\delta$.

$$\int\frac{\int x^{n-2}\left\{1+\frac{\alpha}{\lfloor 1}\cdot\frac{\beta}{\gamma}x+\frac{\alpha(\alpha+1)}{\lfloor 2}\cdot\frac{\beta(\beta+1)}{\gamma(\gamma+1)}x^{2}+\&c\right\}dx}{x^{\gamma}(1-x)^{\delta}\left\{1+\frac{\alpha}{\lfloor 1}\cdot\frac{\beta}{\gamma}x+\frac{\alpha(\alpha+1)}{\lfloor 2}\cdot\frac{\beta(\beta+1)}{\gamma(\gamma+1)}x^{2}+\&c\right\}^{2}}dx$$

$$=\frac{x^{n-\gamma}(1-x)^{1-\delta}}{(n-\gamma)(n-1)}\left\{1+\frac{(n-\alpha)(n-\beta)}{n(n-\gamma+1)}x+\frac{(n-\alpha)(n-\alpha+1)(n-\beta)(n-\beta+\ldots}{n(n+1)(n-\gamma+1)(n-\gamma+\ldots}+\&c\right\}$$

$$\div\left\{1+\frac{\alpha}{\lfloor 1}\cdot\frac{\beta}{\gamma}x+\frac{\alpha(\alpha+1)}{\lfloor 2}\cdot\frac{\beta(\beta+1)}{\gamma(\gamma+1)}x^{2}+\right\}$$

$\alpha\beta=4\pi^{2}$

x = 2, n = 8, γ = 3Pi, δ = 4Pi

((2^(8-3Pi)(1-2)^(1-4Pi)))/((8-3Pi)(8-1))*(((1+((8-2Pi)(8-2Pi)*2)/(8(8-3Pi+1))+((8-2Pi)(8-2Pi+1)(8-2Pi)(8-2Pi+2))/((8(8+1)(8-3Pi+1)(8-3Pi+2))))))

Input:

$$\frac{2^{8-3\pi}(1-2)^{1-4\pi}}{(8-3\pi)(8-1)}\left(1+\frac{(8-2\pi)(8-2\pi)\times 2}{8(8-3\pi+1)}+\frac{(8-2\pi)(8-2\pi+1)(8-2\pi)(8-2\pi+2)}{8(8+1)(8-3\pi+1)(8-3\pi+2)}\right)$$

Exact result:

$$\frac{(-1)^{1-4\pi}\,2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)}{7(8-3\pi)}$$

Decimal approximation:

0.01875892211413696177519775509698509915174472429118961333... +
0.08865917977421401172539221406115005684444827578969843829... i

Polar coordinates:

$r \approx 0.090622$ (radius), $\theta \approx 78.0533°$ (angle)

0.090622

Alternate forms:

$$\frac{(-1)^{-4\pi}\,2^{8-3\pi}\,(2970+\pi(2\pi(308+(\pi-31)\pi)-2329))}{189(\pi-3)(3\pi-10)(3\pi-8)}$$

$$-\frac{(-1)^{1-4\pi}\,2^{8-3\pi}\,(2970-2329\pi+616\pi^2-62\pi^3+2\pi^4)}{189(\pi-3)(3\pi-10)(3\pi-8)}$$

$$i\left(\frac{2^{8-3\pi}\sin((1-4\pi)\pi)}{7(8-3\pi)}+\frac{2^{12-3\pi}\sin((1-4\pi)\pi)}{7(8-3\pi)(9-3\pi)}+\frac{5\times 2^{12-3\pi}\sin((1-4\pi)\pi)}{7(8-3\pi)(9-3\pi)(10-3\pi)}-\frac{2^{11-3\pi}\pi\sin((1-4\pi)\pi)}{7(8-3\pi)(9-3\pi)}-\frac{83\times 2^{11-3\pi}\pi\sin((1-4\pi)\pi)}{63(8-3\pi)(9-3\pi)(10-3\pi)}+\frac{2^{8-3\pi}\pi^2\sin((1-4\pi)\pi)}{7(8-3\pi)(9-3\pi)}+\frac{229\times 2^{8-3\pi}\pi^2\sin((1-4\pi)\pi)}{63(8-3\pi)(9-3\pi)(10-3\pi)}-\frac{5\times 2^{8-3\pi}\pi^3\sin((1-4\pi)\pi)}{9(8-3\pi)(9-3\pi)(10-3\pi)}+\frac{2^{9-3\pi}\pi^4\sin((1-4\pi)\pi)}{63(8-3\pi)(9-3\pi)(10-3\pi)}\right)+\frac{2^{8-3\pi}\cos((1-4\pi)\pi)}{7(8-3\pi)}+\frac{2^{12-3\pi}\cos((1-4\pi)\pi)}{7(8-3\pi)(9-3\pi)}+\frac{5\times 2^{12-3\pi}\cos((1-4\pi)\pi)}{7(8-3\pi)(9-3\pi)(10-3\pi)}-\frac{2^{11-3\pi}\pi\cos((1-4\pi)\pi)}{7(8-3\pi)(9-3\pi)}-\frac{83\times 2^{11-3\pi}\pi\cos((1-4\pi)\pi)}{63(8-3\pi)(9-3\pi)(10-3\pi)}+\frac{2^{8-3\pi}\pi^2\cos((1-4\pi)\pi)}{7(8-3\pi)(9-3\pi)}+\frac{229\times 2^{8-3\pi}\pi^2\cos((1-4\pi)\pi)}{63(8-3\pi)(9-3\pi)(10-3\pi)}-\frac{5\times 2^{8-3\pi}\pi^3\cos((1-4\pi)\pi)}{9(8-3\pi)(9-3\pi)(10-3\pi)}+\frac{2^{9-3\pi}\pi^4\cos((1-4\pi)\pi)}{63(8-3\pi)(9-3\pi)(10-3\pi)}$$

Expanded form:

$$\frac{(-1)^{1-4\pi}2^{8-3\pi}}{7(8-3\pi)}+\frac{(-1)^{1-4\pi}2^{12-3\pi}}{7(8-3\pi)(9-3\pi)}+\frac{5(-1)^{1-4\pi}2^{12-3\pi}}{7(8-3\pi)(9-3\pi)(10-3\pi)}+\frac{(-1)^{2-4\pi}2^{11-3\pi}\pi}{7(8-3\pi)(9-3\pi)}-\frac{83(-1)^{1-4\pi}2^{11-3\pi}\pi}{63(8-3\pi)(9-3\pi)(10-3\pi)}+\frac{(-1)^{1-4\pi}2^{8-3\pi}\pi^2}{7(8-3\pi)(9-3\pi)}+\frac{229(-1)^{1-4\pi}2^{8-3\pi}\pi^2}{63(8-3\pi)(9-3\pi)(10-3\pi)}-\frac{5(-1)^{1-4\pi}2^{8-3\pi}\pi^3}{9(8-3\pi)(9-3\pi)(10-3\pi)}+\frac{(-1)^{1-4\pi}2^{9-3\pi}\pi^4}{63(8-3\pi)(9-3\pi)(10-3\pi)}$$

Alternative representations:

$$\frac{\left(1+\frac{(8-2\pi)(8-2\pi)2}{8(8-3\pi+1)}+\frac{(8-2\pi)(8-2\pi+1)(8-2\pi)(8-2\pi+2)}{8(8+1)(8-3\pi+1)(8-3\pi+2)}\right)\left(2^{8-3\pi}(1-2)^{1-4\pi}\right)}{(8-3\pi)(8-1)}=$$
$$\frac{1}{7\left(8-3\cos^{-1}(-1)\right)}(-1)^{1-4\cos^{-1}(-1)}\,2^{8-3\cos^{-1}(-1)}\left(1+\frac{2\left(8-2\cos^{-1}(-1)\right)^2}{8\left(9-3\cos^{-1}(-1)\right)}+\frac{\left(8-2\cos^{-1}(-1)\right)^2\left(9-2\cos^{-1}(-1)\right)\left(10-2\cos^{-1}(-1)\right)}{72\left(9-3\cos^{-1}(-1)\right)\left(10-3\cos^{-1}(-1)\right)}\right)$$

$$\frac{\left(1+\frac{(8-2\pi)(8-2\pi)2}{8(8-3\pi+1)}+\frac{(8-2\pi)(8-2\pi+1)(8-2\pi)(8-2\pi+2)}{8(8+1)(8-3\pi+1)(8-3\pi+2)}\right)\left(2^{8-3\pi}(1-2)^{1-4\pi}\right)}{(8-3\pi)(8-1)}=$$
$$\frac{(-1)^{1-8E(0)}\,2^{8-6E(0)}\left(1+\frac{2(8-4E(0))^2}{8(9-6E(0))}+\frac{(8-4E(0))^2(9-4E(0))(10-4E(0))}{72(9-6E(0))(10-6E(0))}\right)}{7(8-6E(0))}$$

$$\frac{\left(1+\frac{(8-2\pi)(8-2\pi)2}{8(8-3\pi+1)}+\frac{(8-2\pi)(8-2\pi+1)(8-2\pi)(8-2\pi+2)}{8(8+1)(8-3\pi+1)(8-3\pi+2)}\right)\left(2^{8-3\pi}(1-2)^{1-4\pi}\right)}{(8-3\pi)(8-1)}=$$
$$\frac{(-1)^{1-8K(0)}\,2^{8-6K(0)}\left(1+\frac{2(8-4K(0))^2}{8(9-6K(0))}+\frac{(8-4K(0))^2(9-4K(0))(10-4K(0))}{72(9-6K(0))(10-6K(0))}\right)}{7(8-6K(0))}$$

Series representations:

$$\frac{\left(1+\frac{(8-2\pi)(8-2\pi)2}{8(8-3\pi+1)}+\frac{(8-2\pi)(8-2\pi+1)(8-2\pi)(8-2\pi+2)}{8(8+1)(8-3\pi+1)(8-3\pi+2)}\right)\left(2^{8-3\pi}(1-2)^{1-4\pi}\right)}{(8-3\pi)(8-1)}=$$
$$\left((-1)^{-16\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\,2^{6-12\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\left(1485-4658\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}+4928\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^2-1984\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^3+256\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^4\right)\right)\Big/$$
$$\left(189\left(-2+3\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)\left(-3+4\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)\left(-5+6\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)\right)$$

$$\frac{\left(1+\frac{(8-2\pi)(8-2\pi)2}{8(8-3\pi+1)}+\frac{(8-2\pi)(8-2\pi+1)(8-2\pi)(8-2\pi+2)}{8(8+1)(8-3\pi+1)(8-3\pi+2)}\right)\left(2^{8-3\pi}(1-2)^{1-4\pi}\right)}{(8-3\pi)(8-1)}=$$

$$\Bigg((-1)^{-4\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}\,2^{8-3\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}$$

$$\Bigg(2970-2329\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)+$$

$$616\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^2-$$

$$62\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^3+$$

$$2\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^4\Bigg)\Bigg)\Big/$$

$$\Bigg(189\left(-3+\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)$$

$$\left(-10+3\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)$$

$$\left(-8+3\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)\Bigg)$$

$$\frac{\left(1+\frac{(8-2\pi)(8-2\pi)2}{8(8-3\pi+1)}+\frac{(8-2\pi)(8-2\pi+1)(8-2\pi)(8-2\pi+2)}{8(8+1)(8-3\pi+1)(8-3\pi+2)}\right)\left(2^{8-3\pi}(1-2)^{1-4\pi}\right)}{(8-3\pi)(8-1)} =$$

$$\Bigg((-1)^{-4\sum_{k=0}^{\infty}-\left(4(-1)^k 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)\right)/(1+2k)}$$

$$2^{8-3\sum_{k=0}^{\infty}-\left(4(-1)^k 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)\right)/(1+2k)}$$

$$\left(2970-2329\sum_{k=0}^{\infty}-\frac{4(-1)^k 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}+\right.$$

$$616\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^2-$$

$$62\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^3+$$

$$\left.2\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^4\right)\Bigg)\Big/$$

$$\Bigg(189\left(-3+\sum_{k=0}^{\infty}-\frac{4(-1)^k 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)$$

$$\left(-10+3\sum_{k=0}^{\infty}-\frac{4(-1)^k 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)$$

$$\left(-8+3\sum_{k=0}^{\infty}-\frac{4(-1)^k 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)\Bigg)$$

1+((2Pi*2Pi)*2)/(3Pi) + (2Pi(2Pi+1))/2 * ((2Pi(2Pi+1))*4)/((3Pi(3Pi+1)))

Input:

$$1+\frac{(2\pi\times 2\pi)\times 2}{3\pi}+\left(\frac{1}{2}(2\pi(2\pi+1))\right)\times\frac{(2\pi(2\pi+1))\times 4}{3\pi(3\pi+1)}$$

Result:

$$1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}$$

Decimal approximation:

52.00553663879689783174615357371493805751758702273571947459...

52.0055366…

Property:

$1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}$ is a transcendental number

Alternate forms:

$$\frac{3+25\pi+56\pi^2+32\pi^3}{3(1+3\pi)}$$

$$\frac{3+\pi(25+8\pi(7+4\pi))}{3+9\pi}$$

$$1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3+9\pi}$$

Alternative representations:

$$1+\frac{(2\pi 2\pi)2}{3\pi}+\frac{((2\pi(2\pi+1))4)(2\pi(2\pi+1))}{(3\pi(3\pi+1))2}= 1+\frac{8\cos^{-1}(-1)^2}{3\cos^{-1}(-1)}+\frac{8\cos^{-1}(-1)^2\left(1+2\cos^{-1}(-1)\right)^2}{3\cos^{-1}(-1)\left(1+3\cos^{-1}(-1)\right)}$$

$$1+\frac{(2\pi 2\pi)2}{3\pi}+\frac{((2\pi(2\pi+1))4)(2\pi(2\pi+1))}{(3\pi(3\pi+1))2}=1+\frac{32E(0)^2}{6E(0)}+\frac{32E(0)^2(1+4E(0))^2}{6E(0)(1+6E(0))}$$

$$1+\frac{(2\pi 2\pi)2}{3\pi}+\frac{((2\pi(2\pi+1))4)(2\pi(2\pi+1))}{(3\pi(3\pi+1))2}=1+\frac{32K(0)^2}{6K(0)}+\frac{32K(0)^2(1+4K(0))^2}{6K(0)(1+6K(0))}$$

Series representations:

$$1+\frac{(2\pi 2\pi)2}{3\pi}+\frac{((2\pi(2\pi+1))4)(2\pi(2\pi+1))}{(3\pi(3\pi+1))2}= \frac{3+100\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}+896\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^2+2048\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^3}{3\left(1+12\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)}$$

$$1+\frac{(2\pi 2\pi)2}{3\pi}+\frac{((2\pi(2\pi+1))4)(2\pi(2\pi+1))}{(3\pi(3\pi+1))2}= \left(3+25\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)+ 56\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^2+ 32\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^3\right)\Big/ \left(3\left(1+3\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)\right)$$

$$1+\frac{(2\pi\,2\pi)\,2}{3\pi}+\frac{((2\pi(2\pi+1))\,4)\,(2\pi(2\pi+1))}{(3\pi(3\pi+1))\,2}=$$

$$\left(3+25\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}+56\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^2+32\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^3\right)\Bigg/\left(3\left(1+3\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)\right)$$

[((((-1)^(1 - 4 π) 2^(8 - 3 π) (1 + (8 - 2 π)^2/(4 (9 - 3 π)) + ((8 - 2 π)^2 (9 - 2 π) (10 - 2 π))/(72 (9 - 3 π) (10 - 3 π))))/(7 (8 - 3 π))))] /(((1 + (8 π)/3 + (8 π (1 + 2 π)^2)/(3 (1 + 3 π)))))

Input:

$$\frac{\frac{(-1)^{1-4\pi}\times 2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)}{7(8-3\pi)}}{1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}}$$

Exact result:

$$\frac{(-1)^{1-4\pi}\,2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)}{7(8-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}$$

Decimal approximation:

0.00036071009601201824794439554838021483755196146584145089... +
0.0017048027095652149309638420175202877341450192383332704... i

Polar coordinates:

$r \approx 0.00174255$ (radius), $\theta \approx 78.0533°$ (angle)

0.00174255

Alternate forms:

$$\frac{(-1)^{-4\pi}\,2^{8-3\pi}\,(1+3\pi)\,(2970+\pi(2\pi(308+(\pi-31)\pi)-2329))}{63(\pi-3)(3\pi-10)(3\pi-8)(3+\pi(25+8\pi(7+4\pi)))}$$

$$-\frac{(-1)^{1-4\pi}\,2^{8-3\pi}\,(1+3\pi)\left(2970-2329\pi+616\pi^2-62\pi^3+2\pi^4\right)}{63(\pi-3)(3\pi-10)(3\pi-8)\left(3+25\pi+56\pi^2+32\pi^3\right)}$$

$$
\frac{2^{8-3\pi}\cos((1-4\pi)\pi)}{7(8-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+\frac{2^{12-3\pi}\cos((1-4\pi)\pi)}{7(8-3\pi)(9-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+
$$

$$
\frac{5\times 2^{12-3\pi}\cos((1-4\pi)\pi)}{7(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}-
$$

$$
\frac{2^{11-3\pi}\pi\cos((1-4\pi)\pi)}{7(8-3\pi)(9-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}-
$$

$$
\frac{83\times 2^{11-3\pi}\pi\cos((1-4\pi)\pi)}{63(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+
$$

$$
\frac{2^{8-3\pi}\pi^2\cos((1-4\pi)\pi)}{7(8-3\pi)(9-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+
$$

$$
\frac{229\times 2^{8-3\pi}\pi^2\cos((1-4\pi)\pi)}{63(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}-
$$

$$
\frac{5\times 2^{8-3\pi}\pi^3\cos((1-4\pi)\pi)}{9(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+
$$

$$
\frac{2^{9-3\pi}\pi^4\cos((1-4\pi)\pi)}{63(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+
$$

$$
i\left(\frac{2^{8-3\pi}\sin((1-4\pi)\pi)}{7(8-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+\frac{2^{12-3\pi}\sin((1-4\pi)\pi)}{7(8-3\pi)(9-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+\right.
$$

$$
\frac{5\times 2^{12-3\pi}\sin((1-4\pi)\pi)}{7(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}-
$$

$$
\frac{2^{11-3\pi}\pi\sin((1-4\pi)\pi)}{7(8-3\pi)(9-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}-
$$

$$
\frac{83\times 2^{11-3\pi}\pi\sin((1-4\pi)\pi)}{63(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+
$$

$$
\frac{2^{8-3\pi}\pi^2\sin((1-4\pi)\pi)}{7(8-3\pi)(9-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+
$$

$$
\frac{229\times 2^{8-3\pi}\pi^2\sin((1-4\pi)\pi)}{63(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}-
$$

$$
\frac{5\times 2^{8-3\pi}\pi^3\sin((1-4\pi)\pi)}{9(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+
$$

$$
\left.\frac{2^{9-3\pi}\pi^4\sin((1-4\pi)\pi)}{63(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}\right)
$$

Expanded form:

$$\frac{(-1)^{1-4\pi}\,2^{8-3\pi}}{7(8-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+\frac{(-1)^{1-4\pi}\,2^{12-3\pi}}{7(8-3\pi)(9-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+$$
$$\frac{5(-1)^{1-4\pi}\,2^{12-3\pi}}{7(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+$$
$$\frac{(-1)^{2-4\pi}\,2^{11-3\pi}\,\pi}{7(8-3\pi)(9-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}-$$
$$\frac{83(-1)^{1-4\pi}\,2^{11-3\pi}\,\pi}{63(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+$$
$$\frac{(-1)^{1-4\pi}\,2^{8-3\pi}\,\pi^2}{7(8-3\pi)(9-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+$$
$$\frac{229(-1)^{1-4\pi}\,2^{8-3\pi}\,\pi^2}{63(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}-$$
$$\frac{5(-1)^{1-4\pi}\,2^{8-3\pi}\,\pi^3}{9(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+$$
$$\frac{(-1)^{1-4\pi}\,2^{9-3\pi}\,\pi^4}{63(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}$$

Alternative representations:

$$\frac{(-1)^{1-4\pi}\,2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)}{\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)(7(8-3\pi))}=$$
$$\left((-1)^{1-4\cos^{-1}(-1)}\,2^{8-3\cos^{-1}(-1)}\left(1+\frac{(8-2\cos^{-1}(-1))^2}{4(9-3\cos^{-1}(-1))}+\frac{(9-2\cos^{-1}(-1))(10-2\cos^{-1}(-1))(8-2\cos^{-1}(-1))^2}{72(9-3\cos^{-1}(-1))(10-3\cos^{-1}(-1))}\right)\right)\Big/$$
$$\left((7(8-3\cos^{-1}(-1)))\left(1+\frac{8}{3}\cos^{-1}(-1)+\frac{8\cos^{-1}(-1)(1+2\cos^{-1}(-1))^2}{3(1+3\cos^{-1}(-1))}\right)\right)$$

$$\frac{(-1)^{1-4\pi}\,2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)}{\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)(7(8-3\pi))}=$$
$$\frac{(-1)^{1-8E(0)}\,2^{8-6E(0)}\left(1+\frac{(8-4E(0))^2}{4(9-6E(0))}+\frac{(9-4E(0))(10-4E(0))(8-4E(0))^2}{72(9-6E(0))(10-6E(0))}\right)}{(7(8-6E(0)))\left(1+\frac{16E(0)}{3}+\frac{16E(0)(1+4E(0))^2}{3(1+6E(0))}\right)}$$

$$\frac{(-1)^{1-4\pi}\,2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)}{\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)(7(8-3\pi))}=$$

$$\frac{(-1)^{1-8K(0)}\,2^{8-6K(0)}\left(1+\frac{(8-4K(0))^2}{4(9-6K(0))}+\frac{(9-4K(0))(10-4K(0))(8-4K(0))^2}{72(9-6K(0))(10-6K(0))}\right)}{(7(8-6K(0)))\left(1+\frac{16K(0)}{3}+\frac{16K(0)(1+4K(0))^2}{3(1+6K(0))}\right)}$$

Series representations:

$$\frac{(-1)^{1-4\pi}\,2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)}{\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)(7(8-3\pi))}=$$

$$\left((-1)^{-16\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\,2^{6-12\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\left(1+12\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)\left(1485-4658\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}+4928\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^2-1984\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^3+256\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^4\right)\right)\Big/$$

$$\left(63\left(-2+3\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)\left(-3+4\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)\left(-5+6\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)\left(3+100\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}+896\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^2+2048\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^3\right)\right)$$

$$\frac{(-1)^{1-4\pi}\, 2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)}{\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)(7(8-3\pi))}=$$

$$\Bigg((-1)^{-4\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}\, 2^{8-3\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}$$

$$\left(1+3\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)$$

$$\Bigg(2970-2329\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)+$$

$$616\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^2-$$

$$62\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^3+$$

$$2\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^4\Bigg)\Bigg)\Bigg/$$

$$\Bigg(63\left(-3+\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)$$

$$\left(-10+3\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)$$

$$\left(-8+3\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)$$

$$\Bigg(3+25\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)+$$

$$56\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^2+$$

$$32\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^3\Bigg)\Bigg)$$

$$\frac{(-1)^{1-4\pi}\, 2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4\,(9-3\pi)}+\frac{(8-2\pi)^2\,(9-2\pi)\,(10-2\pi)}{72\,(9-3\pi)\,(10-3\pi)}\right)}{\left(1+\frac{8\pi}{3}+\frac{8\pi\,(1+2\pi)^2}{3\,(1+3\pi)}\right)(7\,(8-3\pi))} =$$

$$\Bigg((-1)^{-4\sum_{k=0}^{\infty}-\left(4\,(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)\right)/(1+2k)}$$

$$2^{8-3\sum_{k=0}^{\infty}-\left(4\,(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)\right)/(1+2k)}$$

$$\left(1+3\sum_{k=0}^{\infty}-\frac{4\,(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)$$

$$\left(2970-2329\sum_{k=0}^{\infty}-\frac{4\,(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}+\right.$$

$$616\left(\sum_{k=0}^{\infty}-\frac{4\,(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^2-$$

$$62\left(\sum_{k=0}^{\infty}-\frac{4\,(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^3+$$

$$\left.2\left(\sum_{k=0}^{\infty}-\frac{4\,(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^4\right)\Bigg)\Big/$$

$$\Bigg(63\left(-3+\sum_{k=0}^{\infty}-\frac{4\,(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)$$

$$\left(-10+3\sum_{k=0}^{\infty}-\frac{4\,(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)$$

$$\left(-8+3\sum_{k=0}^{\infty}-\frac{4\,(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)$$

$$\left(3+25\sum_{k=0}^{\infty}-\frac{4\,(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}+\right.$$

$$56\left(\sum_{k=0}^{\infty}-\frac{4\,(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^2+$$

$$\left.32\left(\sum_{k=0}^{\infty}-\frac{4\,(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^3\right)\Bigg)$$

(((((-1)^(1 - 4 π) 2^(8 - 3 π) (1 + (8 - 2 π)^2/(4 (9 - 3 π)) + ((8 - 2 π)^2 (9 - 2 π) (10 - 2 π))/(72 (9 - 3 π) (10 - 3 π))))/(7 (8 - 3 π) (1 + (8 π)/3 + (8 π (1 + 2 π)^2)/(3 (1 + 3 π)))))))^1/1024

Input:

$$\sqrt[1024]{\frac{(-1)^{1-4\pi}\times 2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)}{7(8-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}}$$

Exact result:

$$2^{1/128-(3\pi)/1024}\sqrt[1024]{\frac{(-1)^{1-4\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)}{7(8-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}}$$

Decimal approximation:

0.9938147988152755486367626415761428031110115462204077793... +
0.0013221305395721238685911098226187059746595168445859 9512... i

Polar coordinates:

$r \approx 0.993816$ (radius), $\theta \approx 0.0762239°$ (angle)

0.993816…. result very near to the value of the following Rogers-Ramanujan continued fraction:

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

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

Alternate forms:

$$\frac{2^{(8-3\pi)/1024}\sqrt[1024]{\frac{(-1)^{-4\pi}\left(2970+6581\pi-6371\pi^2+1786\pi^3-184\pi^4+6\pi^5\right)}{7\left(-720-5274\pi-7633\pi^2+3874\pi^3+3433\pi^4-2088\pi^5+288\pi^6\right)}}}{\sqrt[512]{3}}$$

$$\frac{2^{(8-3\pi)/1024}\sqrt[1024]{\frac{(-1)^{-4\pi}(1+3\pi)(2970+\pi(2\pi(308+(\pi-31)\pi)-2329))}{7(\pi-3)(3\pi-10)(3\pi-8)(3+\pi(25+8\pi(7+4\pi)))}}}{\sqrt[512]{3}}$$

$$\frac{2^{1/128-(3\pi)/1024}\sqrt[1024]{\frac{(-1)^{2-4\pi}(1+3\pi)\left(2970-2329\pi+616\pi^2-62\pi^3+2\pi^4\right)}{7(\pi-3)(3\pi-10)(3\pi-8)\left(3+25\pi+56\pi^2+32\pi^3\right)}}}{\sqrt[512]{3}}$$

All 1024th roots of ((-1)^(1 - 4 π) 2^(8 - 3 π) (1 + (8 - 2 π)^2/(4 (9 - 3 π)) + ((8 - 2 π)^2 (9 - 2 π) (10 - 2 π))/(72 (9 - 3 π) (10 - 3 π))))/(7 (8 - 3 π) (1 + (8 π)/3 + (8 π (1 + 2 π)^2)/(3 (1 + 3 π)))):

$$\frac{2^{1/128-(3\pi)/1024}\,e^{\left(i\arg\left((-1)^{1-4\pi}\right)\right)/1024}}{\sqrt[1024]{\frac{7(3\pi-8)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}{-1-\frac{(8-2\pi)^2}{4(9-3\pi)}-\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}}}}\approx 0.99381+0.001322\,i \text{ (principal root)}$$

$$\frac{2^{1/128-(3\pi)/1024}\,e^{\left(i\left(2\pi+\arg\left((-1)^{1-4\pi}\right)\right)\right)/1024}}{\sqrt[1024]{\frac{7(3\pi-8)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}{-1-\frac{(8-2\pi)^2}{4(9-3\pi)}-\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}}}}\approx 0.99379+0.00742\,i$$

$$\frac{2^{1/128-(3\pi)/1024}\,e^{\left(i\left(4\pi+\arg\left((-1)^{1-4\pi}\right)\right)\right)/1024}}{\sqrt[1024]{\frac{7(3\pi-8)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}{-1-\frac{(8-2\pi)^2}{4(9-3\pi)}-\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}}}}\approx 0.99372+0.01352\,i$$

$$\frac{2^{1/128-(3\pi)/1024}\,e^{\left(i\left(6\pi+\arg\left((-1)^{1-4\pi}\right)\right)\right)/1024}}{\sqrt[1024]{\frac{7(3\pi-8)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}{-1-\frac{(8-2\pi)^2}{4(9-3\pi)}-\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}}}}\approx 0.99362+0.01961\,i$$

$$\frac{2^{1/128-(3\pi)/1024}\, e^{\left(i\left(8\pi+\arg\left((-1)^{1-4\pi}\right)\right)\right)/1024}}{\sqrt[1024]{\frac{7(3\pi-8)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}{-1-\frac{(8-2\pi)^2}{4(9-3\pi)}-\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}}}} \approx 0.99348+0.02571\, i$$

arg(z) is the complex argument

Alternative representations:

$$\sqrt[1024]{\frac{(-1)^{1-4\pi}\left(2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)\right)}{7(8-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}} =$$

$$\left(\left((-1)^{1-4\cos^{-1}(-1)}\, 2^{8-3\cos^{-1}(-1)}\left(1+\frac{(8-2\cos^{-1}(-1))^2}{4(9-3\cos^{-1}(-1))}+\frac{(9-2\cos^{-1}(-1))(10-2\cos^{-1}(-1))(8-2\cos^{-1}(-1))^2}{72(9-3\cos^{-1}(-1))(10-3\cos^{-1}(-1))}\right)\right)\Big/\left(7(8-3\cos^{-1}(-1))\left(1+\frac{8}{3}\cos^{-1}(-1)+\frac{8\cos^{-1}(-1)(1+2\cos^{-1}(-1))^2}{3(1+3\cos^{-1}(-1))}\right)\right)\right)^{\wedge}(1/1024)$$

$$\sqrt[1024]{\frac{(-1)^{1-4\pi}\left(2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)\right)}{7(8-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}} =$$

$$\sqrt[1024]{\frac{(-1)^{1-8E(0)}\, 2^{8-6E(0)}\left(1+\frac{(8-4E(0))^2}{4(9-6E(0))}+\frac{(9-4E(0))(10-4E(0))(8-4E(0))^2}{72(9-6E(0))(10-6E(0))}\right)}{7(8-6E(0))\left(1+\frac{16E(0)}{3}+\frac{16E(0)(1+4E(0))^2}{3(1+6E(0))}\right)}}$$

$$\sqrt[1024]{\frac{(-1)^{1-4\pi}\left(2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)\right)}{7(8-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}} =$$

$$\sqrt[1024]{\frac{(-1)^{1-8K(0)}\, 2^{8-6K(0)}\left(1+\frac{(8-4K(0))^2}{4(9-6K(0))}+\frac{(9-4K(0))(10-4K(0))(8-4K(0))^2}{72(9-6K(0))(10-6K(0))}\right)}{7(8-6K(0))\left(1+\frac{16K(0)}{3}+\frac{16K(0)(1+4K(0))^2}{3(1+6K(0))}\right)}}$$

Series representations:

$$\sqrt[1024]{\frac{(-1)^{1-4\pi}\left(2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)\right)}{7(8-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}} =$$

$$\frac{1}{\sqrt[512]{3}\sqrt[1024]{7}} 2^{3/512-3/256\sum_{k=0}^{\infty}(-1)^k/(1+2k)} \left(\left((-1)^{-16\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\left(1485+13162\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}-50968\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^2+57152\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^3-23552\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^4+3072\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^5\right)\right)\Big/\left(-90-2637\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}-15266\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^2+30992\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^3+109856\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^4-267264\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^5+147456\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^6\right)\right)\hat{}\,(1/1024)$$

$$\sqrt[1024]{\frac{(-1)^{1-4\pi}\left(2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)\right)}{7(8-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}} = \frac{1}{\sqrt[512]{3}\ \sqrt[1024]{7}}$$

$$2^{1/128-\left(3\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)/1024}\ \Bigg(\Bigg((-1)^{-4\sum_{k=0}^{\infty}(-1/4)^k(1/(1+2k)+2/(1+4k)+1/(3+4k))}$$

$$\Bigg(2970+6581\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)-$$

$$6371\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^2+$$

$$1786\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^3-$$

$$184\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^4+$$

$$6\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^5\Bigg)\Bigg)\Big/$$

$$\Bigg(-720-5274\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)-$$

$$7633\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^2+$$

$$3874\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^3+$$

$$3433\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^4-$$

$$2088\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^5+$$

$$288\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^6\Bigg)\Bigg)\ \hat{}\ (1/1024)$$

$$\sqrt[1024]{\frac{(-1)^{1-4\pi}\left(2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)\right)}{7(8-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}} =$$

$$\frac{1}{\sqrt[512]{3}\ \sqrt[1024]{7}}\, 2^{1/128+\sum_{k=0}^{\infty}\left(3(-1)^k\, 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)\right)/(256(1+2k))}$$

$$\left(\left((-1)^{\sum_{k=0}^{\infty}\left(16(-1)^k\, 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)\right)/(1+2k)}\right.\right.$$

$$\left(2970+6581\sum_{k=0}^{\infty}-\frac{4(-1)^k\, 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}-\right.$$

$$6371\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\, 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^2+$$

$$1786\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\, 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^3-$$

$$184\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\, 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^4+$$

$$\left.\left.6\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\, 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^5\right)\right)\Big/$$

$$\left(-720-5274\sum_{k=0}^{\infty}-\frac{4(-1)^k\, 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}-\right.$$

$$7633\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\, 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^2+$$

$$3874\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\, 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^3+$$

$$3433\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\, 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^4-$$

$$2088\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\, 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^5+$$

$$\left.\left.288\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\, 1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^6\right)\right)\hat{}\,(1/1024)$$

1/8 log base 0.993816(0.00174255) - Pi + 1/golden ratio

Input interpretation:

$$\frac{1}{8}\log_{0.993816}(0.00174255)-\pi+\frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

125.483...

125.483…. 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:

$$\frac{\log_{0.993816}(0.00174255)}{8}-\pi+\frac{1}{\phi}=-\pi+\frac{1}{\phi}+\frac{\log(0.00174255)}{8\log(0.993816)}$$

Series representations:

$$\frac{\log_{0.993816}(0.00174255)}{8}-\pi+\frac{1}{\phi}=\frac{1}{\phi}-\pi-\frac{\sum_{k=1}^{\infty}\frac{(-1)^k(-0.998257)^k}{k}}{8\log(0.993816)}$$

$$\frac{\log_{0.993816}(0.00174255)}{8}-\pi+\frac{1}{\phi}=$$
$$\frac{1}{\phi}-\pi-20.151\log(0.00174255)-\frac{1}{8}\log(0.00174255)\sum_{k=0}^{\infty}(-0.006184)^k\,G(k)$$
$$\text{for}\left(G(0)=0\text{ and }G(k)=\frac{(-1)^{1+k}k}{2(1+k)(2+k)}+\sum_{j=1}^{k}\frac{(-1)^{1+j}\,G(-j+k)}{1+j}\right)$$

1/8 log base 0.993816(0.00174255)+11 + 1/golden ratio

Input interpretation:

$$\frac{1}{8}\log_{0.993816}(0.00174255)+11+\frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

139.625...

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

Alternative representation:

$$\frac{\log_{0.993816}(0.00174255)}{8}+11+\frac{1}{\phi}=11+\frac{1}{\phi}+\frac{\log(0.00174255)}{8\log(0.993816)}$$

Series representations:

$$\frac{\log_{0.993816}(0.00174255)}{8}+11+\frac{1}{\phi}=11+\frac{1}{\phi}-\frac{\sum_{k=1}^{\infty}\frac{(-1)^k(-0.998257)^k}{k}}{8\log(0.993816)}$$

$$\frac{\log_{0.993816}(0.00174255)}{8}+11+\frac{1}{\phi}=$$
$$11+\frac{1}{\phi}-20.151\log(0.00174255)-\frac{1}{8}\log(0.00174255)\sum_{k=0}^{\infty}(-0.006184)^k G(k)$$
$$\text{for }\left(G(0)=0 \text{ and } G(k)=\frac{(-1)^{1+k}k}{2(1+k)(2+k)}+\sum_{j=1}^{k}\frac{(-1)^{1+j}G(-j+k)}{1+j}\right)$$

27/16 log base 0.993816(0.00174255)

Input interpretation:

$$\frac{27}{16}\log_{0.993816}(0.00174255)$$

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

Result:

1728.09...

1728.09…

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

Alternative representation:

$$\frac{\log_{0.993816}(0.00174255)\,27}{16} = \frac{27\log(0.00174255)}{16\log(0.993816)}$$

Series representations:

$$\frac{\log_{0.993816}(0.00174255)\,27}{16} = -\frac{27\sum_{k=1}^{\infty}\frac{(-1)^k(-0.998257)^k}{k}}{16\log(0.993816)}$$

$$\frac{\log_{0.993816}(0.00174255)\,27}{16} =$$
$$-272.038\log(0.00174255) - 1.6875\log(0.00174255)\sum_{k=0}^{\infty}(-0.006184)^k\,G(k)$$
$$\text{for}\left(G(0)=0 \text{ and } G(k)=\frac{(-1)^{1+k}k}{2(1+k)(2+k)}+\sum_{j=1}^{k}\frac{(-1)^{1+j}G(-j+k)}{1+j}\right)$$

Now, we have that:

1+ [(((((-1)^(1 - 4 π) 2^(8 - 3 π) (1 + (8 - 2 π)^2/(4 (9 - 3 π)) + ((8 - 2 π)^2 (9 - 2 π) (10 - 2 π))/(72 (9 - 3 π) (10 - 3 π))))/(7 (8 - 3 π))))] /(((1 + (8 π)/3 + (8 π (1 + 2 π)^2)/(3 (1 + 3 π)))))

Input:

$$1+\frac{\frac{(-1)^{1-4\pi}\times 2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)}{7(8-3\pi)}}{1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}}$$

Exact result:

$$1+\frac{(-1)^{1-4\pi}\,2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)}{7(8-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}$$

Decimal approximation:

1.00036071009601201824794439554838021483755196146584145... +
0.00170480270956521493096384201752028773414501923833327046... i

Input interpretation:

1.00036071009601201824794439554838021483755196146584145 +
0.00170480270956521493096384201752028773414501923833327046 i

i is the imaginary unit

Result:

1.00036071009601201824794439554838021483755196146584145... +
0.00170480270956521493096384201752028773414501923833327046... i

Polar coordinates:

$r = 1.000362162747110273966814649274736824940907572439012973$ (radius), $\theta = 0.097642684897811785528347228172101171638324615872035323°$ (angle)

1.00036216274711…

Alternate forms:

$$1-\frac{(-1)^{1-4\pi}\,2^{8-3\pi}(1+3\pi)(2970-2329\pi+616\pi^2-62\pi^3+2\pi^4)}{63(\pi-3)(3\pi-10)(3\pi-8)(3+25\pi+56\pi^2+32\pi^3)}$$

$$-\Big(\big(45\,360+1485(-1)^{1-4\pi}\,2^{9-3\pi}+(332\,262+6581(-1)^{1-4\pi}\,2^{8-3\pi})\pi+(480\,879-6371(-1)^{1-4\pi}\,2^{8-3\pi})\pi^2+(893(-1)^{1-4\pi}\,2^{9-3\pi}-244\,062)\pi^3+(-216\,279-23(-1)^{1-4\pi}\,2^{11-3\pi})\pi^4+(131\,544+3(-1)^{1-4\pi}\,2^{9-3\pi})\pi^5-18\,144\pi^6\big)/\big(63(\pi-3)(3\pi-10)(3\pi-8)(3+25\pi+56\pi^2+32\pi^3)\big)\Big)$$

$$\Big((-1)^{-4\pi}\,2^{-3\pi}\big(760\,320-2835(-1)^{4\pi}\,2^{4+3\pi}+1\,684\,736\pi-166\,131(-1)^{4\pi}\,2^{1+3\pi}\pi-1\,630\,976\pi^2-480\,879(-1)^{4\pi}\,2^{3\pi}\pi^2+457\,216\pi^3+122\,031(-1)^{4\pi}\,2^{1+3\pi}\pi^3-47\,104\pi^4+216\,279(-1)^{4\pi}\,2^{3\pi}\pi^4+1536\pi^5-16\,443(-1)^{4\pi}\,2^{3+3\pi}\pi^5+567(-1)^{4\pi}\,2^{5+3\pi}\pi^6\big)\Big)/\big(63(\pi-3)(3\pi-10)(3\pi-8)(3+25\pi+56\pi^2+32\pi^3)\big)$$

Expanded form:

$$1+\frac{(-1)^{1-4\pi}\,2^{8-3\pi}}{7(8-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+\frac{(-1)^{1-4\pi}\,2^{12-3\pi}}{7(8-3\pi)(9-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+$$

$$\frac{5(-1)^{1-4\pi}\,2^{12-3\pi}}{7(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+$$

$$\frac{(-1)^{2-4\pi}\,2^{11-3\pi}\,\pi}{7(8-3\pi)(9-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}-$$

$$\frac{83(-1)^{1-4\pi}\,2^{11-3\pi}\,\pi}{63(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+$$

$$\frac{(-1)^{1-4\pi}\,2^{8-3\pi}\,\pi^2}{7(8-3\pi)(9-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+$$

$$\frac{229(-1)^{1-4\pi}\,2^{8-3\pi}\,\pi^2}{63(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}-$$

$$\frac{5(-1)^{1-4\pi}\,2^{8-3\pi}\,\pi^3}{9(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}+$$

$$\frac{(-1)^{1-4\pi}\,2^{9-3\pi}\,\pi^4}{63(8-3\pi)(9-3\pi)(10-3\pi)\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)}$$

Alternative representations:

$$1+\frac{(-1)^{1-4\pi}\,2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)}{\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)(7(8-3\pi))}=$$

$$1+\left((-1)^{1-4\cos^{-1}(-1)}\,2^{8-3\cos^{-1}(-1)}\left(1+\frac{(8-2\cos^{-1}(-1))^2}{4(9-3\cos^{-1}(-1))}+\frac{(9-2\cos^{-1}(-1))(10-2\cos^{-1}(-1))(8-2\cos^{-1}(-1))^2}{72(9-3\cos^{-1}(-1))(10-3\cos^{-1}(-1))}\right)\right)\Big/\left((7(8-3\cos^{-1}(-1)))\left(1+\frac{8}{3}\cos^{-1}(-1)+\frac{8\cos^{-1}(-1)(1+2\cos^{-1}(-1))^2}{3(1+3\cos^{-1}(-1))}\right)\right)$$

$$1+\frac{(-1)^{1-4\pi}\,2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)}{\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)(7(8-3\pi))}=$$

$$1+\frac{(-1)^{1-8E(0)}\,2^{8-6E(0)}\left(1+\frac{(8-4E(0))^2}{4(9-6E(0))}+\frac{(9-4E(0))(10-4E(0))(8-4E(0))^2}{72(9-6E(0))(10-6E(0))}\right)}{(7(8-6E(0)))\left(1+\frac{16E(0)}{3}+\frac{16E(0)(1+4E(0))^2}{3(1+6E(0))}\right)}$$

$$1+\frac{(-1)^{1-4\pi}\,2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)}{\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)(7(8-3\pi))}=$$

$$1+\frac{(-1)^{1-8K(0)}\,2^{8-6K(0)}\left(1+\frac{(8-4K(0))^2}{4(9-6K(0))}+\frac{(9-4K(0))(10-4K(0))(8-4K(0))^2}{72(9-6K(0))(10-6K(0))}\right)}{(7(8-6K(0)))\left(1+\frac{16K(0)}{3}+\frac{16K(0)(1+4K(0))^2}{3(1+6K(0))}\right)}$$

Series representations:

$$1+\frac{(-1)^{1-4\pi}\,2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)}{\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)(7(8-3\pi))}=$$

$$\Bigg((-1)^{-16\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\,2^{-12\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\Bigg(95040-2835(-1)^{16\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\,2^{1+12\sum_{k=0}^{\infty}(-1)^k/(1+2k)}+842368\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}-166131(-1)^{16\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\,2^{12\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}-3261952\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^2-480879(-1)^{16\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\,2^{1+12\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^2+3657728\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^3+122031(-1)^{16\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\,2^{4+12\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^3-1507328\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^4+216279(-1)^{16\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\,2^{5+12\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^4+196608\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^5-16443(-1)^{16\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\,2^{10+12\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^5+567(-1)^{16\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\,2^{14+12\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^6\Bigg)\Bigg)\Bigg/\left(63\left(-2+3\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)\left(-3+4\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)\left(-5+6\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)\left(3+100\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}+896\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^2+2048\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^3\right)\right)$$

$$1+\frac{(-1)^{1-4\pi}\,2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)}{\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)(7(8-3\pi))}=$$

$$\Big((-1)^{-4\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}\,2^{-3\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}$$

$$\Big(760\,320-2835\,(-1)^{4\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}$$

$$2^{4+3\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}+$$

$$1\,684\,736\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)-$$

$$166\,131\,(-1)^{4\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}$$

$$2^{1+3\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}$$

$$\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)-$$

$$1\,630\,976\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^2-$$

$$480\,879\,(-1)^{4\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}$$

$$2^{3\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}$$

$$\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^2+$$

$$457\,216\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^3+$$

$$122\,031\,(-1)^{4\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}$$

$$2^{1+3\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}$$

$$\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^3-$$

$$47\,104\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^4+$$

$$216\,279\,(-1)^{4\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}$$

$$2^{3\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}$$

$$\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^4+$$

$$1536\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^5-$$

$$16\,443\,(-1)^{4\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}$$

$$2^{3+3\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}$$

$$\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^5+$$

$$567\,(-1)^{4\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}$$

$$2^{5+3\sum_{k=0}^{\infty}(-1/4)^k\left(1/(1+2k)+2/(1+4k)+1/(3+4k)\right)}$$

$$\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^6\Big)\Big)\Big/$$

$$\Big(63\Big(\ 3+\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{\ldots}+\frac{2}{\ldots}+\frac{1}{\ldots}\right)\Big)$$

$$1+\frac{(-1)^{1-4\pi}\,2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)}{\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)(7(8-3\pi))}=$$

$$\Bigg((-1)^{-4\sum_{k=0}^{\infty}-\left(4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)\right)/(1+2k)}$$

$$2^{-3\sum_{k=0}^{\infty}-\left(4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)\right)/(1+2k)}$$

$$\Bigg(760\,320-2835\,(-1)^{4\sum_{k=0}^{\infty}-\left(4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)\right)/(1+2k)}$$

$$2^{4+3\sum_{k=0}^{\infty}-\left(4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)\right)/(1+2k)}+$$

$$1\,684\,736\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)}{1+2k}-$$

$$166\,131\,(-1)^{4\sum_{k=0}^{\infty}-\left(4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)\right)/(1+2k)}$$

$$2^{1+3\sum_{k=0}^{\infty}-\left(4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)\right)/(1+2k)}$$

$$\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)}{1+2k}-$$

$$1\,630\,976\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)}{1+2k}\right)^2-$$

$$480\,879\,(-1)^{4\sum_{k=0}^{\infty}-\left(4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)\right)/(1+2k)}$$

$$2^{3\sum_{k=0}^{\infty}-\left(4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)\right)/(1+2k)}$$

$$\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)}{1+2k}\right)^2+$$

$$457\,216\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)}{1+2k}\right)^3+$$

$$122\,031\,(-1)^{4\sum_{k=0}^{\infty}-\left(4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)\right)/(1+2k)}$$

$$2^{1+3\sum_{k=0}^{\infty}-\left(4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)\right)/(1+2k)}$$

$$\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)}{1+2k}\right)^3-$$

$$47\,104\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)}{1+2k}\right)^4+$$

$$216\,279\,(-1)^{4\sum_{k=0}^{\infty}-\left(4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)\right)/(1+2k)}$$

$$2^{3\sum_{k=0}^{\infty}-\left(4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)\right)/(1+2k)}$$

$$\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)}{1+2k}\right)^4+$$

$$1536\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)}{1+2k}\right)^5-$$

$$16\,443\,(-1)^{4\sum_{k=0}^{\infty}-\left(4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)\right)/(1+2k)}$$

$$2^{3+3\sum_{k=0}^{\infty}-\left(4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)\right)/(1+2k)}$$

$$\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)}{1+2k}\right)^5+$$

$$567\,(-1)^{4\sum_{k=0}^{\infty}-\left(4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)\right)/(1+2k)}$$

$$2^{5+3\sum_{k=0}^{\infty}-\left(4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)\right)/(1+2k)}$$

Integral representation:

$$1+\frac{(-1)^{1-4\pi}\,2^{8-3\pi}\left(1+\frac{(8-2\pi)^2}{4(9-3\pi)}+\frac{(8-2\pi)^2(9-2\pi)(10-2\pi)}{72(9-3\pi)(10-3\pi)}\right)}{\left(1+\frac{8\pi}{3}+\frac{8\pi(1+2\pi)^2}{3(1+3\pi)}\right)(7(8-3\pi))}=$$

$$1+\left((-1)^{1-4\left(\left(3\sqrt{3}\right)/4+24\int_0^{1/4}\sqrt{t-t^2}\,dt\right)}\,2^{8-3\left(\left(3\sqrt{3}\right)/4+24\int_0^{1/4}\sqrt{t-t^2}\,dt\right)}\right.$$

$$\left(1+\frac{\left(8-2\left(\frac{3\sqrt{3}}{4}+24\int_0^{\frac{1}{4}}\sqrt{t-t^2}\,dt\right)\right)^2}{4\left(9-3\left(\frac{3\sqrt{3}}{4}+24\int_0^{\frac{1}{4}}\sqrt{t-t^2}\,dt\right)\right)}+\right.$$

$$\left(\left(8-2\left(\frac{3\sqrt{3}}{4}+24\int_0^{\frac{1}{4}}\sqrt{t-t^2}\,dt\right)\right)^2\right.$$

$$\left(9-2\left(\frac{3\sqrt{3}}{4}+24\int_0^{\frac{1}{4}}\sqrt{t-t^2}\,dt\right)\right)$$

$$\left.\left(10-2\left(\frac{3\sqrt{3}}{4}+24\int_0^{\frac{1}{4}}\sqrt{t-t^2}\,dt\right)\right)\right)\Big/$$

$$\left(72\left(9-3\left(\frac{3\sqrt{3}}{4}+24\int_0^{\frac{1}{4}}\sqrt{t-t^2}\,dt\right)\right)\right.$$

$$\left.\left.\left.\left(10-3\left(\frac{3\sqrt{3}}{4}+24\int_0^{\frac{1}{4}}\sqrt{t-t^2}\,dt\right)\right)\right)\right)\right)\Big/$$

$$\left(7\left(8-3\left(\frac{3\sqrt{3}}{4}+24\int_0^{\frac{1}{4}}\sqrt{t-t^2}\,dt\right)\right)\left(1+\frac{8}{3}\left(\frac{3\sqrt{3}}{4}+24\int_0^{\frac{1}{4}}\sqrt{t-t^2}\,dt\right)+\right.\right.$$

$$\left.\left.\frac{8\left(\frac{3\sqrt{3}}{4}+24\int_0^{\frac{1}{4}}\sqrt{t-t^2}\,dt\right)\left(1+2\left(\frac{3\sqrt{3}}{4}+24\int_0^{\frac{1}{4}}\sqrt{t-t^2}\,dt\right)\right)^2}{3\left(1+3\left(\frac{3\sqrt{3}}{4}+24\int_0^{\frac{1}{4}}\sqrt{t-t^2}\,dt\right)\right)}\right)\right)$$

From which:

1/10^52((((1.000360710096 + 0.001704802709i)+(76+29)/10^3+3/10^4)))

Input interpretation:

$$\frac{1}{10^{52}}\left((1.000360710096+0.001704802709\,i)+\frac{76+29}{10^3}+\frac{3}{10^4}\right)$$

i is the imaginary unit

Result:

$1.105660710096... \times 10^{-52} +$
$1.704802709 \times 10^{-55}\, i$

Polar coordinates:

$r = 1.10566\times10^{-52}$ (radius), $\theta = 0.0883435°$ (angle)

$1.10566*10^{-52}$ result practically equal to the value of Cosmological Constant $1.1056*10^{-52}$ m^{-2}

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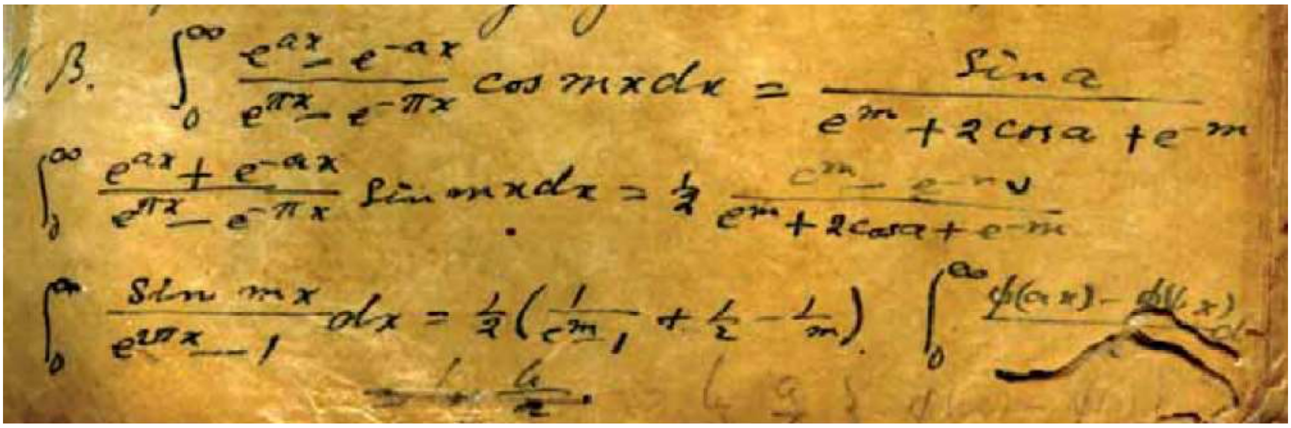


a = 2, m = 3

sin 2 / ((e^3 + 2 cos 2 + e^(-3)))

Input:

$$\frac{\sin(2)}{e^3 + 2\cos(2) + \frac{1}{e^3}}$$

Decimal approximation:

0.047106460064772198232953943913892893797971808627911778686...

0.04710646006…

Alternate forms:

$$\frac{\sin(2)}{2(\cos(2) + \cosh(3))}$$

$$\frac{e^3 \sin(2)}{1 + e^6 + 2 e^3 \cos(2)}$$

$$\frac{i\left(e^{-2 i} - e^{2 i}\right)}{2\left(\frac{1}{e^3} + e^{-2 i} + e^{2 i} + e^3\right)}$$

$\cosh(x)$ is the hyperbolic cosine function

Alternative representations:

$$\frac{\sin(2)}{e^3 + 2\cos(2) + \frac{1}{e^3}} = \frac{\cos\left(-2 + \frac{\pi}{2}\right)}{2\cosh(-2 i) + \frac{1}{e^3} + e^3}$$

$$\frac{\sin(2)}{e^3 + 2\cos(2) + \frac{1}{e^3}} = -\frac{\cos\left(2 + \frac{\pi}{2}\right)}{2\cosh(-2 i) + \frac{1}{e^3} + e^3}$$

$$\frac{\sin(2)}{e^3 + 2\cos(2) + \frac{1}{e^3}} = \frac{\cos\left(-2 + \frac{\pi}{2}\right)}{2\cosh(2 i) + \frac{1}{e^3} + e^3}$$

Series representations:

$$\frac{\sin(2)}{e^3 + 2\cos(2) + \frac{1}{e^3}} = \frac{e^3 \sum_{k=0}^{\infty} \frac{(-1)^k \left(2-\frac{\pi}{2}\right)^{2k}}{(2k)!}}{1 + e^6 + 2 e^3 \sum_{k=0}^{\infty} \frac{(-4)^k}{(2k)!}}$$

$$\frac{\sin(2)}{e^3 + 2\cos(2) + \frac{1}{e^3}} = \frac{e^3 \sum_{k=0}^{\infty} \frac{(-1)^k 2^{1+2k}}{(1+2k)!}}{1 + e^6 + 2 e^3 \sum_{k=0}^{\infty} \frac{(-4)^k}{(2k)!}}$$

$$\frac{\sin(2)}{e^3 + 2\cos(2) + \frac{1}{e^3}} = \frac{e^3 \sum_{k=0}^{\infty} \frac{(-1)^k 2^{1+2k}}{(1+2k)!}}{1 + e^6 - 2 e^3 \sum_{k=0}^{\infty} \frac{(-1)^k \left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}}$$

1/2 * ((e^3 – e^(-3))) / ((e^3 + 2 cos 2 + e^(-3)))

Input:

$$\frac{1}{2} \times \frac{e^3 - \frac{1}{e^3}}{e^3 + 2\cos(2) + \frac{1}{e^3}}$$

Exact result:

$$\frac{e^3 - \frac{1}{e^3}}{2\left(\frac{1}{e^3} + e^3 + 2\cos(2)\right)}$$

Decimal approximation:

0.5189793914289662184619893050557552029186494451350424997 99...

0.5189793914…

Alternate forms:

$$\frac{e^6 - 1}{2\left(1 + e^6 + 2\,e^3 \cos(2)\right)}$$

$$\frac{e^6 - 1}{2 + 2\,e^6 + 4\,e^3 \cos(2)}$$

$$-\frac{1 - e^6}{2\left(1 + e^6 + 2\,e^3 \cos(2)\right)}$$

Alternative representations:

$$\frac{e^3 - \frac{1}{e^3}}{\left(e^3 + 2\cos(2) + \frac{1}{e^3}\right)2} = \frac{-\frac{1}{e^3} + e^3}{2\left(2\cosh(-2\,i) + \frac{1}{e^3} + e^3\right)}$$

$$\frac{e^3 - \frac{1}{e^3}}{\left(e^3 + 2\cos(2) + \frac{1}{e^3}\right)2} = \frac{-\frac{1}{e^3} + e^3}{2\left(\frac{1}{e^3} + e^3 + \frac{2}{\sec(2)}\right)}$$

$$\frac{e^3 - \frac{1}{e^3}}{\left(e^3 + 2\cos(2) + \frac{1}{e^3}\right)2} = \frac{-\frac{1}{e^3} + e^3}{2\left(2\cosh(2\,i) + \frac{1}{e^3} + e^3\right)}$$

Series representations:

$$\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}=\frac{-1+e^6}{2\left(1+e^6+2e^3\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}\right)}$$

$$\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}=\frac{-\frac{1}{e^3}+e^3}{2\left(\frac{1}{e^3}+e^3-2\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}\right)}$$

$$\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}=\frac{-1+e^6}{2+2e^6+4e^3\sum_{k=0}^{\infty}\frac{\cos\left(\frac{k\pi}{2}+z_0\right)(2-z_0)^k}{k!}}$$

Integral representations:

$$\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}=\frac{\left(-1+e^6\right)\sqrt{\pi}}{2\left(1+e^6\right)\sqrt{\pi}-2ie^3\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{\sqrt{s}}\,ds}\quad\text{for }\gamma>0$$

$$\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}=\frac{\left(-1+e^6\right)\sqrt{\pi}}{2\left(1+e^6\right)\sqrt{\pi}-2ie^3\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(s)}{\Gamma\left(\frac{1}{2}-s\right)}\,ds}\quad\text{for }0<\gamma<\frac{1}{2}$$

1/2 (1/(e^3-1)+1/2-1/3)

Input:

$$\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)$$

Result:

$$\frac{1}{2}\left(\frac{1}{6}+\frac{1}{e^3-1}\right)$$

Decimal approximation:

0.1095311815789613093193330306332108609352845827357482688 42...

0.1095311815…

Property:

$\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)$ is a transcendental number

Alternate forms:

$$\frac{5+e^3}{12\left(e^3-1\right)}$$

$$\frac{1}{12}+\frac{1}{2\left(e^3-1\right)}$$

$$\frac{5+e^3}{12(e-1)\left(1+e+e^2\right)}$$

Alternative representation:

$$\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)=\frac{1}{2}\left(\frac{1}{\exp^3(z)-1}+\frac{1}{2}-\frac{1}{3}\right) \text{ for } z=1$$

Series representations:

$$\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)=\frac{1}{12}+\frac{1}{2\left(-1+\sum_{k=0}^{\infty}\frac{3^k}{k!}\right)}$$

$$\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)=\frac{1}{12}+\frac{1}{2\left(-1+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^3\right)}$$

$$\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)=\frac{1}{12}+\frac{4}{-8+\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^3}$$

Now, we have that:

[(((sin 2 / ((e^3 + 2 cos 2 + e^(-3))))))] + [((((1/2 (1/(e^3-1)+1/2-1/3))))] + [((((1/2 * ((e^3 – e^(-3)))/((e^3 + 2 cos 2 + e^(-3))))))]

Input:

$$\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{1}{2}\times\frac{e^3-\frac{1}{e^3}}{e^3+2\cos(2)+\frac{1}{e^3}}$$

Exact result:

$$\frac{1}{2}\left(\frac{1}{6}+\frac{1}{e^3-1}\right)+\frac{e^3-\frac{1}{e^3}}{2\left(\frac{1}{e^3}+e^3+2\cos(2)\right)}+\frac{\sin(2)}{\frac{1}{e^3}+e^3+2\cos(2)}$$

Decimal approximation:

0.6756170330726997260142762796028589576519058364987025473 28…

0.675617033…

Alternate forms:

$$\frac{7}{12}+\frac{1}{2\left(e^3-1\right)}-\frac{1+e^3\left(\cos(2)-\sin(2)\right)}{1+e^6+2e^3\cos(2)}$$

$$\frac{1}{2}\left(\frac{1}{6}+\frac{1}{e^3-1}+\frac{e^6-1}{1+e^6+2e^3\cos(2)}+\frac{\sin(2)}{\cos(2)+\cosh(3)}\right)$$

$$\frac{1}{2}\left(\frac{1}{6}+\frac{1}{e^3-1}+\frac{e^6-1}{1+e^6+2e^3\cos(2)}+\frac{2\sin(2)}{\frac{1}{e^3}+e^3+2\cos(2)}\right)$$

Alternative representations:

$$\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}=$$
$$\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)+\frac{\cos\left(-2+\frac{\pi}{2}\right)}{2\cosh(-2i)+\frac{1}{e^3}+e^3}+\frac{-\frac{1}{e^3}+e^3}{2\left(2\cosh(-2i)+\frac{1}{e^3}+e^3\right)}$$

$$\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}=$$
$$\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)-\frac{\cos\left(2+\frac{\pi}{2}\right)}{2\cosh(-2i)+\frac{1}{e^3}+e^3}+\frac{-\frac{1}{e^3}+e^3}{2\left(2\cosh(-2i)+\frac{1}{e^3}+e^3\right)}$$

$$\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}=$$
$$\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)+\frac{\cos\left(-2+\frac{\pi}{2}\right)}{2\cosh(2i)+\frac{1}{e^3}+e^3}+\frac{-\frac{1}{e^3}+e^3}{2\left(2\cosh(2i)+\frac{1}{e^3}+e^3\right)}$$

Series representations:

$$\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}=$$
$$\frac{11-5e^3-e^6+7e^9+\sum_{k=0}^{\infty}\frac{(-1)^k 2^{1+2k} e^3\left(12\left(-1+e^3\right)(2k)!+\left(5+e^3\right)(1+2k)!\right)}{(2k)!(1+2k)!}}{12(-1+e)\left(1+e+e^2\right)\left(1+e^6+2e^3\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}\right)}$$

$$\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}=$$
$$\frac{11-5e^3-e^6+7e^9+\sum_{k=0}^{\infty}\left(\frac{(-1)^k 2^{1+2k} e^3\left(5+e^3\right)}{(2k)!}+\frac{12(-1)^k e^3\left(-1+e^3\right)\left(2-\frac{\pi}{2}\right)^{2k}}{(2k)!}\right)}{12(-1+e)\left(1+e+e^2\right)\left(1+e^6+2e^3\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}\right)}$$

$$\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}=$$
$$\left(11-5e^3-e^6+7e^9-12e^3\sum_{k=0}^{\infty}\frac{(-1)^k 2^{1+2k}}{(1+2k)!}+12e^6\sum_{k=0}^{\infty}\frac{(-1)^k 2^{1+2k}}{(1+2k)!}-\right.$$
$$\left.10e^3\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}-2e^6\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}\right)\Big/$$
$$\left(12(-1+e)\left(1+e+e^2\right)\left(1+e^6-2e^3\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}\right)\right)$$

Integral representations:

$$\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}=$$
$$\left(11\sqrt{\pi}-5e^3\sqrt{\pi}-e^6\sqrt{\pi}+7e^9\sqrt{\pi}+6ie^3\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{s^{3/2}}\,ds-6ie^6\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{s^{3/2}}\,ds-10e^3\sqrt{\pi}\int_{\frac{\pi}{2}}^{2}\sin(t)\,dt-2e^6\sqrt{\pi}\int_{\frac{\pi}{2}}^{2}\sin(t)\,dt\right)\Big/\left(12(-1+e)(1+e+e^2)\sqrt{\pi}\left(1+e^6-2e^3\int_{\frac{\pi}{2}}^{2}\sin(t)\,dt\right)\right)\text{ for }\gamma>0$$

$$\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}=$$
$$\left(11\sqrt{\pi}-5e^3\sqrt{\pi}-e^6\sqrt{\pi}+7e^9\sqrt{\pi}-5ie^3\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{\sqrt{s}}\,ds-ie^6\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{\sqrt{s}}\,ds-24e^3\sqrt{\pi}\int_0^1\cos(2t)\,dt+24e^6\sqrt{\pi}\int_0^1\cos(2t)\,dt\right)\Big/\left(12(-1+e)(1+e+e^2)\left(\sqrt{\pi}+e^6\sqrt{\pi}-ie^3\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{\sqrt{s}}\,ds\right)\right)\text{ for }\gamma>0$$

$$\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}=$$
$$\left(11\sqrt{\pi}-5e^3\sqrt{\pi}-e^6\sqrt{\pi}+7e^9\sqrt{\pi}+6ie^3\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{s^{3/2}}\,ds-6ie^6\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{s^{3/2}}\,ds-5ie^3\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{\sqrt{s}}\,ds-ie^6\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{\sqrt{s}}\,ds\right)\Big/\left(12(-1+e)(1+e+e^2)\left(\sqrt{\pi}+e^6\sqrt{\pi}-ie^3\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{\sqrt{s}}\,ds\right)\right)\text{ for }\gamma>0$$

[(((sin 2 / ((e^3 + 2 cos 2 + e^(-3)))))) + (((1/2 (1/(e^3-1)+1/2-1/3)))) + (((1/2 * ((e^3 – e^(-3)))/((e^3 + 2 cos 2 + e^(-3))))))]^1/64

Input:

$$\sqrt[64]{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{1}{2}\times\frac{e^3-\frac{1}{e^3}}{e^3+2\cos(2)+\frac{1}{e^3}}}$$

Exact result:

$$\sqrt[64]{\frac{1}{2}\left(\frac{1}{6}+\frac{1}{e^3-1}\right)+\frac{e^3-\frac{1}{e^3}}{2\left(\frac{1}{e^3}+e^3+2\cos(2)\right)}+\frac{\sin(2)}{\frac{1}{e^3}+e^3+2\cos(2)}}$$

Decimal approximation:

0.993891718082108684738449466431730354003644145648880225618...

0.993891718… 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** = $\boldsymbol{\phi}$

Alternate forms:

$$\frac{1}{\sqrt[64]{\frac{2}{\frac{1}{6}+\frac{1}{e^3-1}+\frac{e^6-1}{1+e^6+2e^3\cos(2)}+\frac{2\sin(2)}{\frac{1}{e^3}+e^3+2\cos(2)}}}}$$

$$\frac{1}{\sqrt[32]{2}\sqrt[64]{\frac{3(e^3-1)(1+e^6+2e^3\cos(2))}{11-5e^3-e^6+7e^9-12e^3\sin(2)+12e^6\sin(2)+10e^3\cos(2)+2e^6\cos(2)}}}$$

$$\sqrt[64]{\frac{i(e^{-2i}-e^{2i})}{2\left(\frac{1}{e^3}+e^{-2i}+e^{2i}+e^3\right)}+\frac{e^3-\frac{1}{e^3}}{2\left(\frac{1}{e^3}+e^{-2i}+e^{2i}+e^3\right)}+\frac{1}{2}\left(\frac{1}{6}+\frac{1}{e^3-1}\right)}$$

All 64th roots of 1/2 (1/6 + 1/(e^3 - 1)) + (e^3 - 1/e^3)/(2 (1/e^3 + e^3 + 2 cos(2))) + sin(2)/(1/e^3 + e^3 + 2 cos(2)):

$$e^0\sqrt[64]{\frac{1}{2}\left(\frac{1}{6}+\frac{1}{e^3-1}\right)+\frac{e^3-\frac{1}{e^3}}{2\left(\frac{1}{e^3}+e^3+2\cos(2)\right)}+\frac{\sin(2)}{\frac{1}{e^3}+e^3+2\cos(2)}}\approx 0.993892$$

(real, principal root)

$$e^{(i\pi)/32}\sqrt[64]{\frac{1}{2}\left(\frac{1}{6}+\frac{1}{e^3-1}\right)+\frac{e^3-\frac{1}{e^3}}{2\left(\frac{1}{e^3}+e^3+2\cos(2)\right)}+\frac{\sin(2)}{\frac{1}{e^3}+e^3+2\cos(2)}}$$
$$\approx 0.98911+0.09742\,i$$

$$e^{(i\pi)/16}\sqrt[64]{\frac{1}{2}\left(\frac{1}{6}+\frac{1}{e^3-1}\right)+\frac{e^3-\frac{1}{e^3}}{2\left(\frac{1}{e^3}+e^3+2\cos(2)\right)}+\frac{\sin(2)}{\frac{1}{e^3}+e^3+2\cos(2)}}$$
$$\approx 0.97479+0.19390\,i$$

$$e^{(3i\pi)/32}\sqrt[64]{\frac{1}{2}\left(\frac{1}{6}+\frac{1}{e^3-1}\right)+\frac{e^3-\frac{1}{e^3}}{2\left(\frac{1}{e^3}+e^3+2\cos(2)\right)}+\frac{\sin(2)}{\frac{1}{e^3}+e^3+2\cos(2)}}$$
$$\approx 0.95110+0.28851\,i$$

$$e^{(i\pi)/8}\sqrt[64]{\frac{1}{2}\left(\frac{1}{6}+\frac{1}{e^3-1}\right)+\frac{e^3-\frac{1}{e^3}}{2\left(\frac{1}{e^3}+e^3+2\cos(2)\right)}+\frac{\sin(2)}{\frac{1}{e^3}+e^3+2\cos(2)}}$$
$$\approx 0.91824+0.38035\,i$$

Alternative representations:

$$\sqrt[64]{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}}=$$
$$\sqrt[64]{\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)+\frac{\cos\left(-2+\frac{\pi}{2}\right)}{2\cosh(-2i)+\frac{1}{e^3}+e^3}+\frac{-\frac{1}{e^3}+e^3}{2\left(2\cosh(-2i)+\frac{1}{e^3}+e^3\right)}}$$

$$\sqrt[64]{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}}=$$
$$\sqrt[64]{\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)-\frac{\cos\left(2+\frac{\pi}{2}\right)}{2\cosh(-2i)+\frac{1}{e^3}+e^3}+\frac{-\frac{1}{e^3}+e^3}{2\left(2\cosh(-2i)+\frac{1}{e^3}+e^3\right)}}$$

$$\sqrt[64]{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}} =$$

$$\sqrt[64]{\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)+\frac{\cos\left(-2+\frac{\pi}{2}\right)}{2\cosh(2i)+\frac{1}{e^3}+e^3}+\frac{-\frac{1}{e^3}+e^3}{2\left(2\cosh(2i)+\frac{1}{e^3}+e^3\right)}}$$

Series representations:

$$\sqrt[64]{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}} =$$

$$\frac{\sqrt[64]{\frac{11-5e^3-e^6+7e^9+10e^3\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}+2e^6\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}-12e^3\sum_{k=0}^{\infty}\frac{(-1)^k 2^{1+2k}}{(1+2k)!}+12e^6\sum_{k=0}^{\infty}\frac{(-1)^k 2^{1+2k}}{(1+2k)!}}{1+e^6+2e^3\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}}}}{\sqrt[32]{2}\sqrt[64]{3\left(-1+e^3\right)}}$$

$$\sqrt[64]{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}} =$$

$$\frac{1}{\sqrt[32]{2}\sqrt[64]{3\left(-1+e^3\right)}}\left(\left(\left(11-5e^3-e^6+7e^9+10e^3\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}+2e^6\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}-12e^3\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{2k}}{(2k)!}+12e^6\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{2k}}{(2k)!}\right)\Big/\left(1+e^6+2e^3\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}\right)\right)\verb|^|(1/64)\right)$$

$$\sqrt[64]{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}} =$$

$$\frac{1}{\sqrt[32]{2}\sqrt[64]{3\left(-1+e^3\right)}}\left(\left(\left(11-5e^3-e^6+7e^9-12e^3\sum_{k=0}^{\infty}\frac{(-1)^k 2^{1+2k}}{(1+2k)!}+12e^6\sum_{k=0}^{\infty}\frac{(-1)^k 2^{1+2k}}{(1+2k)!}-10e^3\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}-2e^6\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}\right)\Big/\left(1+e^6-2e^3\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}\right)\right)\verb|^|(1/64)\right)$$

Integral representations:

$$\sqrt[64]{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}} = \left(\left(\left(11\sqrt{\pi}-5e^3\sqrt{\pi}-e^6\sqrt{\pi}+7e^9\sqrt{\pi}+6ie^3\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{s^{3/2}}\,ds-6ie^6\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{s^{3/2}}\,ds-10e^3\sqrt{\pi}\int_{\frac{\pi}{2}}^{2}\sin(t)\,dt-2e^6\sqrt{\pi}\int_{\frac{\pi}{2}}^{2}\sin(t)\,dt\right)\Big/\left(1+e^6-2e^3\int_{\frac{\pi}{2}}^{2}\sin(t)\,dt\right)\right)\hat{}\,(1/64)\right)\Big/\left(\sqrt[32]{2}\sqrt[64]{3\left(-1+e^3\right)}\sqrt[128]{\pi}\right) \quad \text{for } \gamma>0$$

$$\sqrt[64]{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}} = \left(\left(\left(11\sqrt{\pi}-5e^3\sqrt{\pi}-e^6\sqrt{\pi}+7e^9\sqrt{\pi}+6ie^3\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(s)}{\Gamma\left(\frac{3}{2}-s\right)}\,ds-6ie^6\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(s)}{\Gamma\left(\frac{3}{2}-s\right)}\,ds-10e^3\sqrt{\pi}\int_{\frac{\pi}{2}}^{2}\sin(t)\,dt-2e^6\sqrt{\pi}\int_{\frac{\pi}{2}}^{2}\sin(t)\,dt\right)\Big/\left(1+e^6-2e^3\int_{\frac{\pi}{2}}^{2}\sin(t)\,dt\right)\right)\hat{}\,(1/64)\right)\Big/\left(\sqrt[32]{2}\sqrt[64]{3\left(-1+e^3\right)}\sqrt[128]{\pi}\right) \quad \text{for } 0<\gamma<1$$

$$\sqrt[64]{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}} = \frac{1}{\sqrt[32]{2}\sqrt[64]{3\left(-1+e^3\right)}}\left(\left(\left(11\sqrt{\pi}-5e^3\sqrt{\pi}-e^6\sqrt{\pi}+7e^9\sqrt{\pi}-5ie^3\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{\sqrt{s}}\,ds-ie^6\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{\sqrt{s}}\,ds-24e^3\sqrt{\pi}\int_0^1\cos(2t)\,dt+24e^6\sqrt{\pi}\int_0^1\cos(2t)\,dt\right)\Big/\left(\sqrt{\pi}+e^6\sqrt{\pi}-ie^3\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{\sqrt{s}}\,ds\right)\right)\hat{}\,(1/64)\right) \quad \text{for } \gamma>0$$

2log base 0.993891718[(((sin 2 / ((e^3 + 2 cos 2 + e^(-3))))) + (((1/2 (1/(e^3-1)+1/2-1/3)))) + (((1/2 * ((e^3 – e^(-3)))/((e^3 + 2 cos 2 + e^(-3))))))]-Pi+1/golden ratio

Input interpretation:

$$2 \log_{0.993891718}\left(\frac{\sin(2)}{e^3 + 2\cos(2) + \frac{1}{e^3}} + \frac{1}{2}\left(\frac{1}{e^3 - 1} + \frac{1}{2} - \frac{1}{3}\right) + \frac{1}{2} \times \frac{e^3 - \frac{1}{e^3}}{e^3 + 2\cos(2) + \frac{1}{e^3}}\right) - \pi + \frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

125.4764...

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

Alternative representations:

$$2 \log_{0.993892}\left(\frac{\sin(2)}{e^3 + 2\cos(2) + \frac{1}{e^3}} + \frac{1}{2}\left(\frac{1}{e^3 - 1} + \frac{1}{2} - \frac{1}{3}\right) + \frac{e^3 - \frac{1}{e^3}}{\left(e^3 + 2\cos(2) + \frac{1}{e^3}\right)2}\right) - \pi + \frac{1}{\phi} = -\pi + \frac{1}{\phi} + \frac{2 \log\left(\frac{1}{2}\left(\frac{1}{6} + \frac{1}{-1+e^3}\right) + \frac{-\frac{1}{e^3}+e^3}{2\left(2\cos(2)+\frac{1}{e^3}+e^3\right)} + \frac{\sin(2)}{2\cos(2)+\frac{1}{e^3}+e^3}\right)}{\log(0.993892)}$$

$$2 \log_{0.993892}\left(\frac{\sin(2)}{e^3 + 2\cos(2) + \frac{1}{e^3}} + \frac{1}{2}\left(\frac{1}{e^3 - 1} + \frac{1}{2} - \frac{1}{3}\right) + \frac{e^3 - \frac{1}{e^3}}{\left(e^3 + 2\cos(2) + \frac{1}{e^3}\right)2}\right) - \pi + \frac{1}{\phi} = -\pi + 2 \log_{0.993892}\left(\frac{1}{2}\left(\frac{1}{6} + \frac{1}{-1 + e^3}\right) + \frac{\cos\left(-2 + \frac{\pi}{2}\right)}{2\cosh(-2 i) + \frac{1}{e^3} + e^3} + \frac{-\frac{1}{e^3} + e^3}{2\left(2\cosh(-2 i) + \frac{1}{e^3} + e^3\right)}\right) + \frac{1}{\phi}$$

$$2\log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)-\pi+\frac{1}{\phi}=$$

$$-\pi+2\log_{0.993892}\left(\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)-\frac{\cos\left(2+\frac{\pi}{2}\right)}{2\cosh(-2i)+\frac{1}{e^3}+e^3}+\frac{-\frac{1}{e^3}+e^3}{2\left(2\cosh(-2i)+\frac{1}{e^3}+e^3\right)}\right)+\frac{1}{\phi}$$

Series representations:

$$2\log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-\pi-\frac{2\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)+\frac{-\frac{1}{e^3}+e^3}{2\left(\frac{1}{e^3}+e^3+2\cos(2)\right)}+\frac{\sin(2)}{\frac{1}{e^3}+e^3+2\cos(2)}\right)^k}{k}}{\log(0.993892)}$$

$$2\log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-\pi-\frac{2\sum_{k=1}^{\infty}\frac{\left(-\frac{1}{2}\right)^k\left(-\frac{11}{6}+\frac{1}{-1+e^3}+\frac{-1+e^6}{1+e^6+2e^3\cos(2)}+\frac{2\sin(2)}{\frac{1}{e^3}+e^3+2\cos(2)}\right)^k}{k}}{\log(0.993892)}$$

$$2\log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)-\pi+\frac{1}{\phi}=$$

$$-\frac{-1+\phi\pi-2\phi\log_{0.993892}\left(\frac{11-5e^3-e^6+7e^9+\sum_{k=0}^{\infty}\frac{(-1)^k 2^{1+2k}e^3\left(12\left(-1+e^3\right)(2k)!+\left(5+e^3\right)(1+2k)!\right)}{(2k)!\,(1+2k)!}}{12\left(-1+e^3\right)\left(1+e^6+2e^3\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}\right)}\right)}{\phi}$$

Integral representations:

$$2\log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)-\pi+\frac{1}{\phi}=$$
$$-\frac{1}{\phi}\left(-1+\phi\pi-2\phi\log_{0.993892}\left(\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)+\frac{-\frac{1}{e^3}+e^3}{2\left(\frac{1}{e^3}+e^3+2\left(1-2\int_0^1\sin(2t)\,dt\right)\right)}+\frac{2}{\frac{1}{e^3}+e^3+2\left(1-2\int_0^1\sin(2t)\,dt\right)}\int_0^1\cos(2t)\,dt\right)\right)$$

$$2\log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)-\pi+\frac{1}{\phi}=$$
$$-\frac{1}{\phi}\left(-1+\phi\pi-2\phi\log_{0.993892}\left(\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)+\frac{-\frac{1}{e^3}+e^3}{2\left(\frac{1}{e^3}+e^3-2\int_{\frac{\pi}{2}}^{2}\sin(t)\,dt\right)}+\frac{2}{\frac{1}{e^3}+e^3-2\int_{\frac{\pi}{2}}^{2}\sin(t)\,dt}\int_0^1\cos(2t)\,dt\right)\right)$$

$$2\log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)-\pi+\frac{1}{\phi}=$$
$$-\frac{1}{\phi}\left(-1+\phi\pi-2\phi\log_{0.993892}\left(\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)+\frac{-\frac{1}{e^3}+e^3}{2\left(\frac{1}{e^3}+e^3+2\left(1-2\int_0^1\sin(2t)\,dt\right)\right)}+\frac{\sqrt{\pi}}{2i\pi\left(\frac{1}{e^3}+e^3+2\left(1-2\int_0^1\sin(2t)\,dt\right)\right)}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\mathcal{A}^{-1/s+s}}{s^{3/2}}\,ds\right)\right)\quad\text{for }\gamma>0$$

2log base 0.993891718[(((sin 2 / ((e^3 + 2 cos 2 + e^(-3)))))) + (((1/2 (1/(e^3-1)+1/2-1/3)))) + (((1/2 * ((e^3 – e^(-3)))/((e^3 + 2 cos 2 + e^(-3)))))))]+11+1/golden ratio

Input interpretation:

$$2\log_{0.993891718}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{1}{2}\times\frac{e^3-\frac{1}{e^3}}{e^3+2\cos(2)+\frac{1}{e^3}}\right)+11+\frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

139.6180...

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

Alternative representations:

$$2\log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)+11+\frac{1}{\phi}=$$
$$11+\frac{1}{\phi}+\frac{2\log\left(\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)+\frac{-\frac{1}{e^3}+e^3}{2\left(2\cos(2)+\frac{1}{e^3}+e^3\right)}+\frac{\sin(2)}{2\cos(2)+\frac{1}{e^3}+e^3}\right)}{\log(0.993892)}$$

$$2\log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)+11+\frac{1}{\phi}=$$
$$11+2\log_{0.993892}\left(\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)+\frac{\cos\left(-2+\frac{\pi}{2}\right)}{2\cosh(-2i)+\frac{1}{e^3}+e^3}+\frac{-\frac{1}{e^3}+e^3}{2\left(2\cosh(-2i)+\frac{1}{e^3}+e^3\right)}\right)+\frac{1}{\phi}$$

$$2\log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)+11+\frac{1}{\phi}=$$
$$11+2\log_{0.993892}\left(\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)-\frac{\cos\left(2+\frac{\pi}{2}\right)}{2\cosh(-2i)+\frac{1}{e^3}+e^3}+\frac{-\frac{1}{e^3}+e^3}{2\left(2\cosh(-2i)+\frac{1}{e^3}+e^3\right)}\right)+\frac{1}{\phi}$$

Series representations:

$$2\log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}-\frac{2\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)+\frac{-\frac{1}{e^3}+e^3}{2\left(\frac{1}{e^3}+e^3+2\cos(2)\right)}+\frac{\sin(2)}{\frac{1}{e^3}+e^3+2\cos(2)}\right)^k}{k}}{\log(0.993892)}$$

$$2\log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}-\frac{2\sum_{k=1}^{\infty}\frac{\left(-\frac{1}{2}\right)^k\left(-\frac{11}{6}+\frac{1}{-1+e^3}+\frac{-1+e^6}{1+e^6+2e^3\cos(2)}+\frac{2\sin(2)}{\frac{1}{e^3}+e^3+2\cos(2)}\right)^k}{k}}{\log(0.993892)}$$

$$2\log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)+11+\frac{1}{\phi}=$$

$$\frac{1+11\phi+2\phi\log_{0.993892}\left(\frac{11-5e^3-e^6+7e^9+\sum_{k=0}^{\infty}\frac{(-1)^k 2^{1+2k}e^3\left(12\left(-1+e^3\right)(2k)!+\left(5+e^3\right)(1+2k)!\right)}{(2k)!(1+2k)!}}{12\left(-1+e^3\right)\left(1+e^6+2e^3\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}\right)}\right)}{\phi}$$

Integral representations:

$$2\log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)+11+\frac{1}{\phi}=$$

$$\frac{1}{\phi}\left(1+11\phi+2\phi\log_{0.993892}\left(\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)+\frac{-\frac{1}{e^3}+e^3}{2\left(\frac{1}{e^3}+e^3+2\left(1-2\int_0^1\sin(2t)\,dt\right)\right)}+\frac{2}{\frac{1}{e^3}+e^3+2\left(1-2\int_0^1\sin(2t)\,dt\right)}\int_0^1\cos(2t)\,dt\right)\right)$$

$$2\log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)+11+\frac{1}{\phi}=$$
$$\frac{1}{\phi}\left(1+11\phi+2\phi\log_{0.993892}\left(\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)+\frac{-\frac{1}{e^3}+e^3}{2\left(\frac{1}{e^3}+e^3-2\int_{\frac{\pi}{2}}^{2}\sin(t)\,dt\right)}+\frac{2}{\frac{1}{e^3}+e^3-2\int_{\frac{\pi}{2}}^{2}\sin(t)\,dt}\int_0^1\cos(2t)\,dt\right)\right)$$

$$2\log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)+11+\frac{1}{\phi}=$$
$$\frac{1}{\phi}\left(1+11\phi+2\phi\log_{0.993892}\left(\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)+\frac{-\frac{1}{e^3}+e^3}{2\left(\frac{1}{e^3}+e^3+2\left(1-2\int_0^1\sin(2t)\,dt\right)\right)}+\frac{\sqrt{\pi}}{2i\pi\left(\frac{1}{e^3}+e^3+2\left(1-2\int_0^1\sin(2t)\,dt\right)\right)}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\mathcal{A}^{-1/s+s}}{s^{3/2}}\,ds\right)\right)\quad \text{for } \gamma>0$$

27 log base 0.993891718[(((sin 2 / ((e^3 + 2 cos 2 + e^(-3)))))) + (((1/2 (1/(e^3-1)+1/2-1/3)))) + (((1/2 * ((e^3 – e^(-3)))/((e^3 + 2 cos 2 + e^(-3))))))]

Input interpretation:

$$27\log_{0.993891718}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{1}{2}\times\frac{e^3-\frac{1}{e^3}}{e^3+2\cos(2)+\frac{1}{e^3}}\right)$$

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

Result:

1728.000...

1728

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

Alternative representations:

$$27 \log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)=$$
$$\frac{27\log\left(\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)+\frac{-\frac{1}{e^3}+e^3}{2\left(2\cos(2)+\frac{1}{e^3}+e^3\right)}+\frac{\sin(2)}{2\cos(2)+\frac{1}{e^3}+e^3}\right)}{\log(0.993892)}$$

$$27 \log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)=$$
$$27\log_{0.993892}\left(\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)+\frac{\cos\left(-2+\frac{\pi}{2}\right)}{2\cosh(-2i)+\frac{1}{e^3}+e^3}+\frac{-\frac{1}{e^3}+e^3}{2\left(2\cosh(-2i)+\frac{1}{e^3}+e^3\right)}\right)$$

$$27 \log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)=$$
$$27\log_{0.993892}\left(\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)-\frac{\cos\left(2+\frac{\pi}{2}\right)}{2\cosh(-2i)+\frac{1}{e^3}+e^3}+\frac{-\frac{1}{e^3}+e^3}{2\left(2\cosh(-2i)+\frac{1}{e^3}+e^3\right)}\right)$$

Series representations:

$$27 \log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)=$$
$$-\frac{27\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)+\frac{-\frac{1}{e^3}+e^3}{2\left(\frac{1}{e^3}+e^3+2\cos(2)\right)}+\frac{\sin(2)}{\frac{1}{e^3}+e^3+2\cos(2)}\right)^k}{k}}{\log(0.993892)}$$

$$27 \log_{0.993892}\left(\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{\left(e^3+2\cos(2)+\frac{1}{e^3}\right)2}\right)=$$
$$-\frac{27\sum_{k=1}^{\infty}\frac{\left(-\frac{1}{2}\right)^k\left(-\frac{11}{6}+\frac{1}{-1+e^3}+\frac{-1+e^6}{1+e^6+2e^3\cos(2)}+\frac{2\sin(2)}{\frac{1}{e^3}+e^3+2\cos(2)}\right)^k}{k}}{\log(0.993892)}$$

$$27 \log_{0.993892}\left(\frac{\sin(2)}{e^3 + 2\cos(2) + \frac{1}{e^3}} + \frac{1}{2}\left(\frac{1}{e^3 - 1} + \frac{1}{2} - \frac{1}{3}\right) + \frac{e^3 - \frac{1}{e^3}}{\left(e^3 + 2\cos(2) + \frac{1}{e^3}\right)2}\right) =$$

$$27 \log_{0.993892}\left(\frac{11 - 5e^3 - e^6 + 7e^9 + \sum_{k=0}^{\infty} \frac{(-1)^k 2^{1+2k} e^3 \left(12(-1+e^3)(2k)! + (5+e^3)(1+2k)!\right)}{(2k)!(1+2k)!}}{12(-1+e^3)\left(1 + e^6 + 2e^3 \sum_{k=0}^{\infty} \frac{(-4)^k}{(2k)!}\right)}\right)$$

Integral representations:

$$27 \log_{0.993892}\left(\frac{\sin(2)}{e^3 + 2\cos(2) + \frac{1}{e^3}} + \frac{1}{2}\left(\frac{1}{e^3 - 1} + \frac{1}{2} - \frac{1}{3}\right) + \frac{e^3 - \frac{1}{e^3}}{\left(e^3 + 2\cos(2) + \frac{1}{e^3}\right)2}\right) =$$

$$27 \log_{0.993892}\left(\frac{11 + 5e^3 + e^6 + 7e^9 + \int_0^1 4e^3 \left(6(-1+e^3)\cos(2t) - (5+e^3)\sin(2t)\right)dt}{12(-1+e^3)\left((1+e^3)^2 - 4e^3 \int_0^1 \sin(2t)\,dt\right)}\right)$$

$$27 \log_{0.993892}\left(\frac{\sin(2)}{e^3 + 2\cos(2) + \frac{1}{e^3}} + \frac{1}{2}\left(\frac{1}{e^3 - 1} + \frac{1}{2} - \frac{1}{3}\right) + \frac{e^3 - \frac{1}{e^3}}{\left(e^3 + 2\cos(2) + \frac{1}{e^3}\right)2}\right) =$$

$$27 \log_{0.993892}\left(\frac{1}{2}\left(\frac{1}{6} + \frac{1}{-1+e^3}\right) + \frac{-\frac{1}{e^3} + e^3}{2\left(\frac{1}{e^3} + e^3 - 2\int_{\frac{\pi}{2}}^{2} \sin(t)\,dt\right)} + \frac{2}{\frac{1}{e^3} + e^3 - 2\int_{\frac{\pi}{2}}^{2} \sin(t)\,dt} \int_0^1 \cos(2t)\,dt\right)$$

$$27 \log_{0.993892}\left(\frac{\sin(2)}{e^3 + 2\cos(2) + \frac{1}{e^3}} + \frac{1}{2}\left(\frac{1}{e^3 - 1} + \frac{1}{2} - \frac{1}{3}\right) + \frac{e^3 - \frac{1}{e^3}}{\left(e^3 + 2\cos(2) + \frac{1}{e^3}\right)2}\right) =$$

$$27 \log_{0.993892}\left(\frac{1}{2}\left(\frac{1}{6} + \frac{1}{-1+e^3}\right) + \frac{-\frac{1}{e^3} + e^3}{2\left(\frac{1}{e^3} + e^3 + 2\left(1 - 2\int_0^1 \sin(2t)\,dt\right)\right)} + \frac{\sqrt{\pi}}{2i\pi\left(\frac{1}{e^3} + e^3 + 2\left(1 - 2\int_0^1 \sin(2t)\,dt\right)\right)} \int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{\mathcal{A}^{-1/s+s}}{s^{3/2}}\,ds\right) \text{ for } \gamma > 0$$

1/10^52* (((1/[(((sin 2 / ((e^3 + 2 cos 2 + e^(-3)))))) + (((1/2 (1/(e^3-1)+1/2-1/3)))) + (((1/2 * ((e^3 – e^(-3)))/((e^3 + 2 cos 2 + e^(-3))))))]-(29+7)/10^2-(11+3)/10^3-5/10^4)))

Input:

$$\frac{1}{10^{52}}\left(\frac{1}{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{1}{2}\times\frac{e^3-\frac{1}{e^3}}{e^3+2\cos(2)+\frac{1}{e^3}}}-\frac{29+7}{10^2}-\frac{11+3}{10^3}-\frac{5}{10^4}\right)$$

Exact result:

$$\frac{\frac{1}{\frac{1}{2}\left(\frac{1}{6}+\frac{1}{e^3-1}\right)+\frac{e^3-\frac{1}{e^3}}{2\left(\frac{1}{e^3}+e^3+2\cos(2)\right)}+\frac{\sin(2)}{\frac{1}{e^3}+e^3+2\cos(2)}}-\frac{749}{2000}}{10\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}$$

Decimal approximation:

$1.1056284619069026140929694628886374835385395002691146... \times 10^{-52}$

1.10562846…*10^{-52} result practically equal to the value of Cosmological Constant 1.1056*10^{-52} m^{-2}

Alternate forms:

$$\frac{\frac{12(e^3-1)(1+e^6+2e^3\cos(2))}{11+7e^9+e^3(-5-12\sin(2)+10\cos(2))+e^6(-1+12\sin(2)+2\cos(2))}-\frac{749}{2000}}{10\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}$$

$$\left(3(e-1)(1+e+e^2)(1+e^6+2e^3\cos(2))\right)/\left(2\,500\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\left(11-5e^3-e^6+7e^9-12e^3\sin(2)+12e^6\sin(2)+10e^3\cos(2)+2e^6\cos(2)\right)\right)-\frac{749}{20\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}$$

$$\left(-225\,673+131\,299e^9+e^6(-162\,757-62\,916\sin(2)+325\,514\cos(2))+e^3(194\,215+62\,916\sin(2)-388\,430\cos(2))\right)/\left(140\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\left(11+7e^9+e^3(-5-12\sin(2)+10\cos(2))+e^6(-1+12\sin(2)+2\cos(2))\right)\right)$$

Alternative representations:

$$\frac{\frac{1}{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{2\left(e^3+2\cos(2)+\frac{1}{e^3}\right)}}-\frac{29+7}{10^2}-\frac{11+3}{10^3}-\frac{5}{10^4}}{10^{52}} = \frac{-\frac{36}{10^2}-\frac{14}{10^3}-\frac{5}{10^4}+\frac{1}{\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)+\frac{\cos\left(-2+\frac{\pi}{2}\right)}{2\cosh(-2i)+\frac{1}{e^3}+e^3}+\frac{-\frac{1}{e^3}+e^3}{2\left(2\cosh(-2i)+\frac{1}{e^3}+e^3\right)}}}{10^{52}}$$

$$\frac{\frac{1}{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{2\left(e^3+2\cos(2)+\frac{1}{e^3}\right)}}-\frac{29+7}{10^2}-\frac{11+3}{10^3}-\frac{5}{10^4}}{10^{52}} = \frac{-\frac{36}{10^2}-\frac{14}{10^3}-\frac{5}{10^4}+\frac{1}{\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)-\frac{\cos\left(2+\frac{\pi}{2}\right)}{2\cosh(-2i)+\frac{1}{e^3}+e^3}+\frac{-\frac{1}{e^3}+e^3}{2\left(2\cosh(-2i)+\frac{1}{e^3}+e^3\right)}}}{10^{52}}$$

$$\frac{\frac{1}{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{2\left(e^3+2\cos(2)+\frac{1}{e^3}\right)}}-\frac{29+7}{10^2}-\frac{11+3}{10^3}-\frac{5}{10^4}}{10^{52}} = \frac{-\frac{36}{10^2}-\frac{14}{10^3}-\frac{5}{10^4}+\frac{1}{\frac{1}{2}\left(\frac{1}{6}+\frac{1}{-1+e^3}\right)+\frac{\cos\left(-2+\frac{\pi}{2}\right)}{2\cosh(2i)+\frac{1}{e^3}+e^3}+\frac{-\frac{1}{e^3}+e^3}{2\left(2\cosh(2i)+\frac{1}{e^3}+e^3\right)}}}{10^{52}}$$

Series representations:

$$\frac{\frac{1}{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{2\left(e^3+2\cos(2)+\frac{1}{e^3}\right)}}-\frac{29+7}{10^2}-\frac{11+3}{10^3}-\frac{5}{10^4}}{10^{52}} =$$

$$\left(-32\,239+27\,745\,e^3-23\,251\,e^6+18\,757\,e^9-55\,490\,e^3\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}+46\,502\,e^6\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}+8988\,e^3\sum_{k=0}^{\infty}\frac{(-1)^k\,2^{1+2k}}{(1+2k)!}-8988\,e^6\sum_{k=0}^{\infty}\frac{(-1)^k\,2^{1+2k}}{(1+2k)!}\right)\Big/$$
$$\left(20\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\left(11-5\,e^3-e^6+7\,e^9+10\,e^3\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}+2\,e^6\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}-12\,e^3\sum_{k=0}^{\infty}\frac{(-1)^k\,2^{1+2k}}{(1+2k)!}+12\,e^6\sum_{k=0}^{\infty}\frac{(-1)^k\,2^{1+2k}}{(1+2k)!}\right)\right)$$

$$\frac{\frac{1}{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{2\left(e^3+2\cos(2)+\frac{1}{e^3}\right)}}-\frac{29+7}{10^2}-\frac{11+3}{10^3}-\frac{5}{10^4}}{10^{52}} =$$

$$\left(-32\,239+27\,745\,e^3-23\,251\,e^6+18\,757\,e^9-55\,490\,e^3\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}+46\,502\,e^6\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}+8988\,e^3\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{2k}}{(2k)!}-8988\,e^6\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{2k}}{(2k)!}\right)\Big/$$
$$\left(20\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\left(11-5\,e^3-e^6+7\,e^9+10\,e^3\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}+2\,e^6\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}-12\,e^3\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{2k}}{(2k)!}+12\,e^6\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{2k}}{(2k)!}\right)\right)$$

$$\frac{\frac{1}{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{2\left(e^3+2\cos(2)+\frac{1}{e^3}\right)}}-\frac{29+7}{10^2}-\frac{11+3}{10^3}-\frac{5}{10^4}}{10^{52}} =$$

$$\left(-32\,239+27\,745\,e^3-23\,251\,e^6+18\,757\,e^9+ 8988\,e^3\sum_{k=0}^{\infty}\frac{(-1)^k\,2^{1+2k}}{(1+2k)!}-8988\,e^6\sum_{k=0}^{\infty}\frac{(-1)^k\,2^{1+2k}}{(1+2k)!}+ 55\,490\,e^3\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}-46\,502\,e^6\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}\right)\Big/$$

$$\left(20\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000 \left(11-5\,e^3-e^6+7\,e^9-12\,e^3\sum_{k=0}^{\infty}\frac{(-1)^k\,2^{1+2k}}{(1+2k)!}+12\,e^6\sum_{k=0}^{\infty}\frac{(-1)^k\,2^{1+2k}}{(1+2k)!}- 10\,e^3\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}-2\,e^6\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}\right)\right)$$

Integral representations:

$$\frac{\frac{1}{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{2\left(e^3+2\cos(2)+\frac{1}{e^3}\right)}}-\frac{29+7}{10^2}-\frac{11+3}{10^3}-\frac{5}{10^4}}{10^{52}} =$$

$$\left(-32\,239\sqrt{\pi}+27\,745\,e^3\sqrt{\pi}-23\,251\,e^6\sqrt{\pi}+18\,757\,e^9\sqrt{\pi}+ 27\,745\,i\,e^3\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{\sqrt{s}}\,ds-23\,251\,i\,e^6\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{\sqrt{s}}\,ds+ 17\,976\,e^3\sqrt{\pi}\int_0^1\cos(2t)\,dt-17\,976\,e^6\sqrt{\pi}\int_0^1\cos(2t)\,dt\right)\Big/$$

$$\left(20\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000 \left(11\sqrt{\pi}-5\,e^3\sqrt{\pi}-e^6\sqrt{\pi}+7\,e^9\sqrt{\pi}- 5\,i\,e^3\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{\sqrt{s}}\,ds-i\,e^6\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{\sqrt{s}}\,ds- 24\,e^3\sqrt{\pi}\int_0^1\cos(2t)\,dt+24\,e^6\sqrt{\pi}\int_0^1\cos(2t)\,dt\right)\right) \text{ for } \gamma>0$$

$$\frac{\frac{1}{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{2\left(e^3+2\cos(2)+\frac{1}{e^3}\right)}}-\frac{29+7}{10^2}-\frac{11+3}{10^3}-\frac{5}{10^4}}{10^{52}} =$$

$$\Big(-32\,239\sqrt{\pi}+27\,745\,e^3\sqrt{\pi}-23\,251\,e^6\sqrt{\pi}+18\,757\,e^9\sqrt{\pi}+ 17\,976\,e^3\sqrt{\pi}\int_0^1\cos(2t)\,dt-17\,976\,e^6\sqrt{\pi}\int_0^1\cos(2t)\,dt+ 27\,745\,i\,e^3\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(s)}{\Gamma\left(\frac{1}{2}-s\right)}\,ds-23\,251\,i\,e^6\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(s)}{\Gamma\left(\frac{1}{2}-s\right)}\,ds\Big)\Big/ \Big(20\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000 \Big(11\sqrt{\pi}-5\,e^3\sqrt{\pi}-e^6\sqrt{\pi}+7\,e^9\sqrt{\pi}-24\,e^3\sqrt{\pi}\int_0^1\cos(2t)\,dt+ 24\,e^6\sqrt{\pi}\int_0^1\cos(2t)\,dt-5\,i\,e^3\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(s)}{\Gamma\left(\frac{1}{2}-s\right)}\,ds- i\,e^6\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(s)}{\Gamma\left(\frac{1}{2}-s\right)}\,ds\Big)\Big) \quad \text{for } 0<\gamma<\frac{1}{2}$$

$$\frac{\frac{1}{\frac{\sin(2)}{e^3+2\cos(2)+\frac{1}{e^3}}+\frac{1}{2}\left(\frac{1}{e^3-1}+\frac{1}{2}-\frac{1}{3}\right)+\frac{e^3-\frac{1}{e^3}}{2\left(e^3+2\cos(2)+\frac{1}{e^3}\right)}}-\frac{29+7}{10^2}-\frac{11+3}{10^3}-\frac{5}{10^4}}{10^{52}} =$$

$$\Big(-32\,239\sqrt{\pi}+27\,745\,e^3\sqrt{\pi}-23\,251\,e^6\sqrt{\pi}+18\,757\,e^9\sqrt{\pi}- 4494\,i\,e^3\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{s^{3/2}}\,ds+4494\,i\,e^6\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{s^{3/2}}\,ds+ 55\,490\,e^3\sqrt{\pi}\int_{\frac{\pi}{2}}^2\sin(t)\,dt-46\,502\,e^6\sqrt{\pi}\int_{\frac{\pi}{2}}^2\sin(t)\,dt\Big)\Big/ \Big(20\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000 \Big(11\sqrt{\pi}-5\,e^3\sqrt{\pi}-e^6\sqrt{\pi}+7\,e^9\sqrt{\pi}+ 6\,i\,e^3\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{s^{3/2}}\,ds-6\,i\,e^6\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-1/s+s}}{s^{3/2}}\,ds- 10\,e^3\sqrt{\pi}\int_{\frac{\pi}{2}}^2\sin(t)\,dt-2\,e^6\sqrt{\pi}\int_{\frac{\pi}{2}}^2\sin(t)\,dt\Big)\Big) \quad \text{for } \gamma>0$$

From:

RAMANUJAN'S CONTRIBUTIONS TO EISENSTEIN SERIES, ESPECIALLY IN HIS LOST NOTEBOOK
BRUCE C. BERNDT AND AE JA YEE

Now, we have that:

$$(a;q)_\infty := \prod_{n=0}^{\infty}(1-aq^n), \qquad |q|<1.$$

Define, after Ramanujan,

$$f(-q) := (q;q)_\infty =: e^{-2\pi i\tau/24}\eta(\tau), \qquad q=e^{2\pi i\tau}, \qquad \operatorname{Im}\tau>0, \tag{1.6}$$

where η denotes the Dedekind eta-function.

$$R(q) := 1 - 504\sum_{k=1}^{\infty}\frac{k^5q^k}{1 \quad q^k}.$$

$$R(q) \quad - \quad \left(\frac{f^{15}(-q)}{f^3(\quad q^5)} - 500qf^9(-q)f^3(-q^5) - 15625q^2f^3(-q)f^9(-q^5)\right) \times\sqrt{1+22q\frac{f^6(-q^5)}{f^6(-q)}+125q^2\frac{f^{12}(-q^5)}{f^{12}(-q)}}$$

and

$$R(q^5) = \left(\frac{f^{15}(-q)}{f^3(-q^5)} + 4qf^9(-q)f^3(-q^5) - q^2f^3(-q)f^9(-q^5)\right) \times\sqrt{1+22q\frac{f^6(-q^5)}{f^6(-q)}+125q^2\frac{f^{12}(-q^5)}{f^{12}(-q)}}.$$

We calculated:

((e^(-2Pi/24) e^(Pi/12)))^15 product 1-e^(2Pi*n), n=1 to 4

Input interpretation:

$$\left(e^{-2\times\pi/24}\, e^{\pi/12}\right)^{15}\prod_{n=1}^{4}\left(1-e^{2\pi n}\right)$$

Result:

$(1-e^{2\pi})(1-e^{4\pi})(1-e^{6\pi})(1-e^{8\pi}) \approx 1.93515\times 10^{27}$

$1.93515*10^{27}$

Alternate forms:

$128\, e^{10\pi} \sinh^4(\pi)\cosh^2(\pi)\cosh(2\pi)(1+2\cosh(2\pi))$

$(e^{2\pi}-1)(e^{4\pi}-1)(e^{6\pi}-1)(e^{8\pi}-1)$

$1-e^{2\pi}-e^{4\pi}+2\,e^{10\pi}-e^{16\pi}-e^{18\pi}+e^{20\pi}$

and

((e^(-2Pi/24) e^(Pi/12)))^12 (((product 1-e^(2Pi*n), n=1 to 4)))^5

Input interpretation:

$\left(e^{-2\times\pi/24}\, e^{\pi/12}\right)^{12} \left(\prod_{n=1}^{4}(1-e^{2\pi n})\right)^5$

Result:

$(1-e^{2\pi})^5(1-e^{4\pi})^5(1-e^{6\pi})^5(1-e^{8\pi})^5 \approx 2.71374\times 10^{136}$

$2.71374*10^{136}$

Alternate forms:

$(e^{2\pi}-1)^5(e^{4\pi}-1)^5(e^{6\pi}-1)^5(e^{8\pi}-1)^5$

$(e^{\pi}-1)^{20}(1+e^{\pi})^{20}(1+e^{2\pi})^{10}(1-e^{\pi}+e^{2\pi})^5(1+e^{\pi}+e^{2\pi})^5(1+e^{4\pi})^5$

$$1-5\,e^{2\pi}+5\,e^{4\pi}+10\,e^{6\pi}-15\,e^{8\pi}-e^{10\pi}-25\,e^{12\pi}+30\,e^{14\pi}+70\,e^{16\pi}- 40\,e^{18\pi}-26\,e^{20\pi}-170\,e^{22\pi}+35\,e^{24\pi}+275\,e^{26\pi}+85\,e^{28\pi}+50\,e^{30\pi}- 525\,e^{32\pi}-275\,e^{34\pi}+295\,e^{36\pi}+420\,e^{38\pi}+650\,e^{40\pi}-530\,e^{42\pi}-730\,e^{44\pi}- 340\,e^{46\pi}+180\,e^{48\pi}+1152\,e^{50\pi}+180\,e^{52\pi}-340\,e^{54\pi}-730\,e^{56\pi}- 530\,e^{58\pi}+650\,e^{60\pi}+420\,e^{62\pi}+295\,e^{64\pi}-275\,e^{66\pi}-525\,e^{68\pi}+50\,e^{70\pi}+ 85\,e^{72\pi}+275\,e^{74\pi}+35\,e^{76\pi}-170\,e^{78\pi}-26\,e^{80\pi}-40\,e^{82\pi}+70\,e^{84\pi}+ 30\,e^{86\pi}-25\,e^{88\pi}-e^{90\pi}-15\,e^{92\pi}+10\,e^{94\pi}+5\,e^{96\pi}-5\,e^{98\pi}+e^{100\pi}$$

These two values are always valid. That's why we only calculated two. Mainly, we wanted to highlight how we developed the calculations. Now, we have, after some other calculation:

$$R(q) = \left(\frac{f^{15}(-q)}{f^3(-q^5)} - 500qf^9(-q)f^3(-q^5) - 15625q^2f^3(-q)f^9(-q^5)\right) \times\sqrt{1+22q\frac{f^6(-q^5)}{f^6(-q)}+125q^2\frac{f^{12}(-q^5)}{f^{12}(-q)}}$$

(((7.13093369298458953e-110 – 500*e^(2Pi)*1.93515e+27*2.71374e+136 – 15625*(e^(2pi))^2*1.93515e+27*2.71374e+136))) * sqrt(((1+22*e^(2Pi)* 1.4023409038e+109+125*(e^(2Pi))^2*1.4023409038e+109)))

Input interpretation:

$$\left(\frac{7.13093369298458953}{10^{110}} - 500\, e^{2\pi} \times 1.93515 \times 10^{27} \left(2.71374 \times 10^{136}\right) - 15\,625 \left(e^{2\pi}\right)^2 \times 1.93515 \times 10^{27} \left(2.71374 \times 10^{136}\right)\right) \sqrt{1 + 22\, e^{2\pi} \left(1.4023409038 \times 10^{109}\right) + 125 \left(e^{2\pi}\right)^2 \left(1.4023409038 \times 10^{109}\right)}$$

Result:

$-5.27643... \times 10^{231}$

$-5.27643…*10^{231}$

And:

$$R(q^5) = \left(\frac{f^{15}(-q)}{f^3(-q^5)} + 4qf^9(-q)f^3(-q^5) - q^2f^3(-q)f^9(-q^5)\right) \times\sqrt{1+22q\frac{f^6(-q^5)}{f^6(-q)}+125q^2\frac{f^{12}(-q^5)}{f^{12}(-q)}}.$$

(((7.13093369298458953e-110 + 4*e^(2Pi)*1.93515e+27*2.71374e+136 – (e^(2pi))^2*1.93515e+27*2.71374e+136))) * sqrt(((1+22*e^(2Pi)* 1.4023409038e+109+125*(e^(2Pi))^2*1.4023409038e+109)))

Input interpretation:

$$\left(\frac{7.13093369298458953}{10^{110}} + 4\, e^{2\pi} \times 1.93515 \times 10^{27} \left(2.71374 \times 10^{136}\right) - \left(e^{2\pi}\right)^2 \times 1.93515 \times 10^{27} \left(2.71374 \times 10^{136}\right)\right) \sqrt{1 + 22\, e^{2\pi} \left(1.4023409038 \times 10^{109}\right) + 125 \left(e^{2\pi}\right)^2 \left(1.4023409038 \times 10^{109}\right)}$$

Result:

$-3.35149... \times 10^{227}$

$-3.35149...*10^{227}$

Now, we have that:

(-5.27643 *10^231) / (-3.35149 * 10^227)

Input interpretation:

$$-\frac{-5.27643 \times 10^{231}}{3.35149 \times 10^{227}}$$

Result:

15743.534965045397718626640688171529677844779486139000862 30...

15743.534965...

And:

1/9(((-5.27643 *10^231) / (-3.35149 * 10^227))) – 21

Input interpretation:

$$\frac{1}{9}\left(-\frac{-5.27643 \times 10^{231}}{3.35149 \times 10^{227}}\right) - 21$$

Result:

1728.2816627828219687362934097968366308716421651265556513 67...

1728.28166278....

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

1/12(((-5.27643 *10^231) / (-3.35149 * 10^227))) - 76 – Pi

Input interpretation:

$$\frac{1}{12}\left(-\frac{-5.27643\times 10^{231}}{3.35149\times 10^{227}}\right)-76-\pi$$

Result:

1232.82…

1232.82… result practically equal to the rest mass of Delta baryon 1232

Alternative representations:

$$\frac{-5.27643\times 10^{231}}{(-3.35149\times 10^{227})\,12}-76-\pi=-76-180\,°-\frac{5.27643\times 10^{231}}{12\,(-3.35149\times 10^{227})}$$

$$\frac{-5.27643\times 10^{231}}{(-3.35149\times 10^{227})\,12}-76-\pi=-76+i\log(-1)-\frac{5.27643\times 10^{231}}{12\,(-3.35149\times 10^{227})}$$

$$\frac{-5.27643\times 10^{231}}{(-3.35149\times 10^{227})\,12}-76-\pi=-76-\cos^{-1}(-1)-\frac{5.27643\times 10^{231}}{12\,(-3.35149\times 10^{227})}$$

Series representations:

$$\frac{-5.27643\times 10^{231}}{(-3.35149\times 10^{227})\,12}-76-\pi=1235.96-4\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}$$

$$\frac{-5.27643\times 10^{231}}{(-3.35149\times 10^{227})\,12}-76-\pi=1237.96-2\sum_{k=1}^{\infty}\frac{2^k}{\binom{2k}{k}}$$

$$\frac{-5.27643\times 10^{231}}{(-3.35149\times 10^{227})\,12}-76-\pi=1235.96-\sum_{k=0}^{\infty}\frac{2^{-k}\,(-6+50k)}{\binom{3k}{k}}$$

Integral representations:

$$\frac{-5.27643\times 10^{231}}{(-3.35149\times 10^{227})\,12}-76-\pi=1235.96-2\int_0^{\infty}\frac{1}{1+t^2}\,dt$$

$$\frac{-5.27643\times 10^{231}}{(-3.35149\times 10^{227})\,12}-76-\pi=1235.96-4\int_0^{1}\sqrt{1-t^2}\,dt$$

$$\frac{-5.27643\times 10^{231}}{(-3.35149\times 10^{227})\,12} - 76 - \pi = 1235.96 - 2\int_0^\infty \frac{\sin(t)}{t}\,dt$$

1/29(((-5.27643 *10^231) / (-3.35149 * 10^227)))+5

Input interpretation:

$$\frac{1}{29}\left(-\frac{-5.27643\times 10^{231}}{3.35149\times 10^{227}}\right)+5$$

Result:

547.88051603604819719402209269556998889119929262548278835 52...

547.880516… result practically equal to the rest mass of Eta meson 547.862

1/76(((-5.27643 *10^231) / (-3.35149 * 10^227)))-64-4+1/golden ratio

Input interpretation:

$$\frac{1}{76}\left(-\frac{-5.27643\times 10^{231}}{3.35149\times 10^{227}}\right)-64-4+\frac{1}{\phi}$$

ϕ is the golden ratio

Result:

139.770...

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

Alternative representations:

$$\frac{-5.27643\times 10^{231}}{(-3.35149\times 10^{227})\,76} - 64 - 4 + \frac{1}{\phi} = -68 - \frac{5.27643\times 10^{231}}{76\,(-3.35149\times 10^{227})} + \frac{1}{2\sin(54\,°)}$$

$$\frac{-5.27643\times 10^{231}}{(-3.35149\times 10^{227})\,76} - 64 - 4 + \frac{1}{\phi} = -68 + -\frac{1}{2\cos(216\,°)} - \frac{5.27643\times 10^{231}}{76\,(-3.35149\times 10^{227})}$$

$$\frac{-5.27643\times 10^{231}}{(-3.35149\times 10^{227})\,76}-64-4+\frac{1}{\phi}=-68-\frac{5.27643\times 10^{231}}{76\,(-3.35149\times 10^{227})}+-\frac{1}{2\sin(666\,°)}$$

But, we have also:

$$R(q^5) = \left(\frac{f^{15}(-q)}{f^3(-q^5)}+4qf^9(-q)f^3(-q^5)-q^2f^3(-q)f^9(-q^5)\right) \times\sqrt{1+22q\frac{f^6(-q^5)}{f^6(-q)}+125q^2\frac{f^{12}(-q^5)}{f^{12}(-q)}}.$$

(((7.13093369298458953e-110 + 4*e^(2Pi)*1.93515e+27*2.71374e+136 – (e^(2pi))^2*1.93515e+27*2.71374e+136))) * sqrt(((1+22*e^(2Pi)* 1.4023409038e+109+x*(e^(2Pi))^2*1.4023409038e+109))) = -3.35149e+227

Input interpretation:

$$\left(\frac{7.13093369298458953}{10^{110}}+4\,e^{2\pi}\times 1.93515\times 10^{27}\,(2.71374\times 10^{136})-(e^{2\pi})^2\times 1.93515\times 10^{27}\,(2.71374\times 10^{136})\right)\sqrt{1+22\,e^{2\pi}\,(1.4023409038\times 10^{109})+x\,(e^{2\pi})^2\,(1.4023409038\times 10^{109})}=-(3.35149\times 10^{227})$$

Result:

$$-1.49462\times 10^{169}\sqrt{4.0212309563\times 10^{114}\,x+1.6520720748\times 10^{113}}=-3.35149\times 10^{227}$$

Alternate form assuming x is positive:

$$1.49462\times 10^{169}\sqrt{4.0212309563\times 10^{114}\,x+1.6520720748\times 10^{113}}=3.35149\times 10^{227}$$

Solution:

$x \approx 125.$

125 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

Ramanujan mathematics applied to Black Hole Physics

From:

Eur. Phys. J. C (2017) 77:123 - DOI 10.1140/epjc/s10052-017-4670-7
Regular Article - Theoretical Physics
The golden ratio in Schwarzschild–Kottler black holes
Norman Cruz, Marco Olivares, J. R. Villanueva

We have that:

Therefore, when massless particles are close to having a maximum radial acceleration, their impact parameter $b \to b_{\Phi}$, and then we obtain the identity

$$\Phi = \lim_{b \to b_{\Phi}} \zeta(b, M) = \frac{\sqrt{3}}{2} \tan\left[\frac{1}{3} \arccos\left(-\sqrt{\frac{27}{32}}\right)\right] - \frac{1}{2},$$

$$\left(\frac{du}{d\phi}\right)^2 = 2M\left(\frac{1}{4M} - u\right)\left(u + \frac{\Phi}{4M}\right)\left(\frac{1+\Phi}{4M} - u\right)$$

$$u_p = 1/r_p$$

$$r_p = 4M$$

From

$$\Phi = \lim_{b \to b_{\Phi}} \zeta(b, M) = \frac{\sqrt{3}}{2} \tan\left[\frac{1}{3} \arccos\left(-\sqrt{\frac{27}{32}}\right)\right] - \frac{1}{2},$$

where $\Phi = 0.618034\cdots = 1/(1+\Phi)$ is the golden ratio. An important corollary of the previous statement is obtained in the Schwarzschild–de Sitter case. From Eq. (17), $b_\Phi \to \infty$ when $\Lambda = 3\,\mathcal{B}_\Phi^{-2}$, and therefore, it is not hard to see from Eqs. (7) and (8) that $r_{++} = 4M$ and $r_+ = 4M\Phi$, i.e., the horizons are in the golden ratio.

We obtain:

sqrt3/2 tan (1/3arccos(-sqrt(27/32)))-1/2

Input:

$$\frac{\sqrt{3}}{2}\tan\left(\frac{1}{3}\cos^{-1}\left(-\sqrt{\frac{27}{32}}\right)\right)-\frac{1}{2}$$

$\cos^{-1}(x)$ is the inverse cosine function

Exact Result:

$$\frac{1}{2}\sqrt{3}\tan\left(\frac{1}{3}\cos^{-1}\left(-\frac{3\sqrt{\frac{3}{2}}}{4}\right)\right)-\frac{1}{2}$$

(result in radians)

Decimal approximation:

0.6180339887498948482045868343656381177203091798057628621354...

(result in radians)

0.6180339887498….

Alternate forms:

$$\frac{1}{2}\left(\sqrt{5}-1\right)$$

$$\frac{\sqrt{5}}{2}-\frac{1}{2}$$

$$\frac{1}{2}\left(\sqrt{3}\tan\left(\frac{1}{3}\cos^{-1}\left(-\frac{3\sqrt{\frac{3}{2}}}{4}\right)\right)-1\right)$$

Continued fraction:

$$\cfrac{1}{1+\cfrac{1}{\cdots}}}}}}}}}}}}}}}}}}}}}}}}$$

Alternative representations:

$$\frac{1}{2}\tan\left(\frac{1}{3}\cos^{-1}\left(-\sqrt{\frac{27}{32}}\right)\right)\sqrt{3}-\frac{1}{2}=-\frac{1}{2}-\frac{1}{2}\cot\left(-\frac{\pi}{2}+\frac{1}{3}\cos^{-1}\left(-\sqrt{\frac{27}{32}}\right)\right)\sqrt{3}$$

$$\frac{1}{2}\tan\left(\frac{1}{3}\cos^{-1}\left(-\sqrt{\frac{27}{32}}\right)\right)\sqrt{3}-\frac{1}{2}=-\frac{1}{2}+\frac{1}{2}\left(-i+\frac{2i}{1+e^{2/3\,i\cos^{-1}\left(-\sqrt{27/32}\right)}}\right)\sqrt{3}$$

$$\frac{1}{2}\tan\left(\frac{1}{3}\cos^{-1}\left(-\sqrt{\frac{27}{32}}\right)\right)\sqrt{3}-\frac{1}{2}=$$
$$-\frac{1}{2}+\frac{i\left(e^{-1/3\,i\cos^{-1}\left(-\sqrt{27/32}\right)}-e^{1/3\,i\cos^{-1}\left(-\sqrt{27/32}\right)}\right)\sqrt{3}}{2\left(e^{-1/3\,i\cos^{-1}\left(-\sqrt{27/32}\right)}+e^{1/3\,i\cos^{-1}\left(-\sqrt{27/32}\right)}\right)}$$

Series representations:

$$\frac{1}{2}\tan\left(\frac{1}{3}\cos^{-1}\left(-\sqrt{\frac{27}{32}}\right)\right)\sqrt{3}-\frac{1}{2}=-\frac{1}{2}+\frac{i\sqrt{3}}{2}+i\sqrt{3}\sum_{k=1}^{\infty}(-1)^k q^{2k}$$

for $q=e^{1/3\,i\cos^{-1}\left(-\left(3\sqrt{\frac{3}{2}}\right)/4\right)}$

$$\frac{1}{2}\tan\left(\frac{1}{3}\cos^{-1}\left(-\sqrt{\frac{27}{32}}\right)\right)\sqrt{3}-\frac{1}{2}=$$
$$\frac{1}{2}i\left(i+\sqrt{3}\sum_{k=1}^{\infty}(-1)^k e^{2/3\,i\,k\cos^{-1}\left(-\left(3\sqrt{\frac{3}{2}}\right)/4\right)}-\sqrt{3}\sum_{k=-\infty}^{-1}(-1)^k e^{2/3\,i\,k\cos^{-1}\left(-\left(3\sqrt{\frac{3}{2}}\right)/4\right)}\right)$$

$$\frac{1}{2}\tan\left(\frac{1}{3}\cos^{-1}\left(-\sqrt{\frac{27}{32}}\right)\right)\sqrt{3}-\frac{1}{2}=$$
$$-\frac{1}{2}+\frac{4\cos^{-1}\left(-\frac{3\sqrt{\frac{3}{2}}}{4}\right)\sum_{k=1}^{\infty}\frac{1}{(1-2k)^2\pi^2-\frac{4}{9}\cos^{-1}\left(-\frac{3\sqrt{\frac{3}{2}}}{4}\right)^2}}{\sqrt{3}}$$

$$\frac{1}{2}\tan\left(\frac{1}{3}\cos^{-1}\left(-\sqrt{\frac{27}{32}}\right)\right)\sqrt{3}-\frac{1}{2}=$$
$$-\frac{1}{2}+\frac{4\cos^{-1}\left(-\frac{3\sqrt{\frac{3}{2}}}{4}\right)\sum_{k=1}^{\infty}\frac{1}{(-1+2k)^2\pi^2-\frac{4}{9}\cos^{-1}\left(-\frac{3\sqrt{\frac{3}{2}}}{4}\right)^2}}{\sqrt{3}}$$

Integral representations:

$$\frac{1}{2}\tan\left(\frac{1}{3}\cos^{-1}\left(-\sqrt{\frac{27}{32}}\right)\right)\sqrt{3}-\frac{1}{2}=-\frac{1}{2}+\frac{\sqrt{3}}{2}\int_0^{\frac{1}{3}\cos^{-1}\left(-\frac{3\sqrt{\frac{3}{2}}}{4}\right)}\sec^2(t)\,dt$$

$$\frac{1}{2}\tan\left(\frac{1}{3}\cos^{-1}\left(-\sqrt{\frac{27}{32}}\right)\right)\sqrt{3}-\frac{1}{2}=-\frac{1}{2}+\frac{\sqrt{3}}{\pi}\int_0^{\infty}\frac{-1+t^{\left(2\cos^{-1}\left(-\frac{3\sqrt{\frac{3}{2}}}{4}\right)\right)/(3\pi)}}{-1+t^2}\,dt$$

and:

1/((((sqrt3/2 tan (1/3arccos(-sqrt(27/32)))-1/2))))

Input:

$$\frac{1}{\frac{\sqrt{3}}{2}\tan\left(\frac{1}{3}\cos^{-1}\left(-\sqrt{\frac{27}{32}}\right)\right)-\frac{1}{2}}$$

$\cos^{-1}(x)$ is the inverse cosine function

Exact Result:

$$\frac{1}{\frac{1}{2}\sqrt{3}\tan\left(\frac{1}{3}\cos^{-1}\left(-\frac{3\sqrt{\frac{3}{2}}}{4}\right)\right)-\frac{1}{2}}$$

(result in radians)

Decimal approximation:

1.6180339887498948482045868343656381177203091798057628621354...

(result in radians)

1.61803398874989…

Alternate forms:

$$\frac{1}{2}\left(1+\sqrt{5}\right)$$

$$\frac{1}{\frac{\sqrt{5}}{2}-\frac{1}{2}}$$

$$\frac{2}{\sqrt{3}\tan\left(\frac{1}{3}\cos^{-1}\left(-\frac{3\sqrt{\frac{3}{2}}}{4}\right)\right)-1}$$

Alternative representations:

$$\frac{1}{\frac{1}{2}\tan\left(\frac{1}{3}\cos^{-1}\left(-\sqrt{\frac{27}{32}}\right)\right)\sqrt{3}-\frac{1}{2}}=\frac{1}{-\frac{1}{2}-\frac{1}{2}\cot\left(-\frac{\pi}{2}+\frac{1}{3}\cos^{-1}\left(-\sqrt{\frac{27}{32}}\right)\right)\sqrt{3}}$$

$$\frac{1}{\frac{1}{2}\tan\left(\frac{1}{3}\cos^{-1}\left(-\sqrt{\frac{27}{32}}\right)\right)\sqrt{3}-\frac{1}{2}}=\frac{1}{-\frac{1}{2}+\frac{1}{2}\left(-i+\frac{2i}{1+e^{2/3\,i\cos^{-1}\left(-\sqrt{27/32}\right)}}\right)\sqrt{3}}$$

$$\frac{1}{\frac{1}{2}\tan\left(\frac{1}{3}\cos^{-1}\left(-\sqrt{\frac{27}{32}}\right)\right)\sqrt{3}-\frac{1}{2}} = \frac{1}{-\frac{1}{2}+\frac{i\left(e^{-1/3\, i\cos^{-1}\left(-\sqrt{27/32}\right)}-e^{1/3\, i\cos^{-1}\left(-\sqrt{27/32}\right)}\right)\sqrt{3}}{2\left(e^{-1/3\, i\cos^{-1}\left(-\sqrt{27/32}\right)}+e^{1/3\, i\cos^{-1}\left(-\sqrt{27/32}\right)}\right)}}$$

Series representations:

$$\frac{1}{\frac{1}{2}\tan\left(\frac{1}{3}\cos^{-1}\left(-\sqrt{\frac{27}{32}}\right)\right)\sqrt{3}-\frac{1}{2}} = \frac{1}{-\frac{1}{2}+\frac{1}{2}\, i\sqrt{3}\left(1+2\sum_{k=1}^{\infty}(-1)^k q^{2k}\right)}$$

$$\text{for } q = e^{1/3\, i\cos^{-1}\left(-\left(3\sqrt{\frac{3}{2}}\right)/4\right)}$$

$$\frac{1}{\frac{1}{2}\tan\left(\frac{1}{3}\cos^{-1}\left(-\sqrt{\frac{27}{32}}\right)\right)\sqrt{3}-\frac{1}{2}} = \frac{6}{-3+8\sqrt{3}\cos^{-1}\left(-\frac{3\sqrt{\frac{3}{2}}}{4}\right)\sum_{k=1}^{\infty}\frac{1}{(1-2k)^2\pi^2-\frac{4}{9}\cos^{-1}\left(-\frac{3\sqrt{\frac{3}{2}}}{4}\right)^2}}$$

$$\frac{1}{\frac{1}{2}\tan\left(\frac{1}{3}\cos^{-1}\left(-\sqrt{\frac{27}{32}}\right)\right)\sqrt{3}-\frac{1}{2}} = 2\Big/\left(-1+i\sqrt{3}\sum_{k=1}^{\infty}(-1)^k e^{2/3\, i k\cos^{-1}\left(-\left(3\sqrt{\frac{3}{2}}\right)/4\right)} - i\sqrt{3}\sum_{k=-\infty}^{-1}(-1)^k e^{2/3\, i k\cos^{-1}\left(-\left(3\sqrt{\frac{3}{2}}\right)/4\right)}\right)$$

From

$$\Lambda < 1/9M^2.$$

$$\Theta = \arccos(-3M\sqrt{\Lambda})/3$$

$$r_{+} = \frac{1}{\sqrt{\Lambda}}\left(\sqrt{3}\sin\Theta - \cos\Theta\right) \quad (7)$$

$$r_{++} = \frac{2}{\sqrt{\Lambda}}\cos\Theta. \quad (8)$$

For

$r_{++} = 4M$ and $r_{+} = 4M\Phi$

We obtain:

$\Lambda < 1/9M^2.$

(1/9)*(13.12806e+39)^2

Input interpretation:

$\frac{1}{9}(13.12806\times 10^{39})^2$

Result:

19 149 551 040 400 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000

Scientific notation:

$1.91495510404\times 10^{79}$

$1.91495510404 * 10^{79}$

From the following Ramanujan mock theta functions:

Mock ϑ-functions (of 5th order).

$$f(q)=1+\frac{q^2}{1+q}+\frac{q^6}{(1+q)(1+q^2)}+\frac{q^{12}}{(1+q)(1+q^2)(1+q^3)}+\ldots,$$

$$\phi(q)=q+q^4(1+q)+q^9(1+q)(1+q^3)+\ldots,$$

$$\psi(q)=1+q(1+q)+q^3(1+q)(1+q^2)+q^6(1+q)(1+q^2)(1+q^3)+\ldots,$$

$$\chi(q)=\frac{1}{1-q}+\frac{q}{(1-q^2)(1-q^3)}+\frac{q^2}{(1-q^3)(1-q^4)(1-q^5)}+\ldots,$$

$$F(q)=\frac{1}{1-q}+\frac{q^4}{(1-q)(1-q^3)}+\frac{q^{12}}{(1-q)(1-q^3)(1-q^5)}+\ldots$$

where the third is equal to:

Input interpretation:

$1 + 0.449329\,(1 + 0.449329) + 0.449329^3\,(1 + 0.449329)\left(1 + 0.449329^2\right) + 0.44329^6\,(1 + 0.449329)\left(1 + 0.449329^2\right)\left(1 + 0.449329^3\right)$

Result:

1.8236681145196034596091504228579167698162817000202397623O2...

$\psi(q)$ = 1.8236681145196...

We put $\Lambda = 1.8236681145196 * 10^{35}$

$$\Theta = \arccos(-3M\sqrt{\Lambda})/3$$

We obtain:

$$r_+ = \frac{1}{\sqrt{\Lambda}}\left(\sqrt{3}\sin\Theta - \cos\Theta\right) \qquad (7)$$

1/(sqrt(1.8236681145196e+35))((sqrt3 * sin(((arccos(-3*13.12806e+39*sqrt(1.8236681145196e+35))/3)) - cos (((arccos(3*13.12806e+39*sqrt(1.8236681145196e+35))/3))))))

Input interpretation:

$$\frac{1}{\sqrt{1.8236681145196\times 10^{35}}}\left(\sqrt{3}\sin\left(\frac{1}{3}\cos^{-1}\left(-3\times 13.12806\times 10^{39}\sqrt{1.8236681145196\times 10^{35}}\right)\right) - \cos\left(\frac{1}{3}\cos^{-1}\left(3\times 13.12806\times 10^{39}\sqrt{1.8236681145196\times 10^{35}}\right)\right)\right)$$

$\cos^{-1}(x)$ is the inverse cosine function

Result:

31.1298... +
57.5883... i

(result in radians)

Input interpretation:

31.1298 + 57.5883 i

i is the imaginary unit

Result:

31.1298... +
57.5883... i

Polar coordinates:

$r = 65.4636$ (radius), $\theta = 61.6062°$ (angle)

65.4636

From:

$$r_{++} = \frac{2}{\sqrt{\Lambda}} \cos \Theta. \qquad (8)$$

$$\Theta = \arccos(-3M\sqrt{\Lambda})/3$$

We obtain:

2/(sqrt(1.8236681145196e+35))* cos (((arccos(-3*13.12806e+39*sqrt(1.8236681145196e+35))/3)))))

Input interpretation:

$$\frac{2}{\sqrt{1.8236681145196\times 10^{35}}} \cos\left(\frac{1}{3}\cos^{-1}\left(-3\times 13.12806\times 10^{39}\sqrt{1.8236681145196\times 10^{35}}\right)\right)$$

$\cos^{-1}(x)$ is the inverse cosine function

Result:

37.7954... +
65.4635... i

(result in radians)

Input interpretation:

37.7954 + 65.4635 i

i is the imaginary unit

Result:

37.7954... +
65.4635... i

Polar coordinates:

$r = 75.5908$ (radius), $\theta = 60.°$ (angle)

75.5908

From

$$u = u_p \left[1 - \frac{\Phi}{2}(1 + \cos\chi)\right] \quad (u = u_p \text{ when } \chi = \pi),$$

$$u_p = 1/r_p$$

$$r_p = 4M$$

We obtain:

1/(4*13.12806e+39)((1-0.618034/2(1+cos(Pi))

Input interpretation:

$$\frac{1}{4 \times 13.12806 \times 10^{39}} \left(1 - \frac{0.618034}{2} (1 + \cos(\pi))\right)$$

Result:

$1.904317926639579648478145285746713528122205413442656 4... \times 10^{-41}$

$1.90431792663957...*10^{-41}$

From

$$\left(\frac{\mathrm{d}u}{\mathrm{d}\phi}\right)^2 = 2M\left(\frac{1}{4M} - u\right)\left(u + \frac{\Phi}{4M}\right)\left(\frac{1+\Phi}{4M} - u\right)$$

We obtain:

(2*13.12806e+39)(1/(4*13.12806e+39)-1.90431792663957e-41)(1.90431792663957e-41+0.618034/(4*13.12806e+39))((1+0.618034)/(4*13.12806e+39)-1.90431792663957e-41)

Input interpretation:

$$(2\times 13.12806\times 10^{39})\left(\frac{1}{4\times 13.12806\times 10^{39}}-1.90431792663957\times 10^{-41}\right)\left(1.90431792663957\times 10^{-41}+\frac{0.618034}{4\times 13.12806\times 10^{39}}\right)\left(\frac{1+0.618034}{4\times 13.12806\times 10^{39}}-1.90431792663957\times 10^{-41}\right)$$

Result:

$9.186885179534249368932356281214288085106547847839352 0\ldots\times 10^{-97}$

$9.186885179534249\ldots*10^{-97}$

Thence:

$$\left(\frac{\mathrm{d}u}{\mathrm{d}\phi}\right)^2=2M\left(u-\frac{1}{4M}\right)\left(u+\frac{\Phi}{4M}\right)\left(u-\frac{1}{4M\Phi}\right). \tag{34}$$

(2*13.12806e+39)(1.90431792663957e-41-1/(4*13.12806e+39))(1.90431792663957e-41+(0.618034/(4*13.12806e+39))) ((1.90431792663957e-41-(1/(0.618034*4*13.12806e+39))))

Input interpretation:

$$(2\times 13.12806\times 10^{39})\left(1.90431792663957\times 10^{-41}-\frac{1}{4\times 13.12806\times 10^{39}}\right)\left(1.90431792663957\times 10^{-41}+\frac{0.618034}{4\times 13.12806\times 10^{39}}\right)\left(1.90431792663957\times 10^{-41}-\frac{1}{0.618034\times 4\times 13.12806\times 10^{39}}\right)$$

Result:

$9.186884574492784013537949324943370067795544308768438 3\ldots\times 10^{-97}$

$9.186884574492784\ldots*10^{-97}$

And:

$$u=\frac{1}{4M}\left(1+\Phi\sec\frac{\chi}{2}\right)$$

1/(4*13.12806e+39)*(1+0.618034*sec(Pi/2))

Input interpretation:

$$\frac{1}{4\times 13.12806\times 10^{39}}\left(1+0.618034\sec\left(\frac{\pi}{2}\right)\right)$$

sec(x) is the secant function

Result:

$\tilde{\infty}$

Where u → ∞

If instead we insert cos(π/2) in the above formula, we obtain:

1/(4*13.12806e+39)*(1+0.618034*cos(Pi/2))

Input interpretation:

$$\frac{1}{4\times 13.12806\times 10^{39}}\left(1+0.618034\cos\left(\frac{\pi}{2}\right)\right)$$

Result:

$1.904317926639579648478145285746713528122205413442656 4\ldots\times 10^{-41}$

$1.9043179266395\ldots*10^{-41}$

From the results

$9.186885179534249\ldots*10^{-97}$, $1.90431792663957\ldots*10^{-41}$, 75.5908, 65.4636

we obtain:

1+(65.4636/75.5908)^3

Input interpretation:

$$1+\left(\frac{65.4636}{75.5908}\right)^3$$

Result:

1.649520449069099790692806866740575929971370927518853525758...

$1.649520449\ldots \approx \zeta(2) = \frac{\pi^2}{6} = 1.644934\ldots$

And:

1/10^35(((1*1/(((9.186885179534249e-97 / (1.90431792663957e-41)^2)))^1/(7*10))))

Input interpretation:

$$\frac{1}{10^{35}}\left(1\times\frac{1}{\sqrt[7\times10]{\frac{9.186885179534249\times10^{-97}}{(1.90431792663957\times10^{-41})^2}}}\right)$$

Result:

$1.6162879055703348\ldots\times10^{-35}$

$1.6162879\ldots*10^{-35}$ result practically equal to the value of Planck length

$1.616252*10^{-35}$ m

We observe that:

(((9.186885179534249e-97 + (1.90431792663957e-41))))x = golden ratio

Input interpretation:

$(9.186885179534249\times10^{-97}+1.90431792663957\times10^{-41})\,x=\phi$

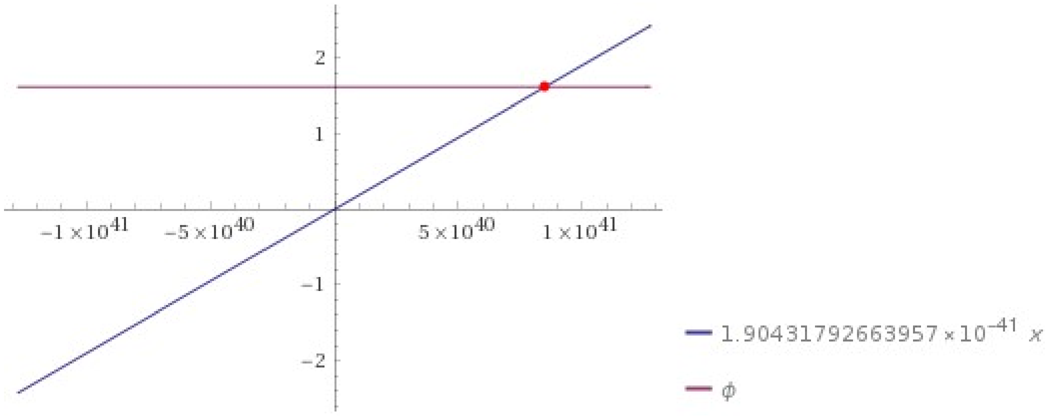
ϕ is the golden ratio

Result:

$1.90431792663957\times10^{-41}\,x=\phi$

$1.90431792663957*10^{-41}$

Plot:



Alternate forms:

$1.90431792663957 \times 10^{-41} x - \phi = 0$

$1.90431792663957 \times 10^{-41} x = \frac{1}{2}\left(1 + \sqrt{5}\right)$

Solution:

$x = 84\,966\,589\,145\,392\,208\,738\,122\,327\,843\,865\,979\,858\,962$

Integer solution:

$x = 84\,966\,589\,145\,392\,207\,802\,148\,593\,827\,401\,618\,316\,685$

Scientific notation:

$8.4966589145392207802148593827401618316685 \times 10^{40}$

$8.496658914539...*10^{40}$

From

golden ratio/1.90431792663957e-41

we obtain:

Input interpretation:

$$\frac{\phi}{1.90431792663957 \times 10^{-41}}$$

ϕ is the golden ratio

Result:

$8.49665891453922... \times 10^{40}$

$8.4966589...*10^{40}$

From which:

1.90431792663957e-41*8.49665891453922 × 10^40

Input interpretation:

$1.90431792663957 \times 10^{-41} \times 8.49665891453922 \times 10^{40}$

Result:

1.618033988749894680295689354

1.618033988749894680295689354

Furthermore:

4(13.12806e+39/8.49665891453922 × 10^40)

Input interpretation:

$$4 \times \frac{13.12806 \times 10^{39}}{8.49665891453922 \times 10^{40}}$$

Result:

0.6180339887498917804135692005213280255838323866185839810 31...

0.61803398874989...

From which:

4(13.12806e+39/x) = 1/golden ratio

Input interpretation:

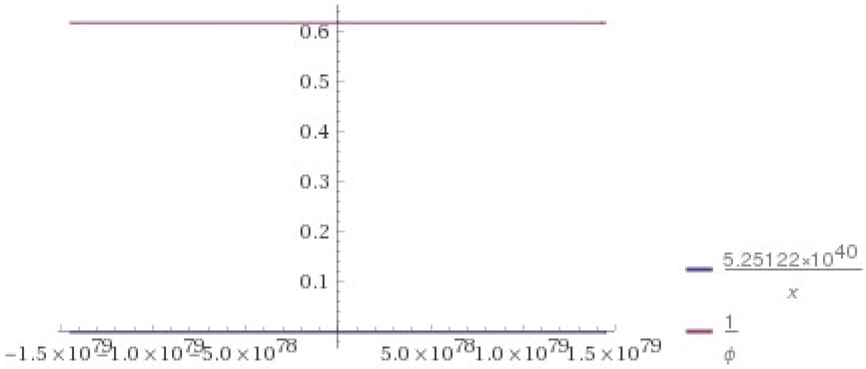
$$4 \times \frac{13.12806 \times 10^{39}}{x} = \frac{1}{\phi}$$

ϕ is the golden ratio

Result:

$$\frac{5.25122 \times 10^{40}}{x} = \frac{1}{\phi}$$

Plot:



Alternate forms:

$$\frac{5.25122\times10^{40}}{x} = \frac{1}{2}\left(\sqrt{5}-1\right)$$

$$\frac{5.25122\times10^{40}}{x} = \frac{2}{1+\sqrt{5}}$$

Alternate form assuming x is positive:

$x = 8.49666\times10^{40}$ (for $x \neq 0$)

Alternate forms assuming x is real:

$$\frac{5.25122\times10^{40}}{x} + 0 = \frac{1}{\phi}$$

$$\frac{8.49666\times10^{40}}{x} = 1$$

Solution:

$x = 84\,966\,589\,145\,391\,774\,200\,783\,268\,573\,727\,005\,081\,600$

Integer solution:

$x = 84\,966\,589\,145\,391\,774\,200\,783\,268\,573\,727\,005\,081\,600$

Scientific notation:

$8.4966589145391774200783268573727005081 6\times10^{40}$

8.49665891453917742007832685737270050816*10^40

that is the result previously obtained

Appendix

This is the Ramanujan fundamental formula for obtain a beautiful and highly precise golden ratio:

$$\sqrt[5]{\left(\frac{1}{\frac{1}{32}\left(-1+\sqrt{5}\right)^5+5e^{\left(-\sqrt{5}\pi\right)^5}}-\frac{11\times 5e^{\left(-\sqrt{5}\pi\right)^5}}{2\left(\frac{1}{32}\left(-1+\sqrt{5}\right)^5+5e^{\left(-\sqrt{5}\pi\right)^5}\right)}-\frac{5\sqrt{5}\times 5e^{\left(-\sqrt{5}\pi\right)^5}}{2\left(\frac{1}{32}\left(-1+\sqrt{5}\right)^5+5e^{\left(-\sqrt{5}\pi\right)^5}\right)}\right)}$$

1/(((1/32(-1+sqrt(5))^5+5*(e^((-sqrt(5)*Pi))^5)))

Input:

$$\frac{1}{\frac{1}{32}\left(-1+\sqrt{5}\right)^5+5\,e^{\left(-\sqrt{5}\,\pi\right)^5}}$$

Exact result:

$$\frac{1}{\frac{1}{32}\left(\sqrt{5}-1\right)^5+5\,e^{-25\sqrt{5}\,\pi^5}}$$

Decimal approximation:

11.09016994374947424102293417182819058860154589902881431067...

11.09016994374947424102293417182819058860154589902881431067

(11*5*(e^((-sqrt(5)*Pi))^5))) / (((2*(((1/32(-1+sqrt(5))^5+5*(e^((-sqrt(5)*Pi))^5)))

Input:

$$\frac{11\times 5\,e^{\left(-\sqrt{5}\,\pi\right)^5}}{2\left(\frac{1}{32}\left(-1+\sqrt{5}\right)^5+5\,e^{\left(-\sqrt{5}\,\pi\right)^5}\right)}$$

Exact result:

$$\frac{55\, e^{-25\sqrt{5}\,\pi^5}}{2\left(\frac{1}{32}\left(\sqrt{5}-1\right)^5+5\, e^{-25\sqrt{5}\,\pi^5}\right)}$$

Decimal approximation:

$9.992902250707187230705363041294571227424369762652550... \times 10^{-7428}$

9.992902250707187230705363041294571227424369762652550 × 10^-7428

(5sqrt(5)*5*(e^((-sqrt(5)*Pi))^5))) / (((2*(((1/32(-1+sqrt(5))^5+5*(e^((-sqrt(5)*Pi))^5)))

Input:

$$\frac{5\sqrt{5}\times 5\, e^{\left(-\sqrt{5}\,\pi\right)^5}}{2\left(\frac{1}{32}\left(-1+\sqrt{5}\right)^5+5\, e^{\left(-\sqrt{5}\,\pi\right)^5}\right)}$$

Exact result:

$$\frac{25\sqrt{5}\, e^{-25\sqrt{5}\,\pi^5}}{2\left(\frac{1}{32}\left(\sqrt{5}-1\right)^5+5\, e^{-25\sqrt{5}\,\pi^5}\right)}$$

Decimal approximation:

$1.015673123867814388747775762956469178988235290987840... \times 10^{-7427}$

1.015673123867814388747775762956469178988235290987840 × 10^-7427

Input interpretation:

$$\left(1\Big/\left(\left(\frac{1}{32}\left(-1+\sqrt{5}\right)^5+5\, e^{\left(-\sqrt{5}\,\pi\right)^5}\right)-\frac{9.992902250707187230705363041294571227424369762652550}{10^{7428}}-\frac{1.015673123867814388747775762956469178988235290987840}{10^{7427}}\right)\right)\hat{}\,(1/5)$$

Result:

1.618033988749894848204586834365638117720309179805762862135...

1.6180339887498….

Or:

((((1/(((1/32(-1+sqrt(5))^5+5*(e^((-sqrt(5)*Pi))^5)))-(-1.6382898797095665677239458827012056245798314722584 × 10^-7429)))^1/5

Input interpretation:

$$\sqrt[5]{\frac{1}{\left(\frac{1}{32}\left(-1+\sqrt{5}\right)^5+5\,e^{\left(-\sqrt{5}\,\pi\right)^5}\right)--\frac{1.6382898797095665677239458827012056245798314722584}{10^{7429}}}}$$

Result:

1.6180339887498948482045868343656381177203091798057628 62135...

The result, thence, is:

1.6180339887498948482045868343656381177203091798057628

This is a wonderful golden ratio, fundamental constant of various fields of mathematics and physics

Continued fraction:

$$1+\cfrac{1}{\ldots}}}}}}}}}}}}}}}}}}}}}}}$$

Possible closed forms:

$\phi \approx$ 1.618033988749894848204586834365638117720309179805762862135

$\Phi + 1 \approx$ 1.618033988749894848204586834365638117720309179805762862135

$\frac{1}{\Phi} \approx$ 1.618033988749894848204586834365638117720309179805762862135

From:

((((1/(((1/32(-1+sqrt(5))^5+5*(e^((-sqrt(5)*Pi))^5)))+(1.6382898797095665677239458827012056245798314722584 × 10^-7429)))^1/5

Input interpretation:

$$\sqrt[5]{\frac{1}{\left(\frac{1}{32}\left(-1+\sqrt{5}\right)^5+5\,e^{\left(-\sqrt{5}\,\pi\right)^5}\right)+\frac{1.6382898797095665677239458827012056245798314722584}{10^{7429}}}}$$

Result:

1.6180339887498948482045868343656381177203091798057628621354...

1.618033988749...

we obtain:

((((1/(((1/32(-1+sqrt(5))^5+5*(e^((-sqrt(5)*Pi))^5)))+(x)))^1/5 = golden ratio

Input:

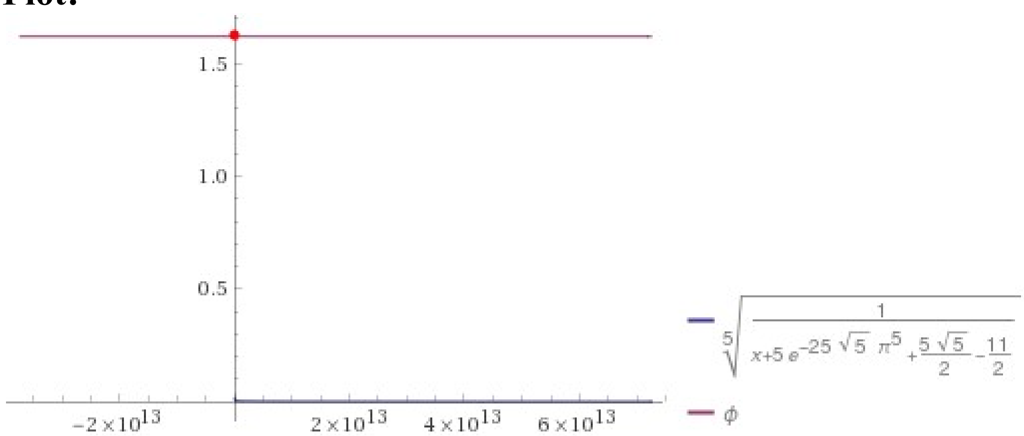
$$\sqrt[5]{\frac{1}{\left(\frac{1}{32}\left(-1+\sqrt{5}\right)^5+5\,e^{\left(-\sqrt{5}\,\pi\right)^5}\right)+x}}=\phi$$

ϕ is the golden ratio

Exact result:

$$\sqrt[5]{\frac{1}{x+5\,e^{-25\sqrt{5}\,\pi^5}+\frac{1}{32}\left(\sqrt{5}-1\right)^5}}=\phi$$

Plot:



Alternate forms:

$$\sqrt[5]{\frac{1}{x+5e^{-25\sqrt{5}\pi^5}+\frac{5\sqrt{5}}{2}-\frac{11}{2}}}=\phi$$

$$\sqrt[5]{\frac{1}{x+5e^{-25\sqrt{5}\pi^5}+\frac{1}{2}(5\sqrt{5}-11)}}=\frac{1}{2}\left(1+\sqrt{5}\right)$$

$$\sqrt[5]{\frac{1}{x+5e^{-25\sqrt{5}\pi^5}+\frac{1}{32}(\sqrt{5}-1)^5}}=\frac{1}{2}+\frac{\sqrt{5}}{2}$$

Solution:

$x=-5e^{-25\sqrt{5}\pi^5}$

-5 e^(-25 sqrt(5) π^5)

Input:

$-5e^{-25\sqrt{5}\pi^5}$

Decimal approximation:

$-1.6382898797095665677239458827012056245798314722589\ldots\times10^{-7429}$

$-1.6382898797\ldots*10^{-7429}$

Property:

$-5e^{-25\sqrt{5}\pi^5}$ is a transcendental number

Series representations:

$$-5e^{-25\sqrt{5}\pi^5}=-5e^{-25\pi^5\sqrt{4}\sum_{k=0}^{\infty}4^{-k}\binom{1/2}{k}}$$

$$-5e^{-25\sqrt{5}\pi^5}=-5\exp\left(-25\pi^5\sqrt{4}\sum_{k=0}^{\infty}\frac{\left(-\frac{1}{4}\right)^k\left(-\frac{1}{2}\right)_k}{k!}\right)$$

$$-5e^{-25\sqrt{5}\pi^5}=-5\exp\left(-\frac{25\pi^5\sum_{j=0}^{\infty}\text{Res}_{s=-\frac{1}{2}+j}4^{-s}\Gamma\left(-\frac{1}{2}-s\right)\Gamma(s)}{2\sqrt{\pi}}\right)$$

((-(-5 e^(-25 sqrt(5) π^5))))^1/(199*7428)

Input:

$$\sqrt[199\times 7428]{-\left(-5\, e^{-25\sqrt{5}\,\pi^5}\right)}$$

Exact result:

$$\sqrt[1478172]{5}\; e^{-\left(25\sqrt{5}\,\pi^5\right)/1478172}$$

Decimal approximation:

0.988494694978618089881968949379155050394187268476546782511...

0.988494694… result very near to the dilaton value **0.989117352243 = ϕ**

Property:

$\sqrt[1478172]{5}\; e^{-\left(25\sqrt{5}\,\pi^5\right)/1478172}$ is a transcendental number

All 1478172nd roots of 5 e^(-25 sqrt(5) π^5):

$$\sqrt[1478172]{5}\; e^{-\left(25\sqrt{5}\,\pi^5\right)/1478172}\, e^0 \approx 0.988495 \quad \text{(real, principal root)}$$

$$\sqrt[1478172]{5}\; e^{-\left(25\sqrt{5}\,\pi^5\right)/1478172}\, e^{(i\pi)/739086} \approx 0.988495 + 4.2017\times 10^{-6}\, i$$

$$\sqrt[1478172]{5}\; e^{-\left(25\sqrt{5}\,\pi^5\right)/1478172}\, e^{(i\pi)/369543} \approx 0.988495 + 8.403\times 10^{-6}\, i$$

$$\sqrt[1478172]{5}\; e^{-\left(25\sqrt{5}\,\pi^5\right)/1478172}\, e^{(i\pi)/246362} \approx 0.988495 + 0.000012605\, i$$

$$\sqrt[1478172]{5}\; e^{-\left(25\sqrt{5}\,\pi^5\right)/1478172}\, e^{(2 i\pi)/369543} \approx 0.988495 + 0.000016807\, i$$

Series representations:

$$\sqrt[199\times 7428]{-(-5)\, e^{-25\sqrt{5}\,\pi^5}} = \sqrt[1478172]{5}\; \sqrt[1478172]{e^{-25\pi^5\sqrt{4}\sum_{k=0}^{\infty} 4^{-k}\binom{1/2}{k}}}$$

$$\sqrt[199 \times 7428]{-(-5)\, e^{-25 \sqrt{5}\, \pi^5}} = \sqrt[1478172]{5} \sqrt[1478172]{\exp\left(-25 \pi^5 \sqrt{4} \sum_{k=0}^{\infty} \frac{\left(-\frac{1}{4}\right)^k \left(-\frac{1}{2}\right)_k}{k!}\right)}$$

$$\sqrt[199 \times 7428]{-(-5)\, e^{-25 \sqrt{5}\, \pi^5}} =$$

$$\sqrt[1478172]{5} \sqrt[1478172]{\exp\left(-\frac{25 \pi^5 \sum_{j=0}^{\infty} \operatorname{Res}_{s=-\frac{1}{2}+j} 4^{-s}\, \Gamma\left(-\frac{1}{2} - s\right) \Gamma(s)}{2 \sqrt{\pi}}\right)}$$

Integral representation:

$$(1+z)^a = \frac{\int_{-i \infty+\gamma}^{i \infty+\gamma} \frac{\Gamma(s)\,\Gamma(-a-s)}{z^s}\, ds}{(2 \pi i)\, \Gamma(-a)} \quad \text{for } (0 < \gamma < -\operatorname{Re}(a) \text{ and } |\arg(z)| < \pi)$$

4*((((log base 0.988494694978618((-(-5 e^(-25 sqrt(5) π^5))))))))^1/4

Input interpretation:

$$4 \sqrt[4]{\log_{0.988494694978618}\left(-\left(-5\, e^{-25 \sqrt{5}\, \pi^5}\right)\right)}$$

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

Result:

139.47335060456…

139.47335….. result practically equal to the rest mass of Pion meson 139.57 MeV

Alternative representation:

$$4 \sqrt[4]{\log_{0.9884946949786180000}\left(-(-5)\, e^{-25 \sqrt{5}\, \pi^5}\right)} = 4 \sqrt[4]{\frac{\log\left(5\, e^{-25 \pi^5 \sqrt{5}}\right)}{\log(0.9884946949786180000)}}$$

Series representations:

$$4\sqrt[4]{\log_{0.98849469497861800000}\left(-(-5)\,e^{-25\sqrt{5}\,\pi^5}\right)} = 4\sqrt[4]{\log_{0.98849469497861800000}\left(5\,e^{-25\pi^5\sqrt{4}\sum_{k=0}^{\infty}4^{-k}\binom{1/2}{k}}\right)}$$

$$4\sqrt[4]{\log_{0.98849469497861800000}\left(-(-5)\,e^{-25\sqrt{5}\,\pi^5}\right)} = 4\sqrt[4]{-\frac{\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+5\,e^{-25\pi^5\sqrt{5}}\right)^k}{k}}{\log(0.98849469497861800000)}}$$

$$4\sqrt[4]{\log_{0.98849469497861800000}\left(-(-5)\,e^{-25\sqrt{5}\,\pi^5}\right)} = 4\sqrt[4]{\log_{0.98849469497861800000}\left(5\exp\left(-25\pi^5\sqrt{4}\sum_{k=0}^{\infty}\frac{\left(-\frac{1}{4}\right)^k\left(-\frac{1}{2}\right)_k}{k!}\right)\right)}$$

4*((((log base 0.988494694978618((-(-5 e^(-25 sqrt(5) π^5))))))))^1/4 - 11 – Pi

Input interpretation:

$$4\sqrt[4]{\log_{0.988494694978618}\left(-\left(-5\,e^{-25\sqrt{5}\,\pi^5}\right)\right)} - 11 - \pi$$

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

Result:

125.33175795097...

125.33175…. 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:

$$4\sqrt[4]{\log_{0.9884946949786180000}\left(-(-5)\,e^{-25\sqrt{5}\,\pi^5}\right)}-11-\pi=$$
$$-11-\pi+4\sqrt[4]{\frac{\log\left(5\,e^{-25\pi^5\sqrt{5}}\right)}{\log(0.9884946949786180000)}}$$

Series representations:

$$4\sqrt[4]{\log_{0.9884946949786180000}\left(-(-5)\,e^{-25\sqrt{5}\,\pi^5}\right)}-11-\pi=$$
$$-11-\pi+4\sqrt[4]{\log_{0.9884946949786180000}\left(5\,e^{-25\pi^5\sqrt{4}\sum_{k=0}^{\infty}4^{-k}\binom{1/2}{k}}\right)}$$

$$4\sqrt[4]{\log_{0.9884946949786180000}\left(-(-5)\,e^{-25\sqrt{5}\,\pi^5}\right)}-11-\pi=$$
$$-11-\pi+4\sqrt[4]{-\frac{\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+5\,e^{-25\pi^5\sqrt{5}}\right)^k}{k}}{\log(0.9884946949786180000)}}$$

$$4\sqrt[4]{\log_{0.9884946949786180000}\left(-(-5)\,e^{-25\sqrt{5}\,\pi^5}\right)}-11-\pi=$$
$$-11-\pi+4\sqrt[4]{\log_{0.9884946949786180000}\left(5\exp\left(-25\,\pi^5\sqrt{4}\sum_{k=0}^{\infty}\frac{\left(-\frac{1}{4}\right)^k\left(-\frac{1}{2}\right)_k}{k!}\right)\right)}$$

1/10^52(((((-(-5 e^(-25 sqrt(5) π^5))))^1/(199*7428)+(8+3)/10^2+(8^2+5+2)/10^4)))

Input:

$$\frac{1}{10^{52}}\left(\sqrt[199\times7428]{-\left(-5\,e^{-25\sqrt{5}\,\pi^5}\right)}+\frac{8+3}{10^2}+\frac{8^2+5+2}{10^4}\right)$$

Exact result:

$$\frac{\frac{1171}{10000}+\sqrt[1478172]{5}\;e^{-\left(25\sqrt{5}\,\pi^5\right)/1478172}}{10\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}$$

Decimal approximation:

$1.105594694978618089881968949379155050394187268476546 7\ldots \times 10^{-52}$

1.1055946949…*10^{-52} result practically equal to the value of Cosmological Constant 1.1056*10^{-52} m^{-2}

Alternate forms:

$$\frac{1171 + 10000\sqrt[1478172]{5}\, e^{-(25\sqrt{5}\,\pi^5)/1478172}}{100000000000000000000000000000000000000000000000000000}$$

$$\frac{1171}{100000000000000000000000000000000000000000000000000000} + e^{-(25\sqrt{5}\,\pi^5)/1478172} \Big/ \left(2000000000000000000000000000000000000000000000000000 \times 5^{1478171/1478172}\right)$$

$$\frac{e^{-(25\sqrt{5}\,\pi^5)/1478172}\left(10000\sqrt[1478172]{5} + 1171\, e^{(25\sqrt{5}\,\pi^5)/1478172}\right)}{100000000000000000000000000000000000000000000000000000}$$

Series representations:

$$\frac{\sqrt[199\times 7428]{-\left(-5\, e^{-25\sqrt{5}\,\pi^5}\right)} + \frac{8+3}{10^2} + \frac{8^2+5+2}{10^4}}{10^{52}} = \frac{1171}{100000000000000000000000000000000000000000000000000000} + \left(\sqrt[1478172]{e^{-25\pi^5\sqrt{4}\sum_{k=0}^{\infty} 4^{-k}\binom{1/2}{k}}}\right) \Big/ \left(2000000000000000000000000000000000000000000000000000 \times 5^{1478171/1478172}\right)$$

$$\frac{\sqrt[199 \times 7428]{-\left(-5\, e^{-25 \sqrt{5}\, \pi^5}\right)} + \frac{8+3}{10^2} + \frac{8^2+5+2}{10^4}}{10^{52}} = \frac{1171}{100\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000} + \left(\sqrt[1\,478\,172]{\exp\left(-25\, \pi^5 \sqrt{4} \sum_{k=0}^{\infty} \frac{\left(-\frac{1}{4}\right)^k \left(-\frac{1}{2}\right)_k}{k!}\right)}\right) \Big/ \left(2\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000 \times 5^{1\,478\,171/1\,478\,172}\right)$$

$$\frac{\sqrt[199 \times 7428]{-\left(-5\, e^{-25 \sqrt{5}\, \pi^5}\right)} + \frac{8+3}{10^2} + \frac{8^2+5+2}{10^4}}{10^{52}} = \frac{1171}{100\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000} + \left(\sqrt[1\,478\,172]{\exp\left(-\frac{25\, \pi^5 \sum_{j=0}^{\infty} \operatorname{Res}_{s=-\frac{1}{2}+j} 4^{-s}\, \Gamma\left(-\frac{1}{2} - s\right) \Gamma(s)}{2 \sqrt{\pi}}\right)}\right) \Big/ \left(2\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000 \times 5^{1\,478\,171/1\,478\,172}\right)$$

Acknowledgments

We would like to thank Prof. **George E. Andrews** Evan Pugh Professor of Mathematics at Pennsylvania State University for his great availability and kindness towards me

References

Manuscript Book 1 of Srinivasa Ramanujan

RAMANUJAN'S CONTRIBUTIONS TO EISENSTEIN SERIES, ESPECIALLY IN HIS LOST NOTEBOOK
BRUCE C. BERNDT AND AE JA YEE