On various Ramanujan formulas applied to some sectors of String Theory and Particle Physics: Further new possible mathematical connections.

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Abstract

In this research thesis, we have analyzed and deepened various Ramanujan expressions applied to some sectors of String Theory and Particle Physics. We have therefore described further new possible mathematical connections.

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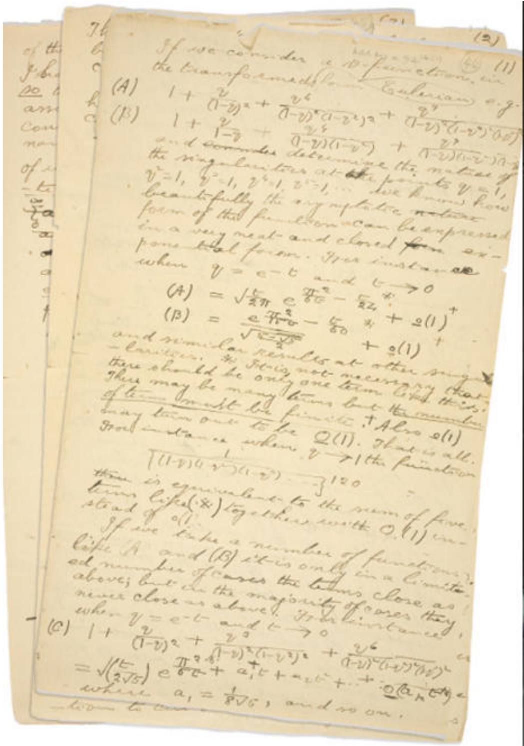
 

https://news.cnrs.fr/articles/ramanujan-the-man-who-knew-infinity

From:

On Classical Stability with Broken Supersymmetry
I. Basile , J. Mourad and A. Sagnotti - arXiv:1811.11448v2 [hep-th] 10 Jan 2019

We have that:

From

$$\varphi' \phi' = -8A'' - 120A'\Omega' + 8e^{2\Omega}\frac{V_\phi}{\phi'}A' + 56e^{2\Omega}\frac{V_\phi}{\phi'}\Omega' A + 7e^{2\Omega}VA,$$

For ϕ' equal to the following Rogers-Ramanujan continued fraction

$$\cfrac{1}{1+\cfrac{e^{-2\pi}}{1+\cfrac{e^{-4\pi}}{1+\cfrac{e^{-6\pi}}{1+\cdots}}}} = e^{2\pi/5}\left(\sqrt{\Phi\sqrt{5}}-\Phi\right) = 0,9981360456\ldots$$

$V_\phi = 138$, V = 0.57142857 and Ω' = π, we obtain:

-8-120Pi+8*e^(Pi*sqrt22)*(138/0.9981360456)+56*e^(Pi*sqrt22)*(138*Pi/0.9981360456)+7*0.57142857*e^(Pi*sqrt22)

Input interpretation:

$$-8-120\pi+8e^{\pi\sqrt{22}}\times\frac{138}{0.9981360456}+56e^{\pi\sqrt{22}}\left(138\times\frac{\pi}{0.9981360456}\right)+7\times0.57142857e^{\pi\sqrt{22}}$$

Result:

$6.381175064\ldots\times10^{10}$

$6.381175064\ldots*10^{10}$

ln(((-8-120Pi+8*e^(Pi*sqrt22)*(138/0.9981360456)+56*e^(Pi*sqrt22)*(138*Pi/0.9981360456)+7*0.57142857*e^(Pi*sqrt22))))

Input interpretation:

$$\log\left(-8-120\pi+8e^{\pi\sqrt{22}}\times\frac{138}{0.9981360456}+56e^{\pi\sqrt{22}}\left(138\times\frac{\pi}{0.9981360456}\right)+7\times0.57142857e^{\pi\sqrt{22}}\right)$$

log(x) is the natural logarithm

Result:

24.879203190…

24.8792…

Alternative representations:

$$\log\left(-8-120\pi+\frac{\left(8e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times0.571429e^{\pi\sqrt{22}}\right)=$$
$$\log_e\left(-8-120\pi+4.\,e^{\pi\sqrt{22}}+\frac{1104e^{\pi\sqrt{22}}}{0.998136}+\frac{7728\pi e^{\pi\sqrt{22}}}{0.998136}\right)$$

$$\log\left(-8-120\pi+\frac{\left(8e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times0.571429e^{\pi\sqrt{22}}\right)=$$
$$\log(a)\log_a\left(-8-120\pi+4.\,e^{\pi\sqrt{22}}+\frac{1104e^{\pi\sqrt{22}}}{0.998136}+\frac{7728\pi e^{\pi\sqrt{22}}}{0.998136}\right)$$

$$\log\left(-8-120\pi+\frac{\left(8e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times0.571429e^{\pi\sqrt{22}}\right)=$$
$$-\text{Li}_1\left(9+120\pi-4.\,e^{\pi\sqrt{22}}-\frac{1104e^{\pi\sqrt{22}}}{0.998136}-\frac{7728\pi e^{\pi\sqrt{22}}}{0.998136}\right)$$

Series representations:

$$\log\left(-8-120\pi+\frac{\left(8e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times0.571429e^{\pi\sqrt{22}}\right)=$$
$$\log\left(-8(1+15\pi)+e^{\pi\sqrt{21}\sum_{k=0}^{\infty}21^{-k}\binom{1/2}{k}}(1110.06+7742.43\pi)\right)$$

$$\log\left(-8-120\pi+\frac{\left(8e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times0.571429e^{\pi\sqrt{22}}\right)=$$
$$\log\left(-3(3+40\pi)+e^{\pi\sqrt{22}}(1110.06+7742.43\pi)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\left(-3(3+40\pi)+e^{\pi\sqrt{22}}(1110.06+7742.43\pi)\right)^{-k}}{k}$$

$$\log\left(-8-120\pi+\frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times 0.571429 e^{\pi\sqrt{22}}\right)=$$

$$2 i\pi\left\lfloor\frac{\arg\left(-8-120\pi+e^{\pi\sqrt{22}}(1110.06+7742.43\pi)-x\right)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k\left(-8-120\pi+e^{\pi\sqrt{22}}(1110.06+7742.43\pi)-x\right)^k x^{-k}}{k}\quad\text{for } x<0$$

Integral representations:

$$\log\left(-8-120\pi+\frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times 0.571429 e^{\pi\sqrt{22}}\right)=\int_1^{-8(1+15\pi)+e^{\pi\sqrt{22}}(1110.06+7742.43\pi)}\frac{1}{t}\,dt$$

$$\log\left(-8-120\pi+\frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times 0.571429 e^{\pi\sqrt{22}}\right)=$$

$$\frac{1}{2 i\pi}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\left(-3(3+40\pi)+e^{\pi\sqrt{22}}(1110.06+7742.43\pi)\right)^{-s}\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\quad\text{for } -1<\gamma<0$$

5ln(((-8-120Pi+8*e^(Pi*sqrt22)*(138/0.9981360456)+56*e^(Pi*sqrt22)*(138*Pi/0.9981360456)+7*0.57142857*e^(Pi*sqrt22))))+1/golden ratio

Input interpretation:

$$5\log\left(-8-120\pi+8 e^{\pi\sqrt{22}}\times\frac{138}{0.9981360456}+56 e^{\pi\sqrt{22}}\left(138\times\frac{\pi}{0.9981360456}\right)+7\times 0.57142857 e^{\pi\sqrt{22}}\right)+\frac{1}{\phi}$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

125.01404994...

125.014049…. 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:

$$5 \log\left(-8 - 120\pi + \frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136} + \frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136} + 7 \times 0.571429 e^{\pi\sqrt{22}}\right) + \frac{1}{\phi} =$$

$$5 \log_e\left(-8 - 120\pi + 4.\, e^{\pi\sqrt{22}} + \frac{1104 e^{\pi\sqrt{22}}}{0.998136} + \frac{7728\pi e^{\pi\sqrt{22}}}{0.998136}\right) + \frac{1}{\phi}$$

$$5 \log\left(-8 - 120\pi + \frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136} + \frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136} + 7 \times 0.571429 e^{\pi\sqrt{22}}\right) + \frac{1}{\phi} =$$

$$5 \log(a) \log_a\left(-8 - 120\pi + 4.\, e^{\pi\sqrt{22}} + \frac{1104 e^{\pi\sqrt{22}}}{0.998136} + \frac{7728\pi e^{\pi\sqrt{22}}}{0.998136}\right) + \frac{1}{\phi}$$

$$5 \log\left(-8 - 120\pi + \frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136} + \frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136} + 7 \times 0.571429 e^{\pi\sqrt{22}}\right) + \frac{1}{\phi} =$$

$$-5 \operatorname{Li}_1\left(9 + 120\pi - 4.\, e^{\pi\sqrt{22}} - \frac{1104 e^{\pi\sqrt{22}}}{0.998136} - \frac{7728\pi e^{\pi\sqrt{22}}}{0.998136}\right) + \frac{1}{\phi}$$

Series representations:

$$5 \log\left(-8 - 120\pi + \frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136} + \frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136} + 7 \times 0.571429 e^{\pi\sqrt{22}}\right) + \frac{1}{\phi} =$$

$$\frac{1}{\phi} + 5 \log\left(-8(1 + 15\pi) + e^{\pi\sqrt{21} \sum_{k=0}^{\infty} 21^{-k} \binom{1/2}{k}} (1110.06 + 7742.43\pi)\right)$$

$$5\log\left(-8-120\pi+\frac{\left(8e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times0.571429\,e^{\pi\sqrt{22}}\right)+\frac{1}{\phi}=$$

$$\frac{1}{\phi}+5\log\left(-3(3+40\pi)+e^{\pi\sqrt{22}}(1110.06+7742.43\pi)\right)-5\sum_{k=1}^{\infty}\frac{(-1)^k\left(-3(3+40\pi)+e^{\pi\sqrt{22}}(1110.06+7742.43\pi)\right)^{-k}}{k}$$

$$5\log\left(-8-120\pi+\frac{\left(8e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times0.571429\,e^{\pi\sqrt{22}}\right)+\frac{1}{\phi}=$$

$$\frac{1}{\phi}+10\,i\,\pi\left\lfloor\frac{\arg\left(-8-120\pi+e^{\pi\sqrt{22}}(1110.06+7742.43\pi)-x\right)}{2\pi}\right\rfloor+5\log(x)-5\sum_{k=1}^{\infty}\frac{(-1)^k\left(-8-120\pi+e^{\pi\sqrt{22}}(1110.06+7742.43\pi)-x\right)^k x^{-k}}{k}\quad\text{for } x<0$$

Integral representations:

$$5\log\left(-8-120\pi+\frac{\left(8e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times0.571429\,e^{\pi\sqrt{22}}\right)+\frac{1}{\phi}=$$

$$\frac{1}{\phi}+5\int_1^{-8(1+15\pi)+e^{\pi\sqrt{22}}(1110.06+7742.43\pi)}\frac{1}{t}\,dt$$

$$5\log\left(-8-120\pi+\frac{\left(8e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times0.571429\,e^{\pi\sqrt{22}}\right)+\frac{1}{\phi}=$$

$$\frac{1}{\phi}+\frac{5}{2\,i\,\pi}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\left(-3(3+40\pi)+e^{\pi\sqrt{22}}(1110.06+7742.43\pi)\right)^{-s}\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\quad\text{for } -1<\gamma<0$$

5ln(((-8-120Pi+8*e^(Pi*sqrt22)*(138/0.9981360456)+56*e^(Pi*sqrt22)*(138*Pi/0.9981360456)+7*0.57142857*e^(Pi*sqrt22))))+13+golden ratio

where 5 and 13 are Fibonacci numbers

Input interpretation:

$$5\log\left(-8-120\pi+8e^{\pi\sqrt{22}}\times\frac{138}{0.9981360456}+56e^{\pi\sqrt{22}}\left(138\times\frac{\pi}{0.9981360456}\right)+7\times0.57142857e^{\pi\sqrt{22}}\right)+13+\phi$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

139.01404994...

139.014049…. result practically equal to the rest mass of Pion meson 139.57 MeV

Alternative representations:

$$5\log\left(-8-120\pi+\frac{\left(8e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times0.571429e^{\pi\sqrt{22}}\right)+13+\phi=$$
$$13+\phi+5\log_e\left(-8-120\pi+4.e^{\pi\sqrt{22}}+\frac{1104e^{\pi\sqrt{22}}}{0.998136}+\frac{7728\pi e^{\pi\sqrt{22}}}{0.998136}\right)$$

$$5\log\left(-8-120\pi+\frac{\left(8e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times0.571429e^{\pi\sqrt{22}}\right)+13+\phi=$$
$$13+\phi+5\log(a)\log_a\left(-8-120\pi+4.e^{\pi\sqrt{22}}+\frac{1104e^{\pi\sqrt{22}}}{0.998136}+\frac{7728\pi e^{\pi\sqrt{22}}}{0.998136}\right)$$

$$5\log\left(-8-120\pi+\frac{\left(8e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times0.571429e^{\pi\sqrt{22}}\right)+13+\phi=$$
$$13+\phi-5\,\mathrm{Li}_1\left(9+120\pi-4.e^{\pi\sqrt{22}}-\frac{1104e^{\pi\sqrt{22}}}{0.998136}-\frac{7728\pi e^{\pi\sqrt{22}}}{0.998136}\right)$$

Series representations:

$$5\log\left(-8-120\pi+\frac{\left(8e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times 0.571429\,e^{\pi\sqrt{22}}\right)+13+\phi=$$
$$13+\phi+5\log\left(-8(1+15\pi)+e^{\pi\sqrt{21}\sum_{k=0}^{\infty}21^{-k}\binom{1/2}{k}}(1110.06+7742.43\pi)\right)$$

$$5\log\left(-8-120\pi+\frac{\left(8e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times 0.571429\,e^{\pi\sqrt{22}}\right)+13+\phi=$$
$$13+\phi+5\log\left(-3(3+40\pi)+e^{\pi\sqrt{22}}(1110.06+7742.43\pi)\right)-5\sum_{k=1}^{\infty}\frac{(-1)^k\left(-3(3+40\pi)+e^{\pi\sqrt{22}}(1110.06+7742.43\pi)\right)^{-k}}{k}$$

$$5\log\left(-8-120\pi+\frac{\left(8e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times 0.571429\,e^{\pi\sqrt{22}}\right)+13+\phi=$$
$$13+\phi+5\log\left(-8(1+15\pi)+e^{\pi\sqrt{21}\sum_{k=0}^{\infty}\frac{\left(-\frac{1}{21}\right)^k\left(-\frac{1}{2}\right)_k}{k!}}(1110.06+7742.43\pi)\right)$$

$\binom{n}{m}$ is the binomial coefficient

$n!$ is the factorial function

$(a)_n$ is the Pochhammer symbol (rising factorial)

Integral representations:

$$5\log\left(-8-120\pi+\frac{\left(8e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times 0.571429\,e^{\pi\sqrt{22}}\right)+13+\phi=$$
$$13+\phi+5\int_1^{-8(1+15\pi)+e^{\pi\sqrt{22}}(1110.06+7742.43\pi)}\frac{1}{t}\,dt$$

$$5 \log\left(-8 - 120\pi + \frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136} + \frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136} + 7\times 0.571429 e^{\pi\sqrt{22}}\right) + 13 + \phi =$$

$$13 + \phi + \frac{5}{2 i \pi}\int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{\left(-3(3+40\pi) + e^{\pi\sqrt{22}}(1110.06 + 7742.43\pi)\right)^{-s}\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds$$

for $-1 < \gamma < 0$

72ln(((-8-120Pi+8*e^(Pi*sqrt22)*(138/0.9981360456)+56*e^(Pi*sqrt22)*(138*Pi/0.9981360456)+7*0.57142857*e^(Pi*sqrt22))))-64+golden ratio

Input interpretation:

$$72 \log\left(-8 - 120\pi + 8 e^{\pi\sqrt{22}} \times \frac{138}{0.9981360456} + 56 e^{\pi\sqrt{22}}\left(138\times\frac{\pi}{0.9981360456}\right) + 7\times 0.57142857 e^{\pi\sqrt{22}}\right) - 64 + \phi$$

$\log(x)$ is the natural logarithm

ϕ is the golden ratio

Result:

1728.9206636...

1728.9206…

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:

$$72 \log\left(-8 - 120\pi + \frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136} + \frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136} + 7 \times 0.571429 e^{\pi\sqrt{22}}\right) - 64 + \phi = -64 + \phi + 72 \log_e\left(-8 - 120\pi + 4.\, e^{\pi\sqrt{22}} + \frac{1104 e^{\pi\sqrt{22}}}{0.998136} + \frac{7728 \pi e^{\pi\sqrt{22}}}{0.998136}\right)$$

$$72 \log\left(-8 - 120\pi + \frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136} + \frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136} + 7 \times 0.571429 e^{\pi\sqrt{22}}\right) - 64 + \phi = -64 + \phi + 72 \log(a) \log_a\left(-8 - 120\pi + 4.\, e^{\pi\sqrt{22}} + \frac{1104 e^{\pi\sqrt{22}}}{0.998136} + \frac{7728 \pi e^{\pi\sqrt{22}}}{0.998136}\right)$$

$$72 \log\left(-8 - 120\pi + \frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136} + \frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136} + 7 \times 0.571429 e^{\pi\sqrt{22}}\right) - 64 + \phi = -64 + \phi - 72 \operatorname{Li}_1\left(9 + 120\pi - 4.\, e^{\pi\sqrt{22}} - \frac{1104 e^{\pi\sqrt{22}}}{0.998136} - \frac{7728 \pi e^{\pi\sqrt{22}}}{0.998136}\right)$$

Series representations:

$$72 \log\left(-8 - 120\pi + \frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136} + \frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136} + 7 \times 0.571429 e^{\pi\sqrt{22}}\right) - 64 + \phi = -64 + \phi + 72 \log\left(-8(1 + 15\pi) + e^{\pi\sqrt{21}\sum_{k=0}^{\infty} 21^{-k}\binom{1/2}{k}} (1110.06 + 7742.43\pi)\right)$$

$$72 \log\left(-8 - 120\pi + \frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136} + \frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136} + 7 \times 0.571429 e^{\pi\sqrt{22}}\right) - 64 + \phi = -64 + \phi + 72 \log\left(-3(3 + 40\pi) + e^{\pi\sqrt{22}} (1110.06 + 7742.43\pi)\right) - 72 \sum_{k=1}^{\infty} \frac{(-1)^k \left(-3(3 + 40\pi) + e^{\pi\sqrt{22}} (1110.06 + 7742.43\pi)\right)^{-k}}{k}$$

$$72\log\left(-8-120\pi+\frac{\left(8e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times0.571429e^{\pi\sqrt{22}}\right)-64+$$

$$\phi=-64+\phi+72\log\left(-8(1+15\pi)+e^{\pi\sqrt{21}\sum_{k=0}^{\infty}\frac{\left(-\frac{1}{21}\right)^k\left(-\frac{1}{2}\right)_k}{k!}}(1110.06+7742.43\pi)\right)$$

$\binom{n}{m}$ is the binomial coefficient

$n!$ is the factorial function

$(a)_n$ is the Pochhammer symbol (rising factorial)

Integral representations:

$$72\log\left(-8-120\pi+\frac{\left(8e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times0.571429e^{\pi\sqrt{22}}\right)-$$

$$64+\phi=-64+\phi+72\int_1^{-8(1+15\pi)+e^{\pi\sqrt{22}}(1110.06+7742.43\pi)}\frac{1}{t}\,dt$$

$$72\log\left(-8-120\pi+\frac{\left(8e^{\pi\sqrt{22}}\right)138}{0.998136}+\frac{\left(56e^{\pi\sqrt{22}}\right)138\pi}{0.998136}+7\times0.571429e^{\pi\sqrt{22}}\right)-$$

$$64+\phi=-64+\phi+$$

$$\frac{36}{i\pi}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\left(-3(3+40\pi)+e^{\pi\sqrt{22}}(1110.06+7742.43\pi)\right)^{-s}\Gamma(-s)^2\Gamma(1+s)}{\Gamma(1-s)}\,ds$$

for $-1<\gamma<0$

72ln(((-8-120Pi+8*e^(Pi*sqrt22)*(138/0.9981360456)+56*e^(Pi*sqrt22)*(138*Pi/0.9981360456)+7*0.57142857*e^(Pi*sqrt22))))-11+golden ratio

where 11 is a Lucas number

Input interpretation:

$$72\log\left(-8-120\pi+8e^{\pi\sqrt{22}}\times\frac{138}{0.9981360456}+56e^{\pi\sqrt{22}}\left(138\times\frac{\pi}{0.9981360456}\right)+7\times0.57142857e^{\pi\sqrt{22}}\right)-11+\phi$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

1781.9206636...

1781.9206… result in the range of the hypothetical mass of Gluino (gluino = 1785.16 GeV).

Alternative representations:

$$72 \log\left(-8 - 120\pi + \frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136} + \frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136} + 7\times 0.571429 e^{\pi\sqrt{22}}\right) - 11 + \phi = -11 + \phi + 72 \log_e\left(-8 - 120\pi + 4. e^{\pi\sqrt{22}} + \frac{1104 e^{\pi\sqrt{22}}}{0.998136} + \frac{7728\pi e^{\pi\sqrt{22}}}{0.998136}\right)$$

$$72 \log\left(-8 - 120\pi + \frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136} + \frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136} + 7\times 0.571429 e^{\pi\sqrt{22}}\right) - 11 + \phi = -11 + \phi + 72 \log(a) \log_a\left(-8 - 120\pi + 4. e^{\pi\sqrt{22}} + \frac{1104 e^{\pi\sqrt{22}}}{0.998136} + \frac{7728\pi e^{\pi\sqrt{22}}}{0.998136}\right)$$

$$72 \log\left(-8 - 120\pi + \frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136} + \frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136} + 7\times 0.571429 e^{\pi\sqrt{22}}\right) - 11 + \phi = -11 + \phi - 72 \operatorname{Li}_1\left(9 + 120\pi - 4. e^{\pi\sqrt{22}} - \frac{1104 e^{\pi\sqrt{22}}}{0.998136} - \frac{7728\pi e^{\pi\sqrt{22}}}{0.998136}\right)$$

Series representations:

$$72 \log\left(-8 - 120\pi + \frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136} + \frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136} + 7\times 0.571429 e^{\pi\sqrt{22}}\right) - 11 + \phi = -11 + \phi + 72 \log\left(-8(1 + 15\pi) + e^{\pi\sqrt{21}\sum_{k=0}^{\infty} 21^{-k}\binom{1/2}{k}}(1110.06 + 7742.43\pi)\right)$$

$$72 \log\left(-8 - 120\pi + \frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136} + \frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136} + 7 \times 0.571429\, e^{\pi\sqrt{22}}\right) - 11 + \phi = -11 + \phi + 72 \log\left(-3(3+40\pi) + e^{\pi\sqrt{22}}(1110.06 + 7742.43\pi)\right) - 72 \sum_{k=1}^{\infty} \frac{(-1)^k \left(-3(3+40\pi) + e^{\pi\sqrt{22}}(1110.06+7742.43\pi)\right)^{-k}}{k}$$

$$72 \log\left(-8 - 120\pi + \frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136} + \frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136} + 7 \times 0.571429\, e^{\pi\sqrt{22}}\right) - 11 + \phi = -11 + \phi + 72 \log\left(-8(1+15\pi) + e^{\pi\sqrt{21} \sum_{k=0}^{\infty} \frac{\left(-\frac{1}{21}\right)^k \left(-\frac{1}{2}\right)_k}{k!}} (1110.06 + 7742.43\pi)\right)$$

Integral representations:

$$72 \log\left(-8 - 120\pi + \frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136} + \frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136} + 7 \times 0.571429\, e^{\pi\sqrt{22}}\right) - 11 + \phi = -11 + \phi + 72 \int_1^{-8(1+15\pi)+e^{\pi\sqrt{22}}(1110.06+7742.43\pi)} \frac{1}{t}\, dt$$

$$72 \log\left(-8 - 120\pi + \frac{\left(8 e^{\pi\sqrt{22}}\right)138}{0.998136} + \frac{\left(56 e^{\pi\sqrt{22}}\right)138\pi}{0.998136} + 7 \times 0.571429\, e^{\pi\sqrt{22}}\right) - 11 + \phi = -11 + \phi + \frac{36}{i\pi} \int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{\left(-3(3+40\pi) + e^{\pi\sqrt{22}}(1110.06+7742.43\pi)\right)^{-s} \Gamma(-s)^2 \Gamma(1+s)}{\Gamma(1-s)}\, ds$$

for $-1 < \gamma < 0$

Now, we have that:

Einstein frame this translates into the dilaton potential [10]

$$V = T\, e^{\frac{5}{2}\phi} . \tag{1.2}$$

In the heterotic case $V \sim e^{\frac{5}{2}\phi}$, and

$$b = \frac{7}{4} e^{2\Omega} V \left(1 + 20 \frac{\Omega'}{\phi'}\right) . \qquad (5.45)$$

For the (1.2) and T = 1, we obtain:

exp(-5/2*0.9981360456)

Input interpretation:

$$\exp\left(-\frac{5}{2} \times 0.9981360456\right)$$

Result:

0.08246839796...

0.08246839796...

From the (5.45), we obtain:

7/4* e^(Pi*sqrt22) * 0.08246839796 (1+20*(Pi/0.9981360456))

Input interpretation:

$$\frac{7}{4} e^{\pi\sqrt{22}} \times 0.08246839796 \left(1 + 20 \times \frac{\pi}{0.9981360456}\right)$$

Result:

$2.315543744... \times 10^7$

$2.315543744...*10^7$

We have also that:

(2.315543744e+7 / 0.08246839796)^1/40 - 8/10^3

Input interpretation:

$$\sqrt[40]{\frac{2.315543744 \times 10^7}{0.08246839796}} - \frac{8}{10^3}$$

Result:

1.618331732085641044920319795718927636712994017029981232719...

1.61833173208... result that is a very good approximation to the value of the golden ratio 1,618033988749...

From:

$$\begin{aligned}
-\frac{1}{8}\,e^{2\Omega}V_{\phi}\varphi &= -\left[m^2D-\frac{1}{2}\left(17A'-C'\right)\right]\Omega' \\
&+\ \frac{1}{2}(m^2A\ +\ A'')\ -\ C\left[\Omega''+8(\Omega')^2\right]\,, \\
7A\ +\ C\ -\ 2D'\ -\ 16D\,\Omega' &=\ 0\,, \\
4C\Omega'\ -\ 4A'\ -\ \frac{1}{2}\varphi\,\phi' &=\ 0\,, \qquad (5.26)\\
-\,\varphi'\phi'\ -\ \frac{1}{8}\,e^{2\Omega}\left[CV\ +\ V_{\phi}\,\varphi\right] &= -\left[m^2D-\frac{9}{2}(A'\ -\ C')\right]\Omega' \\
&+\ \frac{1}{2}\left[\,m^2(C\ -2\,D')+9\,A''\right]\,.
\end{aligned}$$

After gauging away D the second of eqs. (5.26) implies that

$$C\ =\ -7A\,, \qquad (5.31)$$

while the third of eqs. (5.26) implies that

$$\varphi\ =\ -\ \frac{8}{\phi'}\,(A'\ +\ 7A\,\Omega')\ . \qquad (5.32)$$

From

$$-\,\varphi'\,\phi'\ -\ \frac{1}{8}\,e^{2\Omega}\left[CV\ +\ V_{\phi}\,\varphi\right]$$

we obtain:

-x*(0.9981360456)-1/8 * e^(Pi*sqrt22)(-7*0.57142857+138*7752.19)

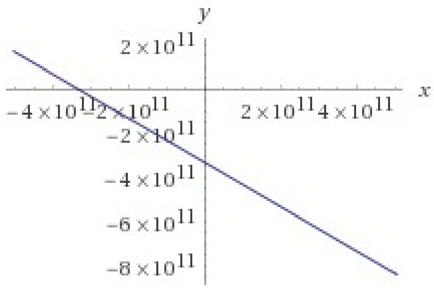
Input interpretation:

$$x\times(-0.9981360456)-\frac{1}{8}\,e^{\pi\sqrt{22}}\,(-7\times0.57142857+138\times7752.19)$$

Result:

$$-0.998136\,x-3.35509\times10^{11}$$

Plot:



(x from −5×10^11 to 5×10^11)

Geometric figure:

line

Alternate forms:

$-0.998136\,(x + 3.36136\times10^{11})$

$-1.17132\times10^{-10}\,(8.52144\times10^{9}\,x + 2.86436\times10^{21})$

Root:

$x \approx -3.36136\times10^{11}$

$3.36136*10^{11} = \varphi'$

Properties as a real function:

Domain

ℝ (all real numbers)

Range

ℝ (all real numbers)

Bijectivity

bijective from its domain to ℝ

ℝ is the set of real numbers

Derivative:

$$\frac{d}{dx}(-0.998136\,x - 3.35509\times10^{11}) = -0.998136$$

Indefinite integral:

$$\int\left(-x\,0.9981360456 - \frac{1}{8}\,e^{\pi\sqrt{22}}\,(-7\times0.57142857 + 138\times7752.19)\right)dx =$$
$$-0.499068\,x^2 - 3.35509\times10^{11}\,x + \text{constant}$$

Definite integral after subtraction of diverging parts:

$$\int_0^\infty ((-3.35509\times 10^{11} - 0.998136\, x) - (-3.35509\times 10^{11} - 0.998136\, x))\, dx = 0$$

-(-3.36136e+11)*(0.9981360456)-1/8 * e^(Pi*sqrt22)(-7*0.57142857+138*7752.19)

Input interpretation:

$$-3.36136\times 10^{11}\times(-0.9981360456) - \frac{1}{8} e^{\pi\sqrt{22}} (-7\times 0.57142857 + 138\times 7752.19)$$

Result:

$4.10099... \times 10^5$

4.10099...*10^5

410099

$$-\varphi'\phi' - \frac{1}{8} e^{2\Omega}\left[C V + V_\phi \varphi\right] = -\left[m^2 D - \frac{9}{2}(A' - C')\right]\Omega' + \frac{1}{2}\left[m^2(C - 2D') + 9A''\right].$$

410099 = -(x^2*(-8Pi)-9/2(0)))*Pi+1/2(((x^2(-7-2*(-8Pi))+9)))

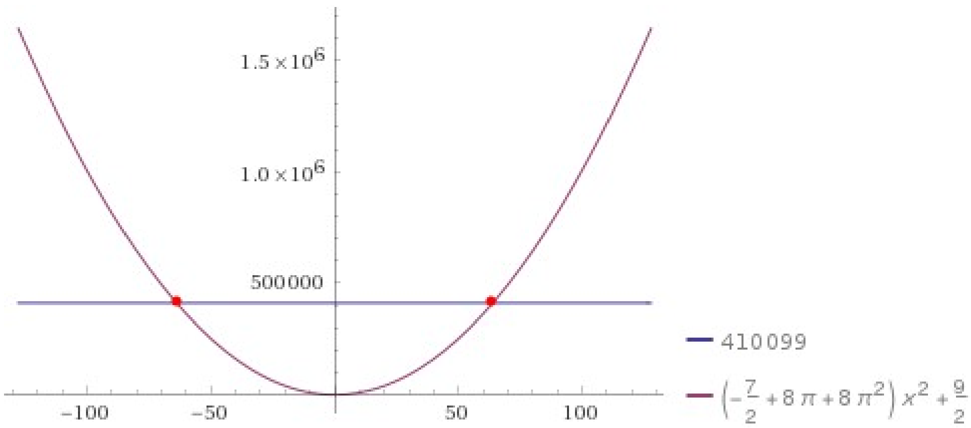
Input:

$$410\,099 = -\left(x^2(-8\pi) - \frac{9}{2}\times 0\right)\pi + \frac{1}{2}\left(x^2(-7-2(-8\pi)) + 9\right)$$

Exact result:

$$410\,099 = 8\pi^2 x^2 + \frac{1}{2}\left((16\pi - 7)x^2 + 9\right)$$

Plot:



Alternate forms:

$$x^2 = \frac{820\,189}{16\,\pi\,(1+\pi) - 7}$$

$$-8\,\pi^2\,x^2 - 8\,\pi\,x^2 + \frac{7\,x^2}{2} + \frac{820\,189}{2} = 0$$

$$410\,099 = \frac{1}{2}\left(16\,\pi^2\,x^2 + 16\,\pi\,x^2 - 7\,x^2 + 9\right)$$

Expanded form:

$$410\,099 = 8\,\pi^2\,x^2 + 8\,\pi\,x^2 - \frac{7\,x^2}{2} + \frac{9}{2}$$

Solutions:

$$x = -\sqrt{\frac{820\,189}{-7 + 16\,\pi + 16\,\pi^2}}$$

$$x = \sqrt{\frac{820\,189}{-7 + 16\,\pi + 16\,\pi^2}}$$

Solutions:

$x \approx -63.851$

$x \approx 63.851$

63.851 = m

-(63.851^2*(-8Pi)-9/2(0))*Pi+1/2(((63.851^2(-7-2*(-8Pi))+9)))

Input interpretation:

$$-\left(63.851^2\,(-8\,\pi) - \frac{9}{2} \times 0\right)\pi + \frac{1}{2}\left(63.851^2\,(-7 - 2\,(-8\,\pi)) + 9\right)$$

Result:

$4.10103\ldots \times 10^5$

410103

Alternative representations:

$$-\left(63.851^2\,(-8)\,\pi - \frac{0 \times 9}{2}\right)\pi + \frac{1}{2}\left(63.851^2\,(-7 - 2\,(-8\,\pi)) + 9\right) =$$
$$259\,200\,{°}^2\,63.851^2 + \frac{1}{2}\left(9 + (-7 + 2880\,°)\,63.851^2\right)$$

$$-\left(63.851^2(-8)\pi - \frac{0\times 9}{2}\right)\pi + \frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right) = 8 i^2 \log^2(-1)\, 63.851^2 + \frac{1}{2}\left(9 + (-7 - 16 i \log(-1))\, 63.851^2\right)$$

$$-\left(63.851^2(-8)\pi - \frac{0\times 9}{2}\right)\pi + \frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right) = 8 \cos^{-1}(-1)^2\, 63.851^2 + \frac{1}{2}\left(9 + \left(-7 + 16 \cos^{-1}(-1)\right) 63.851^2\right)$$

Series representations:

$$-\left(63.851^2(-8)\pi - \frac{0\times 9}{2}\right)\pi + \frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right) = 521850.\left(-0.0822682 + \sum_{k=0}^{\infty} \frac{(-1)^k}{1+2k}\right)\left(0.332268 + \sum_{k=0}^{\infty} \frac{(-1)^k}{1+2k}\right)$$

$$-\left(63.851^2(-8)\pi - \frac{0\times 9}{2}\right)\pi + \frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right) = 130462.\left(-1.16454 + \sum_{k=1}^{\infty} \frac{2^k}{\binom{2k}{k}}\right)\left(-0.335464 + \sum_{k=1}^{\infty} \frac{2^k}{\binom{2k}{k}}\right)$$

$$-\left(63.851^2(-8)\pi - \frac{0\times 9}{2}\right)\pi + \frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right) = 32615.6\left(-0.329073 + \sum_{k=0}^{\infty} \frac{2^{-k}(-6+50k)}{\binom{3k}{k}}\right)\left(1.32907 + \sum_{k=0}^{\infty} \frac{2^{-k}(-6+50k)}{\binom{3k}{k}}\right)$$

Integral representations:

$$-\left(63.851^2(-8)\pi - \frac{0\times 9}{2}\right)\pi + \frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right) = 130462.\left(-0.164536 + \int_0^{\infty} \frac{1}{1+t^2}\, dt\right)\left(0.664536 + \int_0^{\infty} \frac{1}{1+t^2}\, dt\right)$$

$$-\left(63.851^2(-8)\pi - \frac{0\times 9}{2}\right)\pi + \frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right) = 521850.\left(-0.0822682 + \int_0^1 \sqrt{1-t^2}\, dt\right)\left(0.332268 + \int_0^1 \sqrt{1-t^2}\, dt\right)$$

$$-\left(63.851^2(-8)\pi - \frac{0\times 9}{2}\right)\pi + \frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right) = 130462.\left(-0.164536 + \int_0^{\infty} \frac{\sin(t)}{t}\, dt\right)\left(0.664536 + \int_0^{\infty} \frac{\sin(t)}{t}\, dt\right)$$

We have also that:

24 (((-(63.851^2*(-8Pi)-9/2(0))*Pi+1/2(((63.851^2(-7-2*(-8Pi))+9))))))^1/3

Input interpretation:

$$24\sqrt[3]{-\left(63.851^2(-8\pi)-\frac{9}{2}\times 0\right)\pi+\frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right)}$$

Result:

1783.10...

1783.10… result in the range of the hypothetical mass of Gluino (gluino = 1785.16 GeV).

Alternative representations:

$$24\sqrt[3]{-\left(63.851^2(-8)\pi-\frac{0\times 9}{2}\right)\pi+\frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right)} = 24\sqrt[3]{259\,200\,{}^{\circ 2}\,63.851^2+\frac{1}{2}\left(9+(-7+2880\,{}^{\circ})\,63.851^2\right)}$$

$$24\sqrt[3]{-\left(63.851^2(-8)\pi-\frac{0\times 9}{2}\right)\pi+\frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right)} = 24\sqrt[3]{8\cos^{-1}(-1)^2\,63.851^2+\frac{1}{2}\left(9+(-7+16\cos^{-1}(-1))\,63.851^2\right)}$$

$$24\sqrt[3]{-\left(63.851^2(-8)\pi-\frac{0\times 9}{2}\right)\pi+\frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right)} = 24\sqrt[3]{32\,E(0)^2\,63.851^2+\frac{1}{2}\left(9+(-7+32\,E(0))\,63.851^2\right)}$$

Integral representations:

$$24\sqrt[3]{-\left(63.851^2(-8)\pi-\frac{0\times 9}{2}\right)\pi+\frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right)} = 24\sqrt[3]{-14\,264.8+65\,231.2\int_0^\infty\frac{1}{1+t^2}\,dt+130\,462.\left(\int_0^\infty\frac{1}{1+t^2}\,dt\right)^2}$$

$$24\sqrt[3]{-\left(63.851^2(-8)\pi-\frac{0\times 9}{2}\right)\pi+\frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right)}=$$

$$24\sqrt[3]{-14264.8+65231.2\int_0^\infty\frac{\sin(t)}{t}\,dt+130462.\left(\int_0^\infty\frac{\sin(t)}{t}\,dt\right)^2}$$

$$24\sqrt[3]{-\left(63.851^2(-8)\pi-\frac{0\times 9}{2}\right)\pi+\frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right)}=$$

$$24\sqrt[3]{-14264.8+130462.\int_0^1\sqrt{1-t^2}\,dt+521850.\left(\int_0^1\sqrt{1-t^2}\,dt\right)^2}$$

24 (((-(63.851^2*(-8Pi)-9/2(0))*Pi+1/2(((63.851^2(-7-2*(-8Pi))+9))))))^1/3 – 55

where 55 is a Fibonacci number

Input interpretation:

$$24\sqrt[3]{-\left(63.851^2(-8\pi)-\frac{9}{2}\times 0\right)\pi+\frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right)}-55$$

Result:

1728.10…

1728.10…

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:

$$24\sqrt[3]{-\left(63.851^2(-8)\pi-\frac{0\times 9}{2}\right)\pi+\frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right)}-55=$$

$$-55+24\sqrt[3]{259200\,{}^{\circ 2}\,63.851^2+\frac{1}{2}\left(9+(-7+2880\,{}^{\circ})\,63.851^2\right)}$$

$$24\sqrt[3]{-\left(63.851^2(-8)\pi-\frac{0\times 9}{2}\right)\pi+\frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right)}-55 = -55+24\sqrt[3]{8\cos^{-1}(-1)^2\,63.851^2+\frac{1}{2}\left(9+\left(-7+16\cos^{-1}(-1)\right)63.851^2\right)}$$

$$24\sqrt[3]{-\left(63.851^2(-8)\pi-\frac{0\times 9}{2}\right)\pi+\frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right)}-55 = -55+24\sqrt[3]{32\,E(0)^2\,63.851^2+\frac{1}{2}\left(9+(-7+32\,E(0))\,63.851^2\right)}$$

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

$E(m)$ is the complete elliptic integral of the second kind with parameter $m = k^2$

Integral representations:

$$24\sqrt[3]{-\left(63.851^2(-8)\pi-\frac{0\times 9}{2}\right)\pi+\frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right)}-55 = -55+24\sqrt[3]{-14264.8+65231.2\int_0^\infty\frac{1}{1+t^2}\,dt+130462.\left(\int_0^\infty\frac{1}{1+t^2}\,dt\right)^2}$$

$$24\sqrt[3]{-\left(63.851^2(-8)\pi-\frac{0\times 9}{2}\right)\pi+\frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right)}-55 = -55+24\sqrt[3]{-14264.8+65231.2\int_0^\infty\frac{\sin(t)}{t}\,dt+130462.\left(\int_0^\infty\frac{\sin(t)}{t}\,dt\right)^2}$$

$$24\sqrt[3]{-\left(63.851^2(-8)\pi-\frac{0\times 9}{2}\right)\pi+\frac{1}{2}\left(63.851^2(-7-2(-8\pi))+9\right)}-55 = -55+24\sqrt[3]{-14264.8+130462.\int_0^1\sqrt{1-t^2}\,dt+521850.\left(\int_0^1\sqrt{1-t^2}\,dt\right)^2}$$

With regard 410103, from the formula of the Coefficients of the "5^{th} order mock theta function $\psi_1(q)$, we obtain:

sqrt(golden ratio) * exp(Pi*sqrt(429/15)) / (2*5^(1/4)*sqrt(429))+3571+47+7

where 3571, 47 and 7 are Lucas numbers

Input:

$$\sqrt{\phi} \times \frac{\exp\left(\pi \sqrt{\frac{429}{15}}\right)}{2 \sqrt[4]{5} \sqrt{429}} + 3571 + 47 + 7$$

ϕ is the golden ratio

Exact result:

$$\frac{e^{\sqrt{143/5}\,\pi} \sqrt{\frac{\phi}{429}}}{2 \sqrt[4]{5}} + 3625$$

Decimal approximation:

410102.5746559689508808360898048676242791566816500072604902...

410102.57465….

Property:

$$3625 + \frac{e^{\sqrt{143/5}\,\pi} \sqrt{\frac{\phi}{429}}}{2 \sqrt[4]{5}}$$ is a transcendental number

Alternate forms:

$$3625 + \frac{1}{2} \sqrt{\frac{5+\sqrt{5}}{4290}}\, e^{\sqrt{143/5}\,\pi}$$

$$3625 + \frac{\sqrt{\frac{1}{858}\left(1+\sqrt{5}\right)}\, e^{\sqrt{143/5}\,\pi}}{2 \sqrt[4]{5}}$$

$$\frac{31\,102\,500 + 5^{3/4} \sqrt{858\left(1+\sqrt{5}\right)}\, e^{\sqrt{143/5}\,\pi}}{8580}$$

Series representations:

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{429}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{429}}+3571+47+7=\left(36\,250\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(429-z_0)^k z_0^{-k}}{k!}+5^{3/4}\exp\left(\pi\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{143}{5}-z_0\right)^k z_0^{-k}}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right)\Bigg/\left(10\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(429-z_0)^k z_0^{-k}}{k!}\right)\quad\text{for not }((z_0\in\mathbb{R}\text{ and }-\infty<z_0\leq 0))$$

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{429}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{429}}+3571+47+7=\left(36\,250\exp\left(i\pi\left\lfloor\frac{\arg(429-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(429-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}+5^{3/4}\exp\left(i\pi\left\lfloor\frac{\arg(\phi-x)}{2\pi}\right\rfloor\right)\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg\left(\frac{143}{5}-x\right)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k\left(\frac{143}{5}-x\right)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k(\phi-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\Bigg/\left(10\exp\left(i\pi\left\lfloor\frac{\arg(429-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(429-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\quad\text{for }(x\in\mathbb{R}\text{ and }x<0)$$

$$\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{429}{15}}\right)}{2\sqrt[4]{5}\sqrt{429}}+3571+47+7=$$

$$\left(\left(\frac{1}{z_0}\right)^{-1/2\lfloor\arg(429-z_0)/(2\pi)\rfloor} z_0^{-1/2\lfloor\arg(429-z_0)/(2\pi)\rfloor}\left(36\,250\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(429-z_0)/(2\pi)\rfloor} z_0^{1/2\lfloor\arg(429-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(429-z_0)^k z_0^{-k}}{k!}+5^{3/4}\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\left\lfloor\arg\left(\frac{143}{5}-z_0\right)/(2\pi)\right\rfloor} z_0^{1/2\left(1+\left\lfloor\arg\left(\frac{143}{5}-z_0\right)/(2\pi)\right\rfloor\right)}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{143}{5}-z_0\right)^k z_0^{-k}}{k!}\right)\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor} z_0^{1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right)\right)\Big/\left(10\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(429-z_0)^k z_0^{-k}}{k!}\right)$$

$n!$ is the factorial function

$(a)_n$ is the Pochhammer symbol (rising factorial)

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

$\arg(z)$ is the complex argument

$\lfloor x\rfloor$ is the floor function

i is the imaginary unit

from

$$7A + C - 2D' - 16D\Omega' = 0,$$

we obtain:

-2x^2-16Pix = 0;

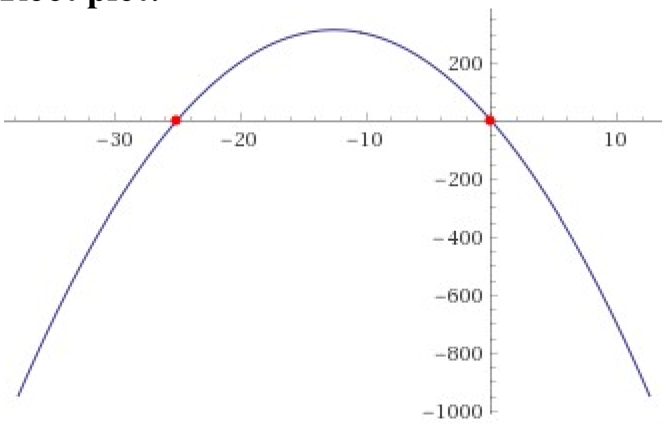
Input:

$-2x^2-(16\pi)x=0$

Exact result:

$-2x^2 - 16\pi x = 0$

Root plot:



Alternate forms:

$-2x(x + 8\pi) = 0$

$32\pi^2 - 2(x + 4\pi)^2 = 0$

Solutions:

$x = 0$

$x = -8\pi$

-8π = D

From

$$\varphi = -\frac{8}{\phi'}\left(A' + 7\,\boldsymbol{A}\,\Omega'\right)$$

We obtain:

-8/0.9981360456 (x^2+(7Pi)x) = 0

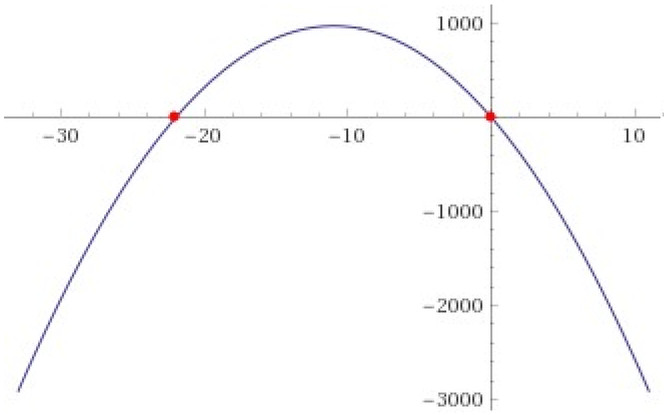
Input interpretation:

$-\frac{8}{0.9981360456}\left(x^2 + (7\pi)x\right) = 0$

Result:

$-8.01494\left(x^2 + 7\pi x\right) = 0$

Root plot:



Alternate forms:

$-8.01494\,x\,(x + 21.9911) = 0$

$-8.01494\,x^2 - 176.258\,x = 0$

$-8.01494\left(x^2 + 21.9911\,x\right) = 0$

Alternate form assuming x>0:

$(-8.01494\,x - 176.258)\,x = 0$

Alternate form assuming x is real:

$-8.01494\,x^2 - 176.258\,x + 0 = 0$

Solutions:

$x \approx -21.9911$

$x = 0$

-21.9911 = A

From which:

-8/0.9981360456 (-21.9911^2+(7Pi)*(-21.9911))

Input interpretation:

$$-\frac{8}{0.9981360456}\left(-21.9911^2 + (7\,\pi)\times(-21.9911)\right)$$

Result:

7752.19…

7752.19 = φ

Alternative representations:

$$\frac{(-21.9911^2 + (7\pi)(-21.9911))(-8)}{0.998136} = -\frac{8(-27708.8\,° - 21.9911^2)}{0.998136}$$

$$\frac{(-21.9911^2 + (7\pi)(-21.9911))(-8)}{0.998136} = -\frac{8(153.938\,i\log(-1) - 21.9911^2)}{0.998136}$$

$$\frac{(-21.9911^2 + (7\pi)(-21.9911))(-8)}{0.998136} = -\frac{8(-153.938\cos^{-1}(-1) - 21.9911^2)}{0.998136}$$

Series representations:

$$\frac{(-21.9911^2 + (7\pi)(-21.9911))(-8)}{0.998136} = 3876.09 + 4935.21\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}$$

$$\frac{(-21.9911^2 + (7\pi)(-21.9911))(-8)}{0.998136} = 1408.49 + 2467.6\sum_{k=1}^{\infty}\frac{2^k}{\binom{2k}{k}}$$

$$\frac{(-21.9911^2 + (7\pi)(-21.9911))(-8)}{0.998136} = 3876.09 + 1233.8\sum_{k=0}^{\infty}\frac{2^{-k}(-6+50k)}{\binom{3k}{k}}$$

Integral representations:

$$\frac{(-21.9911^2 + (7\pi)(-21.9911))(-8)}{0.998136} = 3876.09 + 2467.6\int_0^{\infty}\frac{1}{1+t^2}\,dt$$

$$\frac{(-21.9911^2 + (7\pi)(-21.9911))(-8)}{0.998136} = 3876.09 + 4935.21\int_0^{1}\sqrt{1-t^2}\,dt$$

$$\frac{(-21.9911^2 + (7\pi)(-21.9911))(-8)}{0.998136} = 3876.09 + 2467.6\int_0^{\infty}\frac{\sin(t)}{t}\,dt$$

We have also that:

1/Pi((-8/0.9981360456 (-21.9911^2+(7Pi)*(-21.9911))))

Input interpretation:

$$\frac{1}{\pi}\left(-\frac{8}{0.9981360456}(-21.9911^2 + (7\pi)\times(-21.9911))\right)$$

Result:

2467.60…

2467.60… result practically equal to the rest mass of charmed Xi baryon 2467.8

Alternative representations:

$$-\frac{8\left(-21.9911^2+(7\pi)(-21.9911)\right)}{0.998136\,\pi}=-\frac{8\left(-27708.8\,°-21.9911^2\right)}{0.998136\,(180\,°)}$$

$$-\frac{8\left(-21.9911^2+(7\pi)(-21.9911)\right)}{0.998136\,\pi}=-\frac{8\left(153.938\,i\log(-1)-21.9911^2\right)}{0.998136\,(-i\log(-1))}$$

$$-\frac{8\left(-21.9911^2+(7\pi)(-21.9911)\right)}{0.998136\,\pi}=-\frac{8\left(-153.938\cos^{-1}(-1)-21.9911^2\right)}{0.998136\cos^{-1}(-1)}$$

Series representations:

$$-\frac{8\left(-21.9911^2+(7\pi)(-21.9911)\right)}{0.998136\,\pi}=1233.8+\frac{969.023}{\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}}$$

$$-\frac{8\left(-21.9911^2+(7\pi)(-21.9911)\right)}{0.998136\,\pi}=1233.8+\frac{3876.09}{\sum_{k=0}^{\infty}\frac{2^{-k}(-6+50k)}{\binom{3k}{k}}}$$

$$-\frac{8\left(-21.9911^2+(7\pi)(-21.9911)\right)}{0.998136\,\pi}=1233.8+\frac{1938.05}{\sqrt{3}\sum_{k=0}^{\infty}\frac{\left(-\frac{1}{3}\right)^k}{1+2k}}$$

Integral representations:

$$-\frac{8\left(-21.9911^2+(7\pi)(-21.9911)\right)}{0.998136\,\pi}=1233.8+\frac{1938.05}{\int_0^{\infty}\frac{1}{1+t^2}\,dt}$$

$$-\frac{8\left(-21.9911^2+(7\pi)(-21.9911)\right)}{0.998136\,\pi}=1233.8+\frac{969.023}{\int_0^{1}\sqrt{1-t^2}\,dt}$$

$$-\frac{8\left(-21.9911^2+(7\pi)(-21.9911)\right)}{0.998136\,\pi}=1233.8+\frac{1938.05}{\int_0^{\infty}\frac{\sin(t)}{t}\,dt}$$

From

$$b = \frac{8}{3} e^{2\Omega} V \frac{1 - \frac{1}{2} \tanh^2\left(\sqrt{\alpha_H} y\right)}{1 + 4 \tanh^2\left(\sqrt{\alpha_H} y\right)}, \tag{5.46}$$

with $\alpha > 0$ for $d > 10$ and $\alpha < 0$ for $d < 10$.

For $\alpha_H = 11$, we obtain:

8/3*e^(Pi*sqrt22)*(0.57142857)*(1-1/2*tanh^2(sqrt11))/(1+4*tanh^2(sqrt11))

Input interpretation:

$$\frac{8}{3} e^{\pi\sqrt{22}} \times 0.57142857 \times \frac{1 - \frac{1}{2}\tanh^2(\sqrt{11})}{1 + 4\tanh^2(\sqrt{11})}$$

$\tanh(x)$ is the hyperbolic tangent function

Result:

385944.41...

385944.41... = b

Alternative representations:

$$\frac{\left(e^{\pi\sqrt{22}}\; 8 \times 0.571429\right)\left(1 - \frac{1}{2}\tanh^2(\sqrt{11})\right)}{3\left(1 + 4\tanh^2(\sqrt{11})\right)} = \frac{1.52381\, e^{\pi\sqrt{22}} \left(1 - \frac{1}{2}\left(\frac{1}{\coth(\sqrt{11})}\right)^2\right)}{1 + 4\left(\frac{1}{\coth(\sqrt{11})}\right)^2}$$

$$\frac{\left(e^{\pi\sqrt{22}}\; 8 \times 0.571429\right)\left(1 - \frac{1}{2}\tanh^2(\sqrt{11})\right)}{3\left(1 + 4\tanh^2(\sqrt{11})\right)} = \frac{1.52381\, e^{\pi\sqrt{22}} \left(1 - \frac{1}{2}\coth^2\left(-\frac{i\pi}{2} + \sqrt{11}\right)\right)}{1 + 4\coth^2\left(-\frac{i\pi}{2} + \sqrt{11}\right)}$$

$$\frac{\left(e^{\pi\sqrt{22}}\; 8 \times 0.571429\right)\left(1 - \frac{1}{2}\tanh^2(\sqrt{11})\right)}{3\left(1 + 4\tanh^2(\sqrt{11})\right)} = \frac{1.52381\, e^{\pi\sqrt{22}} \left(1 - \frac{1}{2}\left(-1 + \frac{2}{1+e^{-2\sqrt{11}}}\right)^2\right)}{1 + 4\left(-1 + \frac{2}{1+e^{-2\sqrt{11}}}\right)^2}$$

Series representations:

$$\frac{\left(e^{\pi\sqrt{22}}\ 8\times 0.571429\right)\left(1-\frac{1}{2}\tanh^2(\sqrt{11})\right)}{3\left(1+4\tanh^2(\sqrt{11})\right)} = -\frac{0.190476\, e^{\pi\sqrt{21}\sum_{k=0}^{\infty}21^{-k}\binom{1/2}{k}}\left(-0.25+\sum_{k=1}^{\infty}(-1)^k q^{2k}+\left(\sum_{k=1}^{\infty}(-1)^k q^{2k}\right)^2\right)}{0.3125+\sum_{k=1}^{\infty}(-1)^k q^{2k}+\left(\sum_{k=1}^{\infty}(-1)^k q^{2k}\right)^2} \text{ for } q=e^{\sqrt{11}}$$

$$\frac{\left(e^{\pi\sqrt{22}}\ 8\times 0.571429\right)\left(1-\frac{1}{2}\tanh^2(\sqrt{11})\right)}{3\left(1+4\tanh^2(\sqrt{11})\right)} = -\left(\left(0.190476\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(22-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(22-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\left(-0.03125+\sqrt{11}^2\left(\sum_{k=1}^{\infty}\frac{1}{(1-2k)^2\pi^2+4\sqrt{11}^2}\right)^2\right)\right)\Big/\left(0.00390625+\sqrt{11}^2\left(\sum_{k=1}^{\infty}\frac{1}{(1-2k)^2\pi^2+4\sqrt{11}^2}\right)^2\right)\right) \text{ for } (x\in\mathbb{R} \text{ and } x<0)$$

$$\frac{\left(e^{\pi\sqrt{22}}\ 8\times 0.571429\right)\left(1-\frac{1}{2}\tanh^2(\sqrt{11})\right)}{3\left(1+4\tanh^2(\sqrt{11})\right)} = -\left(\left(0.190476\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(22-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(22-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\left(-0.25+\sum_{k=1}^{\infty}(-1)^k q^{2k}+\left(\sum_{k=1}^{\infty}(-1)^k q^{2k}\right)^2\right)\right)\Big/\left(0.3125+\sum_{k=1}^{\infty}(-1)^k q^{2k}+\left(\sum_{k=1}^{\infty}(-1)^k q^{2k}\right)^2\right)\right) \text{ for } \left(x\in\mathbb{R} \text{ and } x<0 \text{ and } q=e^{\sqrt{11}}\right)$$

Integral representation:

$$\frac{\left(e^{\pi\sqrt{22}}\ 8\times 0.571429\right)\left(1-\frac{1}{2}\tanh^2(\sqrt{11})\right)}{3\left(1+4\tanh^2(\sqrt{11})\right)} = -\frac{0.190476\, e^{\pi\sqrt{22}}\left(-2+\left(\int_0^{\sqrt{11}}\operatorname{sech}^2(t)\,dt\right)^2\right)}{0.25+\left(\int_0^{\sqrt{11}}\operatorname{sech}^2(t)\,dt\right)^2}$$

We have also that:

(((8/3*e^(Pi*sqrt22)*(0.57142857)*(1-1/2*tanh^2(sqrt11))/(1+4*tanh^2(sqrt11)))))^1/26

Input interpretation:

$$\sqrt[26]{\frac{8}{3} e^{\pi\sqrt{22}} \times 0.57142857 \times \frac{1-\frac{1}{2}\tanh^2(\sqrt{11})}{1+4\tanh^2(\sqrt{11})}}$$

tanh(x) is the hyperbolic tangent function

Result:

1.64008493...

1.64008493... ≈ ζ(2) = $\frac{\pi^2}{6}$ = 1.644934 ...

With regard 385944, from the formula of the Coefficients of the "5th order mock theta function $\psi_1(q)$, we obtain:

sqrt(golden ratio) * exp(Pi*sqrt(426/15)) / (2*5^(1/4)*sqrt(426)) + 1364-11-3

where 1364, 11 and 3 are Lucas numbers

Input:

$$\sqrt{\phi} \times \frac{\exp\left(\pi\sqrt{\frac{426}{15}}\right)}{2\sqrt[4]{5}\sqrt{426}} + 1364 - 11 - 3$$

ϕ is the golden ratio

Exact result:

$$\frac{e^{\sqrt{142/5}\,\pi}\sqrt{\frac{\phi}{426}}}{2\sqrt[4]{5}} + 1350$$

Decimal approximation:

385944.6929710207610668066814151296856385518413188893596935...

385944.692971….

Property:

$$1350+\frac{e^{\sqrt{142/5}\,\pi}\sqrt{\frac{\phi}{426}}}{2\sqrt[4]{5}} \text{ is a transcendental number}$$

Alternate forms:

$$1350+\frac{1}{4}\sqrt{\frac{5+\sqrt{5}}{1065}}\;e^{\sqrt{142/5}\,\pi}$$

$$1350+\frac{\sqrt{\frac{1}{213}\left(1+\sqrt{5}\right)}\;e^{\sqrt{142/5}\,\pi}}{4\sqrt[4]{5}}$$

$$\frac{5\,751\,000+5^{3/4}\sqrt{213\left(1+\sqrt{5}\right)}\;e^{\sqrt{142/5}\,\pi}}{4260}$$

Series representations:

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{426}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{426}}+1364-11-3=\left(13\,500\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(426-z_0)^k z_0^{-k}}{k!}+5^{3/4}\exp\left(\pi\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{142}{5}-z_0\right)^k z_0^{-k}}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right)\Bigg/\left(10\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(426-z_0)^k z_0^{-k}}{k!}\right) \text{ for not } ((z_0\in\mathbb{R} \text{ and } -\infty<z_0\le 0))$$

$$\frac{\sqrt{\phi}\ \exp\left(\pi\sqrt{\frac{426}{15}}\right)}{2\sqrt[4]{5}\ \sqrt{426}} + 1364 - 11 - 3 =$$

$$\left(13500 \exp\left(i\pi\left\lfloor\frac{\arg(426-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k\,(426-x)^k\,x^{-k}\left(-\frac{1}{2}\right)_k}{k!} + 5^{3/4}\exp\left(i\pi\left\lfloor\frac{\arg(\phi-x)}{2\pi}\right\rfloor\right)\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg\left(\frac{142}{5}-x\right)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k\left(\frac{142}{5}-x\right)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k\,(\phi-x)^k\,x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right) \Big/ \left(10\exp\left(i\pi\left\lfloor\frac{\arg(426-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k\,(426-x)^k\,x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right) \quad \text{for } (x\in\mathbb{R} \text{ and } x<0)$$

$$\frac{\sqrt{\phi}\ \exp\left(\pi\sqrt{\frac{426}{15}}\right)}{2\sqrt[4]{5}\ \sqrt{426}} + 1364 - 11 - 3 =$$

$$\left(\left(\frac{1}{z_0}\right)^{-1/2\lfloor\arg(426-z_0)/(2\pi)\rfloor} z_0^{-1/2\lfloor\arg(426-z_0)/(2\pi)\rfloor}\left(13500\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(426-z_0)/(2\pi)\rfloor} z_0^{1/2\lfloor\arg(426-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(426-z_0)^k z_0^{-k}}{k!} + 5^{3/4}\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\left\lfloor\arg\left(\frac{142}{5}-z_0\right)/(2\pi)\right\rfloor} z_0^{1/2\left(1+\left\lfloor\arg\left(\frac{142}{5}-z_0\right)/(2\pi)\right\rfloor\right)}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{142}{5}-z_0\right)^k z_0^{-k}}{k!}\right)\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor} z_0^{1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right)\right) \Big/ \left(10\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(426-z_0)^k z_0^{-k}}{k!}\right)$$

$n!$ is the factorial function

$(a)_n$ is the Pochhammer symbol (rising factorial)

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

$\arg(z)$ is the complex argument

$\lfloor x\rfloor$ is the floor function

i is the imaginary unit

Now, we have that, from:

$$= -\left[m^2 D - \frac{1}{2}(17A' - C')\right]\Omega' + \frac{1}{2}(m^2 A + A'') - C\left[\Omega'' + 8(\Omega')^2\right]$$

-((((63.851^2*(-8Pi)-1/2(17*(-21.9911)-(-7*-21.9911))))*Pi + 1/2(((63.851^2*(-21.9911)+21.9911)))-(-7*-21.9911)*(Pi+8(Pi)^2)

Input interpretation:

$$-\left(\left(63.851^2(-8\pi) - \frac{1}{2}(17\times(-21.9911) - -7\times(-21.9911))\right)\pi + \frac{1}{2}(63.851^2\times(-21.9911)+21.9911) - (-7\times(-21.9911))(\pi+8\pi^2)\right)$$

Result:

$3.78529... \times 10^5$

378529

Alternative representations:

$$-\left(\left(63.851^2(-8)\pi - \frac{1}{2}(17(-21.9911) - -7(-21.9911))\right)\pi + \frac{1}{2}(63.851^2(-21.9911)+21.9911) - (\pi+8\pi^2)(-7)(-21.9911)\right) = \frac{1}{2}(-21.9911 + 21.9911\times 63.851^2) - \cos^{-1}(-1)(263.893 - 8\cos^{-1}(-1)\,63.851^2) + 153.938(\cos^{-1}(-1) + 8\cos^{-1}(-1)^2)$$

$$-\left(\left(63.851^2(-8)\pi - \frac{1}{2}(17(-21.9911) - -7(-21.9911))\right)\pi + \frac{1}{2}(63.851^2(-21.9911)+21.9911) - (\pi+8\pi^2)(-7)(-21.9911)\right) = \frac{1}{2}(-21.9911 + 21.9911\times 63.851^2) + i\log(-1)(263.893 + 8\,i\log(-1)\,63.851^2) + 153.938(-i\log(-1) + 8(-i\log(-1))^2)$$

$$-\left(\left(63.851^2 (-8) \pi - \frac{1}{2} (17 (-21.9911) - -7 (-21.9911))\right)\pi + \frac{1}{2} \left(63.851^2 (-21.9911) + 21.9911\right) - \left(\pi + 8 \pi^2\right) (-7) (-21.9911)\right) = \frac{1}{2} \left(-21.9911 + 21.9911 \times 63.851^2\right) - 180 \,^\circ \left(263.893 - 1440 \,^\circ\, 63.851^2\right) + 153.938 \left(180 \,^\circ + 8 (180 \,^\circ)^2\right)$$

Series representations:

$$-\left(\left(63.851^2 (-8) \pi - \frac{1}{2} (17 (-21.9911) - -7 (-21.9911))\right)\pi + \frac{1}{2} \left(63.851^2 (-21.9911) + 21.9911\right) - \left(\pi + 8 \pi^2\right) (-7) (-21.9911)\right) = 541554. \left(0.0827569 - 0.000812149 \sum_{k=0}^{\infty} \frac{(-1)^k}{1 + 2 k} + \left(\sum_{k=0}^{\infty} \frac{(-1)^k}{1 + 2 k}\right)^2\right)$$

$$-\left(\left(63.851^2 (-8) \pi - \frac{1}{2} (17 (-21.9911) - -7 (-21.9911))\right)\pi + \frac{1}{2} \left(63.851^2 (-21.9911) + 21.9911\right) - \left(\pi + 8 \pi^2\right) (-7) (-21.9911)\right) = 135388. \left(1.33265 - 2.00162 \sum_{k=1}^{\infty} \frac{2^k}{\binom{2k}{k}} + \left(\sum_{k=1}^{\infty} \frac{2^k}{\binom{2k}{k}}\right)^2\right)$$

$$-\left(\left(63.851^2 (-8) \pi - \frac{1}{2} (17 (-21.9911) - -7 (-21.9911))\right)\pi + \frac{1}{2} \left(63.851^2 (-21.9911) + 21.9911\right) - \left(\pi + 8 \pi^2\right) (-7) (-21.9911)\right) = 33847.1 \left(1.32411 - 0.00324859 \sum_{k=0}^{\infty} \frac{2^{-k} (-6 + 50 k)}{\binom{3k}{k}} + \left(\sum_{k=0}^{\infty} \frac{2^{-k} (-6 + 50 k)}{\binom{3k}{k}}\right)^2\right)$$

Integral representations:

$$-\left(\left(63.851^2 (-8) \pi - \frac{1}{2} (17 (-21.9911) - -7 (-21.9911))\right)\pi + \frac{1}{2} \left(63.851^2 (-21.9911) + 21.9911\right) - \left(\pi + 8 \pi^2\right) (-7) (-21.9911)\right) = 135388. \left(0.331028 - 0.0016243 \int_0^{\infty} \frac{1}{1 + t^2} \, dt + \left(\int_0^{\infty} \frac{1}{1 + t^2} \, dt\right)^2\right)$$

$$-\left(\left(63.851^2 (-8)\pi - \frac{1}{2}(17(-21.9911) - -7(-21.9911))\right)\pi + \frac{1}{2}(63.851^2(-21.9911) + 21.9911) - (\pi + 8\pi^2)(-7)(-21.9911)\right) = 135388.\left(0.331028 - 0.0016243\int_0^\infty \frac{\sin(t)}{t}\,dt + \left(\int_0^\infty \frac{\sin(t)}{t}\,dt\right)^2\right)$$

$$-\left(\left(63.851^2 (-8)\pi - \frac{1}{2}(17(-21.9911) - -7(-21.9911))\right)\pi + \frac{1}{2}(63.851^2(-21.9911) + 21.9911) - (\pi + 8\pi^2)(-7)(-21.9911)\right) = 541554.\left(0.0827569 - 0.000812149\int_0^1 \sqrt{1-t^2}\,dt + \left(\int_0^1 \sqrt{1-t^2}\,dt\right)^2\right)$$

We have also that:

((-((((63.851^2*(-8Pi)-1/2(17*(-21.9911)-(-7*-21.9911))))*Pi + 1/2(((63.851^2*(-21.9911)+21.9911)))-(-7*-21.9911)*(Pi+8(Pi)^2)))))^1/26-21/10^3

where 21 is a Fibonacci number

Input interpretation:

$$\left(-\left(\left(63.851^2 (-8\pi) - \frac{1}{2}(17\times(-21.9911) - -7\times(-21.9911))\right)\pi + \frac{1}{2}(63.851^2\times(-21.9911) + 21.9911) - (-7\times(-21.9911))(\pi + 8\pi^2)\right)\right)\hat{}\,(1/26) - \frac{21}{10^3}$$

Result:

1.617861650524622068496410237048256960770800114702031807028...

1.6178616505… result that is a very good approximation to the value of the golden ratio 1,618033988749...

Alternative representations:

$$\left(-\left(\left(63.851^2 (-8) \pi - \frac{1}{2} (17 (-21.9911) - -7 (-21.9911))\right)\pi + \frac{1}{2} \left(63.851^2 (-21.9911) + 21.9911\right) - \left(\pi + 8 \pi^2\right) (-7) (-21.9911)\right)\right)^\wedge (1/26) - \frac{21}{10^3} = -\frac{21}{10^3} + \left(\frac{1}{2} \left(-21.9911 + 21.9911 \times 63.851^2\right) - \cos^{-1}(-1) \left(263.893 - 8 \cos^{-1}(-1)\, 63.851^2\right) + 153.938 \left(\cos^{-1}(-1) + 8 \cos^{-1}(-1)^2\right)\right)^\wedge (1/26)$$

$$\left(-\left(\left(63.851^2 (-8) \pi - \frac{1}{2} (17 (-21.9911) - -7 (-21.9911))\right)\pi + \frac{1}{2} \left(63.851^2 (-21.9911) + 21.9911\right) - \left(\pi + 8 \pi^2\right) (-7) (-21.9911)\right)\right)^\wedge (1/26) - \frac{21}{10^3} = -\frac{21}{10^3} + \left(\frac{1}{2} \left(-21.9911 + 21.9911 \times 63.851^2\right) - 180\,° \left(263.893 - 1440\,°\, 63.851^2\right) + 153.938 \left(180\,° + 8 (180\,°)^2\right)\right)^\wedge (1/26)$$

$$\left(-\left(\left(63.851^2 (-8) \pi - \frac{1}{2} (17 (-21.9911) - -7 (-21.9911))\right)\pi + \frac{1}{2} \left(63.851^2 (-21.9911) + 21.9911\right) - \left(\pi + 8 \pi^2\right) (-7) (-21.9911)\right)\right)^\wedge (1/26) - \frac{21}{10^3} = -\frac{21}{10^3} + \left(\frac{1}{2} \left(-21.9911 + 21.9911 \times 63.851^2\right) - \pi \left(263.893 - 8 \pi\, 63.851^2\right) + 153.938 (\pi + 48 \zeta(2))\right)^\wedge (1/26)$$

Integral representations:

$$\left(-\left(\left(63.851^2 (-8) \pi - \frac{1}{2} (17 (-21.9911) - -7 (-21.9911))\right)\pi + \frac{1}{2} \left(63.851^2 (-21.9911) + 21.9911\right) - \left(\pi + 8 \pi^2\right) (-7) (-21.9911)\right)\right)^\wedge (1/26) - \frac{21}{10^3} = \frac{-21 + 1000 \sqrt[26]{44\,817.3 - 219.911 \int_0^\infty \frac{1}{1+t^2}\, dt + 135\,388.\left(\int_0^\infty \frac{1}{1+t^2}\, dt\right)^2}}{1000}$$

$$\left(-\left(\left(63.851^2\,(-8)\,\pi - \frac{1}{2}\,(17\,(-21.9911) - -7\,(-21.9911))\right)\pi + \frac{1}{2}\,(63.851^2\,(-21.9911) + 21.9911) - (\pi + 8\,\pi^2)\,(-7)\,(-21.9911)\right)\right)^\wedge(1/26) - \frac{21}{10^3} = \frac{-21 + 1000\,\sqrt[26]{44817.3 - 219.911\int_0^\infty \frac{\sin(t)}{t}\,dt + 135\,388.\left(\int_0^\infty \frac{\sin(t)}{t}\,dt\right)^2}}{1000}$$

$$\left(-\left(\left(63.851^2\,(-8)\,\pi - \frac{1}{2}\,(17\,(-21.9911) - -7\,(-21.9911))\right)\pi + \frac{1}{2}\,(63.851^2\,(-21.9911) + 21.9911) - (\pi + 8\,\pi^2)\,(-7)\,(-21.9911)\right)\right)^\wedge(1/26) - \frac{21}{10^3} = \frac{-21 + 1000\,\sqrt[26]{44817.3 - 439.822\int_0^1 \sqrt{1-t^2}\,dt + 541554.\left(\int_0^1 \sqrt{1-t^2}\,dt\right)^2}}{1000}$$

With regard 378529, from the formula of the Coefficients of the "5^{th} order mock theta function $\psi_1(q)$, we obtain:

sqrt(golden ratio) * exp(Pi*sqrt(425/15)) / (2*5^(1/4)*sqrt(425))+843+123+11+golden ratio^2

where 843, 123 and 11 are Lucas numbers

Input:

$$\sqrt{\phi} \times \frac{\exp\left(\pi\sqrt{\frac{425}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{425}} + 843 + 123 + 11 + \phi^2$$

ϕ is the golden ratio

Exact result:

$$\frac{e^{\sqrt{85/3}\,\pi}\sqrt{\frac{\phi}{17}}}{10\sqrt[4]{5}} + \phi^2 + 977$$

Decimal approximation:

378529.7144355405272489718746778697485206447464601142407748...

378529.714….

Property:

$$977+\frac{e^{\sqrt{85/3}\,\pi}\sqrt{\frac{\phi}{17}}}{10\sqrt[4]{5}}+\phi^2 \text{ is a transcendental number}$$

Alternate forms:

$$\frac{1}{2}\left(1957+\sqrt{5}\right)+\frac{1}{10}\sqrt{\frac{1}{170}\left(5+\sqrt{5}\right)}\, e^{\sqrt{85/3}\,\pi}$$

$$\frac{1663450+850\sqrt{5}+5^{3/4}\sqrt{34\left(1+\sqrt{5}\right)}\, e^{\sqrt{85/3}\,\pi}}{1700}$$

$$\frac{1957}{2}+\frac{\sqrt{5}}{2}+\frac{\sqrt{\frac{1}{34}\left(1+\sqrt{5}\right)}\, e^{\sqrt{85/3}\,\pi}}{10\sqrt[4]{5}}$$

Series representations:

$$\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{425}{15}}\right)}{2\sqrt[4]{5}\sqrt{425}}+843+123+11+\phi^2=$$
$$\left(9770\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(425-z_0)^k z_0^{-k}}{k!}+10\phi^2\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(425-z_0)^k z_0^{-k}}{k!}+\right.$$
$$\left.5^{3/4}\exp\left(\pi\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{85}{3}-z_0\right)^k z_0^{-k}}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right)\Bigg/$$
$$\left(10\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(425-z_0)^k z_0^{-k}}{k!}\right) \text{ for not } ((z_0\in\mathbb{R} \text{ and } -\infty<z_0\le 0))$$

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{425}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{425}}+843+123+11+\phi^2=$$

$$\left(9770\exp\left(i\pi\left\lfloor\frac{\arg(425-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(425-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}+10\phi^2\exp\left(i\pi\left\lfloor\frac{\arg(425-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(425-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}+5^{3/4}\exp\left(i\pi\left\lfloor\frac{\arg(\phi-x)}{2\pi}\right\rfloor\right)\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg\left(\frac{85}{3}-x\right)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k\left(\frac{85}{3}-x\right)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k(\phi-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\Big/\left(10\exp\left(i\pi\left\lfloor\frac{\arg(425-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(425-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)$$

for ($x\in\mathbb{R}$ and $x<0$)

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{425}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{425}}+843+123+11+\phi^2=$$

$$\left(\left(\frac{1}{z_0}\right)^{-1/2\lfloor\arg(425-z_0)/(2\pi)\rfloor}z_0^{-1/2\lfloor\arg(425-z_0)/(2\pi)\rfloor}\left(9770\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(425-z_0)/(2\pi)\rfloor}z_0^{1/2\lfloor\arg(425-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(425-z_0)^k z_0^{-k}}{k!}+10\phi^2\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(425-z_0)/(2\pi)\rfloor}z_0^{1/2\lfloor\arg(425-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(425-z_0)^k z_0^{-k}}{k!}+5^{3/4}\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\left\lfloor\arg\left(\frac{85}{3}-z_0\right)/(2\pi)\right\rfloor}z_0^{1/2\left(1+\left\lfloor\arg\left(\frac{85}{3}-z_0\right)/(2\pi)\right\rfloor\right)}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{85}{3}-z_0\right)^k z_0^{-k}}{k!}\right)\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}z_0^{1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right)\right)\Big/\left(10\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(425-z_0)^k z_0^{-k}}{k!}\right)$$

$n!$ is the factorial function

$(a)_n$ is the Pochhammer symbol (rising factorial)

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

$\arg(z)$ is the complex argument

$\lfloor x \rfloor$ is the floor function

i is the imaginary unit

From

$$-\frac{1}{8}\, e^{2\Omega} V_\phi\, \varphi$$

we obtain:

-1/8* e^(Pi*sqrt22)*(138*7752.19)

Input interpretation:

$$-\frac{1}{8}\, e^{\pi\sqrt{22}}\,(138\times 7752.19)$$

Result:

$$-3.35510\ldots \times 10^{11}$$

-3.35510…*10^{11}

Series representations:

$$\frac{1}{8}\left(e^{\pi\sqrt{22}}\,(138\times 7752.19)\right)(-1) = -133\,725.\, e^{\pi\sqrt{21}\sum_{k=0}^{\infty} 21^{-k}\binom{1/2}{k}}$$

$$\frac{1}{8}\left(e^{\pi\sqrt{22}}\,(138\times 7752.19)\right)(-1) = -133\,725.\, e^{\pi\sqrt{21}\sum_{k=0}^{\infty}\frac{\left(-\frac{1}{21}\right)^k\left(-\frac{1}{2}\right)_k}{k!}}$$

$$\frac{1}{8}\left(e^{\pi\sqrt{22}}\,(138\times 7752.19)\right)(-1) = -133\,725.\exp\left(\frac{\pi\sum_{j=0}^{\infty}\operatorname{Res}_{s=-\frac{1}{2}+j} 21^{-s}\,\Gamma\left(-\frac{1}{2}-s\right)\Gamma(s)}{2\sqrt{\pi}}\right)$$

$\binom{n}{m}$ is the binomial coefficient

$n!$ is the factorial function

$(a)_n$ is the Pochhammer symbol (rising factorial)

$\Gamma(x)$ is the gamma function

$\underset{z=z_0}{\text{Res}} f$ is a complex residue

Thence, we obtain:

(-3.35510e+11) = (3.78529 × 10^5)x

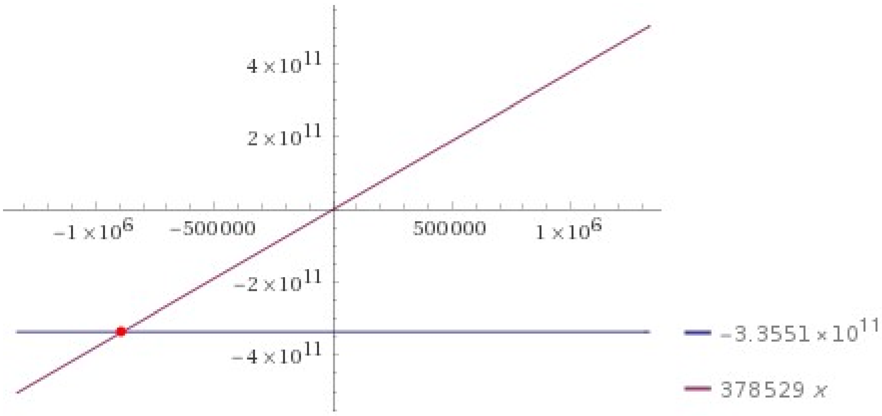
Input interpretation:

$-3.35510 \times 10^{11} = 3.78529 \times 10^5 x$

Result:

$-3.3551 \times 10^{11} = 378529 x$

Plot:



Alternate form:

$-378529 x - 3.3551 \times 10^{11} = 0$

Alternate form assuming x is real:

$-3.3551 \times 10^{11} = 378529 x + 0$

Solution:

$x \approx -886352.$

-886352

We have also that:

(-(-886352))^1/2-Pi

Input:

$$\sqrt{-(-886\,352)} - \pi$$

Result:

$$4\sqrt{55\,397} - \pi$$

Decimal approximation:

938.3210991191644180077326288419427562200269647816915181540...

938.32109911… result practically equal to the proton mass in MeV 938.272046

Property:

$4\sqrt{55\,397} - \pi$ is a transcendental number

With regard 886352, from the formula of the Coefficients of the "5th order mock theta function $\psi_1(q)$, we obtain:

sqrt(golden ratio) * exp(Pi*sqrt(472/15)) / (2*5^(1/4)*sqrt(472)) + 5778 - 843 - 123 + golden ratio^2

where 5778, 843 and 123 are Lucas numbers

Input:

$$\sqrt{\phi} \times \frac{\exp\left(\pi\sqrt{\frac{425}{15}}\right)}{2\sqrt[4]{5}\sqrt{425}} + 843 + 123 + 11 + \phi^2$$

ϕ is the golden ratio

Exact result:

$$\frac{e^{\sqrt{85/3}\,\pi}\sqrt{\frac{\phi}{17}}}{10\sqrt[4]{5}} + \phi^2 + 977$$

Decimal approximation:

378529.71443554052724897187467786974852064474646011424077748...

378529.714….

Property:

$977 + \frac{e^{\sqrt{85/3}\,\pi}\sqrt{\frac{\phi}{17}}}{10\sqrt[4]{5}} + \phi^2$ is a transcendental number

Alternate forms:

$$\frac{1}{2}\left(1957 + \sqrt{5}\right) + \frac{1}{10}\sqrt{\frac{1}{170}\left(5 + \sqrt{5}\right)}\, e^{\sqrt{85/3}\,\pi}$$

$$\frac{1663450 + 850\sqrt{5} + 5^{3/4}\sqrt{34\left(1 + \sqrt{5}\right)}\, e^{\sqrt{85/3}\,\pi}}{1700}$$

$$\frac{1957}{2} + \frac{\sqrt{5}}{2} + \frac{\sqrt{\frac{1}{34}\left(1 + \sqrt{5}\right)}\, e^{\sqrt{85/3}\,\pi}}{10\sqrt[4]{5}}$$

Series representations:

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{425}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{425}} + 843 + 123 + 11 + \phi^2 = \left(9770\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k (425 - z_0)^k z_0^{-k}}{k!} + 10\,\phi^2\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k (425 - z_0)^k z_0^{-k}}{k!} + 5^{3/4}\exp\left(\pi\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{85}{3} - z_0\right)^k z_0^{-k}}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k (\phi - z_0)^k z_0^{-k}}{k!}\right) \Bigg/ \left(10\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k (425 - z_0)^k z_0^{-k}}{k!}\right) \quad \text{for not } ((z_0 \in \mathbb{R} \text{ and } -\infty < z_0 \le 0))$$

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{425}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{425}}+843+123+11+\phi^2 = \left(9770\exp\left(i\pi\left\lfloor\frac{\arg(425-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k (425-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!} + 10\phi^2\exp\left(i\pi\left\lfloor\frac{\arg(425-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k (425-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!} + 5^{3/4}\exp\left(i\pi\left\lfloor\frac{\arg(\phi-x)}{2\pi}\right\rfloor\right)\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg\left(\frac{85}{3}-x\right)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k\left(\frac{85}{3}-x\right)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k(\phi-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right) \Big/ \left(10\exp\left(i\pi\left\lfloor\frac{\arg(425-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(425-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)$$

for ($x \in \mathbb{R}$ and $x < 0$)

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{425}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{425}}+843+123+11+\phi^2 = \left(\left(\frac{1}{z_0}\right)^{-1/2\lfloor\arg(425-z_0)/(2\pi)\rfloor} z_0^{-1/2\lfloor\arg(425-z_0)/(2\pi)\rfloor}\left(9770\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(425-z_0)/(2\pi)\rfloor} z_0^{1/2\lfloor\arg(425-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(425-z_0)^k z_0^{-k}}{k!} + 10\phi^2\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(425-z_0)/(2\pi)\rfloor} z_0^{1/2\lfloor\arg(425-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(425-z_0)^k z_0^{-k}}{k!} + 5^{3/4}\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\left\lfloor\arg\left(\frac{85}{3}-z_0\right)/(2\pi)\right\rfloor} z_0^{1/2\left(1+\left\lfloor\arg\left(\frac{85}{3}-z_0\right)/(2\pi)\right\rfloor\right)}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{85}{3}-z_0\right)^k z_0^{-k}}{k!}\right)\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor} z_0^{1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right)\right) \Big/ \left(10\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(425-z_0)^k z_0^{-k}}{k!}\right)$$

$n!$ is the factorial function

$(a)_n$ is the Pochhammer symbol (rising factorial)

ℝ is the set of real numbers

arg(z) is the complex argument

⌊x⌋ is the floor function

i is the imaginary unit

We have also:

-(-886352/12+521-123-29)

where 521, 123 and 29 are Lucas numbers

Input:

$$-\left(-\frac{886352}{12}+521-123-29\right)$$

Exact result:

$$\frac{220481}{3}$$

Decimal approximation:

73493.66666666666666666666666666666666666666666666666666...

73493.666...

Thence, we have the following mathematical connection:

$$\left(-\left(-\frac{886352}{12}+521-123-29\right)\right) = 73493.666... \Rightarrow$$

$$\Rightarrow -3927+2\left(\sqrt[13]{\begin{array}{c} N\exp\left[\int d\hat{\sigma}\left(-\frac{1}{4u^2}\mathbf{P}_i D\mathbf{P}_i\right)\right]|Bp\rangle_{NS} + \\ \int[d\mathbf{X}^\mu]\exp\left\{\int d\hat{\sigma}\left(-\frac{1}{4v^2}D\mathbf{X}^\mu D^2\mathbf{X}^\mu\right)\right\}|\mathbf{X}^\mu,\mathbf{X}^i=0\rangle_{NS}\end{array}}\right) =$$

$$-3927+2\sqrt[13]{2.2983717437\times10^{59}+2.0823329825883\times10^{59}}$$

$$= 73490.8437525.... \Rightarrow$$

$$\Rightarrow \left(A(r) \times \frac{1}{B(r)} \left(-\frac{1}{\phi(r)} \right) \times \frac{1}{e^{\Lambda(r)}} \right) \Rightarrow$$

$$\Rightarrow \left(-0.000029211892 \times \frac{1}{0.0003644621} \left(-\frac{1}{0.0005946833} \right) \times \frac{1}{0.00183393} \right) =$$

$$= 73491.788325481187105491595720422205480251957265634133987 00\ldots$$

$$= 73491.7883254\ldots \Rightarrow$$

$$\left(\begin{array}{c} I_{21} \ll \int_{-\infty}^{+\infty} \exp\left(-\left(\frac{t}{H}\right)^2\right) \left| \sum_{\lambda \leq P^{1-\varepsilon_2}} \frac{a(\lambda)}{\sqrt{\lambda}} B(\lambda) \lambda^{-i(T+t)} \right|^2 dt \ll \\ \ll H \left\{ \left(\frac{4}{\varepsilon_2 \log T} \right)^{2r} (\log T)(\log X)^{-2\beta} + (\varepsilon_2^{-2r} (\log T)^{-2r} + \varepsilon_2^{-r} h_1^r (\log T)^{-r}) T^{-\varepsilon_1} \right\} \end{array} \right) /$$

$$/(26 \times 4)^2 - 24 = \left(\frac{7.9313976505275 \times 10^8}{(26 \times 4)^2 - 24} \right) = 73493.30662\ldots$$

Mathematical connections with the boundary state corresponding to the NSNS-sector of N Dp-branes in the limit of u → ∞, with the ratio concerning the general asymptotically flat solution of the equations of motion of the p-brane and with the Karatsuba's equation concerning the zeros of a special type of function connected with Dirichlet series.

We have also that:

-(-886352/521)+24+Pi

Input:

$$-\left(-\frac{886\,352}{521}\right) + 24 + \pi$$

Result:

$$\frac{898\,856}{521} + \pi$$

Decimal approximation:

1728.3930321929372020676373074907651074907230811076284647 46...

1728.393….

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

Property:

$\frac{898856}{521} + \pi$ is a transcendental number

Alternate form:

$$\frac{1}{521}(898856 + 521\pi)$$

Alternative representations:

$$-\frac{-886352}{521} + 24 + \pi = 24 + 180° + \frac{886352}{521}$$

$$-\frac{-886352}{521} + 24 + \pi = 24 - i\log(-1) + \frac{886352}{521}$$

$$-\frac{-886352}{521} + 24 + \pi = 24 + \cos^{-1}(-1) + \frac{886352}{521}$$

Series representations:

$$-\frac{-886352}{521} + 24 + \pi = \frac{898856}{521} + 4\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}$$

$$-\frac{-886352}{521} + 24 + \pi = \frac{898856}{521} + \sum_{k=0}^{\infty} -\frac{4(-1)^k\, 1195^{-1-2k}\left(5^{1+2k} - 4\times 239^{1+2k}\right)}{1+2k}$$

$$-\frac{-886352}{521} + 24 + \pi = \frac{898856}{521} + \sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k} + \frac{2}{1+4k} + \frac{1}{3+4k}\right)$$

Integral representations:

$$-\frac{-886352}{521}+24+\pi=\frac{898856}{521}+4\int_0^1\sqrt{1-t^2}\,dt$$

$$-\frac{-886352}{521}+24+\pi=\frac{898856}{521}+2\int_0^1\frac{1}{\sqrt{1-t^2}}\,dt$$

$$-\frac{-886352}{521}+24+\pi=\frac{898856}{521}+2\int_0^\infty\frac{1}{1+t^2}\,dt$$

From:

AdS Vacua from Dilaton Tadpoles and Form Fluxes
J. Mourad a and A. Sagnotti b - arXiv:1612.08566v2 [hep-th] 22 Feb 2017

2.2 $AdS_3 \times S_7$ AND $AdS_7 \times S_3$ SOLUTIONS IN THE 10D HETEROTIC $SO(16) \times SO(16)$

We have that:

$$e^{2C} = \frac{2\xi e^{\frac{\phi}{2}}}{1 \pm \sqrt{1-\frac{\xi T}{3}e^{2\phi}}}$$

$$\frac{h^2}{32} = \frac{\xi^7 e^{4\phi}}{\left(1 \pm \sqrt{1-\frac{\xi T}{3}e^{2\phi}}\right)^7}\left[\frac{42}{\xi}\left(1 \pm \sqrt{1-\frac{\xi T}{3}e^{2\phi}}\right) + 5\,T e^{2\phi}\right] . \quad (2.7)$$

that are two non-tachyonic orientifold models

$T = \frac{16}{\pi^2}$

$\xi = 1$

$$g_s \equiv e^{\phi} \sim \frac{12}{(2hT^3)^{\frac{1}{4}}}, \qquad R^4 g_s^3 \sim \frac{144}{T^2}, \qquad (A')^2 \sim k\,e^{-2A} + \frac{6}{R^2} . \quad (2.8)$$

We have also:

$$\frac{h^2}{32} = \frac{e^{-4\phi}}{\left[1 + \sqrt{1 + \frac{\Lambda}{3} e^{2\phi}}\right]^7} \left[42\left(1 + \sqrt{1 + \frac{\Lambda}{3} e^{2\phi}}\right) - 13\,\Lambda\, e^{2\phi}\right] . \qquad (2.10)$$

$$g_s \equiv e^{\phi} \sim \left(\frac{21}{h^2}\right)^{\frac{1}{4}} , \qquad g_s R^4 \sim 1 , \qquad (A')^2 \sim k e^{-2A} + \frac{21}{4R^2} , \qquad (2.11)$$

$$\Lambda \simeq \frac{4\pi^2}{25}$$

$$e^{\phi} \sim \left(\frac{21}{h^2}\right)^{\frac{1}{4}}$$

From (2.10)

$$\frac{h^2}{32} = \frac{e^{-4\phi}}{\left[1 + \sqrt{1 + \frac{\Lambda}{3} e^{2\phi}}\right]^7} \left[42\left(1 + \sqrt{1 + \frac{\Lambda}{3} e^{2\phi}}\right) - 13\,\Lambda\, e^{2\phi}\right] . \qquad (2.10)$$

We obtain:

x^2/32 = (((21/x^2)^0.25))^-4 / (((1+sqrt(((((1+(4Pi^2)/25*1/3*((21/x^2)^0.25))^2)))))))^7 ((((42(1+sqrt((((((1+(4Pi^2)/25*1/3*((21/x^2)^0.25))^2))))))- 13*(4Pi^2)/25*(((21/x^2)^0.25))^2))))

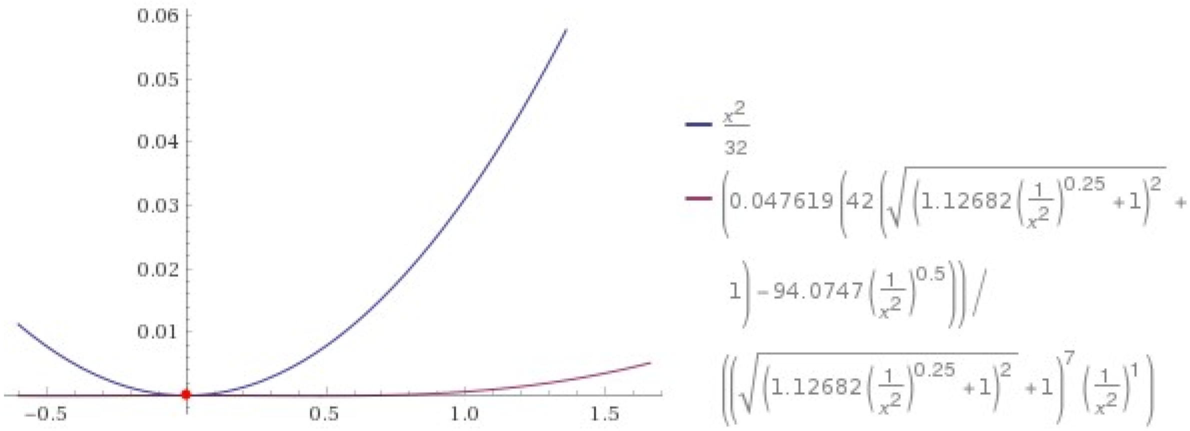
Input:

$$\frac{x^2}{32} = \frac{1}{\left(\left(\frac{21}{x^2}\right)^{0.25}\right)^4 \left(1 + \sqrt{\left(1 + \left(\frac{1}{25}\left(4\pi^2\right)\right) \times \frac{1}{3}\left(\frac{21}{x^2}\right)^{0.25}\right)^2}\right)^7} \left(42\left(1 + \sqrt{\left(1 + \left(\frac{1}{25}\left(4\pi^2\right)\right) \times \frac{1}{3}\left(\frac{21}{x^2}\right)^{0.25}\right)^2}\right) - 13\left(\frac{1}{25}\left(4\pi^2\right)\right)\left(\left(\frac{21}{x^2}\right)^{0.25}\right)^2\right)$$

Result:

$$\frac{x^2}{32} = \frac{0.047619\left(42\left(\sqrt{\left(1.12682\left(\frac{1}{x^2}\right)^{0.25}+1\right)^2}+1\right)-94.0747\left(\frac{1}{x^2}\right)^{0.5}\right)}{\left(\sqrt{\left(1.12682\left(\frac{1}{x^2}\right)^{0.25}+1\right)^2}+1\right)^7\left(\frac{1}{x^2}\right)^1}$$

Plot:



Solutions:

$x = -7212034398890482094499780624384$

$x = 7212034398890482094499780624384$

7212034398890482094499780624384 =

$= 7.212034398890482094499780624384 \times 10^{30} \approx 7.212 * 10^{30}$

1/32*(7.212e+30)^2

Input interpretation:

$$\frac{1}{32}(7.212\times 10^{30})^2$$

Result:

1625404500000000000000000000000000000000000000000000000000000

Scientific notation:

1.6254045×10^{60}

1.6254045*10^{60}

We have also that:

(((1/32*(7.212e+30)^2)))^1/16-7-Pi+1/golden ratio

where 7 is a Lucas number

Input interpretation:

$$\sqrt[16]{\frac{1}{32}(7.212\times 10^{30})^2} - 7 - \pi + \frac{1}{\phi}$$

ϕ is the golden ratio

Result:

5787.23338767314426818841034911 03...

5787.2333876… result practically equal to the rest mass of bottom Xi baryon 5787.8

((((42(1+sqrt((((((1+(4Pi^2)/25*1/3*((21/(7.212e+30)^2)^0.25))^2))))))-13*(4Pi^2)/25*(((21/(7.212e+30)^2)^0.25))^2))))

Input interpretation:

$$42\left(1+\sqrt{\left(1+\left(\frac{1}{25}(4\pi^2)\right)\times\frac{1}{3}\left(\frac{21}{(7.212\times 10^{30})^2}\right)^{0.25}\right)^2}\right) - 13\left(\frac{1}{25}(4\pi^2)\right)\left(\left(\frac{21}{(7.212\times 10^{30})^2}\right)^{0.25}\right)^2$$

Result:

84.000000000000017623...

84

(((21/(7.212e+30)^2)^0.25))^-4 / (((1+sqrt(((((1+(4Pi^2)/25*1/3*((21/(7.212e+30)^2)^0.25))^2)))))))^7 * 84.000000000000017623

Input interpretation:

$$\frac{1}{\left(\left(\frac{21}{(7.212\times 10^{30})^2}\right)^{0.25}\right)^4\left(1+\sqrt{\left(1+\left(\frac{1}{25}\,(4\,\pi^2)\right)\times\frac{1}{3}\left(\frac{21}{(7.212\times 10^{30})^2}\right)^{0.25}\right)^2}\right)^7}\times 84.000000000000017623$$

Result:

$1.62540... \times 10^{60}$

Input interpretation:

$1.62540449999999795399213736179869451044126887752 \times 10^{60}$

$1.6254045 \cdot 10^{60}$

We have that:

$$\begin{aligned} e^{2C} &= \frac{\xi}{2}\,\frac{e^{-\frac{\phi}{2}}}{1-\sqrt{1-\xi\,\Lambda\,e^{2\phi}}}\,, \\ \frac{h^2}{3} &= \xi^3\,\frac{\left[\frac{17\Lambda}{24}\,e^{2\phi}-\frac{1}{\xi}\left(1-\sqrt{1-\xi\,\Lambda\,e^{2\phi}}\right)\right]}{\left(1-\sqrt{1-\xi\,\Lambda\,e^{2\phi}}\right)^3}\,, \end{aligned} \qquad (2.12)$$

$\Lambda \simeq \frac{4\pi^2}{25}$

$e^{\phi} \sim \left(\frac{5}{h^2\,\Lambda^2}\right)^{\frac{1}{4}}$

(x^2)/3 = (17*4Pi^2*1/25*1/24*(((5/((4Pi^2*1/25)^2*x^2))^0.25)))^2-1(1-sqrt((((1-4Pi^2*1/25*(((5/((4Pi^2*1/25)^2*x^2))^0.25)))^2))))*1/((((1-sqrt((((1-4Pi^2*1/25*(((5/((4Pi^2*1/25)^2*x^2))^0.25)))^2)))))))^3

Thence:

$$\frac{h^2}{3} = \xi^3 \frac{\left[\frac{17\Lambda}{24} e^{2\phi} - \frac{1}{\xi}\left(1 - \sqrt{1 - \xi\Lambda e^{2\phi}}\right)\right]}{\left(1 - \sqrt{1 - \xi\Lambda e^{2\phi}}\right)^3}$$

$$\left(\frac{17\Lambda}{24} e^{2\phi}\right) = \left(\left(17\left(\frac{1}{25}\left(4\pi^2\right)\right)\times\frac{1}{24}\left(\frac{5}{\left(4\pi^2\times\frac{1}{25}\right)^2 x^2}\right)^{0.25}\right)^2\right)$$

(((17*(4Pi^2)/25*1/24*(((5/((4Pi^2*1/25)^2*x^2))^0.25))))))^2-1(1-sqrt((((1-4Pi^2*1/25*(((5/((4Pi^2*1/25)^2*x^2))^0.25)))^2))))*1/((((1-sqrt((((1-4Pi^2*1/25*(((5/((4Pi^2*1/25)^2*x^2))^0.25)))^2)))))))^3

(((17*(4Pi^2)/25*1/24*(((5/((4Pi^2*1/25)^2*x^2))^0.25))))))^2

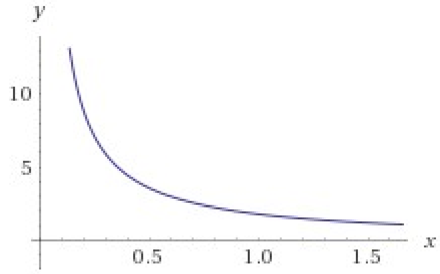
Input:

$$\left(17\left(\frac{1}{25}\left(4\pi^2\right)\right)\times\frac{1}{24}\left(\frac{5}{\left(4\pi^2\times\frac{1}{25}\right)^2 x^2}\right)^{0.25}\right)^2$$

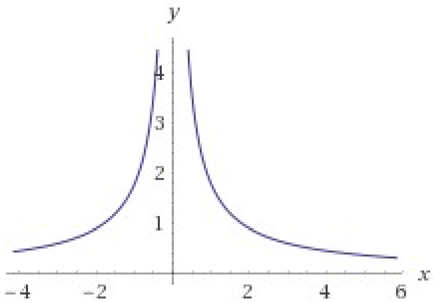
Result:

$$1.77166\left(\frac{1}{x^2}\right)^{0.5}$$

Plots:



(x from 0 to 1.7)



(x from −4.1 to 5.8)

Alternate form:

$$1.77166\sqrt{\frac{1}{x^2}}$$

Alternate form assuming x>0:

$$\frac{1.77166}{x^1}$$

Alternate forms assuming x is real:

$$1.77166\left(\frac{1}{x^4}\right)^{0.25}$$

$$\frac{1.77166}{|x|^1}$$

$|z|$ is the absolute value of z

Roots:

(no roots exist)

Properties as a real function:

Domain

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

Range

$\{y \in \mathbb{R} : y > 0\}$ (all positive real numbers)

Parity

even

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

Derivative:

$$\frac{d}{dx}\left(\left(\frac{17\,(4\,\pi^2)\left(\frac{5}{\left(\frac{4\,\pi^2}{25}\right)^2 x^2}\right)^{0.25}}{25\times 24}\right)^2\right) = -\frac{1.77166}{\left(\frac{1}{x^2}\right)^{0.5} x^3}$$

Indefinite integral:

$$\int 1.77166\left(\frac{1}{x^2}\right)^{0.5} dx = 1.77166\sqrt{\frac{1}{x^2}}\; x\log(x) + \text{constant}$$

(assuming a complex-valued logarithm)

$\log(x)$ is the natural logarithm

Limit:

$$\lim_{x\to\pm\infty} 1.77166\left(\frac{1}{x^2}\right)^{0.5} = 0 \approx 0$$

Alternative representations:

$$\left(\frac{\left(17\left(\frac{5}{\left(\frac{4\,\pi^2}{25}\right)^2 x^2}\right)^{0.25}\right)4\,\pi^2}{25\times 24}\right)^2 = \left(\frac{408\left(\frac{5}{x^2\left(\frac{24\,\zeta(2)}{25}\right)^2}\right)^{0.25}\zeta(2)}{24\times 25}\right)^2$$

$$\left(\frac{\left(17\left(\frac{5}{\left(\frac{4\,\pi^2}{25}\right)^2 x^2}\right)^{0.25}\right)4\,\pi^2}{25\times 24}\right)^2 = \left(\frac{68\,(180\,°)^2\left(\frac{5}{x^2\left(\frac{4}{25}\,(180\,°)^2\right)^2}\right)^{0.25}}{24\times 25}\right)^2$$

$$\left(\frac{\left(17\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 x^2}\right)^{0.25}\right)4\pi^2}{25\times 24}\right)^2 = \left(\frac{68\cos^{-1}(-1)^2\left(\frac{5}{x^2\left(\frac{4}{25}\cos^{-1}(-1)^2\right)^2}\right)^{0.25}}{24\times 25}\right)^2$$

Integral representations:

$$\left(\frac{\left(17\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 x^2}\right)^{0.25}\right)4\pi^2}{25\times 24}\right)^2 = \frac{0.718026}{x^2\left(\frac{1}{x^2\left(\int_0^\infty \frac{1}{1+t^2}\,dt\right)^4}\right)^{0.5}}$$

$$\left(\frac{\left(17\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 x^2}\right)^{0.25}\right)4\pi^2}{25\times 24}\right)^2 = \frac{2.87211}{x^2\left(\frac{1}{x^2\left(\int_0^1 \sqrt{1-t^2}\,dt\right)^4}\right)^{0.5}}$$

$$\left(\frac{\left(17\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 x^2}\right)^{0.25}\right)4\pi^2}{25\times 24}\right)^2 = \frac{0.718026}{x^2\left(\frac{1}{x^2\left(\int_0^\infty \frac{\sin(t)}{t}\,dt\right)^4}\right)^{0.5}}$$

1.77166 (1/x^2)^0.5 -1(1-sqrt((((1-4Pi^2*1/25*(((5/((4Pi^2*1/25)^2*x^2))^0.25)))^2))))*1/(((((1-sqrt((((1-4Pi^2*1/25*(((5/((4Pi^2*1/25)^2*x^2))^0.25)))^2)))))))^3

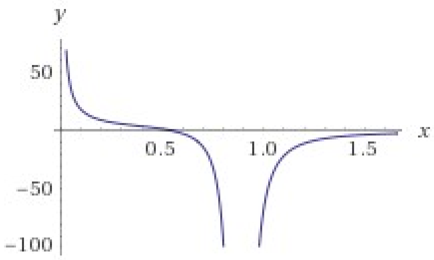
Input interpretation:

$$1.77166\sqrt{\frac{1}{x^2}} - 1\left(1-\sqrt{\left(1-4\pi^2\times\frac{1}{25}\left(\frac{5}{\left(4\pi^2\times\frac{1}{25}\right)^2 x^2}\right)^{0.25}\right)^2}\right)\times$$
$$\frac{1}{\left(1-\sqrt{\left(1-4\pi^2\times\frac{1}{25}\left(\frac{5}{\left(4\pi^2\times\frac{1}{25}\right)^2 x^2}\right)^{0.25}\right)^2}\right)^3}$$

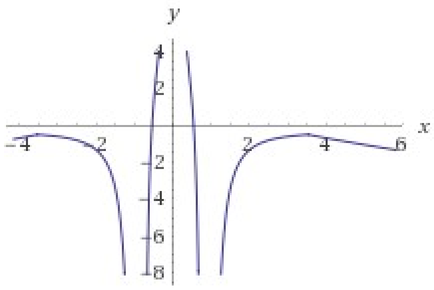
Result:

$$1.77166\sqrt{\frac{1}{x^2}} - \frac{1}{\left(1-\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}\right)^2}$$

Plots:



(x from 0 to 1.7)



(x from -4.1 to 5.8)

Alternate form assuming x is real:

$$\frac{1.77166}{|x|} - \frac{1}{\left(\left|1-\frac{1.87911}{|x|^{0.5}}\right|-1\right)^2}$$

|z| is the absolute value of z

Alternate forms:

$$1.77166\sqrt{\frac{1}{x^2}} - \frac{1}{\left(\sqrt{\left(1.87911\sqrt[4]{\frac{1}{x^2}}-1\right)^2}-1\right)^2}$$

$$\left(1.77166\left(\sqrt{\frac{1}{x^2}}\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2-2\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}\sqrt{\frac{1}{x^2}}+\sqrt{\frac{1}{x^2}}-0.564442\right)\right)\Big/\left(\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}-1\right)^2$$

$$-\left(\left(\sqrt{\frac{1}{x^2}}\left(-6.25583\sqrt{\frac{1}{x^2}}+6.65829\sqrt[4]{\frac{1}{x^2}}-3.54332\right)+3.54332\sqrt{\left(1.87911\sqrt[4]{\frac{1}{x^2}}-1\right)^2}\sqrt{\frac{1}{x^2}}+1\right)\Big/\left(\sqrt{\left(1.87911\sqrt[4]{\frac{1}{x^2}}-1\right)^2}-1\right)^2\right)$$

Alternate forms assuming x>0:

$$\frac{1.77166}{x}-\frac{1}{\left(\left|1-\frac{1.87911}{x^{0.5}}\right|-1\right)^2}$$

$$\frac{1.77166}{x}-\frac{1}{\left(1-\left|1-\frac{1.87911}{x^{0.5}}\right|\right)^2}$$

Properties as a real function:

Domain

$\{x\in\mathbb{R} : x\neq-\frac{\pi^2}{5\sqrt{5}}$ and $x\neq0$ and $x\neq\frac{\pi^2}{5\sqrt{5}}\}$

Range

$\mathbb{R}$ (all real numbers)

Surjectivity

surjective onto $\mathbb{R}$

Parity

even

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

Series expansion at x = -3.53106 - 6.83827×10^-8 i:

$$-(0.498264+2.90827\times10^{-8}\,i)+(0.425294-5.50354\times10^{-9}\,i)(x+(3.53106+6.83827\times10^{-8}\,i))+(0.0402408-2.14899\times10^{-9}\,i)(x+(3.53106+6.83827\times10^{-8}\,i))^2+(0.014159-7.27498\times10^{-10}\,i)(x+(3.53106+6.83827\times10^{-8}\,i))^3+(0.00508754-40402.\,i)(x+(3.53106+6.83827\times10^{-8}\,i))^4+O((x+(3.53106+6.83827\times10^{-8}\,i))^5)$$

(Taylor series)

Series expansion at x = -3.53106 + 6.83827×10^-8 i:

$$-(0.498264+9.6494\times10^{-9}\,i)-(0.141109+1.09499\times10^{-8}\,i)(x+(3.53106-6.83827\times10^{-8}\,i))-(0.0800637+7.95736\times10^{-9}\,i)(x+(3.53106-6.83827\times10^{-8}\,i))^2-(0.0424721+4.84519\times10^{-9}\,i)(x+(3.53106-6.83827\times10^{-8}\,i))^3-(0.0201414+40402.\,i)(x+(3.53106-6.83827\times10^{-8}\,i))^4+O((x+(3.53106-6.83827\times10^{-8}\,i))^5)$$

(Taylor series)

Series expansion at x = 0:

$$\left(1.77166\sqrt{\frac{1}{x^2}}+O(x^7)\right)-\frac{1}{\left(\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}-1\right)^2}$$

Series expansion at x = 3.53106 - 6.83827×10^-8 i:

$$-(0.498264+9.6494\times10^{-9}\,i)+(0.141109+1.09499\times10^{-8}\,i)(x-(3.53106-6.83827\times10^{-8}\,i))-(0.0800637+7.95736\times10^{-9}\,i)(x-(3.53106-6.83827\times10^{-8}\,i))^2+(0.0424721+4.84519\times10^{-9}\,i)(x-(3.53106-6.83827\times10^{-8}\,i))^3-(0.0201414+40402.\,i)(x-(3.53106-6.83827\times10^{-8}\,i))^4+O((x-(3.53106-6.83827\times10^{-8}\,i))^5)$$

(Taylor series)

Series expansion at x = 3.53106 + 6.83827×10^-8 i:

$$-(0.498264 + 2.90827\times10^{-8}\, i) - (0.425294 - 5.50354\times10^{-9}\, i)(x-(3.53106 + 6.83827\times10^{-8}\, i)) + (0.0402408 - 2.14899\times10^{-9}\, i)(x-(3.53106 + 6.83827\times10^{-8}\, i))^2 - (0.014159 - 7.27498\times10^{-10}\, i)(x-(3.53106 + 6.83827\times10^{-8}\, i))^3 + (0.00508754 - 40402.\, i)(x-(3.53106 + 6.83827\times10^{-8}\, i))^4 + O((x-(3.53106 + 6.83827\times10^{-8}\, i))^5)$$

(Taylor series)

Series expansion at x = ∞:

$$\left(\frac{1.77166}{x} + O\left(\left(\frac{1}{x}\right)^{113}\right)\right) - \frac{1}{\left(\sqrt{\left(1 - 1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2} - 1\right)^2}$$

Derivative:

$$\frac{d}{dx}\left(1.77166\sqrt{\frac{1}{x^2}} - \frac{1}{\left(1-\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}\right)^2}\right) = \frac{-\frac{1.87911 - 3.53106\left(\frac{1}{x^2}\right)^{0.25}}{\left(1-\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}\right)^3 \sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}\left(\frac{1}{x^2}\right)^{0.75}} - \frac{1.77166}{\sqrt{\frac{1}{x^2}}}}{x^3}$$

a) we have:

(17*4Pi^2*1/25*1/24*(((5/((4Pi^2*1/25)^2*x^2))^0.25)))^2-1(1-sqrt((((1-4Pi^2*1/25*(((5/((4Pi^2*1/25)^2*x^2))^0.25)))^2))))*1/((((1-sqrt((((1-4Pi^2*1/25*(((5/((4Pi^2*1/25)^2*x^2))^0.25)))^2)))))))^3

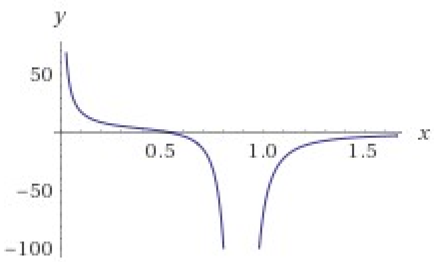
Input:

$$\left(17\times 4\left(\pi^2\times\frac{1}{25}\times\frac{1}{24}\left(\frac{5}{\left(4\pi^2\times\frac{1}{25}\right)^2x^2}\right)^{0.25}\right)\right)^2 - 1\left(1-\sqrt{\left(1-4\pi^2\times\frac{1}{25}\left(\frac{5}{\left(4\pi^2\times\frac{1}{25}\right)^2x^2}\right)^{0.25}\right)^2}\right)\times \frac{1}{\left(1-\sqrt{\left(1-4\pi^2\times\frac{1}{25}\left(\frac{5}{\left(4\pi^2\times\frac{1}{25}\right)^2x^2}\right)^{0.25}\right)^2}\right)^3}$$

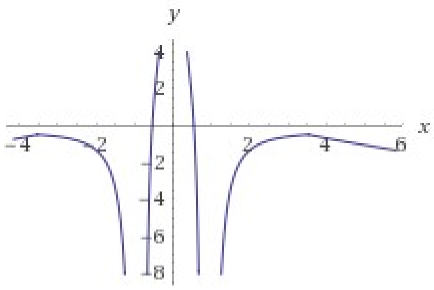
Result:

$$1.77166\left(\frac{1}{x^2}\right)^{0.5} - \frac{1}{\left(1-\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}\right)^2}$$

Plots:



(x from 0 to 1.7)



(x from -4.1 to 5.8)

Alternate forms:

$$1.77166\left(\frac{1}{x^2}\right)^{0.5} - \frac{1}{\left(\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}-1\right)^2}$$

$$1.77166\sqrt{\frac{1}{x^2}} - \frac{1}{\left(\sqrt{\left(1.87911\sqrt[4]{\frac{1}{x^2}}-1\right)^2}-1\right)^2}$$

$$\left(1.77166\left(\left(\frac{1}{x^2}\right)^{0.5}\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2-2\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}\left(\frac{1}{x^2}\right)^{0.5}+\left(\frac{1}{x^2}\right)^{0.5}-0.564443\right)\right)\Bigg/\left(\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}-1\right)^2$$

Alternate forms assuming x>0:

$$\frac{1.77166}{x^1}-\frac{1}{\left(\left|1-\frac{1.87911}{x^{0.5}}\right|-1\right)^2}$$

$$\frac{1.77166}{x^1}-\frac{1}{\left(1-\left|1-\frac{1.87911}{x^{0.5}}\right|\right)^2}$$

$|z|$ is the absolute value of z

Series expansion at x = -3.53106 - 6.83827×10^-8 i:

$$-(0.498264+2.90827\times10^{-8}\,i)+(0.425294-5.50354\times10^{-9}\,i)(x+(3.53106+6.83827\times10^{-8}\,i))+(0.0402407-2.14899\times10^{-9}\,i)(x+(3.53106+6.83827\times10^{-8}\,i))^2+(0.014159-7.27498\times10^{-10}\,i)(x+(3.53106+6.83827\times10^{-8}\,i))^3+(0.00508754-40402.\,i)(x+(3.53106+6.83827\times10^{-8}\,i))^4+O\left((x+(3.53106+6.83827\times10^{-8}\,i))^5\right)$$

(Taylor series)

Series expansion at x = -3.53106 + 6.83827×10^-8 i:

$$-(0.498264+9.64941\times10^{-9}\,i)-(0.141109+1.09499\times10^{-8}\,i)(x+(3.53106-6.83827\times10^{-8}\,i))-(0.0800637+7.95736\times10^{-9}\,i)(x+(3.53106-6.83827\times10^{-8}\,i))^2-(0.0424722+4.84519\times10^{-9}\,i)(x+(3.53106-6.83827\times10^{-8}\,i))^3-(0.0201414+40402.\,i)(x+(3.53106-6.83827\times10^{-8}\,i))^4+O\left((x+(3.53106-6.83827\times10^{-8}\,i))^5\right)$$

(Taylor series)

Series expansion at x = 3.53106 - 6.83827×10^-8 i:

$$-(0.498264 + 9.64941\times10^{-9}\,i) + (0.141109 + 1.09499\times10^{-8}\,i)(x-(3.53106 - 6.83827\times10^{-8}\,i)) - (0.0800637 + 7.95736\times10^{-9}\,i)(x-(3.53106 - 6.83827\times10^{-8}\,i))^2 + (0.0424722 + 4.84519\times10^{-9}\,i)(x-(3.53106 - 6.83827\times10^{-8}\,i))^3 - (0.0201414 + 40402.\,i)(x-(3.53106 - 6.83827\times10^{-8}\,i))^4 + O\left((x-(3.53106 - 6.83827\times10^{-8}\,i))^5\right)$$

(Taylor series)

Series expansion at x = 3.53106 + 6.83827×10^-8 i:

$$-(0.498264 + 2.90827\times10^{-8}\,i) - (0.425294 - 5.50354\times10^{-9}\,i)(x-(3.53106 + 6.83827\times10^{-8}\,i)) + (0.0402407 - 2.14899\times10^{-9}\,i)(x-(3.53106 + 6.83827\times10^{-8}\,i))^2 - (0.014159 - 7.27498\times10^{-10}\,i)(x-(3.53106 + 6.83827\times10^{-8}\,i))^3 + (0.00508754 - 40402.\,i)(x-(3.53106 + 6.83827\times10^{-8}\,i))^4 + O\left((x-(3.53106 + 6.83827\times10^{-8}\,i))^5\right)$$

(Taylor series)

Derivative:

$$\frac{d}{dx}\left(\left(\frac{17\times4\left(\pi^2\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 x^2}\right)^{0.25}\right)}{25\times24}\right)^2 - \frac{1-\sqrt{\left(1-\frac{4}{25}\,\pi^2\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 x^2}\right)^{0.25}\right)^2}}{\left(1-\sqrt{\left(1-\frac{4}{25}\,\pi^2\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 x^2}\right)^{0.25}\right)^2}\right)^3}\right) = \frac{-\frac{1.87911-3.53106\left(\frac{1}{x^2}\right)^{0.25}}{\left(1-\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}\right)^3\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}\left(\frac{1}{x^2}\right)^{0.75}} - \frac{1.77166}{\left(\frac{1}{x^2}\right)^{0.5}}}{x^3}$$

from

$$1.77166\left(\frac{1}{x^2}\right)^{0.5} - \frac{1}{\left(\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}-1\right)^2}$$

we obtain:

(x^2)/3 =-1/(-1 + sqrt((1 - 1.87911 (1/x^2)^0.25)^2))^2 + 1.77166 (1/x^2)^0.5

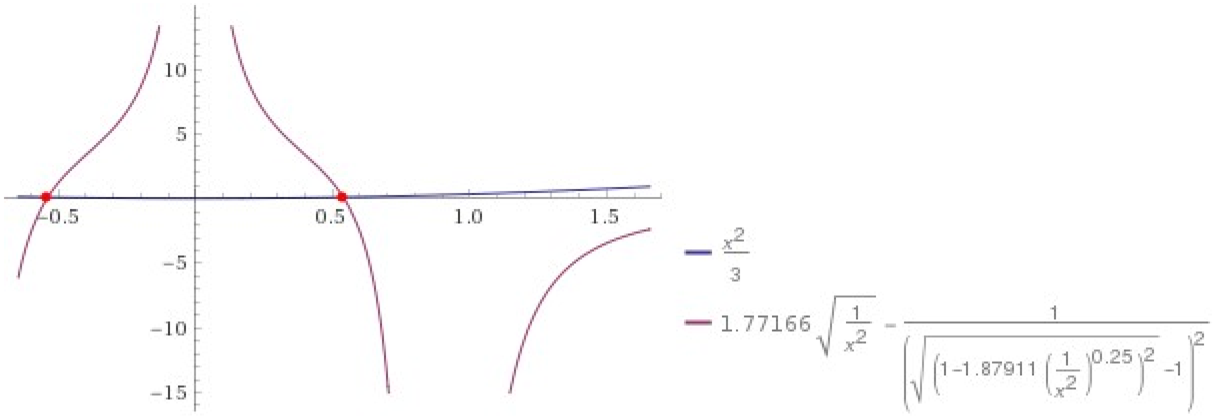
Input interpretation:

$$\frac{x^2}{3} = -\frac{1}{\left(-1+\sqrt{\left(1+\left(\frac{1}{x^2}\right)^{0.25}\times(-1.87911)\right)^2}\right)^2} + 1.77166\sqrt{\frac{1}{x^2}}$$

Result:

$$\frac{x^2}{3} = 1.77166\sqrt{\frac{1}{x^2}} - \frac{1}{\left(\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}-1\right)^2}$$

Plot:



Numerical solution:

$x \approx \pm 0.538874878386077\ldots$

0.538874878386077... result near to the following Rogers-Ramanujan continued fraction:

$$2\int_0^\infty \frac{t^2\,dt}{e^{\sqrt{3}t}\sinh t} = \cfrac{1}{1+\cfrac{1^3}{1+\cfrac{1^3}{3+\cfrac{2^3}{1+\cfrac{2^3}{5+\cfrac{3^3}{1+\cfrac{3^3}{7+\ldots}}}}}}} \approx 0.5269391135$$

Indeed:

(0.538874878386077^2)/3 =-1/(-1 + sqrt((1 - 1.87911 (1/(0.538874878386077)^2)^0.25)^2))^2 + 1.77166 (1/(0.538874878386077)^2)^0.5

Input interpretation:

$$\frac{0.538874878386077^2}{3} = -\frac{1}{\left(-1+\sqrt{\left(1+\left(\frac{1}{0.538874878386077^2}\right)^{0.25}\times(-1.87911)\right)^2}\right)^2} + 1.77166\sqrt{\frac{1}{0.538874878386077^2}}$$

Result:

True

From which:

-1/(-1 + sqrt((1 - 1.87911 (1/(0.538874878386077)^2)^0.25)^2))^2 + 1.77166 (1/(0.538874878386077)^2)^0.5

Input interpretation:

$$-\frac{1}{\left(-1+\sqrt{\left(1+\left(\frac{1}{0.538874878386077^2}\right)^{0.25}\times(-1.87911)\right)^2}\right)^2} + 1.77166\sqrt{\frac{1}{0.538874878386077^2}}$$

Result:

0.0967954...

0.0967954…

Alternative representations:

$$-\frac{1}{\left(-1+\sqrt{\left(1-1.87911\left(\frac{1}{0.5388748783860770000^2}\right)^{0.25}\right)^2}\right)^2}+1.77166\sqrt{\frac{1}{0.5388748783860770000^2}}=1.77166\sqrt{\frac{1}{0.5388748783860770000^2}}-\frac{1}{\left(-2+1.87911\left(\frac{1}{0.5388748783860770000^2}\right)^{0.25}\right)^2}$$

$$-\frac{1}{\left(-1+\sqrt{\left(1-1.87911\left(\frac{1}{0.5388748783860770000^2}\right)^{0.25}\right)^2}\right)^2}+1.77166\sqrt{\frac{1}{0.5388748783860770000^2}}=1.77166\sqrt{\frac{1}{0.5388748783860770000^2}}-1\bigg/\left(-1+\sqrt{-i\left(1-1.87911\left(\frac{1}{0.5388748783860770000^2}\right)^{0.25}\right)}\sqrt{i\left(1-1.87911\left(\frac{1}{0.5388748783860770000^2}\right)^{0.25}\right)}\right)^2$$

$$-\frac{1}{\left(-1+\sqrt{\left(1-1.87911\left(\frac{1}{0.538874878386077000 0^2}\right)^{0.25}\right)^2}\right)^2}+$$

$$1.77166\sqrt{\frac{1}{0.5388748783860770000^2}} =$$

$$1.77166\sqrt{\frac{1}{0.5388748783860770000^2}} -$$

$$1\Bigg/\left(-1+e^{i\pi\left\lfloor\frac{\pi-2\arg\left(1-1.87911\left(\frac{1}{0.5388748783860770000^2}\right)^{0.25}\right)}{2\pi}\right\rfloor}\left(1-1.87911\left(\frac{1}{0.5388748783860770000^2}\right)^{0.25}\right)\right)^2$$

(0.538874878386077^2)/3

Input interpretation:

$$\frac{0.538874878386077^2}{3}$$

Result:

0.0967953781852030922320891499763333333333333333333333333...

0.096795378...

(((7.212e+30)^2 /32))x = (0.538874878386077^2)/3

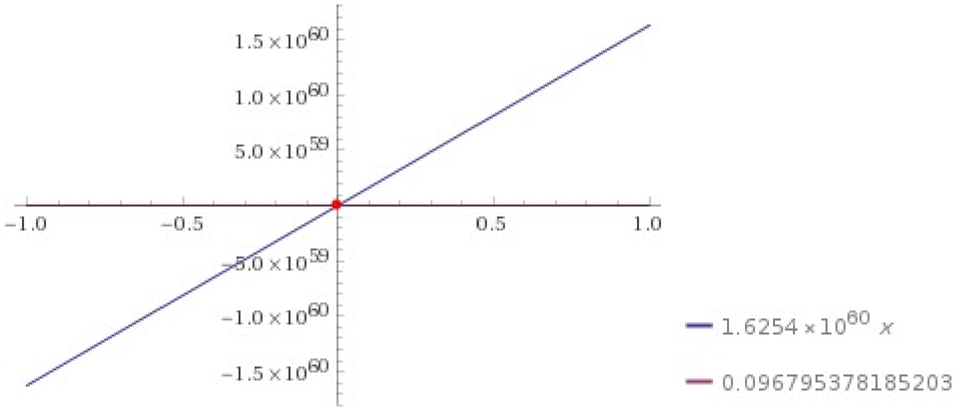
Input interpretation:

$$\left(\frac{1}{32}\left(7.212\times 10^{30}\right)^2\right)x = \frac{0.538874878386077^2}{3}$$

Result:

$$1.6254\times 10^{60}\, x = 0.096795378185203$$

Plot:



Alternate form:

$1.6254\times10^{60}\ x-0.096795378185203=0$

Alternate form assuming x is real:

$1.6254\times10^{60}\ x+0=0.096795378185203$

Solution:

$x\approx5.95516\times10^{-62}$

$5.95516*10^{-62}$

(((7.212e+30)^2 /32))5.95516×10^-62

Input interpretation:

$\left(\frac{1}{32}\left(7.212\times10^{30}\right)^2\right)\times5.95516\times10^{-62}$

Result:

0.0967954386222

0.0967954386222

(0.538874878386077^2)/3

Input interpretation:

$\frac{0.538874878386077^2}{3}$

Result:

0.0967953781852030922320891499763333333333333333333333333333...

0.0967953781852…

((((((7.212e+30)^2 /32))5.95516×10^-62)))^1/4096

Input interpretation:

$$\sqrt[4096]{\left(\frac{1}{32}\,(7.212\times 10^{30})^2\right)\times 5.95516\times 10^{-62}}$$

Result:

0.9994300562...

0.9994300562… 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 $\mathbf{0.989117352243 = \phi}$

2sqrt(((log base 0.9994300562((((((7.212e+30)^2 /32))5.95516×10^-62))))))-Pi+1/golden ratio

Input interpretation:

$$2\sqrt{\log_{0.9994300562}\left(\left(\frac{1}{32}\,(7.212\times 10^{30})^2\right)\times 5.95516\times 10^{-62}\right)}-\pi+\frac{1}{\phi}$$

$\log_b(x)$ 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

2sqrt(((log base 0.9994300562((((((7.212e+30)^2 /32))5.95516×10^-62))))))+11+1/golden ratio

where 11 is a Lucas number

Input interpretation:

$$2\sqrt{\log_{0.9994300562}\left(\left(\frac{1}{32}\left(7.212\times10^{30}\right)^2\right)\times5.95516\times10^{-62}\right)}+11+\frac{1}{\phi}$$

$\log_b(x)$ 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

27*sqrt(((log base 0.9994300562((((((7.212e+30)^2 /32))5.95516×10^-62))))))

Input interpretation:

$$27\sqrt{\log_{0.9994300562}\left(\left(\frac{1}{32}\left(7.212\times10^{30}\right)^2\right)\times5.95516\times10^{-62}\right)}$$

$\log_b(x)$ 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

27*sqrt(((log base 0.9994300562((((((7.212e+30)^2 /32))5.95516×10^-62))))))+55

where 55 is a Fibonacci number

Input interpretation:

$$27\sqrt{\log_{0.9994300562}\left(\left(\frac{1}{32}(7.212\times 10^{30})^2\right)\times 5.95516\times 10^{-62}\right)}+55$$

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

Result:

1783.000...

1783 result in the range of the hypothetical mass of Gluino (gluino = 1785.16 GeV).

12*sqrt(((log base 0.9994300562((((((7.212e+30)^2 /32))5.95516×10^-62))))))+7

where 7 is a Lucas number

Input interpretation:

$$12\sqrt{\log_{0.9994300562}\left(\left(\frac{1}{32}(7.212\times 10^{30})^2\right)\times 5.95516\times 10^{-62}\right)}+7$$

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

Result:

775.0000...

775 result practically equal to the rest mass of Charged rho meson 775.11

18*sqrt(((log base 0.9994300562((((((7.212e+30)^2 /32))5.95516×10^-62))))))-123-11+golden ratio

where 11, 123 and 18 are Lucas numbers

Input interpretation:

$$18\sqrt{\log_{0.9994300562}\left(\left(\frac{1}{32}(7.212\times 10^{30})^2\right)\times 5.95516\times 10^{-62}\right)}-123-11+\phi$$

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

ϕ is the golden ratio

Result:

1019.62...

1019.62... result practically equal to the rest mass of Phi meson 1019.445

144*sqrt(((log base 0.9994300562((((((7.212e+30)^2 /32))5.95516×10^-62))))))+89-5

where 144, 89 and 5 are Fibonacci numbers

Input interpretation:

$$144 \sqrt{\log_{0.9994300562}\left(\left(\frac{1}{32}(7.212\times 10^{30})^2\right)\times 5.95516\times 10^{-62}\right)} + 89 - 5$$

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

Result:

9300.000...

9300 result equal to the rest mass of Bottom eta meson

18*sqrt(((log base 0.9994300562((((((7.212e+30)^2 /32))5.95516×10^-62))))))+76+4

where 18, 76 and 4 are Lucas numbers

Input interpretation:

$$18 \sqrt{\log_{0.9994300562}\left(\left(\frac{1}{32}(7.212\times 10^{30})^2\right)\times 5.95516\times 10^{-62}\right)} + 76 + 4$$

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

Result:

1232.000...

1232 result equal to the rest mass of Delta baryon

89*sqrt(((log base 0.9994300562((((((7.212e+30)^2 /32))5.95516×10^-62))))))+521+47+11 +1/golden ratio

where 89 is a Fibonacci number, while 521, 47 and 11 are Lucas numbers

Input interpretation:

$$89\sqrt{\log_{0.9994300562}\left(\left(\frac{1}{32}(7.212\times10^{30})^2\right)\times5.95516\times10^{-62}\right)}+521+47+11+\frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

6275.618...

6275.618... result practically equal to the rest mass of Charmed B meson 6275.6

8*sqrt(((log base 0.9994300562((((((7.212e+30)^2 /32))5.95516×10^-62))))))-13-3

where 8, 13 and 3 are Fibonacci numbers

Input interpretation:

$$8\sqrt{\log_{0.9994300562}\left(\left(\frac{1}{32}(7.212\times10^{30})^2\right)\times5.95516\times10^{-62}\right)}-13-3$$

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

Result:

496.0000...

496.0000... result concerning the dimension of the gauge group of type I string theory that is 496.

b) We have also:

(17*4Pi^2*1/25*1/24*(((5/((4Pi^2*1/25)^2*x^2))^0.25)^2))-1(1-sqrt((((1-4Pi^2*1/25*(((5/((4Pi^2*1/25)^2*x^2))^0.25)))^2))))*1/(((((1-sqrt((((1-4Pi^2*1/25*(((5/((4Pi^2*1/25)^2*x^2))^0.25)))^2)))))))^3

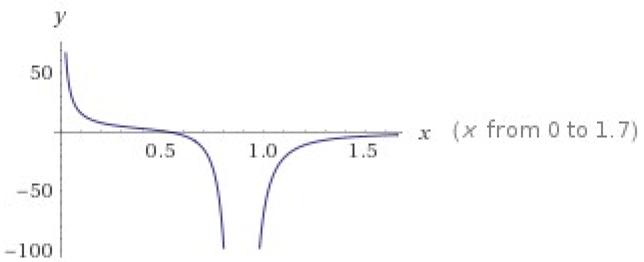
Input:

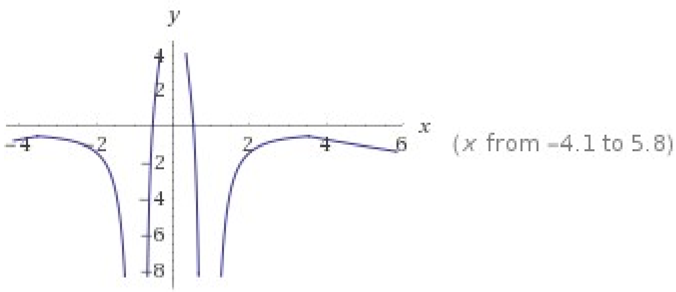
$$17\times 4\left(\pi^2\times\frac{1}{25}\times\frac{1}{24}\left(\left(\left(\frac{5}{\left(4\pi^2\times\frac{1}{25}\right)^2 x^2}\right)^{0.25}\right)^2\right)\right)-1\left(1-\sqrt{\left(1-4\pi^2\times\frac{1}{25}\left(\frac{5}{\left(4\pi^2\times\frac{1}{25}\right)^2 x^2}\right)^{0.25}\right)^2}\right)\times\frac{1}{\left(1-\sqrt{\left(1-4\pi^2\times\frac{1}{25}\left(\frac{5}{\left(4\pi^2\times\frac{1}{25}\right)^2 x^2}\right)^{0.25}\right)^2}\right)^3}$$

Result:

$$1.58388\left(\frac{1}{x^2}\right)^{0.5}-\frac{1}{\left(1-\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}\right)^2}$$

Plots:





Alternate form assuming x is real:

$$\frac{1.58388}{|x|^1}-\frac{1}{\left(\left|1-\frac{1.87911}{|x|^{0.5}}\right|-1\right)^2}$$

$|z|$ is the absolute value of z

Alternate forms:

$$1.58388\left(\frac{1}{x^2}\right)^{0.5}-\frac{1}{\left(\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}-1\right)^2}$$

$$1.58388\sqrt{\frac{1}{x^2}} - \frac{1}{\left(\sqrt{\left(1.87911\sqrt[4]{\frac{1}{x^2}}-1\right)^2}-1\right)^2}$$

$$\left(1.58388\left(\left(\frac{1}{x^2}\right)^{0.5}\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2-2\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}\left(\frac{1}{x^2}\right)^{0.5}+\left(\frac{1}{x^2}\right)^{0.5}-0.63136\right)\right)\Big/\left(\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}-1\right)^2$$

Alternate forms assuming x>0:

$$\frac{1.58388}{x^1} - \frac{1}{\left(\left|1-\frac{1.87911}{x^{0.5}}\right|-1\right)^2}$$

$$\frac{1.58388}{x^1} - \frac{1}{\left(1-\left|1-\frac{1.87911}{x^{0.5}}\right|\right)^2}$$

Real roots:

$x \approx -0.530904$

$x \approx 0.530904$

Complex roots:

$x = -0.802858 + 2.22445\, i$

$x = 0.802858 - 2.22445\, i$

Properties as a real function:

Domain

$\{x \in \mathbb{R} : x \neq -\frac{\pi^2}{5\sqrt{5}} \text{ and } x \neq 0 \text{ and } x \neq \frac{\pi^2}{5\sqrt{5}}\}$

Range

$\mathbb{R}$ (all real numbers)

Surjectivity

surjective onto $\mathbb{R}$

Parity

even

ℝ is the set of real numbers

Series expansion at x = -3.53106 - 6.83827×10^-8 i:

$$-(0.551443 + 2.80528\times10^{-8}\,i) + (0.410233 - 4.92022\times10^{-9}\,i)(x + (3.53106 + 6.83827\times10^{-8}\,i)) + (0.0359756 - 1.90119\times10^{-9}\,i)(x + (3.53106 + 6.83827\times10^{-8}\,i))^2 + (0.0129511 - 6.3393\times10^{-10}\,i)(x + (3.53106 + 6.83827\times10^{-8}\,i))^3 + (0.00474547 - 40402.\,i)(x + (3.53106 + 6.83827\times10^{-8}\,i))^4 + O((x + (3.53106 + 6.83827\times10^{-8}\,i))^5)$$

(Taylor series)

Series expansion at x = -3.53106 + 6.83827×10^-8 i:

$$-(0.551443 + 1.06793\times10^{-8}\,i) - (0.156169 + 1.15333\times10^{-8}\,i)(x + (3.53106 - 6.83827\times10^{-8}\,i)) - (0.0843288 + 8.20516\times10^{-9}\,i)(x + (3.53106 - 6.83827\times10^{-8}\,i))^2 - (0.04368 + 4.93876\times10^{-9}\,i)(x + (3.53106 - 6.83827\times10^{-8}\,i))^3 - (0.0204835 + 40402.\,i)(x + (3.53106 - 6.83827\times10^{-8}\,i))^4 + O((x + (3.53106 - 6.83827\times10^{-8}\,i))^5)$$

(Taylor series)

Series expansion at x = 3.53106 - 6.83827×10^-8 i:

$$-(0.551443 + 1.06793\times10^{-8}\,i) + (0.156169 + 1.15333\times10^{-8}\,i)(x - (3.53106 - 6.83827\times10^{-8}\,i)) - (0.0843288 + 8.20516\times10^{-9}\,i)(x - (3.53106 - 6.83827\times10^{-8}\,i))^2 + (0.04368 + 4.93876\times10^{-9}\,i)(x - (3.53106 - 6.83827\times10^{-8}\,i))^3 - (0.0204835 + 40402.\,i)(x - (3.53106 - 6.83827\times10^{-8}\,i))^4 + O((x - (3.53106 - 6.83827\times10^{-8}\,i))^5)$$

(Taylor series)

Series expansion at x = 3.53106 + 6.83827×10^-8 i:

$$-(0.551443 + 2.80528\times10^{-8}\,i) - (0.410233 - 4.92022\times10^{-9}\,i)(x - (3.53106 + 6.83827\times10^{-8}\,i)) + (0.0359756 - 1.90119\times10^{-9}\,i)(x - (3.53106 + 6.83827\times10^{-8}\,i))^2 - (0.0129511 - 6.3393\times10^{-10}\,i)(x - (3.53106 + 6.83827\times10^{-8}\,i))^3 + (0.00474547 - 40402.\,i)(x - (3.53106 + 6.83827\times10^{-8}\,i))^4 + O((x - (3.53106 + 6.83827\times10^{-8}\,i))^5)$$

(Taylor series)

Derivative:

$$\frac{d}{dx}\left(\frac{17\times 4\left(\pi^2\left(\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 x^2}\right)^{0.25}\right)^2\right)}{25\times 24} - \frac{1-\sqrt{\left(1-\frac{4}{25}\pi^2\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 x^2}\right)^{0.25}\right)^2}}{\left(1-\sqrt{\left(1-\frac{4}{25}\pi^2\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 x^2}\right)^{0.25}\right)^2}\right)^3}\right) =$$

$$\frac{-\frac{1.87911-3.53106\left(\frac{1}{x^2}\right)^{0.25}}{\left(1-\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}\right)^3\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2}\left(\frac{1}{x^2}\right)^{0.75}} - \frac{1.58388}{\left(\frac{1}{x^2}\right)^{0.5}}}{x^3}$$

From:

$$1.58388\left(\frac{1}{x^2}\right)^{0.5} - \frac{1}{\left(\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2} - 1\right)^2}$$

we obtain:

(x^2)/3 =-1/(-1 + sqrt((1 - 1.87911 (1/x^2)^0.25)^2))^2 + 1.58388 (1/x^2)^0.5

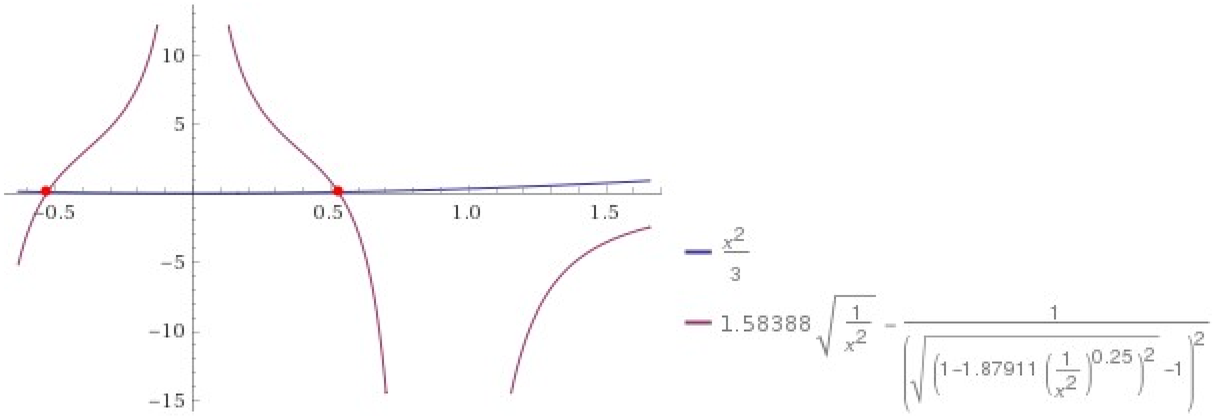
Input interpretation:

$$\frac{x^2}{3} = -\frac{1}{\left(-1+\sqrt{\left(1+\left(\frac{1}{x^2}\right)^{0.25}\times(-1.87911)\right)^2}\right)^2} + 1.58388\sqrt{\frac{1}{x^2}}$$

Result:

$$\frac{x^2}{3} = 1.58388\sqrt{\frac{1}{x^2}} - \frac{1}{\left(\sqrt{\left(1-1.87911\left(\frac{1}{x^2}\right)^{0.25}\right)^2} - 1\right)^2}$$

Plot:



Numerical solution:

$x \approx \pm 0.527840288494287\ldots$

0.527840288494287… result very near to the following Rogers-Ramanujan continued fraction:

$$2\int_0^\infty \frac{t^2\,dt}{e^{\sqrt{3}t}\sinh t} = \cfrac{1}{1+\cfrac{1^3}{1+\cfrac{1^3}{3+\cfrac{2^3}{1+\cfrac{2^3}{5+\cfrac{3^3}{1+\cfrac{3^3}{7+\ldots}}}}}}} \approx 0.5269391135$$

We obtain:

-1/(-1 + sqrt((1 - 1.87911 (1/(0.527840288494287)^2)^0.25)^2))^2 + 1.58388 (1/(0.527840288494287)^2)^0.5

Input interpretation:

$$-\frac{1}{\left(-1+\sqrt{\left(1+\left(\frac{1}{0.527840288494287^2}\right)^{0.25}\times(-1.87911)\right)^2}\right)^2}+1.58388\sqrt{\frac{1}{0.527840288494287^2}}$$

Result:

0.0928718...

0.0928718…

Alternative representations:

$$-\frac{1}{\left(-1+\sqrt{\left(1-1.87911\left(\frac{1}{0.5278402884942870000^2}\right)^{0.25}\right)^2}\right)^2}+1.58388\sqrt{\frac{1}{0.5278402884942870000^2}}=1.58388\sqrt{\frac{1}{0.5278402884942870000^2}}-\frac{1}{\left(-2+1.87911\left(\frac{1}{0.5278402884942870000^2}\right)^{0.25}\right)^2}$$

$$-\frac{1}{\left(-1+\sqrt{\left(1-1.87911\left(\frac{1}{0.5278402884942870000^2}\right)^{0.25}\right)^2}\right)^2}+1.58388\sqrt{\frac{1}{0.5278402884942870000^2}}=1.58388\sqrt{\frac{1}{0.5278402884942870000^2}}-1\Big/\left(-1+\sqrt{-i\left(1-1.87911\left(\frac{1}{0.5278402884942870000^2}\right)^{0.25}\right)}\sqrt{i\left(1-1.87911\left(\frac{1}{0.5278402884942870000^2}\right)^{0.25}\right)}\right)^2$$

$$-\frac{1}{\left(-1+\sqrt{\left(1-1.87911\left(\frac{1}{0.5278402884942870000^2}\right)^{0.25}\right)^2}\right)^2}+$$

$$1.58388\sqrt{\frac{1}{0.5278402884942870000^2}} =$$

$$1.58388\sqrt{\frac{1}{0.5278402884942870000^2}} -$$

$$1\Bigg/\left(-1+e^{i\pi\left\lfloor\frac{\pi-2\arg\left(1-1.87911\left(\frac{1}{0.5278402884942870000^2}\right)^{0.25}\right)}{2\pi}\right\rfloor}\left(1-1.87911\left(\frac{1}{0.5278402884942870000^2}\right)^{0.25}\right)\right)^2$$

(((7.212e+30)^2 /32))x = (0.527840288494287^2)/3

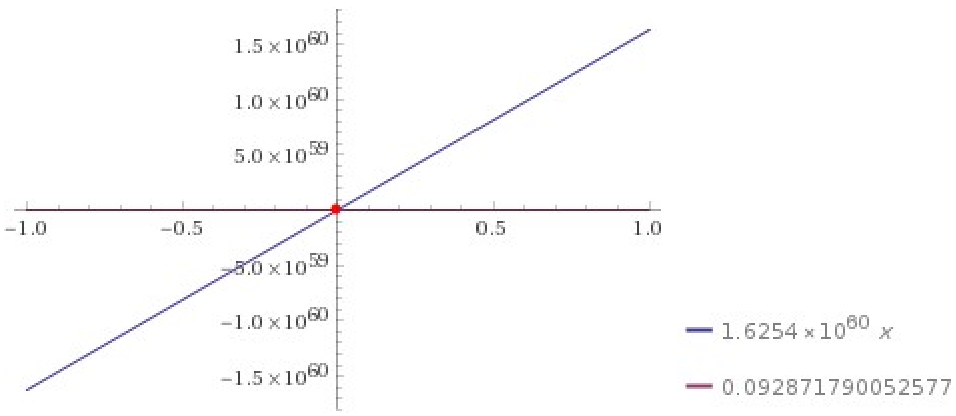
Input interpretation:

$$\left(\frac{1}{32}(7.212\times10^{30})^2\right)x = \frac{0.527840288494287^2}{3}$$

Result:

$$1.6254\times10^{60}\,x = 0.092871790052577$$

Plot:



Alternate form:

$$1.6254\times10^{60}\,x - 0.092871790052577 = 0$$

Alternate form assuming x is real:

$1.6254\times10^{60}\,x+0=0.092871790052577$

Solution:

$x\approx5.71376\times10^{-62}$

$5.71376*10^{-62}$

Note that:

1/((1/(5.71376*10^-62)))^1/(64^3)

Input interpretation:

$$\frac{1}{\sqrt[64^3]{\frac{1}{5.71376\times10^{-62}}}}$$

Result:

0.99946220598...

0.99946220598... result very near to the value of the following Rogers-Ramanujan continued fraction:

$$\frac{e^{-\frac{\pi}{\sqrt{5}}}}{\frac{\sqrt{5}}{1+\sqrt[5]{\sqrt{\varphi^5\sqrt[4]{5^3}}-1}}-\varphi+1}=1-\frac{e^{-\pi\sqrt{5}}}{1+\frac{e^{-2\pi\sqrt{5}}}{1+\frac{e^{-3\pi\sqrt{5}}}{1+\frac{e^{-4\pi\sqrt{5}}}{1+\ldots}}}}\approx0.9991104684$$

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

(((7.212e+30)^2 /32))*5.71376×10^-62

Input interpretation:

$$\left(\frac{1}{32}\left(7.212\times10^{30}\right)^2\right)\times5.71376\times10^{-62}$$

Result:

0.0928717121592

0.0928717121592

(0.527840288494287^2)/3

Input interpretation:

$$\frac{0.527840288494287^2}{3}$$

Result:

0.092871790052577376371210546123

0.092871790052577376371210546123

Thence:

((((((7.212e+30)^2 /32))*5.71376×10^-62)))^1/4096

Input interpretation:

$$\sqrt[4096]{\left(\frac{1}{32}(7.212\times 10^{30})^2\right)\times 5.71376\times 10^{-62}}$$

Result:

0.9994199593...

0.9994199593... 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 = ϕ**

2sqrt(((log base 0.9994199593((((((7.212e+30)^2 /32))5.71376×10^-62))))))-Pi+1/golden ratio

Input interpretation:

$$2\sqrt{\log_{0.9994199593}\left(\left(\frac{1}{32}(7.212\times10^{30})^2\right)\times5.71376\times10^{-62}\right)}-\pi+\frac{1}{\phi}$$

$\log_b(x)$ 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

and so as above, we get all the other previous results

From

$$e^{\phi} \sim \left(\frac{5}{h^2 \Lambda^2}\right)^{\frac{1}{4}}$$

(((5/((4Pi^2*1/25)^2*(0.527840288494287)^2))^0.25

$$e^{2C} = \frac{\xi}{2} \frac{e^{-\frac{\phi}{2}}}{1 - \sqrt{1 - \xi \Lambda e^{2\phi}}}$$

1/2 *((1/sqrt(((((((5/((4Pi^2*1/25)^2*(0.52784028)^2))^0.25)))))))) * 1/(1-sqrt((((((1-(4Pi^2*1/25)*(((((((5/((4Pi^2*1/25)^2*(0.52784028)^2))^0.25))))^2))))))))))

Input interpretation:

$$\frac{1}{2}\times\frac{1}{\sqrt{\left(\frac{5}{\left(4\pi^2\times\frac{1}{25}\right)^2\times 0.52784028^2}\right)^{0.25}}}\times\frac{1}{1-\sqrt{1-\left(4\pi^2\times\frac{1}{25}\right)\left(\left(\frac{5}{\left(4\pi^2\times\frac{1}{25}\right)^2\times 0.52784028^2}\right)^{0.25}\right)^2}}$$

Result:

0.0922246... +
0.165908... i

Polar coordinates:

$r = 0.189818$ (radius), $\theta = 60.9313°$ (angle)

0.189818

Series representations:

$$\frac{1}{\left(\sqrt{\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}}\left(1-\sqrt{1-\frac{1}{25}\left(4\pi^2\right)\left(\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}\right)^2}\right)\right)2} = -\left(1\Bigg/\left(2\sqrt{5.14554\left(\frac{1}{\pi^4}\right)^{0.25}}\left(-1+\sqrt{-4.23626\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2}\sum_{k=0}^{\infty}e^{-1.44368k}\left(-\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2\right)^{-k}\binom{\frac{1}{2}}{k}\right)\right)\right)$$

$$\frac{1}{\left(\sqrt{\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}}\left(1-\sqrt{1-\frac{1}{25}\left(4\pi^2\right)\left(\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}\right)^2}\right)\right)2} = -\left(1\Bigg/\left(2\sqrt{5.14554\left(\frac{1}{\pi^4}\right)^{0.25}}\left(-1+\sqrt{-4.23626\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2}\sum_{k=0}^{\infty}\frac{(-0.236057)^k\left(-\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\right)\right)$$

$$\frac{1}{\left(\sqrt{\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}}\left(1-\sqrt{1-\frac{1}{25}(4\pi^2)\left(\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}\right)^2}\right)\right)2} =$$

$$\frac{\sqrt{\pi}}{\sqrt{5.14554\left(\frac{1}{\pi^4}\right)^{0.25}}\left(2\sqrt{\pi}-\sum_{j=0}^{\infty}\operatorname{Res}_{s=-\frac{1}{2}+j} e^{-1.44368 s}\left(-\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2\right)^{-s}\Gamma\left(-\frac{1}{2}-s\right)\Gamma(s)\right)}$$

$\binom{n}{m}$ is the binomial coefficient

$n!$ is the factorial function

$(a)_n$ is the Pochhammer symbol (rising factorial)

$\Gamma(x)$ is the gamma function

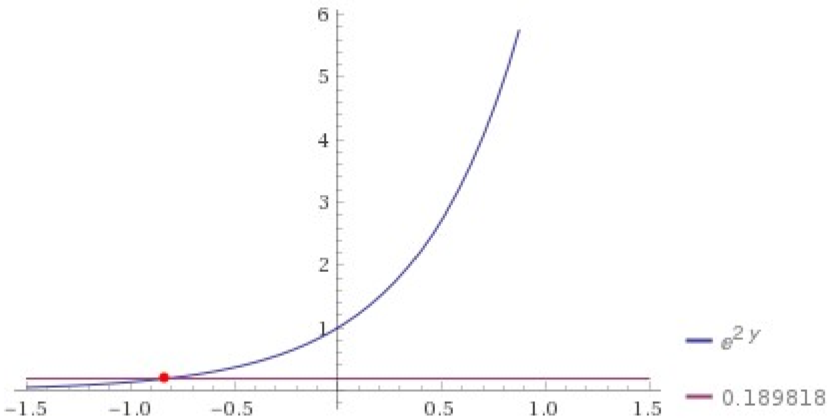
$\operatorname{Res}_{z=z_0} f$ is a complex residue

e^(2y) = 0.189818

Input interpretation:

$e^{2y} = 0.189818$

Plot:



Real solution:

$y \approx -0.830845$

C = -0.830845

Solution:

$y \approx 0.50000\, i\,(6.2832\, n + 1.6617\, i)\,, \quad n \in \mathbb{Z}$

$\mathbb{Z}$ is the set of integers

e^(2*-0.830845)

Input interpretation:

$e^{2\times(-0.830845)}$

Result:

0.189818...

0.189818…

Alternative representation:

$e^{2\,(-1)\,0.830845} = \exp^{2\,(-1)\,0.830845}(z)$ for $z = 1$

Series representations:

$$e^{2\,(-1)\,0.830845} = \frac{1}{\left(\sum_{k=0}^{\infty} \frac{1}{k!}\right)^{1.66169}}$$

$$e^{2\,(-1)\,0.830845} = \frac{3.16387}{\left(\sum_{k=0}^{\infty} \frac{1+k}{k!}\right)^{1.66169}}$$

$$e^{2\,(-1)\,0.830845} = \frac{1}{\left(\sum_{k=0}^{\infty} \frac{(-1+k)^2}{k!}\right)^{1.66169}}$$

Integral representation:

$$(1+z)^a = \frac{\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma} \frac{\Gamma(s)\,\Gamma(-a-s)}{z^s}\, d\,s}{(2\,\pi\, i)\,\Gamma(-a)} \quad \text{for } (0 < \gamma < -\text{Re}(a) \text{ and } |\arg(z)| < \pi)$$

From which:

[1/(((1/2 *((1/sqrt(((((((5/((4Pi^2*1/25)^2*(0.52784028)^2))^0.25)))))))) * 1/(1-sqrt((((((1-(4Pi^2*1/25)*(((((((5/((4Pi^2*1/25)^2*(0.52784028)^2))^0.25))))^2))))))))))))]^3 + 7 where 7 is a Lucas number

Input interpretation:

$$\left(\frac{1}{\frac{1}{2}\times\frac{1}{\sqrt{\left(\frac{5}{\left(4\pi^2\times\frac{1}{25}\right)^2\times 0.52784028^2}\right)^{0.25}}}\times\frac{1}{1-\sqrt{1-\left(4\pi^2\times\frac{1}{25}\right)\left(\left(\frac{5}{\left(4\pi^2\times\frac{1}{25}\right)^2\times 0.52784028^2}\right)^{0.25}\right)^2}}}\right)^3+7$$

Result:

$-139.039\ldots +$
$7.12724\ldots\, i$

Polar coordinates:

$r = 139.222$ (radius), $\theta = 177.066°$ (angle)

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

Series representations:

$$\left(\frac{1}{\frac{1}{\left(\sqrt{\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}}\left(1-\sqrt{1-\frac{1}{25}(4\pi^2)\left(\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}\right)^2}\right)\right)2}}\right)^3+7=$$

$$7-8\sqrt{5.14554\left(\frac{1}{\pi^4}\right)^{0.25}}^{\,3}\left(-1+\sqrt{-4.23626\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2}\sum_{k=0}^{\infty}e^{-1.44368k}\left(-\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2\right)^{-k}\binom{\frac{1}{2}}{k}\right)^3$$

$$\left(\frac{1}{\frac{1}{\left(\sqrt{\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}}\left(1-\sqrt{1-\frac{1}{25}\left(4\pi^2\right)\left(\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}\right)^2}\right)\right)2}}\right)^3 + 7 =$$

$$7 - 8\sqrt{5.14554\left(\frac{1}{\pi^4}\right)^{0.25}}^3 \left(-1 + \sqrt{-4.23626\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2}\sum_{k=0}^{\infty}\frac{(-0.236057)^k\left(-\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)^3$$

$$\left(\frac{1}{\frac{1}{\left(\sqrt{\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}}\left(1-\sqrt{1-\frac{1}{25}\left(4\pi^2\right)\left(\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}\right)^2}\right)\right)2}}\right)^3 + 7 =$$

$$7 + \frac{1}{\sqrt{\pi}^3}\sqrt{5.14554\left(\frac{1}{\pi^4}\right)^{0.25}}^3 \left(2\sqrt{\pi} - \sum_{j=0}^{\infty}\operatorname{Res}_{s=-\frac{1}{2}+j} e^{-1.44368 s}\left(-\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2\right)^{-s}\Gamma\left(-\frac{1}{2}-s\right)\Gamma(s)\right)^3$$

$\binom{n}{m}$ is the binomial coefficient

$n!$ is the factorial function

$(a)_n$ is the Pochhammer symbol (rising factorial)

$\Gamma(x)$ is the gamma function

$\operatorname{Res}_{z=z_0} f$ is a complex residue

[1/(((1/2 *((1/sqrt(((((((5/((4Pi^2*1/25)^2*(0.52784028)^2))^0.25)))))))) * 1/(1-sqrt((((((1-(4Pi^2*1/25)*(((((((5/((4Pi^2*1/25)^2*(0.52784028)^2))^0.25))))^2))))))))))))]^3 + 21 where 21 is a Fibonacci number

Input interpretation:

$$\left(\frac{1}{\frac{1}{2}\times\frac{1}{\sqrt{\left(\frac{5}{\left(4\pi^2\times\frac{1}{25}\right)^2\times 0.52784028^2}\right)^{0.25}}}\times\frac{1}{1-\sqrt{1-\left(4\pi^2\times\frac{1}{25}\right)\left(\left(\frac{5}{\left(4\pi^2\times\frac{1}{25}\right)^2\times 0.52784028^2}\right)^{0.25}\right)^2}}}\right)^3+21$$

Result:

$-125.039\ldots+7.12724\ldots i$

Polar coordinates:

$r = 125.242$ (radius), $\theta = 176.738°$ (angle)

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

Series representations:

$$\left(\frac{1}{\frac{1}{\left(\sqrt{\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}}\left(1-\sqrt{1-\frac{1}{25}\left(4\pi^2\right)\left(\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}\right)^2}\right)\right)2}}\right)^3+21=$$

$$21-8\sqrt{5.14554\left(\frac{1}{\pi^4}\right)^{0.25}}^{\,3}\left(-1+\sqrt{-4.23626\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2}\sum_{k=0}^{\infty}e^{-1.44368k}\left(-\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2\right)^{-k}\binom{\frac{1}{2}}{k}\right)^3$$

$$\left(\frac{1}{\frac{1}{\left(\sqrt{\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}}\left(1-\sqrt{1-\frac{1}{25}\left(4\pi^2\right)\left(\left(\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}\right)^2\right)}\right)\right)^2}}\right)^3 + 21 =$$

$$21 - 8\sqrt{5.14554\left(\frac{1}{\pi^4}\right)^{0.25}}^{\,3}$$

$$\left(-1+\sqrt{-4.23626\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2}\sum_{k=0}^{\infty}\frac{(-0.236057)^k\left(-\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)^3$$

$$\left(\frac{1}{\frac{1}{\left(\sqrt{\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}}\left(1-\sqrt{1-\frac{1}{25}\left(4\pi^2\right)\left(\left(\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}\right)^2\right)}\right)\right)^2}}\right)^3 + 21 =$$

$$21 + \frac{1}{\sqrt{\pi}^3}\sqrt{5.14554\left(\frac{1}{\pi^4}\right)^{0.25}}^{\,3}$$

$$\left(2\sqrt{\pi} - \sum_{j=0}^{\infty}\operatorname{Res}_{s=-\frac{1}{2}+j} e^{-1.44368 s}\left(-\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2\right)^{-s}\Gamma\left(-\frac{1}{2}-s\right)\Gamma(s)\right)^3$$

$\binom{n}{m}$ is the binomial coefficient

$n!$ is the factorial function

$(a)_n$ is the Pochhammer symbol (rising factorial)

$\Gamma(x)$ is the gamma function

$\operatorname{Res}_{z=z_0} f$ is a complex residue

1/e[1/(((1/2 *((1/sqrt((((((((5/((4Pi^2*1/25)^2*(0.52784028)^2))^0.25)))))))) * 1/(1-sqrt((((((1-(4Pi^2*1/25)*(((((((5/((4Pi^2*1/25)^2*(0.52784028)^2))^0.25))))^2)))))))))))]^5+89+233+34+8

where 89, 233, 34 and 8 are Fibonacci numbers

Input interpretation:

$$\frac{1}{e}\left(1\Bigg/\left(\frac{1}{2}\times\frac{1}{\sqrt{\left(\frac{5}{\left(4\pi^2\times\frac{1}{25}\right)^2\times 0.52784028^2}\right)^{0.25}}}\times\frac{1}{1-\sqrt{1-\left(4\pi^2\times\frac{1}{25}\right)\left(\left(\frac{5}{\left(4\pi^2\times\frac{1}{25}\right)^2\times 0.52784028^2}\right)^{0.25}\right)^2}}\right)\right)^5+89+233+34+8$$

Result:

$1212.92\ldots + 1227.98\ldots\, i$

Polar coordinates:

$r = 1726.01$ (radius), $\theta = 45.3534°$ (angle)

1726.01 result in the range of the mass of candidate "glueball" $f_0(1710)$ ("glueball" $=1760 \pm 15$ MeV).

Series representations:

$$\frac{\left(\frac{1}{\frac{1}{2\sqrt{\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}}\left(1-\sqrt{1-\frac{1}{25}\left(4\pi^2\right)\left(\left(\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}\right)^2\right)}\right)}}\right)^5}{e^{5}} + 89 + 233 + 34 + 8 =$$

$$364 - \frac{1}{e}\, 32 \sqrt{5.14554\left(\frac{1}{\pi^4}\right)^{0.25}} \left(-1+\sqrt{-4.23626\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2}\ \sum_{k=0}^{\infty} e^{-1.44368\,k}\left(-\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2\right)^{-k}\binom{\frac{1}{2}}{k}\right)^5$$

$$\frac{\left(\frac{1}{\frac{1}{2\sqrt{\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}}\left(1-\sqrt{1-\frac{1}{25}\left(4\pi^2\right)\left(\left(\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}\right)^2\right)}\right)}}\right)^5}{e^{5}} + 89 + 233 + 34 + 8 =$$

$$364 - \frac{1}{e}\, 32 \sqrt{5.14554\left(\frac{1}{\pi^4}\right)^{0.25}} \left(-1+\sqrt{-4.23626\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2}\ \sum_{k=0}^{\infty}\frac{(-0.236057)^k\left(-\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)^5$$

$$\frac{\left(\frac{1}{\frac{1}{2\sqrt{\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}\left(1-\sqrt{1-\frac{1}{25}\left(4\pi^2\right)\left(\left(\left(\frac{5}{\left(\frac{4\pi^2}{25}\right)^2 0.52784^2}\right)^{0.25}\right)^2\right)}\right)}}}\right)^5}{e} + 89 + 233 + 34 + 8 =$$

$$364 + \frac{1}{e\sqrt{\pi}^5}\sqrt{5.14554\left(\frac{1}{\pi^4}\right)^{0.25}}^5$$

$$\left(2\sqrt{\pi} - \sum_{j=0}^{\infty} \operatorname{Res}_{s=-\frac{1}{2}+j} e^{-1.44368\, s}\left(-\left(\frac{1}{\pi^4}\right)^{0.5}\pi^2\right)^{-s}\Gamma\left(-\frac{1}{2}-s\right)\Gamma(s)\right)^5$$

$\binom{n}{m}$ is the binomial coefficient

$n!$ is the factorial function

$(a)_n$ is the Pochhammer symbol (rising factorial)

$\Gamma(x)$ is the gamma function

$\operatorname{Res}_{z=z_0} f$ is a complex residue

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