On some Ramanujan formulas: new possible mathematical connections with various parameters of Particle Physics, Dark Matter, Dark Energy and Cosmology II.

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Abstract

In this research thesis, we have analyzed further Ramanujan formulas and described new possible mathematical connections with various parameters of Particle Physics, Dark Matter, Dark Energy and Cosmology

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https://www.giornalettismo.com/la-verita-dietro-al-numero-segreto-di-futurama/

https://in.mashable.com/science/6742/black-holes-might-be-hiding-cores-of-dark-energy-thats-expanding-the-universe-claim-scientists

Summary

In this research thesis, we have analyzed the possible and new connections between different formulas of Ramanujan's mathematics and some formulas concerning particle physics and cosmology. In the course of the discussion we describe and highlight the connections between some developments of Ramanujan equations and particles type solutions such as the mass of the Higgs boson, and the masses of other baryons and mesons.

Thus, solutions of Ramanujan equations, connected with the mass of candidate glueball $f_0(1710)$ meson, the mass of the π meson (139.57 MeV), the value of the dilaton and that of "the dilaton mass calculated as a type of Higgs boson that is equal about to 125 GeV", have been described and highlighted. Furthermore, we have obtained also mathematical connection with the values of some equations concerning the Dark Matter and the Dark Energy and the value of the Cosmological Constant.

We highlight how the solutions are obtained from the development of the various equations of Ramanujan's mathematics using methodically and logically the numbers of the Lucas and Fibonacci sequences that are the basis of the golden ratio 1.61803398 ....

All the results of the most important connections are highlighted in blue throughout the drafting of the paper

From:

Collected Papers of

SRINIVASA RAMANUJAN

Edited by

G. H. HARDY

P. V. SESHU AIYAR

and

B. M. WILSON

Cambridge

AT THE UNIVERSITY PRESS

1927

Now let us suppose that $\nu = p_1$ and $\mu = P_1$, so that $a_\nu = 1$ and $a_\mu = 0$. Then we see that

$$\left[\frac{\log p_1}{\log \lambda}\right] \leqslant a_\lambda \leqslant 2\left[\frac{\log P_1}{\log \lambda}\right], \qquad \text{.....................(54)}$$

for all values of λ. Thus, for example, we have

$$\begin{aligned} p_1 &= 3, & 1 &\leqslant a_2 \leqslant 4; \\ p_1 &= 5, & 2 &\leqslant a_2 \leqslant 4; \\ p_1 &= 7, & 2 &\leqslant a_2 \leqslant 6; \\ p_1 &= 11, & 3 &\leqslant a_2 \leqslant 6; \end{aligned}$$

and so on. It follows from (54) that, if $\lambda \leqslant p_1$, then

$$a_\lambda \log \lambda = O(\log p_1), \quad a_\lambda \log \lambda \neq o(\log p_1). \qquad \text{...........(55)}$$

where ν is any prime, in virtue of (67). From (68) it follows that

$$\sqrt{\{(1+a_\nu)\log \nu\}} + \sqrt{\log(\mu\nu)} > \sqrt{\left\{\frac{\dfrac{\log \lambda}{\pi(\mu)} - \log \mu}{\left(1+\dfrac{1}{a_\lambda}\right)^{1/\pi(\mu)} - 1}\right\}}, \qquad \text{......(69)}$$

For: $a_\nu = 1$, $\nu = 3$, $\mu = 8$, $\lambda = 5$

sqrt((1+1)ln3)+sqrt(ln(8*3))

Input:

$\sqrt{(1+1)\log(3)} + \sqrt{\log(8\times 3)}$

log(x) is the natural logarithm

Exact result:

$\sqrt{2\log(3)} + \sqrt{\log(24)}$

Decimal approximation:

3.265013494991366902300968198490411657156130576483306421385...

3.26501349.

Alternate forms:

$\sqrt{\log(9)} + \sqrt{\log(24)}$

$\sqrt{2\log(3)} + \sqrt{3\log(2)+\log(3)}$

Alternative representations:

$$\sqrt{(1+1)\log(3)} + \sqrt{\log(8\times 3)} = \sqrt{2\log_e(3)} + \sqrt{\log_e(24)}$$

$$\sqrt{(1+1)\log(3)} + \sqrt{\log(8\times 3)} = \sqrt{2\log(a)\log_a(3)} + \sqrt{\log(a)\log_a(24)}$$

$$\sqrt{(1+1)\log(3)} + \sqrt{\log(8\times 3)} = \sqrt{-\text{Li}_1(-23)} + \sqrt{-2\,\text{Li}_1(-2)}$$

Series representations:

$$\sqrt{(1+1)\log(3)} + \sqrt{\log(8\times 3)} = \sqrt{2}\sqrt{\log(2) - \sum_{k=1}^{\infty}\frac{\left(-\frac{1}{2}\right)^k}{k}} + \sqrt{\log(23) - \sum_{k=1}^{\infty}\frac{\left(-\frac{1}{23}\right)^k}{k}}$$

$$\sqrt{(1+1)\log(3)} + \sqrt{\log(8\times 3)} = \sqrt{\log(24)} + \sum_{k=0}^{\infty} 2^{1+k}\binom{-\frac{1}{2}+k}{k}\sum_{j=0}^{k}\frac{(-1)^j\binom{k}{j}p_{j,k}}{1-2j}$$

$$\text{for}\left(c_k = \frac{2(-1)^k}{1+k}\text{ and } p_{j,0}=1 \text{ and } 2p_{j,k} = \frac{\sum_{m=1}^{k}(-k+m+jm)c_m\,p_{j,k-m}}{k}\text{ and } k\in\mathbb{Z}\text{ and } k>0\right)$$

$$\sqrt{(1+1)\log(3)} + \sqrt{\log(8\times 3)} = \sqrt{2}\sqrt{2i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor + \log(x) - \sum_{k=1}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}}{k}} + \sqrt{2i\pi\left\lfloor\frac{\arg(24-x)}{2\pi}\right\rfloor + \log(x) - \sum_{k=1}^{\infty}\frac{(-1)^k(24-x)^k x^{-k}}{k}}\quad\text{for } x<0$$

Integral representations:

$$\sqrt{(1+1)\log(3)} + \sqrt{\log(8\times 3)} = \sqrt{2}\sqrt{\int_1^3 \frac{1}{t}\,dt} + \sqrt{\int_1^{24} \frac{1}{t}\,dt}$$

$$\sqrt{(1+1)\log(3)} + \sqrt{\log(8\times 3)} = \frac{2\sqrt{-i\int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{2^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds} + \sqrt{2}\sqrt{-i\int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{23^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}}{2\sqrt{\pi}} \quad \text{for } -1<\gamma<0$$

For: $a_\nu = 1$, $\nu = 3$, $\mu = 8$, $\lambda = 5$ and $a_\lambda = 7$, we obtain:

sqrt((((((((ln5/(8Pi))-ln8)))/((((1+1/7)^(1/Pi * 8) – 1))))))

Input:

$$\sqrt{\frac{\frac{\log(5)}{8\pi} - \log(8)}{\left(1+\frac{1}{7}\right)^{1/\pi\times 8} - 1}}$$

log(x) is the natural logarithm

Exact result:

$$i\sqrt{\frac{\log(8) - \frac{\log(5)}{8\pi}}{\left(\frac{8}{7}\right)^{8/\pi} - 1}}$$

Decimal approximation:

2.230772909177534944476347251691237533646566318806771429603... i

Polar coordinates:

$r \approx 2.23077$ (radius), $\theta = 90°$ (angle)

2.23077

Alternate forms:

$$\frac{1}{2}\,i\sqrt{\frac{24\pi\log(2) - \log(5)}{2\left(\left(\frac{8}{7}\right)^{8/\pi} - 1\right)\pi}}$$

$$\frac{1}{2}\,i\sqrt{\frac{8\pi\log(8) - \log(5)}{2\left(\left(\frac{8}{7}\right)^{8/\pi} - 1\right)\pi}}$$

$$i\sqrt{\frac{3\log(2)-\frac{\log(5)}{8\pi}}{\left(\frac{8}{7}\right)^{8/\pi}-1}}$$

All 2nd roots of (log(5)/(8 π) - log(8))/((8/7)^(8/π) - 1):

$$e^{(i\pi)/2}\sqrt{\frac{\log(8)-\frac{\log(5)}{8\pi}}{\left(\frac{8}{7}\right)^{8/\pi}-1}}\approx 2.231\,i \quad \text{(principal root)}$$

$$e^{-(i\pi)/2}\sqrt{\frac{\log(8)-\frac{\log(5)}{8\pi}}{\left(\frac{8}{7}\right)^{8/\pi}-1}}\approx -2.231\,i$$

Alternative representations:

$$\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}}=\sqrt{\frac{-\log(a)\log_a(8)+\frac{\log(a)\log_a(5)}{8\pi}}{-1+\left(1+\frac{1}{7}\right)^{8/\pi}}}$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}}=\sqrt{\frac{-\log_e(8)+\frac{\log_e(5)}{8\pi}}{-1+\left(1+\frac{1}{7}\right)^{8/\pi}}}$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}}=\sqrt{\frac{\mathrm{Li}_1(-7)-\frac{\mathrm{Li}_1(-4)}{8\pi}}{-1+\left(1+\frac{1}{7}\right)^{8/\pi}}}$$

Series representations:

$$\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}}=\frac{i\sqrt{-\log(4)+8\pi\log(7)+\sum_{k=1}^{\infty}\frac{\left(-\frac{1}{4}\right)^k}{k}-8\pi\sum_{k=1}^{\infty}\frac{\left(-\frac{1}{7}\right)^k}{k}}}{2\sqrt{2\left(-1+\left(\frac{8}{7}\right)^{8/\pi}\right)\pi}}$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}}=$$

$$\frac{1}{2\sqrt{2\left(-1+\left(\frac{8}{7}\right)^{8/\pi}\right)\pi}}\,i\sqrt{\left(-2i\pi\left\lfloor\frac{\arg(5-x)}{2\pi}\right\rfloor+16i\pi^2\left\lfloor\frac{\arg(8-x)}{2\pi}\right\rfloor-\log(x)+8\pi\log(x)+\sum_{k=1}^{\infty}\frac{(-1)^k(5-x)^k x^{-k}}{k}-8\pi\sum_{k=1}^{\infty}\frac{(-1)^k(8-x)^k x^{-k}}{k}\right)}\quad \text{for } x<0$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}} = \frac{1}{2\sqrt{2\left(-1+\left(\frac{8}{7}\right)^{8/\pi}\right)\pi}}\, i \sqrt{\left(-2 i \pi \left\lfloor \frac{\pi-\arg\left(\frac{1}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor + 16 i \pi^2 \left\lfloor \frac{\pi-\arg\left(\frac{1}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor - \log(z_0) + 8\pi\log(z_0) + \sum_{k=1}^{\infty}\frac{(-1)^k (5-z_0)^k z_0^{-k}}{k} - 8\pi\sum_{k=1}^{\infty}\frac{(-1)^k (8-z_0)^k z_0^{-k}}{k}\right)}$$

Integral representations:

$$\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}} = \frac{i\sqrt{\int_1^5\left(-\frac{1}{8\pi t}+\frac{7}{-3+7t}\right)dt}}{\sqrt{-1+\left(\frac{8}{7}\right)^{8/\pi}}}$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}} = \frac{i\sqrt{i\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{28^{-s}\left(7^s-2^{3+2s}\pi\right)\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}}{4\sqrt{-1+\left(\frac{8}{7}\right)^{8/\pi}}\,\pi} \quad \text{for } -1<\gamma<0$$

Now, we have that:

[((((sqrt((1+1)ln3)+sqrt(ln(8*3)))))) + sqrt(((((((ln5/(8Pi))-ln8)))/((((1+1/7)^(1/Pi * 8) – 1)))))))]^4

Input:

$$\left(\left(\sqrt{(1+1)\log(3)}+\sqrt{\log(8\times 3)}\right)+\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{1/\pi\times 8}-1}}\right)^4$$

log(x) is the natural logarithm

Exact result:

$$\left(\sqrt{2\log(3)}+i\sqrt{\frac{\log(8)-\frac{\log(5)}{8\pi}}{\left(\frac{8}{7}\right)^{8/\pi}-1}}+\sqrt{\log(24)}\right)^4$$

Decimal approximation:

$-179.89023973531393241351454539040983874247827738927828468\ldots + 165.59672955929319932468516382521453982345577162054146754\ldots i$

Polar coordinates:

$r \approx 244.505$ (radius), $\theta \approx 137.369°$ (angle)

244.505

From which:

7*[((((sqrt((1+1)ln3)+sqrt(ln(8*3)))))) + sqrt((((((((ln5/(8Pi))-ln8)))/((((1+1/7)^(1/Pi * 8) – 1))))))]^4 - 29 + 4 + 2

where 7, 29, 4 and 2 are Lucas numbers

Input:

$$7\left(\left(\sqrt{(1+1)\log(3)}+\sqrt{\log(8\times 3)}\right)+\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{1/\pi\times 8}-1}}\right)^4-29+4+2$$

log(x) is the natural logarithm

Exact result:

$$-23+7\left(\sqrt{2\log(3)}+i\sqrt{\frac{\log(8)-\frac{\log(5)}{8\pi}}{\left(\frac{8}{7}\right)^{8/\pi}-1}}+\sqrt{\log(24)}\right)^4$$

Decimal approximation:

$-1282.2316781471975268946018177328688711973479417249479927\ldots + 1159.1771069150523952727961467765017787641904013437902728\ldots i$

Polar coordinates:

$r \approx 1728.53$ (radius), $\theta \approx 137.885°$ (angle)

1728.53

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

From:

arXiv:1103.5870v3 [astro-ph.CO] 20 Apr 2011

Dark Energy

Miao Li, Xiao-Dong Li, Shuang Wang and Yi Wang

We have that:

15.3. Holographic dark energy models

In the following, we will introduce some numerical works about the holographic dark energy (HDE) model, which arises from the holographic principle.

In [529], Huang and Gong first performed a numerical study on the HDE model. Making use of the 157 gold SNIa data, they obtained for the $c = 1$ case $\Omega_m = 0.25^{+0.04}_{-0.03}$, $w = -0.91 \pm 0.01$ at 1σ CL. Soon after, a lot of numerical studies were performed to test and constrain the HDE model [156][530]. These works showed that the HDE model can provide a good fit to the data. For example, in [531], by using the combined Constitution+BAO+CMB data, Li *et al.* obtained the following $\chi^2_{\rm min}$s for the ΛCDM and HDE models

$$\chi^2_{\Lambda\rm CDM} = 467.775, \quad \chi^2_{\rm HDE} = 465.912. \tag{15.23}$$

So the HDE model is consistent with the current observations. Similar results have been obtained in e.g. [532,533,534,535]. Therefore, from the perspective of current observations, HDE is a competitive model.

In addition to the HDE model with future event horizon as the cutoff, the Agegraphic dark energy (ADE) model [169,170,540] and the Holographic Ricci dark energy (RDE) model [173] are also motivated by the holographic principle (the ADE model can also be obtained from the Károlyházy relation; see [169] for details). In these two models, the IR cutoff length scale is given by the conformal time η and the average radius of the Ricci scalar curvature $|\mathcal{R}|^{-1/2}$, respectively. There have been some numerical studies on these two models [531,541,542,543,544,545]. In general, these studies showed that the ADE and RDE models are not favored by current observations. For example, in [531], Li *et al.* obtained

$$\chi^2_{\rm ADE} = 481.694, \quad \chi^2_{\rm RDE} = 483.130. \qquad (15.28)$$

From the above expression, we obtain also:

29 + 3 + 2*[((((sqrt((1+1)ln3)+sqrt(ln(8*3)))))) + sqrt(((((((ln5/(8Pi))-ln8)))/((((1+1/7)^(1/Pi * 8) – 1))))))]^4

where 29, 3 and 2 are Lucas numbers

Input:

$$29+3+2\left(\left(\sqrt{(1+1)\log(3)}+\sqrt{\log(8\times 3)}\right)+\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{1/\pi\times 8}-1}}\right)^4$$

$\log(x)$ is the natural logarithm

Exact result:

$$32+2\left(\sqrt{2\log(3)}+i\sqrt{\frac{\log(8)-\frac{\log(5)}{8\pi}}{\left(\frac{8}{7}\right)^{8/\pi}-1}}+\sqrt{\log(24)}\right)^4$$

Decimal approximation:

−327.78047947062786482702909078081967748495655477855656936... +
331.19345911858639864937032765042907964691154324108293508... i

Polar coordinates:

$r \approx 465.971$ (radius), $\theta \approx 134.703°$ (angle)

465.971 result practically equal to Holographic Dark Energy model, where

$$\chi^2_{\rm HDE} = 465.912.$$

and:

7 + 2*[((((sqrt((1+1)ln3)+sqrt(ln(8*3)))))) + sqrt(((((((ln5/(8Pi))-ln8)))/((((1+1/7)^(1/Pi * 8) – 1)))))))]^4

where 7 is a Lucas number

Input:

$$7+2\left(\left(\sqrt{(1+1)\log(3)}+\sqrt{\log(8\times 3)}\right)+\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{1/\pi\times 8}-1}}\right)^4$$

log(x) is the natural logarithm

Exact result:

$$7+2\left(\sqrt{2\log(3)}+i\sqrt{\frac{\log(8)-\frac{\log(5)}{8\pi}}{\left(\frac{8}{7}\right)^{8/\pi}-1}}+\sqrt{\log(24)}\right)^4$$

Decimal approximation:

$-352.780479470627864827029090780819677484956554778556569\ldots + 331.193459118586398649370327650429079646911543241082935\ldots i$

Polar coordinates:

$r \approx 483.883$ (radius), $\theta \approx 136.808°$ (angle)

483.883 result practically equal to Holographic Ricci dark energy model, where

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

Now, we have that:

$$\sqrt{\{(1+a_2)\log 2\}} < \sqrt{\left\{\frac{\frac{\log\lambda}{\pi(\mu)}+\log\mu}{1-\left(\frac{1+a_\lambda}{2+a_\lambda}\right)^{1/\pi(\mu)}}\right\}}+\sqrt{\log(2\mu)}, \quad \ldots(74)$$

For: $a_v = 1$, $v = 3$, $\mu = 8$, $\lambda = 5$, $a_2 = 4$ and $a_\lambda = 7$, we obtain:

sqrt((1+4)ln2)

Input:

$$\sqrt{(1+4)\log(2)}$$

Exact result:

$\sqrt{5 \log(2)}$

Decimal approximation:

1.861648705529517066380623159432902129342255676404766270394...

1.8616487055295…

Property:

$\sqrt{5 \log(2)}$ is a transcendental number

Alternate form:

$\sqrt{\log(32)}$

All 2nd roots of 5 log(2):

$e^0 \sqrt{5 \log(2)} \approx 1.8616$ (real, principal root)

$e^{i \pi} \sqrt{5 \log(2)} \approx -1.8616$ (real root)

Alternative representations:

$$\sqrt{(1+4) \log(2)} = \sqrt{5 \log_e(2)}$$

$$\sqrt{(1+4) \log(2)} = \sqrt{5 \log(a) \log_a(2)}$$

$$\sqrt{(1+4) \log(2)} = \sqrt{10 \coth^{-1}(3)}$$

Series representations:

$$\sqrt{(1+4) \log(2)} = \sqrt{5} \sqrt{2 i \pi \left\lfloor \frac{\arg(2-x)}{2 \pi} \right\rfloor + \log(x) - \sum_{k=1}^{\infty} \frac{(-1)^k (2-x)^k x^{-k}}{k}} \quad \text{for } x < 0$$

$$\sqrt{(1+4)\log(2)} = -\sqrt{5}\sum_{k=0}^{\infty}\binom{-\frac{1}{2}+k}{k}\sum_{j=0}^{k}\frac{(-1)^j\binom{k}{j}p_{j,k}}{-1+2j}$$

$$\text{for}\left(c_k = \frac{5(-1)^k}{1+k} \text{ and } p_{j,0} = 1 \text{ and } 5\,p_{j,k} = \frac{\sum_{m=1}^{k}(-k+m+j\,m)\,c_m\,p_{j,k-m}}{k} \text{ and } k \in \mathbb{Z} \text{ and } k > 0\right)$$

$$\sqrt{(1+4)\log(2)} = \sqrt{5}\sqrt{\log(z_0) + \left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right) - \sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}}$$

$$\sqrt{(1+4)\log(2)} = \sqrt{5}\sqrt{2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{1}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor + \log(z_0) - \sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}}$$

Integral representations:

$$\sqrt{(1+4)\log(2)} = \sqrt{5}\sqrt{\int_1^2 \frac{1}{t}\,dt}$$

$$\sqrt{(1+4)\log(2)} = \sqrt{\frac{5}{2\pi}}\sqrt{-i\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds} \quad \text{for } -1<\gamma<0$$

sqrt((((((((ln5/(8Pi))+ln8)))/(1-((((1+7)/(2+7)))^(1/Pi * 8)))))) + sqrt(ln(2*8))

Input:

$$\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{1/\pi\times 8}}} + \sqrt{\log(2\times 8)}$$

Exact result:

$$\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{8}{9}\right)^{8/\pi}}} + \sqrt{\log(16)}$$

Decimal approximation:

4.541180037682496037406077841586219234831459439344165061795...

4.5411800376824…..

Alternate forms:

$$\frac{1}{4}\left(\sqrt{\frac{2(\log(5)+8\pi\log(8))}{\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi}}+4\sqrt{\log(16)}\right)$$

$$2\sqrt{\log(2)}+\frac{1}{2}\sqrt{\frac{24\pi\log(2)+\log(5)}{2\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi}}$$

Alternative representations:

$$\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}=\sqrt{\log(a)\log_a(16)}+\sqrt{\frac{\log(a)\log_a(8)+\frac{\log(a)\log_a(5)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}=\sqrt{\log_e(16)}+\sqrt{\frac{\log_e(8)+\frac{\log_e(5)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}=\sqrt{-\text{Li}_1(-15)}+\sqrt{\frac{-\text{Li}_1(-7)-\frac{\text{Li}_1(-4)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}$$

Series representations:

$$\sqrt{\frac{\frac{\log(5)}{8\pi} + \log(8)}{1 - \left(\frac{1+7}{2+7}\right)^{8/\pi}}} + \sqrt{\log(2 \times 8)} = \frac{1}{4\sqrt{1 - \left(\frac{8}{9}\right)^{8/\pi}}} \left(\sqrt{\frac{2}{\pi}} \sqrt{\log(4) + 8\pi\log(7) - \sum_{k=1}^{\infty} \frac{\left(-\frac{1}{4}\right)^k}{k} - 8\pi \sum_{k=1}^{\infty} \frac{\left(-\frac{1}{7}\right)^k}{k}} + 4\sqrt{1 - \left(\frac{8}{9}\right)^{8/\pi}} \sqrt{\log(15) - \sum_{k=1}^{\infty} \frac{\left(-\frac{1}{15}\right)^k}{k}}\right)$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi} + \log(8)}{1 - \left(\frac{1+7}{2+7}\right)^{8/\pi}}} + \sqrt{\log(2 \times 8)} = \frac{1}{4\sqrt{1 - \left(\frac{8}{9}\right)^{8/\pi}}} \left(\sqrt{\frac{2}{\pi}} \sqrt{\left(2 i \pi \left\lfloor \frac{\arg(5-x)}{2\pi} \right\rfloor + 16 i \pi^2 \left\lfloor \frac{\arg(8-x)}{2\pi} \right\rfloor + \log(x) + 8\pi\log(x) - \sum_{k=1}^{\infty} \frac{(-1)^k (5-x)^k x^{-k}}{k} - 8\pi \sum_{k=1}^{\infty} \frac{(-1)^k (8-x)^k x^{-k}}{k}\right)} + 4\sqrt{1 - \left(\frac{8}{9}\right)^{8/\pi}} \sqrt{2 i \pi \left\lfloor \frac{\arg(16-x)}{2\pi} \right\rfloor + \log(x) - \sum_{k=1}^{\infty} \frac{(-1)^k (16-x)^k x^{-k}}{k}}\right) \quad \text{for } x < 0$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi} + \log(8)}{1 - \left(\frac{1+7}{2+7}\right)^{8/\pi}}} + \sqrt{\log(2 \times 8)} = \frac{1}{4\sqrt{1 - \left(\frac{8}{9}\right)^{8/\pi}}} \left(\sqrt{\frac{2}{\pi}} \sqrt{\left(2 i \pi \left\lfloor \frac{\pi - \arg\left(\frac{1}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor + 16 i \pi^2 \left\lfloor \frac{\pi - \arg\left(\frac{1}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor + \log(z_0) + 8\pi\log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k (5-z_0)^k z_0^{-k}}{k} - 8\pi \sum_{k=1}^{\infty} \frac{(-1)^k (8-z_0)^k z_0^{-k}}{k}\right)} + 4\sqrt{1 - \left(\frac{8}{9}\right)^{8/\pi}} \sqrt{2 i \pi \left\lfloor \frac{\pi - \arg\left(\frac{1}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor + \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k (16-z_0)^k z_0^{-k}}{k}}\right)$$

Integral representations:

$$\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}=\frac{\sqrt{1-\left(\frac{8}{9}\right)^{8/\pi}}\sqrt{\int_1^{16}\frac{1}{t}\,dt}+\sqrt{\int_1^5\left(\frac{1}{8\pi t}+\frac{7}{-3+7t}\right)dt}}{\sqrt{1-\left(\frac{8}{9}\right)^{8/\pi}}}$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}=$$

$$\frac{1}{2\sqrt{\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi}}\left(\sqrt{2\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)}\sqrt{-i\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{15^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}+2\sqrt{\pi}\right.$$
$$\left.\sqrt{\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}-\frac{i\,2^{-2(2+s)}\times 7^{-s}\left(7^s+2^{3+2s}\,\pi\right)\Gamma(-s)^2\,\Gamma(1+s)}{\pi^2\,\Gamma(1-s)}\,ds}\right)\quad \text{for } -1<\gamma<0$$

From the two above expressions, performing the following calculations, we obtain also:

47-2Pi+golden ratio*[(((sqrt((1+4)ln2)))) + ((((sqrt((((((((ln5/(8Pi))+ln8)))/(1-((((1+7)/(2+7)))^(1/Pi * 8)))))) + sqrt(ln(2*8)))))))]^3

where 47 is a Lucas number

Input:

$$47-2\pi+\phi\left(\sqrt{(1+4)\log(2)}+\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{1/\pi\times 8}}}+\sqrt{\log(2\times 8)}\right)\right)^3$$

ϕ is the golden ratio

Exact result:

$$\phi\left(\sqrt{5\log(2)}+\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{8}{9}\right)^{8/\pi}}}+\sqrt{\log(16)}\right)^3+47-2\pi$$

Decimal approximation:

465.4373873490350218500095499598559745313561462279770965258...

465.437387…. result practically equal to Holographic Dark Energy model, where

$\chi^2_{\text{HDE}} = 465.912.$

Alternate forms:

$$\phi\left(\left(2+\sqrt{5}\right)\sqrt{\log(2)} + \frac{1}{2}\sqrt{\frac{24\pi\log(2)+\log(5)}{2\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi}}\right)^3 + 47 - 2\pi$$

$$47 - 2\pi + \frac{25}{2}\log^{3/2}(2) + \frac{5}{2}\sqrt{5}\log^{3/2}(2) + \frac{1}{2}\log^{3/2}(16) + \frac{1}{2}\sqrt{5}\log^{3/2}(16) +$$
$$\frac{15\sqrt{\log(2)}\log(5)}{16\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi} + \frac{3\sqrt{5\log(2)}\log(5)}{16\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi} + \frac{15\sqrt{\log(2)}\log(8)}{2\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)} + \frac{3\sqrt{5\log(2)}\log(8)}{2\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)} +$$
$$\frac{15}{2}\log(2)\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{8}{9}\right)^{8/\pi}}} + \frac{1}{2}\left(\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{8}{9}\right)^{8/\pi}}\right)^{3/2} + \frac{1}{2}\sqrt{5}\left(\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{8}{9}\right)^{8/\pi}}\right)^{3/2} +$$
$$\frac{15}{2}\log(2)\sqrt{\frac{5\left(\frac{\log(5)}{8\pi}+\log(8)\right)}{1-\left(\frac{8}{9}\right)^{8/\pi}}} + \frac{15}{2}\log(2)\sqrt{\log(16)} + \frac{3\log(5)\sqrt{\log(16)}}{16\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi} +$$
$$\frac{3\log(8)\sqrt{\log(16)}}{2\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)} + \frac{15}{2}\sqrt{\log(2)}\log(16) + \frac{3}{2}\sqrt{5\log(2)}\log(16) +$$
$$\frac{3}{2}\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{8}{9}\right)^{8/\pi}}}\log(16) + \frac{3}{2}\sqrt{\frac{5\left(\frac{\log(5)}{8\pi}+\log(8)\right)}{1-\left(\frac{8}{9}\right)^{8/\pi}}}\log(16) +$$
$$\frac{15}{2}\log(2)\sqrt{5\log(16)} + \frac{3\log(5)\sqrt{5\log(16)}}{16\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi} + \frac{3\log(8)\sqrt{5\log(16)}}{2\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)} +$$
$$15\sqrt{\frac{\log(2)\left(\frac{\log(5)}{8\pi}+\log(8)\right)\log(16)}{1-\left(\frac{8}{9}\right)^{8/\pi}}} + 3\sqrt{\frac{5\log(2)\left(\frac{\log(5)}{8\pi}+\log(8)\right)\log(16)}{1-\left(\frac{8}{9}\right)^{8/\pi}}}$$

$$\left(-3008\,\pi + 47\times 8^{2+8/\pi}\times 9^{-8/\pi}\,\pi + 128\,\pi^2 - 2^{7+24/\pi}\times 9^{-8/\pi}\,\pi^2 -\right.$$

$$800\,\pi\log^{3/2}(2) - 160\sqrt{5}\,\pi\log^{3/2}(2) + 25\times 2^{5+24/\pi}\times 9^{-8/\pi}\,\pi\log^{3/2}(2) +$$
$$5\times 2^{5+24/\pi}\sqrt{5}\;9^{-8/\pi}\,\pi\log^{3/2}(2) - 60\sqrt{\log(2)}\,\log(5) -$$
$$12\sqrt{5\log(2)}\,\log(5) - 480\,\pi\sqrt{\log(2)}\,\log(8) - 96\,\pi\sqrt{5\log(2)}\,\log(8) -$$
$$\frac{\sqrt{\frac{2}{\pi}}\,(\log(5)+8\,\pi\log(8))^{3/2}}{\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)^{3/2}} + \frac{2^{1/2+24/\pi}\times 9^{-8/\pi}\sqrt{\frac{5}{\pi}}\,(\log(5)+8\,\pi\log(8))^{3/2}}{\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)^{3/2}} -$$
$$\frac{\sqrt{\frac{10}{\pi}}\,(\log(5)+8\,\pi\log(8))^{3/2}}{\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)^{3/2}} + \frac{2^{1/2+24/\pi}\times 9^{-8/\pi}\,(\log(5)+8\,\pi\log(8))^{3/2}}{\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)^{3/2}\sqrt{\pi}} +$$
$$5\times 2^{7/2+24/\pi}\times 3^{1-16/\pi}\log(2)\sqrt{\frac{\pi(\log(5)+8\,\pi\log(8))}{1-\left(\frac{8}{9}\right)^{8/\pi}}} -$$
$$120\log(2)\sqrt{\frac{2\,\pi(\log(5)+8\,\pi\log(8))}{1-\left(\frac{8}{9}\right)^{8/\pi}}} +$$
$$5\times 2^{7/2+24/\pi}\times 3^{1-16/\pi}\log(2)\sqrt{\frac{5\,\pi(\log(5)+8\,\pi\log(8))}{1-\left(\frac{8}{9}\right)^{8/\pi}}} -$$
$$120\log(2)\sqrt{\frac{10\,\pi(\log(5)+8\,\pi\log(8))}{1-\left(\frac{8}{9}\right)^{8/\pi}}} - 480\,\pi\log(2)\sqrt{\log(16)} +$$
$$5\times 2^{5+24/\pi}\times 3^{1-16/\pi}\,\pi\log(2)\sqrt{\log(16)} - 12\log(5)\sqrt{\log(16)} -$$
$$96\,\pi\log(8)\sqrt{\log(16)} - 480\,\pi\sqrt{\log(2)}\,\log(16) +$$
$$5\times 2^{5+24/\pi}\times 3^{1-16/\pi}\,\pi\sqrt{\log(2)}\,\log(16) -$$
$$96\,\pi\sqrt{5\log(2)}\,\log(16) + 2^{5+24/\pi}\times 3^{1-16/\pi}\,\pi\sqrt{5\log(2)}\,\log(16) +$$
$$2^{7/2+24/\pi}\times 3^{1-16/\pi}\sqrt{\frac{\pi(\log(5)+8\,\pi\log(8))}{1-\left(\frac{8}{9}\right)^{8/\pi}}}\,\log(16) -$$
$$24\sqrt{\frac{2\,\pi(\log(5)+8\,\pi\log(8))}{1-\left(\frac{8}{9}\right)^{8/\pi}}}\,\log(16) +$$
$$2^{7/2+24/\pi}\times 3^{1-16/\pi}\sqrt{\frac{5\,\pi(\log(5)+8\,\pi\log(8))}{1-\left(\frac{8}{9}\right)^{8/\pi}}}\,\log(16) -$$
$$24\sqrt{\frac{10\,\pi(\log(5)+8\,\pi\log(8))}{1-\left(\frac{8}{9}\right)^{8/\pi}}}\,\log(16) - 32\,\pi\log^{3/2}(16) - 32\sqrt{5}\,\pi\log^{3/2}(16) +$$
$$2^{5+24/\pi}\times 9^{-8/\pi}\,\pi\log^{3/2}(16) + 2^{5+24/\pi}\sqrt{5}\;9^{-8/\pi}\,\pi\log^{3/2}(16) -$$
$$480\,\pi\log(2)\sqrt{5\log(16)} + 5\times 2^{5+24/\pi}\times 3^{1-16/\pi}\,\pi\log(2)\sqrt{5\log(16)} -$$
$$12\log(5)\sqrt{5\log(16)} - 96\,\pi\log(8)\sqrt{5\log(16)} +$$
$$5\times 2^{9/2+24/\pi}\times 3^{1-16/\pi}\sqrt{\frac{\pi\log(2)(\log(5)+8\,\pi\log(8))\log(16)}{1-\left(\frac{8}{9}\right)^{8/\pi}}} -$$
$$240\sqrt{\frac{2\,\pi\log(2)(\log(5)+8\,\pi\log(8))\log(16)}{1-\left(\frac{8}{9}\right)^{8/\pi}}} +$$
$$2^{9/2+24/\pi}\times 3^{1-16/\pi}\sqrt{\frac{5\,\pi\log(2)(\log(5)+8\,\pi\log(8))\log(16)}{1-\left(\frac{8}{9}\right)^{8/\pi}}} -$$
$$\left.48\sqrt{\frac{10\,\pi\log(2)(\log(5)+8\,\pi\log(8))\log(16)}{1-\left(\frac{8}{9}\right)^{8/\pi}}}\right)\Bigg/$$
$$\left(64\left(-1+\sqrt[\pi]{\frac{8}{9}}\right)\left(1+\sqrt[\pi]{\frac{8}{9}}\right)\left(1+\left(\frac{8}{9}\right)^{2/\pi}\right)\left(1+\left(\frac{8}{9}\right)^{4/\pi}\right)\pi\right)$$

Alternative representations:

$$47-2\pi+\phi\left(\sqrt{(1+4)\log(2)}+\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)\right)^3 =$$
$$47-2\pi+\phi\left(\sqrt{5\log_e(2)}+\sqrt{\log_e(16)}+\sqrt{\frac{\log_e(8)+\frac{\log_e(5)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}\right)^3$$

$$47-2\pi+\phi\left(\sqrt{(1+4)\log(2)}+\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)\right)^3 =$$
$$47-2\pi+\phi\left(\sqrt{5\log(a)\log_a(2)}+\sqrt{\log(a)\log_a(16)}+\sqrt{\frac{\log(a)\log_a(8)+\frac{\log(a)\log_a(5)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}\right)^3$$

$$47-2\pi+\phi\left(\sqrt{(1+4)\log(2)}+\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)\right)^3 =$$
$$47-2\pi+\phi\left(\sqrt{-\text{Li}_1(-15)}+\sqrt{-5\,\text{Li}_1(-1)}+\sqrt{\frac{-\text{Li}_1(-7)-\frac{\text{Li}_1(-4)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}\right)^3$$

and:

-29-11-golden ratio+2*[(((sqrt((1+4)ln2)))) + ((((sqrt(((((((ln5/(8Pi))+ln8)))/(1-((((1+7)/(2+7)))^(1/Pi * 8)))))) + sqrt(ln(2*8))))))]^3

where 29 and 11 are Lucas numbers

Input:

$$-29-11-\phi+2\left(\sqrt{(1+4)\log(2)}+\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{1/\pi\times 8}}}+\sqrt{\log(2\times 8)}\right)\right)^3$$

ϕ is the golden ratio

Exact result:

$$-\phi-40+2\left(\sqrt{5\log(2)}+\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{8}{9}\right)^{8/\pi}}}+\sqrt{\log(16)}\right)^3$$

Decimal approximation:

483.3654652569697786108969979147491554737272251125061298130...

483.365465…. result practically equal to Holographic Ricci dark energy model, where

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

Alternate forms:

$$\frac{1}{2}\left(-81-\sqrt{5}\right)+2\left(\sqrt{5\log(2)}+\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{8}{9}\right)^{8/\pi}}}+\sqrt{\log(16)}\right)^3$$

$$\frac{1}{4\left(\left(\frac{8}{9}\right)^{8/\pi}-1\right)\pi}\left(8\pi\left(\left(2+\sqrt{5}\right)\left(-18+8^{8/\pi}\times 9^{1-8/\pi}+4\sqrt{5}\left(\left(\frac{8}{9}\right)^{8/\pi}-1\right)\right)\log^{3/2}(2)-20\left(\left(\frac{8}{9}\right)^{8/\pi}-1\right)\right)-3\left(2+\sqrt{5}\right)\sqrt{\log(2)}\log(5)+\frac{1}{2}\left(24\left(-10+8^{8/\pi}\times 9^{1-8/\pi}+4\sqrt{5}\left(\left(\frac{8}{9}\right)^{8/\pi}-1\right)\right)\pi\log(2)-\log(5)\right)\sqrt{\frac{24\pi\log(2)+\log(5)}{2\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi}}\right)-\phi$$

$$-\frac{1}{4\left(\left(\frac{8}{9}\right)^{8/\pi}-1\right)\pi}\left(4\left(\left(\frac{8}{9}\right)^{8/\pi}-1\right)\pi\phi-8\pi\left(\left(2+\sqrt{5}\right)\left(-18+8^{8/\pi}\times 9^{1-8/\pi}+4\sqrt{5}\left(\left(\frac{8}{9}\right)^{8/\pi}-1\right)\right)\log^{3/2}(2)-20\left(\left(\frac{8}{9}\right)^{8/\pi}-1\right)\right)+3\left(2+\sqrt{5}\right)\sqrt{\log(2)}\log(5)-\frac{1}{2}\left(24\left(-10+8^{8/\pi}\times 9^{1-8/\pi}+4\sqrt{5}\left(\left(\frac{8}{9}\right)^{8/\pi}-1\right)\right)\pi\log(2)-\log(5)\right)\sqrt{\frac{24\pi\log(2)+\log(5)}{2\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi}}\right)$$

Alternative representations:

$$-29-11-\phi+2\left(\sqrt{(1+4)\log(2)}+\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)\right)^3 =$$
$$-40-\phi+2\left(\sqrt{5\log_e(2)}+\sqrt{\log_e(16)}+\sqrt{\frac{\log_e(8)+\frac{\log_e(5)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}\right)^3$$

$$-29-11-\phi+2\left(\sqrt{(1+4)\log(2)}+\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)\right)^3 =$$
$$-40-\phi+2\left(\sqrt{5\log(a)\log_a(2)}+\sqrt{\log(a)\log_a(16)}+\sqrt{\frac{\log(a)\log_a(8)+\frac{\log(a)\log_a(5)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}\right)^3$$

$$-29-11-\phi+2\left(\sqrt{(1+4)\log(2)}+\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)\right)^3 =$$
$$-40-\phi+2\left(\sqrt{-\mathrm{Li}_1(-15)}+\sqrt{-5\,\mathrm{Li}_1(-1)}+\sqrt{\frac{-\mathrm{Li}_1(-7)-\frac{\mathrm{Li}_1(-4)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}\right)^3$$

From the previous two expressions, we obtain also:

((11+3)/10^4)i+(7/10^2)i+ (((sqrt((1+1)ln3)+sqrt(ln(8*3)))))i -
(((sqrt(((((((ln5/(8Pi))-ln8)))/((((1+1/7)^(1/Pi * 8) – 1)))))))))

Input:

$$\frac{11+3}{10^4}\,i+\frac{7}{10^2}\,i+\left(\sqrt{(1+1)\log(3)}+\sqrt{\log(8\times 3)}\right)i-\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{1/\pi\times 8}-1}}$$

Exact result:

$$\frac{357 i}{5000} - i\sqrt{\frac{\log(8) - \frac{\log(5)}{8\pi}}{\left(\frac{8}{7}\right)^{8/\pi} - 1}} + i\left(\sqrt{2\log(3)} + \sqrt{\log(24)}\right)$$

Decimal approximation:

1.105640585813831957824620946799174123509564257676534991782... i

Polar coordinates:

$r \approx 1.10564$ (radius), $\theta = 90°$ (angle)

1.10564

Alternate forms:

$$i\left(\frac{357}{5000} + \sqrt{2\log(3)} - \sqrt{\frac{\log(8) - \frac{\log(5)}{8\pi}}{\left(\frac{8}{7}\right)^{8/\pi} - 1}} + \sqrt{\log(24)}\right)$$

$$-\frac{i\left(-357 - 5000\sqrt{2\log(3)} + 1250\sqrt{\frac{2(8\pi\log(8) - \log(5))}{\left(\left(\frac{8}{7}\right)^{8/\pi} - 1\right)\pi}} - 5000\sqrt{\log(24)}\right)}{5000}$$

$$\frac{i\left(357 + 5000\sqrt{2\log(3)} + 5000\sqrt{3\log(2) + \log(3)}\right)}{5000} - \frac{1}{2} i\sqrt{\frac{24\pi\log(2) - \log(5)}{2\left(\left(\frac{8}{7}\right)^{8/\pi} - 1\right)\pi}}$$

Alternative representations:

$$\frac{i(11+3)}{10^4} + \frac{i\,7}{10^2} + \left(\sqrt{(1+1)\log(3)} + \sqrt{\log(8\times 3)}\right)i - \sqrt{\frac{\frac{\log(5)}{8\pi} - \log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi} - 1}} = \frac{7 i}{10^2} + \frac{14 i}{10^4} +$$

$$i\left(\sqrt{2\log(a)\log_a(3)} + \sqrt{\log(a)\log_a(24)}\right) - \sqrt{\frac{-\log(a)\log_a(8) + \frac{\log(a)\log_a(5)}{8\pi}}{-1 + \left(1+\frac{1}{7}\right)^{8/\pi}}}$$

$$\frac{i(11+3)}{10^4} + \frac{i\,7}{10^2} + \left(\sqrt{(1+1)\log(3)} + \sqrt{\log(8\times 3)}\right) i - \sqrt{\frac{\frac{\log(5)}{8\pi} - \log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi} - 1}} =$$

$$\frac{7i}{10^2} + \frac{14i}{10^4} + i\left(\sqrt{2\log_e(3)} + \sqrt{\log_e(24)}\right) - \sqrt{\frac{-\log_e(8) + \frac{\log_e(5)}{8\pi}}{-1 + \left(1+\frac{1}{7}\right)^{8/\pi}}}$$

$$\frac{i(11+3)}{10^4} + \frac{i\,7}{10^2} + \left(\sqrt{(1+1)\log(3)} + \sqrt{\log(8\times 3)}\right) i - \sqrt{\frac{\frac{\log(5)}{8\pi} - \log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi} - 1}} =$$

$$\frac{7i}{10^2} + \frac{14i}{10^4} + i\left(\sqrt{-\text{Li}_1(-23)} + \sqrt{-2\,\text{Li}_1(-2)}\right) - \sqrt{\frac{\text{Li}_1(-7) - \frac{\text{Li}_1(-4)}{8\pi}}{-1 + \left(1+\frac{1}{7}\right)^{8/\pi}}}$$

(1/10^52) (((((11+3)/10^4)i+(7/10^2)i+ (((sqrt((1+1)ln3)+sqrt(ln(8*3)))))i - (((sqrt((((((ln5/(8Pi))-ln8)))/((((1+1/7)^(1/Pi * 8) – 1)))))))))))

Input:

$$\frac{1}{10^{52}}\left(\frac{11+3}{10^4}\,i + \frac{7}{10^2}\,i + \left(\sqrt{(1+1)\log(3)} + \sqrt{\log(8\times 3)}\right) i - \sqrt{\frac{\frac{\log(5)}{8\pi} - \log(8)}{\left(1+\frac{1}{7}\right)^{1/\pi\times 8} - 1}}\right)$$

Exact result:

$$\frac{\frac{357i}{5000} - i\sqrt{\frac{\log(8) - \frac{\log(5)}{8\pi}}{\left(\frac{8}{7}\right)^{8/\pi} - 1}} + i\left(\sqrt{2\log(3)} + \sqrt{\log(24)}\right)}{10\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}$$

Decimal approximation:

$1.1056405858138319578246209467991741235095642576765\,34\ldots \times 10^{-52}\,i$

Polar coordinates:

$r \approx 1.10564\times 10^{-52}$ (radius), $\theta = 90°$ (angle)

$1.10564 * 10^{-52}$

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

Alternate forms:

$$-\frac{i\left(-357-5000\sqrt{2\log(3)}+1250\sqrt{\frac{2(8\pi\log(8)-\log(5))}{\left(\left(\frac{8}{7}\right)^{8/\pi}-1\right)\pi}}-5000\sqrt{\log(24)}\right)}{50\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}$$

$$i\left(\frac{357}{50\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}+\frac{\sqrt{\frac{\log(3)}{2}}}{5\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}-\frac{\sqrt{\frac{\log(8)-\frac{\log(5)}{8\pi}}{\left(\frac{8}{7}\right)^{8/\pi}-1}}}{10\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}+\frac{\sqrt{\log(24)}}{10\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}\right)$$

$$\frac{i\left(357+5000\sqrt{2\log(3)}+5000\sqrt{3\log(2)+\log(3)}\right)}{50\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}-\frac{i\sqrt{\frac{24\pi\log(2)-\log(5)}{2\left(\left(\frac{8}{7}\right)^{8/\pi}-1\right)\pi}}}{20\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}$$

Expanded form:

$$\frac{357\,i}{50\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000} + \frac{i\sqrt{\frac{\log(3)}{2}}}{5\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000} - \frac{i\sqrt{\frac{\log(8)-\frac{\log(5)}{8\pi}}{\left(\frac{8}{7}\right)^{8/\pi}-1}}}{10\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000} + \frac{i\sqrt{\log(24)}}{10\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}$$

Alternative representations:

$$\frac{\frac{(11+3)i}{10^4} + \frac{7i}{10^2} + \left(\sqrt{(1+1)\log(3)} + \sqrt{\log(8\times 3)}\right)i - \sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}}}{10^{52}} = \frac{\frac{7i}{10^2} + \frac{14i}{10^4} + i\left(\sqrt{2\log(a)\log_a(3)} + \sqrt{\log(a)\log_a(24)}\right) - \sqrt{\frac{-\log(a)\log_a(8)+\frac{\log(a)\log_a(5)}{8\pi}}{-1+\left(1+\frac{1}{7}\right)^{8/\pi}}}}{10^{52}}$$

$$\frac{\frac{(11+3)i}{10^4} + \frac{7i}{10^2} + \left(\sqrt{(1+1)\log(3)} + \sqrt{\log(8\times 3)}\right)i - \sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}}}{10^{52}} = \frac{\frac{7i}{10^2} + \frac{14i}{10^4} + i\left(\sqrt{2\log_e(3)} + \sqrt{\log_e(24)}\right) - \sqrt{\frac{-\log_e(8)+\frac{\log_e(5)}{8\pi}}{-1+\left(1+\frac{1}{7}\right)^{8/\pi}}}}{10^{52}}$$

$$\frac{\frac{(11+3)i}{10^4} + \frac{7i}{10^2} + \left(\sqrt{(1+1)\log(3)} + \sqrt{\log(8\times 3)}\right)i - \sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}}}{10^{52}} = \frac{\frac{7i}{10^2} + \frac{14i}{10^4} + i\left(\sqrt{-\text{Li}_1(-23)} + \sqrt{-2\,\text{Li}_1(-2)}\right) - \sqrt{\frac{\text{Li}_1(-7)-\frac{\text{Li}_1(-4)}{8\pi}}{-1+\left(1+\frac{1}{7}\right)^{8/\pi}}}}{10^{52}}$$

and also, from the following expression:

1/10^52 * ((((sqrt[(((sqrt((((((((ln5/(8Pi))+ln8)))/(1-((((1+7)/(2+7)))^(1/Pi * 8)))))) + sqrt(ln(2*8))))) - ((((sqrt((1+4)ln2)))))] - 0.50970737445 - (18+3)/10^3- (4+2)/10^4))))

where 0.50970737445 is a value of a Ramanujan mock theta function and 18, 3, 4 and 2 are Lucas numbers

Input interpretation:

$$\frac{1}{10^{52}}\left(\sqrt{\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{1/\pi\times 8}}}+\sqrt{\log(2\times 8)}\right)-\sqrt{(1+4)\log(2)}}-0.50970737445-\frac{18+3}{10^3}-\frac{4+2}{10^4}\right)$$

log(x) is the natural logarithm

Result:

$1.1056200314... \times 10^{-52}$

$1.10562....*10^{-52}$

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

Alternative representations:

$$\frac{\sqrt{\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)-\sqrt{(1+4)\log(2)}}-0.509707374450000-\frac{18+3}{10^3}-\frac{4+2}{10^4}}{10^{52}}$$

$$=\frac{1}{10^{52}}\left(-0.509707374450000-\frac{21}{10^3}-\frac{6}{10^4}+\sqrt{-\sqrt{5\log(a)\log_a(2)}+\sqrt{\log(a)\log_a(16)}+\sqrt{\frac{\log(a)\log_a(8)+\frac{\log(a)\log_a(5)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}}\right)$$

$$\frac{\sqrt{\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)-\sqrt{(1+4)\log(2)}}-0.509707374450000-\frac{18+3}{10^3}-\frac{4+2}{10^4}}{10^{52}}$$

$$=\frac{-0.509707374450000-\frac{21}{10^3}-\frac{6}{10^4}+\sqrt{-\sqrt{5\log_e(2)}+\sqrt{\log_e(16)}+\sqrt{\frac{\log_e(8)+\frac{\log_e(5)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}}}{10^{52}}$$

$$\frac{\sqrt{\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)-\sqrt{(1+4)\log(2)}}-0.509707374450000-\frac{18+3}{10^3}-\frac{4+2}{10^4}}{10^{52}}$$

$$=\frac{1}{10^{52}}\left(-0.509707374450000-\frac{21}{10^3}-\frac{6}{10^4}+\sqrt{\sqrt{-\text{Li}_1(-15)}-\sqrt{-5\,\text{Li}_1(-1)}+\sqrt{\frac{-\text{Li}_1(-7)-\frac{\text{Li}_1(-4)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}}\right)$$

Series representations:

$$\frac{\sqrt{\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)-\sqrt{(1+4)\log(2)}}-0.509707374450000-\frac{18+3}{10^3}-\frac{4+2}{10^4}}{10^{52}}$$

$$=-5.31307374450000\times 10^{-53}+1.000000000000000\times 10^{-52}\sqrt{-1-\sqrt{5\log(2)}+\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{8}{9}\right)^{8/\pi}}}+\sqrt{\log(16)}}\sum_{k=0}^{\infty}\binom{\frac{1}{2}}{k}\left(-1-\sqrt{5\log(2)}+\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{8}{9}\right)^{8/\pi}}}+\sqrt{\log(16)}\right)^{-k}$$

$$\frac{\sqrt{\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)-\sqrt{(1+4)\log(2)}}-0.509707374450000-\frac{18+3}{10^3}-\frac{4+2}{10^4}}{10^{52}}$$

$$= -5.31307374450000\times 10^{-53} + 1.000000000000000\times 10^{-52}\sqrt{-1-\sqrt{5\log(2)}+\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{8}{9}\right)^{8/\pi}}}+\sqrt{\log(16)}}$$

$$\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(-1-\sqrt{5\log(2)}+\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{8}{9}\right)^{8/\pi}}}+\sqrt{\log(16)}\right)^{-k}}{k!}$$

$$\frac{\sqrt{\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)-\sqrt{(1+4)\log(2)}}-0.509707374450000-\frac{18+3}{10^3}-\frac{4+2}{10^4}}{10^{52}}$$

$$= -5.31307374450000\times 10^{-53} + 1.000000000000000\times 10^{-52}\exp\left(i\pi\left\lfloor\frac{\arg\left(-x-\sqrt{5\log(2)}+\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{8}{9}\right)^{8/\pi}}}+\sqrt{\log(16)}\right)}{2\pi}\right\rfloor\right)\sqrt{x}$$

$$\sum_{k=0}^{\infty}\frac{(-1)^k x^{-k}\left(-\frac{1}{2}\right)_k\left(-x-\sqrt{5\log(2)}+\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{8}{9}\right)^{8/\pi}}}+\sqrt{\log(16)}\right)^{k}}{k!}$$

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

Integral representations:

$$\frac{\sqrt{\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)-\sqrt{(1+4)\log(2)}}-0.509707374450000-\frac{18+3}{10^3}-\frac{4+2}{10^4}}{10^{52}}$$

$$= -5.3130737445000\times 10^{-53} + 1.00000000000000\times 10^{-52}\sqrt{-\sqrt{5\int_1^2\frac{1}{t}\,dt}+\sqrt{\int_1^{16}\frac{1}{t}\,dt}+\sqrt{\frac{1}{1-\left(\frac{8}{9}\right)^{8/\pi}}\int_1^5\left(\frac{1}{8\pi t}+\frac{7}{-3+7t}\right)dt}}$$

$$\frac{\sqrt{\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)-\sqrt{(1+4)\log(2)}}-0.509707374450000-\frac{18+3}{10^3}-\frac{4+2}{10^4}}{10^{52}}$$

$$= -5.31307374450000\times 10^{-53} + 1.000000000000000\times 10^{-52}\sqrt{\left(-\sqrt{\frac{5}{2i\pi}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}+\sqrt{\frac{1}{2i\pi}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{15^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}+\sqrt{\frac{1}{1-\left(\frac{8}{9}\right)^{8/\pi}}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{2^{-2(2+s)}\times 7^{-s}\left(7^s+2^{3+2s}\pi\right)\Gamma(-s)^2\,\Gamma(1+s)}{i\pi^2\,\Gamma(1-s)}\,ds}\right)}$$

for $-1 < \gamma < 0$

From this expression, we obtain also:

sqrt[(((sqrt((((((((ln5/(8Pi))+ln8)))/(1-((((1+7)/(2+7)))^(1/Pi * 8)))))) + sqrt(ln(2*8))))) - ((((sqrt((1+4)ln2))))))]

Input:

$$\sqrt{\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{1/\pi\times 8}}}+\sqrt{\log(2\times 8)}\right)-\sqrt{(1+4)\log(2)}}$$

$\log(x)$ is the natural logarithm

Exact result:

$$\sqrt{-\sqrt{5\log(2)}+\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{8}{9}\right)^{8/\pi}}}+\sqrt{\log(16)}}$$

Decimal approximation:

1.636927405889759966244129770868660530542657158847145365367...

1.636927405889…. result that is a golden number and that is an approximation to the value of $\zeta(2) = \frac{\pi^2}{6} = 1.644934 ...$

Alternate forms:

$$\sqrt{\left(2-\sqrt{5}\right)\sqrt{\log(2)}+\frac{1}{2}\sqrt{\frac{24\,\pi\log(2)+\log(5)}{2\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi}}}$$

$$\frac{1}{2}\sqrt{-4\sqrt{5\log(2)}+\sqrt{\frac{2\,(\log(5)+8\,\pi\log(8))}{\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi}}+4\sqrt{\log(16)}}$$

All 2nd roots of -sqrt(5 log(2)) + sqrt((log(5)/(8 π) + log(8))/(1 - (8/9)^(8/π))) + sqrt(log(16)):

$$e^{0}\sqrt{-\sqrt{5\log(2)}+\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{8}{9}\right)^{8/\pi}}}+\sqrt{\log(16)}}\approx 1.6369 \text{ (real, principal root)}$$

$$e^{i\pi}\sqrt{-\sqrt{5\log(2)}+\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{8}{9}\right)^{8/\pi}}}+\sqrt{\log(16)}}\approx -1.637 \text{ (real root)}$$

Alternative representations:

$$\sqrt{\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)-\sqrt{(1+4)\log(2)}}=$$
$$\sqrt{-\sqrt{5\log(a)\log_a(2)}+\sqrt{\log(a)\log_a(16)}+\sqrt{\frac{\log(a)\log_a(8)+\frac{\log(a)\log_a(5)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}}$$

$$\sqrt{\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)-\sqrt{(1+4)\log(2)}}=$$
$$\sqrt{-\sqrt{5\log_e(2)}+\sqrt{\log_e(16)}+\sqrt{\frac{\log_e(8)+\frac{\log_e(5)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}}$$

$$\sqrt{\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)-\sqrt{(1+4)\log(2)}} =$$

$$\sqrt{\sqrt{-\text{Li}_1(-15)}-\sqrt{-5\,\text{Li}_1(-1)}+\sqrt{\frac{-\text{Li}_1(-7)-\frac{\text{Li}_1(-4)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}}$$

Series representations:

$$\sqrt{\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)-\sqrt{(1+4)\log(2)}} =$$

$$\frac{1}{2}\sqrt{\left(\sqrt{\frac{2(\log(5)+8\pi\log(8))}{\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi}}+4\sqrt{\log(16)}-2\sqrt{5}\;e^{i\pi\left\lfloor 1/2-\arg\left(\frac{1}{e}\right)/(2\pi)\right\rfloor}\sum_{k=0}^{\infty}\binom{-\frac{1}{2}+k}{k}\sum_{j=0}^{k}-\frac{2(-1)^j\binom{k}{j}p_{j,k}}{-1+2j}\right)}$$

$$\text{for}\left(c_k=\frac{5(-1)^k}{1+k}\text{ and }p_{j,0}=1\text{ and }5\,p_{j,k}=\frac{\sum_{m=1}^{k}(-k+m+j\,m)\,c_m\,p_{j,k-m}}{k}\text{ and }k\in\mathbb{Z}\text{ and }k>0\right)$$

$$\sqrt{\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)-\sqrt{(1+4)\log(2)}} =$$

$$\sqrt{\left(-\sqrt{5}\sqrt{2i\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k(2-x)^k x^{-k}}{k}}+\frac{1}{\sqrt{1-\left(\frac{8}{9}\right)^{8/\pi}}}\left(\sqrt{\left(2i\pi\left\lfloor\frac{\arg(8-x)}{2\pi}\right\rfloor+\log(x)+\frac{2i\pi\left\lfloor\frac{\arg(5-x)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k(5-x)^k x^{-k}}{k}}{8\pi}-\sum_{k=1}^{\infty}\frac{(-1)^k(8-x)^k x^{-k}}{k}\right)}\right)+\sqrt{2i\pi\left\lfloor\frac{\arg(16-x)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k(16-x)^k x^{-k}}{k}}\right)}\quad\text{for } x<0$$

$$\sqrt{\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)-\sqrt{(1+4)\log(2)}} =$$

$$\sqrt{\left(-\sqrt{5}\sqrt{2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{1}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}}\right.} +$$

$$\frac{1}{\sqrt{1-\left(\frac{8}{9}\right)^{8/\pi}}}\left(\sqrt{\left(2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{1}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+\log(z_0)+\right.}\right.$$

$$\frac{2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{1}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(5-z_0)^k\,z_0^{-k}}{k}}{8\pi}-$$

$$\left.\left.\sum_{k=1}^{\infty}\frac{(-1)^k\,(8-z_0)^k\,z_0^{-k}}{k}\right)\right)+$$

$$\left.\sqrt{2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{1}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(16-z_0)^k\,z_0^{-k}}{k}}\right)$$

$$\sqrt{\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)-\sqrt{(1+4)\log(2)}} =$$

$$\sqrt{\left(-\sqrt{5}\sqrt{\log(z_0)+\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}}+\right.}$$

$$\frac{1}{\sqrt{1-\left(\frac{8}{9}\right)^{8/\pi}}}\left(\sqrt{\left(\log(z_0)+\left\lfloor\frac{\arg(8-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)+\right.}\right.$$

$$\frac{\log(z_0)+\left\lfloor\frac{\arg(5-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k(5-z_0)^k z_0^{-k}}{k}}{8\pi}-$$

$$\left.\left.\sum_{k=1}^{\infty}\frac{(-1)^k(8-z_0)^k z_0^{-k}}{k}\right)\right)+$$

$$\left.\sqrt{\log(z_0)+\left\lfloor\frac{\arg(16-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k(16-z_0)^k z_0^{-k}}{k}}\right)$$

Integral representations:

$$\sqrt{\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)-\sqrt{(1+4)\log(2)}} =$$

$$\sqrt{-\sqrt{5}\sqrt{\int_1^2\frac{1}{t}\,dt}+\sqrt{\int_1^{16}\frac{1}{t}\,dt}+\frac{\sqrt{\int_1^5\left(\frac{1}{8\pi t}+\frac{7}{-3+7t}\right)dt}}{\sqrt{1-\left(\frac{8}{9}\right)^{8/\pi}}}}$$

$$\sqrt{\left(\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}}+\sqrt{\log(2\times 8)}\right)-\sqrt{(1+4)\log(2)}} =$$

$$\frac{1}{\sqrt{2}\,\sqrt[4]{\pi}}\,9^{-4/\pi}\sqrt{\left(-\frac{1}{-1+\left(\frac{8}{9}\right)^{8/\pi}}\left(2^{1/2+24/\pi}\sqrt{5}\sqrt{-i\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}-\right.\right.}$$

$$9^{8/\pi}\sqrt{10}\sqrt{-i\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}-$$

$$2^{1/2+24/\pi}\sqrt{-i\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{15^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}+\sqrt{2}\;9^{8/\pi}$$

$$\sqrt{-i\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{15^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}+2\times 9^{8/\pi}\sqrt{\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi}$$

$$\left.\left.\sqrt{\int_{-i\infty+\gamma}^{i\infty+\gamma}-\frac{i\,2^{-2(2+s)}\times 7^{-s}\left(7^s+2^{3+2s}\pi\right)\Gamma(-s)^2\,\Gamma(1+s)}{\pi^2\,\Gamma(1-s)}\,ds}\right)\right)$$

for $-1 < \gamma < 0$

Now, we have that:

$$\sqrt{\{(1+a_2)\log 2\}} < \sqrt{\left\{\frac{\frac{\log P_1}{\pi(\mu)}+\log\mu}{1-2^{-1/\pi(\mu)}}\right\}}+\sqrt{\log(2\mu)}, \quad ....(76)$$

For $P_1 = 8$, $\mu = 8$ and $a_2 = 5$, we obtain:

sqrt((1+5)*ln2)

Input:

$$\sqrt{(1+5)\log(2)}$$

$\log(x)$ is the natural logarithm

Exact result:

$$\sqrt{6\log(2)}$$

Decimal approximation:

2.039333980337617935535357199891776137260436887536507839347...

2.0393339803376….

Property:

$\sqrt{6\log(2)}$ is a transcendental number

Alternate form:

$\sqrt{\log(64)}$

All 2nd roots of 6 log(2):

$e^0\sqrt{6\log(2)} \approx 2.0393$ (real, principal root)

$e^{i\pi}\sqrt{6\log(2)} \approx -2.0393$ (real root)

Alternative representations:

$$\sqrt{(1+5)\log(2)} = \sqrt{6\log_e(2)}$$

$$\sqrt{(1+5)\log(2)} = \sqrt{6\log(a)\log_a(2)}$$

$$\sqrt{(1+5)\log(2)} = \sqrt{12\coth^{-1}(3)}$$

Series representations:

$$\sqrt{(1+5)\log(2)} = \sqrt{6}\sqrt{2i\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor + \log(x) - \sum_{k=1}^{\infty}\frac{(-1)^k(2-x)^k x^{-k}}{k}} \quad \text{for } x<0$$

$$\sqrt{(1+5)\log(2)} = -\sqrt{6}\sum_{k=0}^{\infty}\binom{-\frac{1}{2}+k}{k}\sum_{j=0}^{k}\frac{(-1)^j\binom{k}{j}p_{j,k}}{-1+2j}$$

$$\text{for }\left(c_k = \frac{6(-1)^k}{1+k} \text{ and } p_{j,0}=1 \text{ and } 6\,p_{j,k} = \frac{\sum_{m=1}^{k}(-k+m+j\,m)\,c_m\,p_{j,k-m}}{k} \text{ and } k\in\mathbb{Z} \text{ and } k>0\right)$$

$$\sqrt{(1+5)\log(2)} = \sqrt{6}\sqrt{\log(z_0) + \left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right) - \sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}}$$

$$\sqrt{(1+5)\log(2)} = \sqrt{6}\sqrt{2 i \pi \left\lfloor \frac{\pi - \arg\left(\frac{1}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor + \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k (2 - z_0)^k z_0^{-k}}{k}}$$

Integral representations:

$$\sqrt{(1+5)\log(2)} = \sqrt{6}\sqrt{\int_1^2 \frac{1}{t}\,dt}$$

$$\sqrt{(1+5)\log(2)} = \sqrt{\frac{3}{\pi}}\sqrt{-i\int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds} \quad \text{for } -1 < \gamma < 0$$

sqrt(((((((ln8/(8Pi))+ln8)))/(1-2)^-(1/Pi * 8)))))) + sqrt(ln(2*8))

Input:

$$\sqrt{\frac{\frac{\log(8)}{8\pi} + \log(8)}{(1-2)^{-(1/\pi\times 8)}}} + \sqrt{\log(2\times 8)}$$

log(x) is the natural logarithm

Exact result:

$$\sqrt{(-1)^{8/\pi}\left(\log(8) + \frac{\log(8)}{8\pi}\right)} + \sqrt{\log(16)}$$

Decimal approximation:

2.6262498583278967452798159832608375570584617638960200834 7... +
1.1128290837062827657171528405563916466607589585310144302 1... i

Result:

2.6262498583278... +
1.1128290837062... i

Polar coordinates:

$r = 2.8522932682158$ (radius), $\theta = 22.963982933012°$ (angle)

2.8522932682158

Alternate forms:

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

$$\frac{1}{4}\left(\sqrt{\frac{2(-1)^{8/\pi}(1+8\pi)\log(8)}{\pi}}+4\sqrt{\log(16)}\right)$$

$$2\sqrt{\log(2)}+\frac{1}{2}\sqrt{\frac{3(-1)^{8/\pi}(1+8\pi)\log(2)}{2\pi}}$$

Alternative representations:

$$\sqrt{\frac{\frac{\log(8)}{8\pi}+\log(8)}{(1-2)^{-8/\pi}}}+\sqrt{\log(2\times 8)}=\sqrt{\log(a)\log_a(16)}+\sqrt{\frac{\log(a)\log_a(8)+\frac{\log(a)\log_a(8)}{8\pi}}{(-1)^{-8/\pi}}}$$

$$\sqrt{\frac{\frac{\log(8)}{8\pi}+\log(8)}{(1-2)^{-8/\pi}}}+\sqrt{\log(2\times 8)}=\sqrt{\log_e(16)}+\sqrt{\frac{\log_e(8)+\frac{\log_e(8)}{8\pi}}{(-1)^{-8/\pi}}}$$

$$\sqrt{\frac{\frac{\log(8)}{8\pi}+\log(8)}{(1-2)^{-8/\pi}}}+\sqrt{\log(2\times 8)}=\sqrt{-\text{Li}_1(-15)}+\sqrt{\frac{-\text{Li}_1(-7)-\frac{\text{Li}_1(-7)}{8\pi}}{(-1)^{-8/\pi}}}$$

Series representations:

$$\sqrt{\frac{\frac{\log(8)}{8\pi}+\log(8)}{(1-2)^{-8/\pi}}}+\sqrt{\log(2\times 8)}=$$
$$\frac{1}{4}\left(\sqrt{\frac{2(1+8\pi)}{\pi}}\sqrt{e^{8i}\left(\log(7)-\sum_{k=1}^{\infty}\frac{\left(-\frac{1}{7}\right)^k}{k}\right)}+4\sqrt{\log(15)-\sum_{k=1}^{\infty}\frac{\left(-\frac{1}{15}\right)^k}{k}}\right)$$

$$\sqrt{\frac{\frac{\log(8)}{8\pi}+\log(8)}{(1-2)^{-8/\pi}}}+\sqrt{\log(2\times 8)} =$$

$$\frac{1}{4}\left(\sqrt{\frac{2(1+8\pi)}{\pi}}\sqrt{(-1)^{8/\pi}\left(\log(7)-\sum_{k=1}^{\infty}\frac{\left(-\frac{1}{7}\right)^k}{k}\right)}+4\sqrt{\log(15)-\sum_{k=1}^{\infty}\frac{\left(-\frac{1}{15}\right)^k}{k}}\right)$$

$$\sqrt{\frac{\frac{\log(8)}{8\pi}+\log(8)}{(1-2)^{-8/\pi}}}+\sqrt{\log(2\times 8)} =$$

$$\frac{1}{4}\left(\sqrt{\frac{2(1+8\pi)}{\pi}}\sqrt{i(-1)^{8/\pi}\left(2\pi\left\lfloor\frac{\arg(8-x)}{2\pi}\right\rfloor-i\log(x)+i\sum_{k=1}^{\infty}\frac{(-1)^k(8-x)^k x^{-k}}{k}\right)}+\right.$$
$$\left.4\sqrt{2i\pi\left\lfloor\frac{\arg(16-x)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k(16-x)^k x^{-k}}{k}}\right) \text{ for } x<0$$

Integral representations:

$$\sqrt{\frac{\frac{\log(8)}{8\pi}+\log(8)}{(1-2)^{-8/\pi}}}+\sqrt{\log(2\times 8)} = \sqrt{\int_1^{16}\frac{1}{t}\,dt}+\sqrt{(-1)^{8/\pi}\int_1^8\frac{8+\frac{1}{\pi}}{8t}\,dt}$$

$$\sqrt{\frac{\frac{\log(8)}{8\pi}+\log(8)}{(1-2)^{-8/\pi}}}+\sqrt{\log(2\times 8)} = \frac{1}{2\sqrt{\pi}}\left(\sqrt{2}\sqrt{-i\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{15^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}+\right.$$
$$\left.2\sqrt{\pi}\sqrt{(-1)^{8/\pi}\int_{-i\infty+\gamma}^{i\infty+\gamma}-\frac{i\,7^{-s}(1+8\pi)\,\Gamma(-s)^2\,\Gamma(1+s)}{16\pi^2\,\Gamma(1-s)}\,ds}\right) \text{ for } -1<\gamma<0$$

sqrt((1+5)*ln2) + sqrt(((((((ln8/(8Pi))+ln8)))/(1-2)^-(1/Pi * 8)))) + sqrt(ln(2*8))

Input:

$$\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(8)}{8\pi}+\log(8)}{(1-2)^{-(1/\pi\times 8)}}}+\sqrt{\log(2\times 8)}$$

$\log(x)$ is the natural logarithm

Exact result:

$$\sqrt{6\log(2)}+\sqrt{(-1)^{8/\pi}\left(\log(8)+\frac{\log(8)}{8\pi}\right)}+\sqrt{\log(16)}$$

Decimal approximation:

4.665583838665514680815173183152613694318898651432527922 81... +
1.112829083706282765717152840556391646660758958531014430 21... i

Result:

4.6655838386655146... +
1.112829083706282... i

Polar coordinates:

$r = 4.7964633976670146$ (radius), $\theta = 13.41545756756264°$ (angle)

4.796463397…

Alternate forms:

$$\frac{1}{2}\left(2\left(2+\sqrt{6}\right)+\sqrt{\frac{3(-1)^{8/\pi}(1+8\pi)}{2\pi}}\right)\sqrt{\log(2)}$$

$$\left(2+\sqrt{6}\right)\sqrt{\log(2)}+\frac{1}{2}\sqrt{\frac{3(-1)^{8/\pi}(1+8\pi)\log(2)}{2\pi}}$$

$$\frac{1}{4}\left(4\sqrt{6\log(2)}+\sqrt{\frac{2(-1)^{8/\pi}(1+8\pi)\log(8)}{\pi}}+4\sqrt{\log(16)}\right)$$

Alternative representations:

$$\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(8)}{8\pi}+\log(8)}{(1-2)^{-8/\pi}}}+\sqrt{\log(2\times 8)}=$$

$$\sqrt{6\log(a)\log_a(2)}+\sqrt{\log(a)\log_a(16)}+\sqrt{\frac{\log(a)\log_a(8)+\frac{\log(a)\log_a(8)}{8\pi}}{(-1)^{-8/\pi}}}$$

$$\sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(8)}{8\pi} + \log(8)}{(1-2)^{-8/\pi}}} + \sqrt{\log(2\times 8)} =$$

$$\sqrt{6\log_e(2)} + \sqrt{\log_e(16)} + \sqrt{\frac{\log_e(8) + \frac{\log_e(8)}{8\pi}}{(-1)^{-8/\pi}}}$$

$$\sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(8)}{8\pi} + \log(8)}{(1-2)^{-8/\pi}}} + \sqrt{\log(2\times 8)} =$$

$$\sqrt{-\text{Li}_1(-15)} + \sqrt{-6\,\text{Li}_1(-1)} + \sqrt{\frac{-\text{Li}_1(-7) - \frac{\text{Li}_1(-7)}{8\pi}}{(-1)^{-8/\pi}}}$$

From the above expression, we obtain also:

((((sqrt((1+5)*ln2) + sqrt(((((((ln8/(8Pi))+ln8)))/(1-2)^-(1/Pi * 8)))) + sqrt(ln(2*8))))))^4

Input:

$$\left(\sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(8)}{8\pi} + \log(8)}{(1-2)^{-(1/\pi\times 8)}}} + \sqrt{\log(2\times 8)}\right)^4$$

$\log(x)$ is the natural logarithm

Exact result:

$$\left(\sqrt{6\log(2)} + \sqrt{(-1)^{8/\pi}\left(\log(8) + \frac{\log(8)}{8\pi}\right)} + \sqrt{\log(16)}\right)^4$$

Decimal approximation:

313.624153467200507726425063775981085497960469912665610108... +
426.351955344080351266816517976641547222607599476951064670... i

Result:

313.624153467200507726425063775981085497960469912665610108... +
426.35195534408035126681651797664154722260759947695106467... i

Polar coordinates:

$r = 529.278848494570791921383626827530338351961037824615962104$ (radius), $\theta = 53.6618302702505860065207310747436938887833482294344567161°$ (angle)

529.278848....

from which:

((((sqrt((1+5)*ln2) + sqrt((((((((ln8/(8Pi))+ln8)))/(1-2)^-(1/Pi * 8)))) + sqrt(ln(2*8))))))^4 - 76 – 7

Input:

$$\left(\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(8)}{8\pi}+\log(8)}{(1-2)^{-(1/\pi\times 8)}}}+\sqrt{\log(2\times 8)}\right)^4-76-7$$

log(x) is the natural logarithm

Exact result:

$$\left(\sqrt{6\log(2)}+\sqrt{(-1)^{8/\pi}\left(\log(8)+\frac{\log(8)}{8\pi}\right)}+\sqrt{\log(16)}\right)^4-83$$

Decimal approximation:

230.624153467200507726425063775981085497960469912665610108... +
426.351955344080351266816517976641547222607599476951064670... i

Input interpretation:

230.624153467200507726425063775981085497960469912665610108 +
426.351955344080351266816517976641547222607599476951064670 i

i is the imaginary unit

Result:

230.624153467200507726425063775981085497960469912665610108... +
426.351955344080351266816517976641547222607599476951064670... i

Polar coordinates:

r = 484.730327077008394980492606855331361735026116886783229443 (radius)
, θ = 61.5899651875251867000990940879765853576495842035376433576° (angle)

484.7303327 result very near to Holographic Ricci dark energy model, where

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

Furthermore, we have:

1/10^52* ((((2.8522932682158 - 2.0393339803376)+29/10^2+(18+7+2)/10^4)))

Input interpretation:

$$\frac{1}{10^{52}}\left((2.8522932682158 - 2.0393339803376) + \frac{29}{10^2} + \frac{18+7+2}{10^4}\right)$$

Result:

$1.1056592878782 \times 10^{-52}$

$1.10565928...*10^{-52}$

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

We have that: (page 127)

$$|\sqrt{\{(1+a_\nu)\log\nu\}} - \sqrt{\log(\mu\nu)}| < \sqrt{\left\{\frac{\frac{\log\lambda}{\pi(\mu)} + \log\mu}{1 - \left(\frac{1+a_\lambda}{2+a_\lambda}\right)^{1/\pi(\mu)}}\right\}}, \quad ...(71)$$

For: $a_\nu = 1$, $\nu = 3$, $\mu = 8$, $\lambda = 5$, $a_2 = 4$ and $a_\lambda = 7$, we obtain:

sqrt[((1+1)ln(3))] – sqrt[(ln(8*3))]

Input:

$$\sqrt{(1+1)\log(3)} - \sqrt{\log(8\times 3)}$$

log(x) is the natural logarithm

Exact result:

$$\sqrt{2\log(3)} - \sqrt{\log(24)}$$

Decimal approximation:

-0.30040588025634475062715408476719799255682135573247520136...

-0.300405880256…..

Alternate forms:

$$\sqrt{\log(9)} - \sqrt{\log(24)}$$

$$\sqrt{2\log(3)} - \sqrt{3\log(2)+\log(3)}$$

Alternative representations:

$$\sqrt{(1+1)\log(3)} - \sqrt{\log(8\times 3)} = \sqrt{2\log_e(3)} - \sqrt{\log_e(24)}$$

$$\sqrt{(1+1)\log(3)} - \sqrt{\log(8\times 3)} = \sqrt{2\log(a)\log_a(3)} - \sqrt{\log(a)\log_a(24)}$$

$$\sqrt{(1+1)\log(3)} - \sqrt{\log(8\times 3)} = -\sqrt{-\mathrm{Li}_1(-23)} + \sqrt{-2\,\mathrm{Li}_1(-2)}$$

Series representations:

$$\sqrt{(1+1)\log(3)} - \sqrt{\log(8\times 3)} = \sqrt{2}\sqrt{\log(2) - \sum_{k=1}^{\infty}\frac{\left(-\frac{1}{2}\right)^k}{k}} - \sqrt{\log(23) - \sum_{k=1}^{\infty}\frac{\left(-\frac{1}{23}\right)^k}{k}}$$

$$\sqrt{(1+1)\log(3)} - \sqrt{\log(8\times 3)} = -\sqrt{\log(24)} + \sum_{k=0}^{\infty} 2^{1+k}\binom{-\frac{1}{2}+k}{k}\sum_{j=0}^{k}\frac{(-1)^j\binom{k}{j}p_{j,k}}{1-2j}$$

$$\text{for}\left(c_k = \frac{2(-1)^k}{1+k}\text{ and } p_{j,0} = 1 \text{ and } 2\,p_{j,k} = \frac{\sum_{m=1}^{k}(-k+m+j\,m)\,c_m\,p_{j,k-m}}{k}\text{ and } k\in\mathbb{Z}\text{ and } k>0\right)$$

$$\sqrt{(1+1)\log(3)} - \sqrt{\log(8\times 3)} = \sqrt{2}\sqrt{2i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor + \log(x) - \sum_{k=1}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}}{k}} - \sqrt{2i\pi\left\lfloor\frac{\arg(24-x)}{2\pi}\right\rfloor + \log(x) - \sum_{k=1}^{\infty}\frac{(-1)^k(24-x)^k x^{-k}}{k}} \quad \text{for } x<0$$

Integral representations:

$$\sqrt{(1+1)\log(3)} - \sqrt{\log(8\times 3)} = \sqrt{2}\sqrt{\int_1^3\frac{1}{t}\,dt} - \sqrt{\int_1^{24}\frac{1}{t}\,dt}$$

$$\sqrt{(1+1)\log(3)} - \sqrt{\log(8\times 3)} = \frac{2\sqrt{-i\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{2^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds} - \sqrt{2}\sqrt{-i\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{23^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}}{2\sqrt{\pi}} \quad \text{for } -1 < \gamma < 0$$

and:

sqrt[(((((((ln5/(8Pi))+ln8)))/(1-((((1+7)/(2+7)))^(1/Pi*8))))))]

Input:

$$\sqrt{\frac{\frac{\log(5)}{8\pi} + \log(8)}{1 - \left(\frac{1+7}{2+7}\right)^{1/\pi\times 8}}}$$

log(x) is the natural logarithm

Exact result:

$$\sqrt{\frac{\frac{\log(5)}{8\pi} + \log(8)}{1 - \left(\frac{8}{9}\right)^{8/\pi}}}$$

Decimal approximation:

2.876070815367100524699748551795817139570281734815283603461...

2.876070815367….

Alternate forms:

$$\frac{1}{2}\sqrt{\frac{24\pi\log(2) + \log(5)}{2\left(1 - \left(\frac{8}{9}\right)^{8/\pi}\right)\pi}}$$

$$\frac{1}{2}\sqrt{\frac{\log(5) + 8\pi\log(8)}{2\left(1 - \left(\frac{8}{9}\right)^{8/\pi}\right)\pi}}$$

$$\sqrt{\frac{3\log(2) + \frac{\log(5)}{8\pi}}{1 - \left(\frac{8}{9}\right)^{8/\pi}}}$$

$$e^{0}\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{8}{9}\right)^{8/\pi}}} \approx 2.876 \quad \text{(real, principal root)}$$

$$e^{i\pi}\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{8}{9}\right)^{8/\pi}}} \approx -2.876 \quad \text{(real root)}$$

Alternative representations:

$$\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}} = \sqrt{\frac{\log_e(8)+\frac{\log_e(5)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}} = \sqrt{\frac{\log(a)\log_a(8)+\frac{\log(a)\log_a(5)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}} = \sqrt{\frac{-\text{Li}_1(-7)-\frac{\text{Li}_1(-4)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}$$

Series representations:

$$\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}} = \frac{\sqrt{\log(4)+8\pi\log(7)-\sum_{k=1}^{\infty}\frac{\left(-\frac{1}{4}\right)^k}{k}-8\pi\sum_{k=1}^{\infty}\frac{\left(-\frac{1}{7}\right)^k}{k}}}{2\sqrt{2\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi}}$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}} =$$

$$\frac{1}{2\sqrt{2\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi}} \left(\sqrt{\left(2 i \pi \left\lfloor \frac{\arg(5-x)}{2\pi} \right\rfloor + 16 i \pi^2 \left\lfloor \frac{\arg(8-x)}{2\pi} \right\rfloor + \log(x) + 8\pi \log(x) - \sum_{k=1}^{\infty} \frac{(-1)^k (5-x)^k x^{-k}}{k} - 8\pi \sum_{k=1}^{\infty} \frac{(-1)^k (8-x)^k x^{-k}}{k}\right)}\right) \quad \text{for } x < 0$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}} =$$

$$\frac{1}{2\sqrt{2\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi}} \left(\sqrt{\left(2 i \pi \left\lfloor \frac{\pi - \arg\left(\frac{1}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor + 16 i \pi^2 \left\lfloor \frac{\pi - \arg\left(\frac{1}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor + \log(z_0) + 8\pi \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k (5-z_0)^k z_0^{-k}}{k} - 8\pi \sum_{k=1}^{\infty} \frac{(-1)^k (8-z_0)^k z_0^{-k}}{k}\right)}\right)$$

Integral representations:

$$\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}} = \frac{\sqrt{\int_1^5 \left(\frac{1}{8\pi t} + \frac{7}{-3+7t}\right) dt}}{\sqrt{1-\left(\frac{8}{9}\right)^{8/\pi}}}$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}} = \frac{\sqrt{\frac{i}{-1+\left(\frac{8}{9}\right)^{8/\pi}} \int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{28^{-s}\left(7^s + 2^{3+2s}\pi\right)\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\, ds}}{4\pi} \quad \text{for } -1 < \gamma < 0$$

We have that:

$$\sqrt{\{(1+a_2)\log 2\}} > \sqrt{\left\{\frac{\frac{\log\lambda}{\pi(\mu)} - \log\mu}{\left(1+\frac{1}{a_\lambda}\right)^{1/\pi(\mu)} - 1}\right\}} - \sqrt{\log(2\mu)}, \quad \ldots(73)$$

sqrt((1+4)ln2)

Input:

$$\sqrt{(1+4)\log(2)}$$

log(x) is the natural logarithm

Exact result:

$$\sqrt{5\log(2)}$$

Decimal approximation:

More digits

1.861648705529517066380623159432902129342255676404766270394...

1.8616487055295….

Property:

$\sqrt{5\log(2)}$ is a transcendental number

Alternate form:

$$\sqrt{\log(32)}$$

All 2nd roots of 5 log(2):

$e^0\sqrt{5\log(2)} \approx 1.8616$ (real, principal root)

$e^{i\pi}\sqrt{5\log(2)} \approx -1.8616$ (real root)

Alternative representations:

$$\sqrt{(1+4)\log(2)} = \sqrt{5\log_e(2)}$$

$$\sqrt{(1+4)\log(2)} = \sqrt{5\log(a)\log_a(2)}$$

$$\sqrt{(1+4)\log(2)} = \sqrt{10\coth^{-1}(3)}$$

Series representations:

$$\sqrt{(1+4)\log(2)} = \sqrt{5}\sqrt{2i\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor + \log(x) - \sum_{k=1}^{\infty}\frac{(-1)^k(2-x)^k x^{-k}}{k}} \quad \text{for } x<0$$

$$\sqrt{(1+4)\log(2)} = -\sqrt{5}\sum_{k=0}^{\infty}\binom{-\frac{1}{2}+k}{k}\sum_{j=0}^{k}\frac{(-1)^j\binom{k}{j}p_{j,k}}{-1+2j}$$

for $\left(c_k = \frac{5(-1)^k}{1+k} \text{ and } p_{j,0} = 1 \text{ and } 5\,p_{j,k} = \frac{\sum_{m=1}^{k}(-k+m+j\,m)\,c_m\,p_{j,k-m}}{k} \text{ and } k \in \mathbb{Z} \text{ and } k > 0\right)$

$$\sqrt{(1+4)\log(2)} = \sqrt{5}\sqrt{\log(z_0)+\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}}$$

$$\sqrt{(1+4)\log(2)} = \sqrt{5}\sqrt{2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{1}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}}$$

Integral representations:

$$\sqrt{(1+4)\log(2)} = \sqrt{5}\sqrt{\int_1^2\frac{1}{t}\,dt}$$

$$\sqrt{(1+4)\log(2)} = \sqrt{\frac{5}{2\pi}}\sqrt{-i\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds} \quad \text{for } -1<\gamma<0$$

sqrt(((((ln5/(8Pi))-ln8)))/(((((((1+1/7)))^(1/Pi * 8))-1)))) - sqrt(ln(2*8))

Input:

$$\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{1/\pi\times 8}-1}}-\sqrt{\log(2\times 8)}$$

log(x) is the natural logarithm

Exact result:

$$-\sqrt{\log(16)} + i\sqrt{\frac{\log(8) - \frac{\log(5)}{8\pi}}{\left(\frac{8}{7}\right)^{8/\pi} - 1}}$$

Decimal approximation:

$$-1.665109222315395512706329289790402095261177704528881458 3\ldots + 2.230772909177534944476347251691237533646566318806771429 6\ldots i$$

-1.665109222315 + 2.23077290917 i

Polar coordinates:

$r \approx 2.78369$ (radius), $\theta \approx 126.739°$ (angle)

2.78369

Alternate forms:

$$-2\sqrt{\log(2)} + \frac{1}{2} i\sqrt{\frac{24\pi\log(2) - \log(5)}{2\left(\left(\frac{8}{7}\right)^{8/\pi} - 1\right)\pi}}$$

$$\frac{1}{4} i\left(\sqrt{\frac{2(8\pi\log(8) - \log(5))}{\left(\left(\frac{8}{7}\right)^{8/\pi} - 1\right)\pi}} + 4 i\sqrt{\log(16)}\right)$$

$$\frac{i\left(\sqrt{\frac{24\pi\log(2) - \log(5)}{\left(\left(\frac{8}{7}\right)^{8/\pi} - 1\right)\pi}} + 4 i\sqrt{2\log(2)}\right)}{2\sqrt{2}}$$

Alternative representations:

$$\sqrt{\frac{\frac{\log(5)}{8\pi} - \log(8)}{\left(1 + \frac{1}{7}\right)^{8/\pi} - 1}} - \sqrt{\log(2 \times 8)} = -\sqrt{\log(a)\log_a(16)} + \sqrt{\frac{-\log(a)\log_a(8) + \frac{\log(a)\log_a(5)}{8\pi}}{-1 + \left(1 + \frac{1}{7}\right)^{8/\pi}}}$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi} - \log(8)}{\left(1 + \frac{1}{7}\right)^{8/\pi} - 1}} - \sqrt{\log(2 \times 8)} = -\sqrt{\log_e(16)} + \sqrt{\frac{-\log_e(8) + \frac{\log_e(5)}{8\pi}}{-1 + \left(1 + \frac{1}{7}\right)^{8/\pi}}}$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi} - \log(8)}{\left(1 + \frac{1}{7}\right)^{8/\pi} - 1}} - \sqrt{\log(2 \times 8)} = -\sqrt{-\text{Li}_1(-15)} + \sqrt{\frac{\text{Li}_1(-7) - \frac{\text{Li}_1(-4)}{8\pi}}{-1 + \left(1 + \frac{1}{7}\right)^{8/\pi}}}$$

Series representations:

$$\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}}-\sqrt{\log(2\times 8)} = -\frac{1}{4\sqrt{-1+\left(\frac{8}{7}\right)^{8/\pi}}}\left(-i\sqrt{\frac{2}{\pi}}\sqrt{-\log(4)+8\pi\log(7)+\sum_{k=1}^{\infty}\frac{\left(-\frac{1}{4}\right)^k}{k}-8\pi\sum_{k=1}^{\infty}\frac{\left(-\frac{1}{7}\right)^k}{k}}+4\sqrt{-1+\left(\frac{8}{7}\right)^{8/\pi}}\sqrt{\log(15)-\sum_{k=1}^{\infty}\frac{\left(-\frac{1}{15}\right)^k}{k}}\right)$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}}-\sqrt{\log(2\times 8)} = -\frac{1}{4\sqrt{-1+\left(\frac{8}{7}\right)^{8/\pi}}}\left(-i\sqrt{\frac{2}{\pi}}\sqrt{\left(-2i\pi\left\lfloor\frac{\arg(5-x)}{2\pi}\right\rfloor+16i\pi^2\left\lfloor\frac{\arg(8-x)}{2\pi}\right\rfloor-\log(x)+8\pi\log(x)+\sum_{k=1}^{\infty}\frac{(-1)^k(5-x)^k x^{-k}}{k}-8\pi\sum_{k=1}^{\infty}\frac{(-1)^k(8-x)^k x^{-k}}{k}\right)}+4\sqrt{-1+\left(\frac{8}{7}\right)^{8/\pi}}\sqrt{2i\pi\left\lfloor\frac{\arg(16-x)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k(16-x)^k x^{-k}}{k}}\right) \quad \text{for } x<0$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}}-\sqrt{\log(2\times 8)} = -\frac{1}{4\sqrt{-1+\left(\frac{8}{7}\right)^{8/\pi}}}\left(-i\sqrt{\frac{2}{\pi}}\sqrt{\left(-2i\pi\left\lfloor\frac{\pi-\arg\left(\frac{1}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+16i\pi^2\left\lfloor\frac{\pi-\arg\left(\frac{1}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor-\log(z_0)+8\pi\log(z_0)+\sum_{k=1}^{\infty}\frac{(-1)^k(5-z_0)^k z_0^{-k}}{k}-8\pi\sum_{k=1}^{\infty}\frac{(-1)^k(8-z_0)^k z_0^{-k}}{k}\right)}+4\sqrt{-1+\left(\frac{8}{7}\right)^{8/\pi}}\sqrt{2i\pi\left\lfloor\frac{\pi-\arg\left(\frac{1}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k(16-z_0)^k z_0^{-k}}{k}}\right)$$

Integral representations:

$$\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}}-\sqrt{\log(2\times 8)}=$$
$$-\frac{\sqrt{-1+\left(\frac{8}{7}\right)^{8/\pi}}\sqrt{\int_1^{16}\frac{1}{t}\,dt}-i\sqrt{\int_1^5\left(-\frac{1}{8\pi t}+\frac{7}{-3+7t}\right)dt}}{\sqrt{-1+\left(\frac{8}{7}\right)^{8/\pi}}}$$

$$\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}}-\sqrt{\log(2\times 8)}=-\frac{1}{2\sqrt{\left(-1+\left(\frac{8}{7}\right)^{8/\pi}\right)\pi}}$$
$$\left(\sqrt{2\left(-1+\left(\frac{8}{7}\right)^{8/\pi}\right)}\sqrt{-i\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{15^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}-2i\sqrt{\pi}\right.$$
$$\left.\sqrt{\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{i\,2^{-2(2+s)}\times 7^{-s}\left(7^s-2^{3+2s}\pi\right)\Gamma(-s)^2\,\Gamma(1+s)}{\pi^2\,\Gamma(1-s)}\,ds}\right)\quad\text{for } -1<\gamma<0$$

and, from this expression:

$$\sqrt{\{(1+a_2)\log 2\}}>\sqrt{\left\{\frac{\frac{\log p_1}{\pi(\mu)}-\log\mu}{2^{1/\pi(\mu)}-1}\right\}}-\sqrt{\log(2\mu)},\ \ldots\ldots\ldots(75)$$

For $p_1 = 7$, $\mu = 8$ and $a_2 = 5$, we obtain:

sqrt((1+5)*ln2)

Input:

$$\sqrt{(1+5)\log(2)}$$

$\log(x)$ is the natural logarithm

Exact result:

$\sqrt{6 \log(2)}$

Decimal approximation:

2.039333980337617935535357199891776137260436887536507839347...

2.03933398…

Property:

$\sqrt{6 \log(2)}$ is a transcendental number

Alternate form:

$\sqrt{\log(64)}$

All 2nd roots of 6 log(2):

$e^0 \sqrt{6 \log(2)} \approx 2.0393$ (real, principal root)

$e^{i\pi} \sqrt{6 \log(2)} \approx -2.0393$ (real root)

Alternative representations:

$$\sqrt{(1+5)\log(2)} = \sqrt{6 \log_e(2)}$$

$$\sqrt{(1+5)\log(2)} = \sqrt{6 \log(a) \log_a(2)}$$

$$\sqrt{(1+5)\log(2)} = \sqrt{12 \coth^{-1}(3)}$$

Series representations:

$$\sqrt{(1+5)\log(2)} = \sqrt{6} \sqrt{2 i \pi \left\lfloor \frac{\arg(2-x)}{2\pi} \right\rfloor + \log(x) - \sum_{k=1}^{\infty} \frac{(-1)^k (2-x)^k x^{-k}}{k}} \quad \text{for } x < 0$$

$$\sqrt{(1+5)\log(2)} = -\sqrt{6} \sum_{k=0}^{\infty} \binom{-\frac{1}{2}+k}{k} \sum_{j=0}^{k} \frac{(-1)^j \binom{k}{j} p_{j,k}}{-1+2j}$$

$$\text{for } \left(c_k = \frac{6(-1)^k}{1+k} \text{ and } p_{j,0} = 1 \text{ and } 6 p_{j,k} = \frac{\sum_{m=1}^{k} (-k+m+jm) c_m p_{j,k-m}}{k} \text{ and } k \in \mathbb{Z} \text{ and } k > 0\right)$$

$$\sqrt{(1+5)\log(2)} = \sqrt{6}\sqrt{\log(z_0) + \left\lfloor \frac{\arg(2-z_0)}{2\pi} \right\rfloor \left(\log\left(\frac{1}{z_0}\right) + \log(z_0)\right) - \sum_{k=1}^{\infty} \frac{(-1)^k (2-z_0)^k z_0^{-k}}{k}}$$

$$\sqrt{(1+5)\log(2)} = \sqrt{6}\sqrt{2 i \pi \left\lfloor \frac{\pi - \arg\left(\frac{1}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor + \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k (2-z_0)^k z_0^{-k}}{k}}$$

Integral representations:

$$\sqrt{(1+5)\log(2)} = \sqrt{6}\sqrt{\int_1^2 \frac{1}{t}\, dt}$$

$$\sqrt{(1+5)\log(2)} = \sqrt{\frac{3}{\pi}}\sqrt{-i \int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\, ds} \quad \text{for } -1 < \gamma < 0$$

sqrt(((((((ln7/(8Pi))-ln8)))/(2)^(1/Pi*8))-1)))) - sqrt(ln(2*8))

Input:

$$\sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{1/\pi\times 8} - 1}} - \sqrt{\log(2\times 8)}$$

log(x) is the natural logarithm

Exact result:

$$-\sqrt{\log(16)} + i\sqrt{\frac{\log(8) - \frac{\log(7)}{8\pi}}{2^{8/\pi} - 1}}$$

Decimal approximation:

−1.665109222315395512706329289790402095261177704528881458... +
0.6430109471061812284241054925802856721715609936022867035... i

Polar coordinates:

$r \approx 1.78495$ (radius), $\theta \approx 158.885°$ (angle)

1.78495

Alternate forms:

$$-2\sqrt{\log(2)}+i\sqrt{\frac{\log(8)-\frac{\log(7)}{8\pi}}{\sqrt[\pi]{256}-1}}$$

$$-2\sqrt{\log(2)}+\frac{1}{2}i\sqrt{\frac{24\pi\log(2)-\log(7)}{2\left(2^{8/\pi}-1\right)\pi}}$$

$$\frac{1}{4}i\left(\sqrt{\frac{2(8\pi\log(8)-\log(7))}{\left(2^{8/\pi}-1\right)\pi}}+4i\sqrt{\log(16)}\right)$$

Alternative representations:

$$\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}=-\sqrt{\log(a)\log_a(16)}+\sqrt{\frac{-\log(a)\log_a(8)+\frac{\log(a)\log_a(7)}{8\pi}}{-1+2^{8/\pi}}}$$

$$\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}=-\sqrt{\log_e(16)}+\sqrt{\frac{-\log_e(8)+\frac{\log_e(7)}{8\pi}}{-1+2^{8/\pi}}}$$

$$\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}=-\sqrt{-\text{Li}_1(-15)}+\sqrt{\frac{\text{Li}_1(-7)-\frac{\text{Li}_1(-6)}{8\pi}}{-1+2^{8/\pi}}}$$

Now, from (71) and (73), we obtain:

sqrt[((1+1)ln(3))] – sqrt[(ln(8*3))] + sqrt[(((((((ln5/(8Pi))+ln8)))/(1-((((1+7)/(2+7)))^(1/Pi*8))))))] + sqrt((1+4)ln2) + sqrt(((((ln5/(8Pi))-ln8)))/(((((((1+1/7)))^(1/Pi * 8))-1)))) - sqrt(ln(2*8))

Input:

$$\sqrt{(1+1)\log(3)} - \sqrt{\log(8\times 3)} + \sqrt{\frac{\frac{\log(5)}{8\pi} + \log(8)}{1 - \left(\frac{1+7}{2+7}\right)^{1/\pi\times 8}}} + \sqrt{(1+4)\log(2)} + \sqrt{\frac{\frac{\log(5)}{8\pi} - \log(8)}{\left(1+\frac{1}{7}\right)^{1/\pi\times 8} - 1}} - \sqrt{\log(2\times 8)}$$

$\log(x)$ is the natural logarithm

Exact result:

$$\sqrt{5\log(2)} + \sqrt{2\log(3)} + i\sqrt{\frac{\log(8) - \frac{\log(5)}{8\pi}}{\left(\frac{8}{7}\right)^{8/\pi} - 1}} + \sqrt{\frac{\frac{\log(5)}{8\pi} + \log(8)}{1 - \left(\frac{8}{9}\right)^{8/\pi}}} - \sqrt{\log(16)} - \sqrt{\log(24)}$$

Decimal approximation:

2.77220441832487732774688833667111918109453835095869321415... +
2.23077290917753494447634725169123753364656631880677142960... i

Polar coordinates:

$r \approx 3.5583$ (radius), $\theta \approx 38.8234°$ (angle)

3.5583

Alternate forms:

$$\frac{1}{4}\left(4\sqrt{5\log(2)} + 4\sqrt{2\log(3)} + i\sqrt{\frac{2(8\pi\log(8) - \log(5))}{\left(\left(\frac{8}{7}\right)^{8/\pi} - 1\right)\pi}} + \sqrt{\frac{2(\log(5) + 8\pi\log(8))}{\left(1 - \left(\frac{8}{9}\right)^{8/\pi}\right)\pi}} - 4\sqrt{\log(16)} - 4\sqrt{\log(24)}\right)$$

$$\left(\sqrt{5} - 2\right)\sqrt{\log(2)} + \sqrt{2\log(3)} - \sqrt{3\log(2) + \log(3)} + \frac{1}{2}i\sqrt{\frac{24\pi\log(2) - \log(5)}{2\left(\left(\frac{8}{7}\right)^{8/\pi} - 1\right)\pi}} + \frac{1}{2}\sqrt{\frac{24\pi\log(2) + \log(5)}{2\left(1 - \left(\frac{8}{9}\right)^{8/\pi}\right)\pi}}$$

$$\frac{1}{2\sqrt{2}}i\left(2i\sqrt{2}\left(\left(2 - \sqrt{5}\right)\sqrt{\log(2)} - \sqrt{2\log(3)} + \sqrt{3\log(2) + \log(3)}\right) + \sqrt{\frac{24\pi\log(2) - \log(5)}{\left(\left(\frac{8}{7}\right)^{8/\pi} - 1\right)\pi}} - i\sqrt{\frac{24\pi\log(2) + \log(5)}{\left(1 - \left(\frac{8}{9}\right)^{8/\pi}\right)\pi}}\right)$$

Alternative representations:

$$\sqrt{(1+1)\log(3)} - \sqrt{\log(8\times 3)} + \sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}} + \sqrt{(1+4)\log(2)} + \sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}} - \sqrt{\log(2\times 8)} = \sqrt{5\log(a)\log_a(2)} + \sqrt{2\log(a)\log_a(3)} - \sqrt{\log(a)\log_a(16)} - \sqrt{\log(a)\log_a(24)} + \sqrt{\frac{-\log(a)\log_a(8)+\frac{\log(a)\log_a(5)}{8\pi}}{-1+\left(1+\frac{1}{7}\right)^{8/\pi}}} + \sqrt{\frac{\log(a)\log_a(8)+\frac{\log(a)\log_a(5)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}$$

$$\sqrt{(1+1)\log(3)} - \sqrt{\log(8\times 3)} + \sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}} + \sqrt{(1+4)\log(2)} + \sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}} - \sqrt{\log(2\times 8)} = \sqrt{5\log_e(2)} + \sqrt{2\log_e(3)} - \sqrt{\log_e(16)} - \sqrt{\log_e(24)} + \sqrt{\frac{-\log_e(8)+\frac{\log_e(5)}{8\pi}}{-1+\left(1+\frac{1}{7}\right)^{8/\pi}}} + \sqrt{\frac{\log_e(8)+\frac{\log_e(5)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}$$

$$\sqrt{(1+1)\log(3)} - \sqrt{\log(8\times 3)} + \sqrt{\frac{\frac{\log(5)}{8\pi}+\log(8)}{1-\left(\frac{1+7}{2+7}\right)^{8/\pi}}} + \sqrt{(1+4)\log(2)} + \sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}} - \sqrt{\log(2\times 8)} = -\sqrt{-\text{Li}_1(-23)} - \sqrt{-\text{Li}_1(-15)} + \sqrt{-2\,\text{Li}_1(-2)} + \sqrt{-5\,\text{Li}_1(-1)} + \sqrt{\frac{\text{Li}_1(-7)-\frac{\text{Li}_1(-4)}{8\pi}}{-1+\left(1+\frac{1}{7}\right)^{8/\pi}}} + \sqrt{\frac{-\text{Li}_1(-7)-\frac{\text{Li}_1(-4)}{8\pi}}{1-\left(\frac{8}{9}\right)^{8/\pi}}}$$

Adding (75), we obtain:

(2.772204418324877327 + 2.230772909177753i) + sqrt((1+5)*ln2) + sqrt(((((((ln7/(8Pi))-ln8)))/((((2)^(1/Pi*8))-1))))) - sqrt(ln(2*8))

Input interpretation:

$$(2.772204418324877327 + 2.23077290917753\, i) + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{1/\pi\times 8} - 1}} - \sqrt{\log(2\times 8)}$$

$\log(x)$ is the natural logarithm

i is the imaginary unit

Result:

3.14642917634710... +
2.87378385628371... i

Polar coordinates:

$r = 4.26129677614751$ (radius), $\theta = 42.4069423840428°$ (angle)

4.26129677614751

Alternative representations:

$$(2.7722044183248773270000 + 2.230772909177530000\, i) + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)} = 2.7722044183248773270000 + 2.230772909177530000\, i + \sqrt{6\log(a)\log_a(2)} - \sqrt{\log(a)\log_a(16)} + \sqrt{\frac{-\log(a)\log_a(8) + \frac{\log(a)\log_a(7)}{8\pi}}{-1 + 2^{8/\pi}}}$$

$$(2.7722044183248773270000 + 2.230772909177530000\, i) + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)} = 2.7722044183248773270000 + 2.230772909177530000\, i + \sqrt{6\log_e(2)} - \sqrt{\log_e(16)} + \sqrt{\frac{-\log_e(8) + \frac{\log_e(7)}{8\pi}}{-1 + 2^{8/\pi}}}$$

$$(2.7722044183248773270000 + 2.230772909177530000\, i) + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)} = 2.7722044183248773270000 + 2.230772909177530000\, i - \sqrt{-\text{Li}_1(-15)} + \sqrt{-6\,\text{Li}_1(-1)} + \sqrt{\frac{\text{Li}_1(-7) - \frac{\text{Li}_1(-6)}{8\pi}}{-1 + 2^{8/\pi}}}$$

Series representations:

$$(2.7722044183248773270000 + 2.230772909177530000\, i) + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)} = 2.7722044183248773270000 + 2.230772909177530000\, i + \sum_{k=0}^{\infty} \binom{\frac{1}{2}}{k} \left((-1 + 6\log(2))^{-k} \sqrt{-1 + 6\log(2)} + \left(-1 + \frac{\frac{\log(7)}{8\pi} - \log(8)}{-1 + \sqrt[\pi]{256}}\right)^{-k} \sqrt{-1 + \frac{\frac{\log(7)}{8\pi} - \log(8)}{-1 + \sqrt[\pi]{256}}} - (-1 + \log(16))^{-k} \sqrt{-1 + \log(16)} \right)$$

$$(2.7722044183248773270000 + 2.230772909177530000\, i) + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)} = 2.7722044183248773270000 + 2.230772909177530000\, i + \sum_{k=0}^{\infty} \left(\binom{\frac{1}{2}}{k} (-1 + 6\log(2))^{-k} \sqrt{-1 + 6\log(2)} + \binom{\frac{1}{2}}{k} \left(-1 + \frac{\frac{\log(7)}{8\pi} - \log(8)}{-1 + \sqrt[\pi]{256}}\right)^{-k} \sqrt{-1 + \frac{\frac{\log(7)}{8\pi} - \log(8)}{-1 + \sqrt[\pi]{256}}} - \binom{\frac{1}{2}}{k} (-1 + \log(16))^{-k} \sqrt{-1 + \log(16)} \right)$$

$$(2.7722044183248773270000 + 2.230772909177530000\, i) + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)} = 2.7722044183248773270000 + 2.230772909177530000\, i + \sum_{k=0}^{\infty} \left(\binom{\frac{1}{2}}{k} (-1 + 6\log(2))^{-k} \sqrt{-1 + 6\log(2)} + \binom{\frac{1}{2}}{k} \left(-1 + \frac{\frac{\log(7)}{8\pi} - \log(8)}{-1 + 2^{8/\pi}}\right)^{-k} \sqrt{-1 + \frac{\frac{\log(7)}{8\pi} - \log(8)}{-1 + 2^{8/\pi}}} - \binom{\frac{1}{2}}{k} (-1 + \log(16))^{-k} \sqrt{-1 + \log(16)} \right)$$

Integral representations:

$$(2.7722044183248773270000 + 2.230772909177530000\,i) + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)} = 2.230772909177530000\left(1.242710276299244304 + 1.000000000000000000\,i + 0.4482751228894441077\sqrt{\frac{1}{-1+\sqrt[\pi]{256}}\int_1^7\left(\frac{7}{1-7t}+\frac{1}{8\pi t}\right)dt} + 0.4482751228894441077\sqrt{6\int_1^2 \frac{1}{t}\,dt} - 0.4482751228894441077\sqrt{\int_1^{16}\frac{1}{t}\,dt}\right)$$

$$(2.7722044183248773270000 + 2.230772909177530000\,i) + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)} = 2.230772909177530000\left(1.242710276299244304 + 1.000000000000000000\,i + 0.4482751228894441077\sqrt{\frac{3}{\pi\mathcal{A}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds} - 0.4482751228894441077\sqrt{\frac{1}{2\pi\mathcal{A}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{15^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds} + 0.4482751228894441077\sqrt{\frac{1}{-1+2^{8/\pi}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{2^{-4-s}\times 21^{-s}\left(7^s - 2^{3+s}\times 3^s\,\pi\right)\Gamma(-s)^2\,\Gamma(1+s)}{\pi^2\,\mathcal{A}\,\Gamma(1-s)}\,ds}\right)$$

for $-1 < \gamma < 0$

From (74) and (76), we obtain:

sqrt((1+4)ln2) + sqrt(((((((ln5/(8Pi))+ln8)))/(1-((((1+7)/(2+7)))^(1/Pi * 8)))))) + sqrt(ln(2*8)) + sqrt((1+5)*ln2) + sqrt(((((((ln8/(8Pi))+ln8)))/(1-2)^-(1/Pi * 8)))) + sqrt(ln(2*8))

Input:

$$\sqrt{(1+4)\log(2)} + \sqrt{\frac{\frac{\log(5)}{8\pi} + \log(8)}{1 - \left(\frac{1+7}{2+7}\right)^{1/\pi\times 8}}} + \sqrt{\log(2\times 8)} +$$
$$\sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(8)}{8\pi} + \log(8)}{(1-2)^{-(1/\pi\times 8)}}} + \sqrt{\log(2\times 8)}$$

log(x) is the natural logarithm

Exact result:

$$\sqrt{5\log(2)} + \sqrt{6\log(2)} + \sqrt{\frac{\frac{\log(5)}{8\pi} + \log(8)}{1 - \left(\frac{8}{9}\right)^{8/\pi}}} + \sqrt{(-1)^{8/\pi}\left(\log(8) + \frac{\log(8)}{8\pi}\right)} + 2\sqrt{\log(16)}$$

Decimal approximation:

11.0684125818775277846018741841717350584926137671814592550... +
1.11282908370628276571715284055639164666075895853101443021... i

Alternate forms:

$$\frac{1}{2}\left(2\left(4+\sqrt{5}+\sqrt{6}\right)\sqrt{\log(2)} + \sqrt{\frac{3(-1)^{8/\pi}(1+8\pi)\log(2)}{2\pi}} + \sqrt{\frac{24\pi\log(2)+\log(5)}{2\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi}}\right)$$

$$\left(4+\sqrt{5}+\sqrt{6}\right)\sqrt{\log(2)} + \frac{1}{2}\sqrt{\frac{3(-1)^{8/\pi}(1+8\pi)\log(2)}{2\pi}} + \frac{1}{2}\sqrt{\frac{24\pi\log(2)+\log(5)}{2\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi}}$$

$$\frac{1}{4}\left(4\sqrt{5\log(2)} + 4\sqrt{6\log(2)} + \sqrt{\frac{2(-1)^{8/\pi}(1+8\pi)\log(8)}{\pi}} + \sqrt{\frac{2(\log(5)+8\pi\log(8))}{\left(1-\left(\frac{8}{9}\right)^{8/\pi}\right)\pi}} + 8\sqrt{\log(16)}\right)$$

Alternative representations:

$$\sqrt{(1+4)\log(2)} + \sqrt{\frac{\frac{\log(5)}{8\pi} + \log(8)}{1 - \left(\frac{1+7}{2+7}\right)^{8/\pi}}} + \sqrt{\log(2\times 8)} + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(8)}{8\pi} + \log(8)}{(1-2)^{-8/\pi}}} + \sqrt{\log(2\times 8)} = \sqrt{5\log(a)\log_a(2)} + \sqrt{6\log(a)\log_a(2)} + 2\sqrt{\log(a)\log_a(16)} + \sqrt{\frac{\log(a)\log_a(8) + \frac{\log(a)\log_a(8)}{8\pi}}{(-1)^{-8/\pi}}} + \sqrt{\frac{\log(a)\log_a(8) + \frac{\log(a)\log_a(5)}{8\pi}}{1 - \left(\frac{8}{9}\right)^{8/\pi}}}$$

$$\sqrt{(1+4)\log(2)} + \sqrt{\frac{\frac{\log(5)}{8\pi} + \log(8)}{1 - \left(\frac{1+7}{2+7}\right)^{8/\pi}}} + \sqrt{\log(2\times 8)} + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(8)}{8\pi} + \log(8)}{(1-2)^{-8/\pi}}} + \sqrt{\log(2\times 8)} = \sqrt{5\log_e(2)} + \sqrt{6\log_e(2)} + 2\sqrt{\log_e(16)} + \sqrt{\frac{\log_e(8) + \frac{\log_e(8)}{8\pi}}{(-1)^{-8/\pi}}} + \sqrt{\frac{\log_e(8) + \frac{\log_e(5)}{8\pi}}{1 - \left(\frac{8}{9}\right)^{8/\pi}}}$$

$$\sqrt{(1+4)\log(2)} + \sqrt{\frac{\frac{\log(5)}{8\pi} + \log(8)}{1 - \left(\frac{1+7}{2+7}\right)^{8/\pi}}} + \sqrt{\log(2\times 8)} + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(8)}{8\pi} + \log(8)}{(1-2)^{-8/\pi}}} + \sqrt{\log(2\times 8)} = 2\sqrt{-\text{Li}_1(-15)} + \sqrt{-6\,\text{Li}_1(-1)} + \sqrt{-5\,\text{Li}_1(-1)} + \sqrt{\frac{-\text{Li}_1(-7) - \frac{\text{Li}_1(-7)}{8\pi}}{(-1)^{-8/\pi}}} + \sqrt{\frac{-\text{Li}_1(-7) - \frac{\text{Li}_1(-4)}{8\pi}}{1 - \left(\frac{8}{9}\right)^{8/\pi}}}$$

Result:

11.068412581877527784601874184171735058492613767181459255... +
1.1128290837062827657171528405563916466607589585310144302 1... *i*

Polar coordinates:

r = 11.124214383596143442261177160043403950456182646039850354 1 (radius), θ = 5.7412806547192396831822826428454920201510990719426740228° (angle)

11.1242143

And adding (75), we obtain:

(2.772204418324877327 + 2.23077290917753i) +11.1242143835961434 4226 + sqrt((1+5)*ln2) + sqrt(((((((ln7/(8Pi))-ln8)))/((((2)^(1/Pi*8))-1))))) - sqrt(ln(2*8))

Input interpretation:

$$(2.772204418324877327 + 2.23077290917753\, i) + 11.12421438359614344226 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{1/\pi\times 8} - 1}} - \sqrt{\log(2\times 8)}$$

log(x) is the natural logarithm

i is the imaginary unit

Result:

14.27064355994324... +
2.873783856283711... i

Polar coordinates:

$r = 14.557125446584104$ (radius), $\theta = 11.38579140208366°$ (angle)

14.55712544658….

Alternative representations:

$$(2.7722044183248773270000 + 2.2307729091775300000\, i) + 11.124214383596143442260000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)} = 13.896418801921020769260 0 + 2.2307729091775300000\, i + \sqrt{6\log(a)\log_a(2)} - \sqrt{\log(a)\log_a(16)} + \sqrt{\frac{-\log(a)\log_a(8) + \frac{\log(a)\log_a(7)}{8\pi}}{-1 + 2^{8/\pi}}}$$

$$(2.7722044183248773270000 + 2.2307729091775300000\, i) + 11.124214383596143442260000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)} = 13.8964188019210207692600 + 2.2307729091775300000\, i + \sqrt{6\log_e(2)} - \sqrt{\log_e(16)} + \sqrt{\frac{-\log_e(8) + \frac{\log_e(7)}{8\pi}}{-1 + 2^{8/\pi}}}$$

$$(2.7722044183248773270000 + 2.230772909177530000\, i) + 11.124214383596143442260000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)} = 13.896418801921020769260 + 2.230772909177530000\, i - \sqrt{-\text{Li}_1(-15)} + \sqrt{-6\, \text{Li}_1(-1)} + \sqrt{\frac{\text{Li}_1(-7) - \frac{\text{Li}_1(-6)}{8\pi}}{-1 + 2^{8/\pi}}}$$

Series representations:

$$(2.7722044183248773270000 + 2.230772909177530000\, i) + 11.124214383596143442260000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)} = 13.896418801921020769260 + 2.230772909177530000\, i + \sum_{k=0}^{\infty} \binom{\frac{1}{2}}{k} \left((-1 + 6\log(2))^{-k} \sqrt{-1 + 6\log(2)} + \left(-1 + \frac{\frac{\log(7)}{8\pi} - \log(8)}{-1 + \sqrt[\pi]{256}}\right)^{-k} \sqrt{-1 + \frac{\frac{\log(7)}{8\pi} - \log(8)}{-1 + \sqrt[\pi]{256}}} - (-1 + \log(16))^{-k} \sqrt{-1 + \log(16)} \right)$$

$$(2.7722044183248773270000 + 2.230772909177530000\, i) + 11.124214383596143442260000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)} = 13.896418801921020769260 + 2.230772909177530000\, i + \sum_{k=0}^{\infty} \left(\binom{\frac{1}{2}}{k} (-1 + 6\log(2))^{-k} \sqrt{-1 + 6\log(2)} + \binom{\frac{1}{2}}{k} \left(-1 + \frac{\frac{\log(7)}{8\pi} - \log(8)}{-1 + \sqrt[\pi]{256}}\right)^{-k} \sqrt{-1 + \frac{\frac{\log(7)}{8\pi} - \log(8)}{-1 + \sqrt[\pi]{256}}} - \binom{\frac{1}{2}}{k} (-1 + \log(16))^{-k} \sqrt{-1 + \log(16)} \right)$$

$$(2.77220441832487732700000 + 2.230772909177530000\, i) + 11.12421438359614344226000 0 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)} = 13.8964188019210207692600 + 2.230772909177530000\, i + \sum_{k=0}^{\infty}\left(\binom{\frac{1}{2}}{k}(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)} + \binom{\frac{1}{2}}{k}\left(-1+\frac{\frac{\log(7)}{8\pi} - \log(8)}{-1+2^{8/\pi}}\right)^{-k} \sqrt{-1+\frac{\frac{\log(7)}{8\pi} - \log(8)}{-1+2^{8/\pi}}} - \binom{\frac{1}{2}}{k}(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

Integral representations:

$$(2.77220441832487732700000 + 2.230772909177530000\, i) + 11.12421438359614344226000 0 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)} = 2.230772909177530000\left(6.22941884615432724 + 1.000000000000000000\, i + 0.4482751228894441077\sqrt{\frac{1}{-1+\sqrt[\pi]{256}}\int_1^7\left(\frac{7}{1-7t} + \frac{1}{8\pi t}\right)dt} + 0.4482751228894441077\sqrt{6\int_1^2 \frac{1}{t}\,dt} - 0.4482751228894441077\sqrt{\int_1^{16}\frac{1}{t}\,dt}\right)$$

$$(2.77220441832487732700000 + 2.230772909177530000\, i) + 11.12421438359614344226000 0 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)} = 2.230772909177530000\left(6.22941884615432724 + 1.000000000000000000\, i + 0.4482751228894441077\sqrt{\frac{3}{\pi\mathcal{A}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds} - 0.4482751228894441077\sqrt{\frac{1}{2\pi\mathcal{A}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{15^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds} + 0.4482751228894441077\sqrt{\frac{1}{-1+2^{8/\pi}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{2^{-4-s}\times 21^{-s}\left(7^s - 2^{3+s}\times 3^s\,\pi\right)\Gamma(-s)^2\,\Gamma(1+s)}{\pi^2\,\mathcal{A}\,\Gamma(1-s)}\,ds}\right)$$

for $-1 < \gamma < 0$

We have also that, from (69):

[((((sqrt((1+1)ln3)+sqrt(ln(8*3)))))) + sqrt(((((((ln5/(8Pi))-ln8)))/((((1+1/7)^(1/Pi * 8) – 1))))))]

Input:

$$\left(\sqrt{(1+1)\log(3)}+\sqrt{\log(8\times 3)}\right)+\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{1/\pi\times 8}-1}}$$

log(x) is the natural logarithm

Exact result:

$$\sqrt{2\log(3)}+i\sqrt{\frac{\log(8)-\frac{\log(5)}{8\pi}}{\left(\frac{8}{7}\right)^{8/\pi}-1}}+\sqrt{\log(24)}$$

Decimal approximation:

3.26501349499136690230096819849041165715613057648330642138... +
2.23077290917753494447634725169123753364656631880677142960... i

Polar coordinates:

$r \approx 3.95432$ (radius), $\theta \approx 34.3423°$ (angle)

3.95432

Alternate forms:

$$\frac{1}{4}\left(4\sqrt{2\log(3)}+i\sqrt{\frac{2(8\pi\log(8)-\log(5))}{\left(\left(\frac{8}{7}\right)^{8/\pi}-1\right)\pi}}+4\sqrt{\log(24)}\right)$$

$$\sqrt{2\log(3)}+\sqrt{3\log(2)+\log(3)}+\frac{1}{2}i\sqrt{\frac{24\pi\log(2)-\log(5)}{2\left(\left(\frac{8}{7}\right)^{8/\pi}-1\right)\pi}}$$

$$\frac{i\left(\sqrt{\frac{24\pi\log(2)-\log(5)}{\left(\left(\frac{8}{7}\right)^{8/\pi}-1\right)\pi}}-2i\sqrt{2}\left(\sqrt{2\log(3)}+\sqrt{3\log(2)+\log(3)}\right)\right)}{2\sqrt{2}}$$

Alternative representations:

$$\left(\sqrt{(1+1)\log(3)}+\sqrt{\log(8\times 3)}\right)+\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}} =$$

$$\sqrt{2\log(a)\log_a(3)}+\sqrt{\log(a)\log_a(24)}+\sqrt{\frac{-\log(a)\log_a(8)+\frac{\log(a)\log_a(5)}{8\pi}}{-1+\left(1+\frac{1}{7}\right)^{8/\pi}}}$$

$$\left(\sqrt{(1+1)\log(3)}+\sqrt{\log(8\times 3)}\right)+\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}} =$$

$$\sqrt{2\log_e(3)}+\sqrt{\log_e(24)}+\sqrt{\frac{-\log_e(8)+\frac{\log_e(5)}{8\pi}}{-1+\left(1+\frac{1}{7}\right)^{8/\pi}}}$$

$$\left(\sqrt{(1+1)\log(3)}+\sqrt{\log(8\times 3)}\right)+\sqrt{\frac{\frac{\log(5)}{8\pi}-\log(8)}{\left(1+\frac{1}{7}\right)^{8/\pi}-1}} =$$

$$\sqrt{-\text{Li}_1(-23)}+\sqrt{-2\,\text{Li}_1(-2)}+\sqrt{\frac{\text{Li}_1(-7)-\frac{\text{Li}_1(-4)}{8\pi}}{-1+\left(1+\frac{1}{7}\right)^{8/\pi}}}$$

In conclusion, adding (69) to the previous expression, we obtain:

3.95432+(2.772204418324877327 + 2.23077290917753i) +11.12421438359614344226 + sqrt((1+5)*ln2) + sqrt(((((((ln7/(8Pi))-ln8)))/((((2)^(1/Pi*8))-1))))) - sqrt(ln(2*8))

Input interpretation:

$$3.95432+(2.772204418324877327+2.23077290917753\,i)+11.12421438359614344226+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{1/\pi\times 8}-1}}-\sqrt{\log(2\times 8)}$$

$\log(x)$ is the natural logarithm

i is the imaginary unit

Result:

18.22496... +
2.873784... i

Polar coordinates:

$r = 18.4501$ (radius), $\theta = 8.96084°$ (angle)

18.4501 Final result

Alternative representations:

$$3.95432 + (2.7722044183248773270000 + 2.230772909177530000\,i) + 11.1242143835961434422600000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)} = 17.8507 + 2.230772909177530000\,i + \sqrt{6\log(a)\log_a(2)} - \sqrt{\log(a)\log_a(16)} + \sqrt{\frac{-\log(a)\log_a(8) + \frac{\log(a)\log_a(7)}{8\pi}}{-1 + 2^{8/\pi}}}$$

$$3.95432 + (2.7722044183248773270000 + 2.230772909177530000\,i) + 11.1242143835961434422600000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)} = 17.8507 + 2.230772909177530000\,i + \sqrt{6\log_e(2)} - \sqrt{\log_e(16)} + \sqrt{\frac{-\log_e(8) + \frac{\log_e(7)}{8\pi}}{-1 + 2^{8/\pi}}}$$

$$3.95432 + (2.7722044183248773270000 + 2.230772909177530000\,i) + 11.1242143835961434422600000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)} = 17.8507 + 2.230772909177530000\,i - \sqrt{-\mathrm{Li}_1(-15)} + \sqrt{-6\,\mathrm{Li}_1(-1)} + \sqrt{\frac{\mathrm{Li}_1(-7) - \frac{\mathrm{Li}_1(-6)}{8\pi}}{-1 + 2^{8/\pi}}}$$

Series representations:

$$3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+11.124214383596143442260000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}=17.8507+2.230772909177530000\,i+\sum_{k=0}^{\infty}\binom{\frac{1}{2}}{k}\left((-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}}-(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

$$3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+11.124214383596143442260000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}=17.8507+2.230772909177530000\,i+\sum_{k=0}^{\infty}\left(\binom{\frac{1}{2}}{k}(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+\binom{\frac{1}{2}}{k}\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}}-\binom{\frac{1}{2}}{k}(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

$$3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+11.124214383596143442260000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}=17.8507+2.230772909177530000\,i+\sum_{k=0}^{\infty}\left(\binom{\frac{1}{2}}{k}(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+\binom{\frac{1}{2}}{k}\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+2^{8/\pi}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+2^{8/\pi}}}-\binom{\frac{1}{2}}{k}(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

Integral representations:

$$3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+11.1242143835961434422260000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}=$$
$$2.23077\left(8.00204+i+0.448275\sqrt{\frac{1}{-1+\sqrt[\pi]{256}}\int_1^7\left(\frac{7}{1-7t}+\frac{1}{8\pi t}\right)dt}+0.448275\sqrt{6\int_1^2\frac{1}{t}\,dt}-0.448275\sqrt{\int_1^{16}\frac{1}{t}\,dt}\right)$$

$$3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+11.1242143835961434422260000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}=$$
$$2.23077\left(8.00204+i+0.448275\sqrt{\frac{3}{\pi\mathcal{A}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}-0.448275\sqrt{\frac{1}{2\pi\mathcal{A}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{15^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}+0.448275\sqrt{\frac{1}{-1+2^{8/\pi}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{2^{-4-s}\times 21^{-s}\left(7^s-2^{3+s}\times 3^s\,\pi\right)\Gamma(-s)^2\,\Gamma(1+s)}{\pi^2\,\mathcal{A}\,\Gamma(1-s)}\,ds}\right)$$

for $-1<\gamma<0$

From which, we obtain:

[3.95432+(2.772204418324877327 + 2.23077290917753i) +11.124214383596143442 26 + sqrt((1+5)*ln2) + sqrt(((((((ln7/(8Pi))-ln8)))/((((2)^(1/Pi*8))-1))))) - sqrt(ln(2*8))]-golden ratio

Input interpretation:

$$\left(3.95432 + (2.7722044183248773 27 + 2.23077290917753\, i) + 11.12421438359614344226 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{1/\pi\times 8} - 1}} - \sqrt{\log(2\times 8)}\right) - \phi$$

log(x) is the natural logarithm

i is the imaginary unit

ϕ is the golden ratio

Result:

16.60693... +
2.873784... i

Polar coordinates:

$r = 16.8537$ (radius), $\theta = 9.81765°$ (angle)

16.8537 result very near to the mass of the hypothetical light particle, the boson m_X = 16.84 MeV

Alternative representations:

$$\left(3.95432 + (2.7722044183248773270000 + 2.2307729091775300000\, i) + 11.1242143835961434422600000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)}\right) - \phi =$$

$$17.8507 - \phi + 2.2307729091775300000\, i + \sqrt{6\log(a)\log_a(2)} - \sqrt{\log(a)\log_a(16)} + \sqrt{\frac{-\log(a)\log_a(8) + \frac{\log(a)\log_a(7)}{8\pi}}{-1 + 2^{8/\pi}}}$$

$$\left(3.95432 + (2.7722044183248773270000 + 2.230772909177530000\, i) + 11.124214383596143442260000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)}\right) - \phi =$$

$$17.8507 - \phi + 2.230772909177530000\, i + \sqrt{6\log_e(2)} - \sqrt{\log_e(16)} + \sqrt{\frac{-\log_e(8) + \frac{\log_e(7)}{8\pi}}{-1 + 2^{8/\pi}}}$$

$$\left(3.95432 + (2.7722044183248773270000 + 2.230772909177530000\, i) + 11.124214383596143442260000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)}\right) - \phi =$$

$$17.8507 - \phi + 2.230772909177530000\, i - \sqrt{-\text{Li}_1(-15)} + \sqrt{-6\,\text{Li}_1(-1)} + \sqrt{\frac{\text{Li}_1(-7) - \frac{\text{Li}_1(-6)}{8\pi}}{-1 + 2^{8/\pi}}}$$

Series representations:

$$\left(3.95432 + (2.7722044183248773270000 + 2.230772909177530000\, i) + 11.124214383596143442260000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)}\right) - \phi =$$

$$17.8507 - \phi + 2.230772909177530000\, i + \sum_{k=0}^{\infty} \binom{\frac{1}{2}}{k} \left((-1 + 6\log(2))^{-k} \sqrt{-1 + 6\log(2)} + \left(-1 + \frac{\frac{\log(7)}{8\pi} - \log(8)}{-1 + \sqrt[\pi]{256}}\right)^{-k} \sqrt{-1 + \frac{\frac{\log(7)}{8\pi} - \log(8)}{-1 + \sqrt[\pi]{256}}} - (-1 + \log(16))^{-k} \sqrt{-1 + \log(16)} \right)$$

$$\left(3.95432+(2.772204418324877327000+2.230772909177530000\,i)+11.1242143835961434422600000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-\phi=$$

$$17.8507-\phi+2.230772909177530000\,i+\sum_{k=0}^{\infty}\left(\binom{\frac{1}{2}}{k}(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+\binom{\frac{1}{2}}{k}\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}}-\binom{\frac{1}{2}}{k}(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

$$\left(3.95432+(2.772204418324877327000+2.230772909177530000\,i)+11.1242143835961434422600000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-\phi=$$

$$17.8507-\phi+2.230772909177530000\,i+\sum_{k=0}^{\infty}\left(\binom{\frac{1}{2}}{k}(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+\binom{\frac{1}{2}}{k}\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+2^{8/\pi}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+2^{8/\pi}}}-\binom{\frac{1}{2}}{k}(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

Integral representations:

$$\left(3.95432 + (2.7722044183248773270000 + 2.230772909177530000\, i) + 11.1242143835961434422600000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)}\right) - \phi =$$

$$-\left(-17.8507 + \phi - 2.23077\, i - \sqrt{\frac{1}{-1+\sqrt[\pi]{256}} \int_1^7 \left(\frac{7}{1-7t} + \frac{1}{8\pi t}\right) dt} - \sqrt{6\int_1^2 \frac{1}{t}\, dt} + \sqrt{\int_1^{16} \frac{1}{t}\, dt}\right)$$

$$\left(3.95432 + (2.7722044183248773270000 + 2.230772909177530000\, i) + 11.1242143835961434422600000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)}\right) - \phi =$$

$$-\left(-17.8507 + \phi - 2.23077\, i - \sqrt{\frac{3}{\pi \mathcal{A}} \int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma} \frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\, ds} + \sqrt{\frac{1}{2\pi\mathcal{A}} \int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma} \frac{15^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\, ds} - \sqrt{\frac{1}{-1+2^{8/\pi}} \int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma} \frac{2^{-4-s}\times 21^{-s}\left(7^s - 2^{3+s}\times 3^s\,\pi\right)\Gamma(-s)^2\,\Gamma(1+s)}{\pi^2\,\mathcal{A}\,\Gamma(1-s)}\, ds}\right)$$

for $-1 < \gamma < 0$

and we obtain also:

7*[3.95432+(2.772204418324877327 + 2.23077290917753i) +11.124214383596143442 26 + sqrt((1+5)*ln2) + sqrt(((((((ln7/(8Pi))-ln8)))/((((2)^(1/Pi*8))-1))))) - sqrt(ln(2*8))]-Pi-1/golden ratio

where 7 is a Lucas number

Input interpretation:

$$7\left(3.95432+(2.772204418324877327+2.23077290917753\,i)+11.12421438359614344226+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{1/\pi\times 8}-1}}-\sqrt{\log(2\times 8)}\right)-\pi-\frac{1}{\phi}$$

log(x) is the natural logarithm

i is the imaginary unit

ϕ is the golden ratio

Result:

123.8151... +
20.11649... i

Polar coordinates:

$r = 125.439$ (radius), $\theta = 9.22832°$ (angle)

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

Alternative representations:

$$7\left(3.95432+(2.7722044183248773270000+2.2307729091775300000\,i)+11.1242143835961434422600000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-\pi-\frac{1}{\phi}=$$

$$-\pi-\frac{1}{\phi}+7\left(17.8507+2.2307729091775300000\,i+\sqrt{6\log(a)\log_a(2)}-\sqrt{\log(a)\log_a(16)}+\sqrt{\frac{-\log(a)\log_a(8)+\frac{\log(a)\log_a(7)}{8\pi}}{-1+2^{8/\pi}}}\right)$$

$$7\left(3.95432+(2.772204418324877327000+2.230772909177530000\,i)+11.124214383596143442260000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-\pi-\frac{1}{\phi}=$$

$$-\pi-\frac{1}{\phi}+7\left(17.8507+2.230772909177530000\,i+\sqrt{6\log_e(2)}-\sqrt{\log_e(16)}+\sqrt{\frac{-\log_e(8)+\frac{\log_e(7)}{8\pi}}{-1+2^{8/\pi}}}\right)$$

$$7\left(3.95432+(2.772204418324877327000+2.230772909177530000\,i)+11.124214383596143442260000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-\pi-\frac{1}{\phi}=$$

$$-\pi-\frac{1}{\phi}+7\left(17.8507+2.230772909177530000\,i-\sqrt{-\mathrm{Li}_1(-15)}+\sqrt{-6\,\mathrm{Li}_1(-1)}+\sqrt{\frac{\mathrm{Li}_1(-7)-\frac{\mathrm{Li}_1(-6)}{8\pi}}{-1+2^{8/\pi}}}\right)$$

Series representations:

$$7\left(3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+11.1242143835961434422600000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-\pi-\frac{1}{\phi}=$$

$$124.955-\frac{1}{\phi}+15.61541036424271000\,i-\pi+\sum_{k=0}^{\infty}7\binom{\frac{1}{2}}{k}\left((-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}}-(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

$$7\left(3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+11.1242143835961434422600000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-\pi-\frac{1}{\phi}=$$

$$124.955-\frac{1}{\phi}+15.61541036424271000\,i-\pi+\sum_{k=0}^{\infty}\left(7\binom{\frac{1}{2}}{k}(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+7\binom{\frac{1}{2}}{k}\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}}-7\binom{\frac{1}{2}}{k}(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

$$7\left(3.95432+(2.77220441832487732700000+2.230772909177530000\,i)+\right.$$

$$11.1242143835961434422600000+\sqrt{(1+5)\log(2)}+$$

$$\left.\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-\pi-\frac{1}{\phi}=$$

$$124.955-\frac{1}{\phi}+15.61541036424271000\,i-\pi+$$

$$\sum_{k=0}^{\infty}\left(7\binom{\frac{1}{2}}{k}(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+7\binom{\frac{1}{2}}{k}\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+2^{8/\pi}}\right)^{-k}\right.$$

$$\left.\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+2^{8/\pi}}}-7\binom{\frac{1}{2}}{k}(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

Integral representations:

$$7\left(3.95432+(2.77220441832487732700000+2.230772909177530000\,i)+\right.$$

$$11.1242143835961434422600000+\sqrt{(1+5)\log(2)}+$$

$$\left.\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-\pi-\frac{1}{\phi}=$$

$$\frac{1}{\phi}15.6154\left(-0.0640393+8.00204\,\phi+\phi\,i-0.0640393\,\phi\,\pi+\right.$$

$$0.448275\,\phi\sqrt{\frac{1}{-1+\sqrt[\pi]{256}}\int_1^7\left(\frac{7}{1-7t}+\frac{1}{8\pi t}\right)dt}+$$

$$\left.0.448275\,\phi\sqrt{6\int_1^2\frac{1}{t}\,dt}-0.448275\,\phi\sqrt{\int_1^{16}\frac{1}{t}\,dt}\right)$$

$$7\left(3.95432+(2.77220441832487732700000+2.230772909177530000\,i)+11.12421438359614344226000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-\pi-\frac{1}{\phi}=$$

$$\frac{1}{\phi}15.6154\left(-0.0640393+8.00204\,\phi+\phi\,i-0.0640393\,\phi\,\pi+0.448275\,\phi\sqrt{\frac{3}{\pi\mathcal{A}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}-0.448275\,\phi\sqrt{\frac{1}{2\pi\mathcal{A}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{15^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}+0.448275\,\phi\sqrt{\frac{1}{-1+2^{8/\pi}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{2^{-4-s}\times 21^{-s}\,(7^s-2^{3+s}\times 3^s\,\pi)\,\Gamma(-s)^2\,\Gamma(1+s)}{\pi^2\,\mathcal{A}\,\Gamma(1-s)}\,ds}\right)$$

for $-1<\gamma<0$

and:

7*[3.95432+(2.772204418324877327 + 2.23077290917753i) +11.12421438359614344226 + sqrt((1+5)*ln2) + sqrt(((((((ln7/(8Pi))-ln8)))/((((2)^(1/Pi*8))-1))))) - sqrt(ln(2*8))]-Pi+11+golden ratio^2

where 11 is a Lucas number

Input interpretation:

$$7\left(3.95432+(2.772204418324877327+2.23077290917753\,i)+11.12421438359614344226+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{1/\pi\times 8}-1}}-\sqrt{\log(2\times 8)}\right)-\pi+11+\phi^2$$

log(x) is the natural logarithm

i is the imaginary unit

ϕ is the golden ratio

Result:

138.0512... +
20.11649... i

Polar coordinates:

$r = 139.509$ (radius), $\theta = 8.29065°$ (angle)

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

Alternative representations:

$$7\left(3.95432 + (2.7722044183248773270000 + 2.2307729091775300000\,i) + 11.124214383596143442260000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi}-1}} - \sqrt{\log(2\times 8)}\right) - \pi + 11 + \phi^2 = 11 - \pi + \phi^2 + 7\left(17.8507 + 2.2307729091775300000\,i + \sqrt{6\log(a)\log_a(2)} - \sqrt{\log(a)\log_a(16)} + \sqrt{\frac{-\log(a)\log_a(8) + \frac{\log(a)\log_a(7)}{8\pi}}{-1+2^{8/\pi}}}\right)$$

$$7\left(3.95432 + (2.7722044183248773270000 + 2.2307729091775300000\,i) + 11.124214383596143442260000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi}-1}} - \sqrt{\log(2\times 8)}\right) - \pi + 11 + \phi^2 = 11 - \pi + \phi^2 + 7\left(17.8507 + 2.2307729091775300000\,i + \sqrt{6\log_e(2)} - \sqrt{\log_e(16)} + \sqrt{\frac{-\log_e(8) + \frac{\log_e(7)}{8\pi}}{-1+2^{8/\pi}}}\right)$$

$$7\left(3.95432+(2.772204418324877327000+2.230772909177530000\,i)+11.124214383596143442260000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-\pi+11+\phi^2=$$

$$11-\pi+\phi^2+7\left(17.8507+2.230772909177530000\,i-\sqrt{-\text{Li}_1(-15)}+\sqrt{-6\,\text{Li}_1(-1)}+\sqrt{\frac{\text{Li}_1(-7)-\frac{\text{Li}_1(-6)}{8\pi}}{-1+2^{8/\pi}}}\right)$$

Series representations:

$$7\left(3.95432+(2.772204418324877327000+2.230772909177530000\,i)+11.124214383596143442260000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-\pi+11+\phi^2=135.955+\phi^2+15.6154\,i-\pi+\sum_{k=0}^{\infty}\binom{\frac{1}{2}}{k}\left(7\,(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+7\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}}-7\,(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

$$7\left(3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+ 11.1242143835961434422600000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-\pi+11+\phi^2=$$

$$135.955+\phi^2+15.6154\,i-\pi+\sum_{k=0}^{\infty}\left(7\binom{\frac{1}{2}}{k}(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+ 7\binom{\frac{1}{2}}{k}\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}}- 7\binom{\frac{1}{2}}{k}(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

$$7\left(3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+ 11.1242143835961434422600000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-\pi+11+\phi^2=$$

$$135.955+\phi^2+15.61541036424271000\,i-\pi+ \sum_{k=0}^{\infty}\left(7\binom{\frac{1}{2}}{k}(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+7\binom{\frac{1}{2}}{k}\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+2^{8/\pi}}\right)^{-k} \sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+2^{8/\pi}}}-7\binom{\frac{1}{2}}{k}(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

Integral representations:

$$7\left(3.95432 + (2.772204418324877327 0000 + 2.230772909177530000\,i) + 11.124214383596143442260000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)}\right) - \pi + 11 + \phi^2 =$$

$$135.955 + \phi^2 + 15.6154\,i - \pi + 7\sqrt{\frac{1}{-1+\sqrt[\pi]{256}}\int_1^7\left(\frac{7}{1-7t} + \frac{1}{8\pi t}\right)dt} + 7\sqrt{6\int_1^2 \frac{1}{t}\,dt} - 7\sqrt{\int_1^{16}\frac{1}{t}\,dt}$$

$$7\left(3.95432 + (2.772204418324877327 0000 + 2.230772909177530000\,i) + 11.124214383596143442260000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi} - 1}} - \sqrt{\log(2\times 8)}\right) - \pi + 11 + \phi^2 =$$

$$135.955 + \phi^2 + 15.6154\,i - \pi + 7\sqrt{\frac{3}{\pi\mathcal{A}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds} - 7\sqrt{\frac{1}{2\pi\mathcal{A}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{15^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds} + 7\sqrt{\frac{1}{-1+2^{8/\pi}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{2^{-4-s}\times 21^{-s}\left(7^s - 2^{3+s}\times 3^s\,\pi\right)\Gamma(-s)^2\,\Gamma(1+s)}{\pi^2\,\mathcal{A}\,\Gamma(1-s)}\,ds} \quad \text{for } -1 < \gamma < 0$$

(76+18)[3.95432+(2.772204418324877327 + 2.230772909177753i) +11.124214383596143442266 + sqrt((1+5)*ln2) + sqrt(((((((ln7/(8Pi))-ln8)))/((((2)^(1/Pi*8))-1))))) - sqrt(ln(2*8))]-4-golden ratio

Where 76, 18 and 4 are Lucas numbers

Input interpretation:

$$(76+18)\left(3.95432+(2.772204418324877327+2.23077290917753\,i)+11.12421438359614344226+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{1/\pi\times 8}-1}}-\sqrt{\log(2\times 8)}\right)-4-\phi$$

log(x) is the natural logarithm

i is the imaginary unit

ϕ is the golden ratio

Result:

1707.529... +
270.1357... i

Polar coordinates:

$r = 1728.76$ (radius), $\theta = 8.98984°$ (angle)

1728.76

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:

$$(76+18)\left(3.95432+(2.7722044183248773270000+2.2307729091775300000\,i)+11.1242143835961434422600000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-4-\phi =$$

$$-4-\phi+94\left(17.8507+2.2307729091775300000\,i+\sqrt{6\log(a)\log_a(2)}-\sqrt{\log(a)\log_a(16)}+\sqrt{\frac{-\log(a)\log_a(8)+\frac{\log(a)\log_a(7)}{8\pi}}{-1+2^{8/\pi}}}\right)$$

$$(76+18)\left(3.95432+(2.77220441832487732700000+2.230772909177530000\,i)+11.12421438359614344226000\right.$$
$$\left.+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-4-\phi=$$
$$-4-\phi+94\left(17.8507+2.230772909177530000\,i+\sqrt{6\log_e(2)}-\sqrt{\log_e(16)}+\sqrt{\frac{-\log_e(8)+\frac{\log_e(7)}{8\pi}}{-1+2^{8/\pi}}}\right)$$

$$(76+18)\left(3.95432+(2.77220441832487732700000+2.230772909177530000\,i)+11.12421438359614344226000\right.$$
$$\left.+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-4-\phi=$$
$$-4-\phi+94\left(17.8507+2.230772909177530000\,i-\sqrt{-\mathrm{Li}_1(-15)}+\sqrt{-6\,\mathrm{Li}_1(-1)}+\sqrt{\frac{\mathrm{Li}_1(-7)-\frac{\mathrm{Li}_1(-6)}{8\pi}}{-1+2^{8/\pi}}}\right)$$

Series representations:

$$(76+18)\left(3.95432+(2.7722044183248773270000+2.2307729091775300000\,i)+11.124214383596143442260000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-4-\phi=1673.97-\phi+209.693\,i+\sum_{k=0}^{\infty}\binom{\frac{1}{2}}{k}\left(94\,(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+94\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}}-94\,(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

$$(76+18)\left(3.95432+(2.7722044183248773270000+2.2307729091775300000\,i)+11.124214383596143442260000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-4-\phi=1673.97-\phi+209.693\,i+\sum_{k=0}^{\infty}\left(94\binom{\frac{1}{2}}{k}(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+94\binom{\frac{1}{2}}{k}\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}}-94\binom{\frac{1}{2}}{k}(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

$$(76+18)\left(3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+11.124214383596143442260000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-4-\phi=$$

$$1673.97-\phi+209.6926534626878200\,i+\sum_{k=0}^{\infty}\left(94\binom{\frac{1}{2}}{k}(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+94\binom{\frac{1}{2}}{k}\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+2^{8/\pi}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+2^{8/\pi}}}-94\binom{\frac{1}{2}}{k}(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

Integral representations:

$$(76+18)\left(3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+11.124214383596143442260000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-4-\phi=$$

$$-\left(-1673.97+\phi-209.693\,i-94\sqrt{\frac{1}{-1+\sqrt[\pi]{256}}\int_1^7\left(\frac{7}{1-7t}+\frac{1}{8\pi t}\right)dt}-94\sqrt{6\int_1^2\frac{1}{t}\,dt}+94\sqrt{\int_1^{16}\frac{1}{t}\,dt}\right)$$

$$(76+18)\left(3.95432+(2.77220441832487732700000+2.23077290917753000 0\,i)+11.12421438359614344226 0000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-4-\phi=$$

$$-\left(-1673.97+\phi-209.693\,i-94\sqrt{\frac{3}{\pi\mathcal{A}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}+94\sqrt{\frac{1}{2\pi\mathcal{A}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{15^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}-94\sqrt{\frac{1}{-1+2^{8/\pi}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{2^{-4-s}\times 21^{-s}\,(7^s-2^{3+s}\times 3^s\,\pi)\,\Gamma(-s)^2\,\Gamma(1+s)}{\pi^2\,\mathcal{A}\,\Gamma(1-s)}\,ds}\right)$$

for $-1<\gamma<0$

and:

(76+18)[3.95432+(2.772204418324877327 + 2.23077290917753i) +11.124214383596143442 26 + sqrt((1+5)*ln2) + sqrt(((((((ln7/(8Pi))-ln8)))/((((2)^(1/Pi*8))-1))))) - sqrt(ln(2*8))]-4-golden ratio+47+7

Where 76, 18, 4, 47 and 7 are Lucas numbers

Input interpretation:

$$(76+18)\left(3.95432+(2.772204418324877327+2.23077290917753\,i)+11.12421438359614344226+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{1/\pi\times 8}-1}}-\sqrt{\log(2\times 8)}\right)-4-\phi+47+7$$

log(x) is the natural logarithm

i is the imaginary unit

ϕ is the golden ratio

Result:

1761.529... + 270.1357... i

Polar coordinates:

$r = 1782.12$ (radius), $\theta = 8.71856°$ (angle)

1782.12 result in the range of the hypothetical mass of Gluino (gluino = 1785.16 GeV).

Alternative representations:

$$(76+18)\left(3.95432 + (2.7722044183248773270000 + 2.2307729091775300000\, i) + 11.124214383596143442260000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi}-1}} - \sqrt{\log(2\times 8)}\right) - 4 - \phi + 47 + 7 =$$

$$50 - \phi + 94\left(17.8507 + 2.2307729091775300000\, i + \sqrt{6\log(a)\log_a(2)} - \sqrt{\log(a)\log_a(16)} + \sqrt{\frac{-\log(a)\log_a(8) + \frac{\log(a)\log_a(7)}{8\pi}}{-1+2^{8/\pi}}}\right)$$

$$(76+18)\left(3.95432 + (2.7722044183248773270000 + 2.2307729091775300000\, i) + 11.124214383596143442260000 + \sqrt{(1+5)\log(2)} + \sqrt{\frac{\frac{\log(7)}{8\pi} - \log(8)}{2^{8/\pi}-1}} - \sqrt{\log(2\times 8)}\right) - 4 - \phi + 47 + 7 =$$

$$50 - \phi + 94\left(17.8507 + 2.2307729091775300000\, i + \sqrt{6\log_e(2)} - \sqrt{\log_e(16)} + \sqrt{\frac{-\log_e(8) + \frac{\log_e(7)}{8\pi}}{-1+2^{8/\pi}}}\right)$$

$$(76+18)\left(3.95432+(2.77220441832487732700000+2.230772909177530000\,i)+11.124214383596143442260000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-4-\phi+47+7=$$

$$50-\phi+94\left(17.8507+2.230772909177530000\,i-\sqrt{-\text{Li}_1(-15)}+\sqrt{-6\,\text{Li}_1(-1)}+\sqrt{\frac{\text{Li}_1(-7)-\frac{\text{Li}_1(-6)}{8\pi}}{-1+2^{8/\pi}}}\right)$$

Series representations:

$$(76+18)\left(3.95432+(2.77220441832487732700000+2.230772909177530000\,i)+11.124214383596143442260000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-4-\phi+47+7=1727.97-\phi+209.693\,i+$$

$$\sum_{k=0}^{\infty}\binom{\frac{1}{2}}{k}\left(94\,(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+94\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}}-94\,(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

$$(76+18)\left(3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+11.1242143835961434422600000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-4-\phi+47+7=$$

$$1727.97-\phi+209.693\,i+\sum_{k=0}^{\infty}\left(94\binom{\frac{1}{2}}{k}(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+94\binom{\frac{1}{2}}{k}\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}}-94\binom{\frac{1}{2}}{k}(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

$$(76+18)\left(3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+11.1242143835961434422600000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-4-\phi+47+7=1727.97-\phi+209.6926534626878200\,i+$$

$$\sum_{k=0}^{\infty}\left(94\binom{\frac{1}{2}}{k}(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+94\binom{\frac{1}{2}}{k}\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+2^{8/\pi}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+2^{8/\pi}}}-94\binom{\frac{1}{2}}{k}(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

Integral representations:

$$(76+18)\left(3.95432+(2.77220441832487732700000+2.230772909177530000\,i)+11.12421438359614344226000 0+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-4-\phi+47+7=$$

$$-\left(-1727.97+\phi-209.693\,i-94\sqrt{\frac{1}{-1+\sqrt[\pi]{256}}\int_1^7\left(\frac{7}{1-7t}+\frac{1}{8\pi t}\right)dt}-94\sqrt{6\int_1^2\frac{1}{t}\,dt}+94\sqrt{\int_1^{16}\frac{1}{t}\,dt}\right)$$

$$(76+18)\left(3.95432+(2.77220441832487732700000+2.230772909177530000\,i)+11.12421438359614344226000 0+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)-4-\phi+47+7=$$

$$-\left(-1727.97+\phi-209.693\,i-94\sqrt{\frac{3}{\pi\mathcal{A}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}+94\sqrt{\frac{1}{2\pi\mathcal{A}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{15^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}-94\sqrt{\frac{1}{-1+2^{8/\pi}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{2^{-4-s}\times 21^{-s}\,(7^s-2^{3+s}\times 3^s\,\pi)\,\Gamma(-s)^2\,\Gamma(1+s)}{\pi^2\,\mathcal{A}\,\Gamma(1-s)}\,ds}\right)$$

for $-1<\gamma<0$

1/10^52(((([3.95432+(2.772204418324877327 + 2.23077290917753i) +11.124214383596l4344226 + sqrt((1+5)*ln2) + sqrt(((((((ln7/(8Pi))-ln8)))/((((2)^(1/Pi*8))-1))))) - sqrt(ln(2*8))]^1/26 - 13/10^3))))

where 13 is a Fibonacci number

Input interpretation:

$$\frac{1}{10^{52}}\left(\left(\left(3.95432+(2.772204418324877327+2.23077290917753\,i)+11.124214383596l4344226+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{1/\pi\times 8}-1}}-\sqrt{\log(2\times 8)}\right)\text{^}(1/26)-\frac{13}{10^3}\right)\right)$$

log(x) is the natural logarithm

i is the imaginary unit

Result:

$1.1056248\ldots\times 10^{-52}+$
$6.7288757\ldots\times 10^{-55}\,i$

Polar coordinates:

$r = 1.10565\times 10^{-52}$ (radius), $\theta = 0.3487°$ (angle)

$1.10565*10^{-52}$

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

Alternative representations:

$$\frac{1}{10^{52}}\left(\left(\left(3.95432+(2.77220441832487732700000+2.230772909177530000\,i)+11.12421438359614344226000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)\hat{}\,(1/26)-\frac{13}{10^3}\right)=\right.$$

$$\frac{1}{10^{52}}\left(-\frac{13}{10^3}+\left(17.8507+2.230772909177530000\,i+\sqrt{6\log_e(2)}-\sqrt{\log_e(16)}+\sqrt{\frac{-\log_e(8)+\frac{\log_e(7)}{8\pi}}{-1+2^{8/\pi}}}\right)\hat{}\,(1/26)\right)$$

$$\frac{1}{10^{52}}\left(\left(\left(3.95432+(2.77220441832487732700000+2.230772909177530000\,i)+11.12421438359614344226000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)\hat{}\,(1/26)-\frac{13}{10^3}\right)=\right.$$

$$\frac{1}{10^{52}}\left(-\frac{13}{10^3}+\left(17.8507+2.230772909177530000\,i+\sqrt{6\log(a)\log_a(2)}-\sqrt{\log(a)\log_a(16)}+\sqrt{\frac{-\log(a)\log_a(8)+\frac{\log(a)\log_a(7)}{8\pi}}{-1+2^{8/\pi}}}\right)\hat{}\,(1/26)\right)$$

$$\frac{1}{10^{52}}\left(\left(\left(3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+11.1242143835961434422600000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)^{\wedge}(1/26)-\frac{13}{10^3}\right)\right)=$$

$$\frac{1}{10^{52}}\left(-\frac{13}{10^3}+\left(17.8507+2.230772909177530000\,i-\sqrt{-\mathrm{Li}_1(-15)}+\sqrt{-6\,\mathrm{Li}_1(-1)}+\sqrt{\frac{\mathrm{Li}_1(-7)-\frac{\mathrm{Li}_1(-6)}{8\pi}}{-1+2^{8/\pi}}}\right)^{\wedge}(1/26)\right)$$

Series representations:

$$\frac{1}{10^{52}}\left(\left(\left(3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+11.1242143835961434422600000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)^{\wedge}(1/26)-\frac{13}{10^3}\right)\right)=$$

$$-\frac{13}{10\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}+\left(\left(\left(17.8507+2.230772909177530000\,i+\sum_{k=0}^{\infty}\left(\binom{\frac{1}{2}}{k}(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+\binom{\frac{1}{2}}{k}\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}}-\binom{\frac{1}{2}}{k}(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)\right)^{\wedge}(1/26)\right)\middle/\,10\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\right)$$

$$\frac{1}{10^{52}}\left(\left(\left(3.95432+(2.77220441832487732700000+2.230772909177530000\,i)+11.12421438359614344226000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)\hat{}\,(1/26)-\frac{13}{10^3}\right)=$$

$$-\frac{13}{10\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}+\left(\left(\left(17.8507+2.230772909177530000\,i+\sum_{k=0}^{\infty}\left(\binom{\frac{1}{2}}{k}(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+\binom{\frac{1}{2}}{k}\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+2^{8/\pi}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+2^{8/\pi}}}-\binom{\frac{1}{2}}{k}(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)\right)\hat{}\,(1/26)\right)\Big/$$

$$10\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000$$

$$\frac{1}{10^{52}}\left(\left(\left(3.95432+(2.772204418324877327000 0+2.230772909177530000\,i)+11.124214383596143442260000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)\text{^}(1/26)-\frac{13}{10^3}\right)\right)=$$

$$-\frac{13}{10\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}+$$

$$\left(\left(\left(17.8507+2.230772909177530000\,i+\sum_{k=0}^{\infty}\left(\frac{(-1)^k(-1+6\log(2))^{-k}\left(-\frac{1}{2}\right)_k\sqrt{-1+6\log(2)}}{k!}+\frac{(-1)^k\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}\right)^{-k}\left(-\frac{1}{2}\right)_k\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}}}{k!}+\frac{(-1)^{1+k}(-1+\log(16))^{-k}\left(-\frac{1}{2}\right)_k\sqrt{-1+\log(16)}}{k!}\right)\right)\right)\text{^}(1/26)\right)\Big/$$

$$10\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000$$

Integral representations:

$$\frac{1}{10^{52}}\left(\left(\left(3.95432+(2.772204418324877327000+2.230772909177530000\,i)+11.12421438359614344226000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)\verb|^|(1/26)-\frac{13}{10^3}\right)\right)=$$

$$\left(-13+1000\left(17.8507+2.230772909177530000\,i+\sqrt{\frac{1}{-1+\sqrt[\pi]{256}}\int_1^7\left(\frac{7}{1-7t}+\frac{1}{8\pi t}\right)dt}+\sqrt{6\int_1^2\frac{1}{t}\,dt}-\sqrt{\int_1^{16}\frac{1}{t}\,dt}\right)\verb|^|(1/26)\right)\Big/$$

$$10\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000$$

$$\frac{1}{10^{52}}\left(\left(\left(3.95432+(2.772204418324877327000+2.230772909177530000\,i)+11.12421438359614344226000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)\verb|^|(1/26)-\frac{13}{10^3}\right)\right)=$$

$$\left(-13+1000\left(17.8507+2.230772909177530000\,i+\sqrt{\frac{3}{\pi\mathcal{A}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}-\sqrt{\frac{1}{2\pi\mathcal{A}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{15^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}+\sqrt{\frac{1}{-1+2^{8/\pi}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{2^{-4-s}\times 21^{-s}\left(7^s-2^{3+s}\times 3^s\,\pi\right)\Gamma(-s)^2\,\Gamma(1+s)}{\pi^2\,\mathcal{A}\,\Gamma(1-s)}\,ds}\right)\verb|^|(1/26)\right)\Big/$$

$$10\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000$$

for $-1<\gamma<0$

Multiplying by 24, we obtain:

24*[3.95432+(2.772204418324877327 + 2.230772909177531i) +11.1242143835961434426 + sqrt((1+5)*ln2) + sqrt(((((((ln7/(8Pi))-ln8)))/((((2)^(1/Pi*8))-1))))) - sqrt(ln(2*8))]+29-4-golden ratio

where 29 and 4 are Lucas numbers

Input interpretation:

$$24\left(3.95432+(2.772204418324877327+2.23077290917753\,i)+11.1242143835961434426+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{1/\pi\times 8}-1}}-\sqrt{\log(2\times 8)}\right)+29-4-\phi$$

log(x) is the natural logarithm

i is the imaginary unit

ϕ is the golden ratio

Result:

460.7811... +
68.97081... i

Polar coordinates:

$r = 465.914$ (radius), $\theta = 8.51297°$ (angle)

465.914

result practically equal to Holographic Dark Energy model, where

$\chi^2_{\text{HDE}} = 465.912.$

Alternative representations:

$$24\left(3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+11.1242143835961434422600000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)+29-4-\phi=$$

$$25-\phi+24\left(17.8507+2.230772909177530000\,i+\sqrt{6\log(a)\log_a(2)}-\sqrt{\log(a)\log_a(16)}+\sqrt{\frac{-\log(a)\log_a(8)+\frac{\log(a)\log_a(7)}{8\pi}}{-1+2^{8/\pi}}}\right)$$

$$24\left(3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+11.1242143835961434422600000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)+29-4-\phi=$$

$$25-\phi+24\left(17.8507+2.230772909177530000\,i+\sqrt{6\log_e(2)}-\sqrt{\log_e(16)}+\sqrt{\frac{-\log_e(8)+\frac{\log_e(7)}{8\pi}}{-1+2^{8/\pi}}}\right)$$

$$24\left(3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+11.1242143835961434422600000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)+29-4-\phi=$$

$$25-\phi+24\left(17.8507+2.230772909177530000\,i-\sqrt{-\mathrm{Li}_1(-15)}+\sqrt{-6\,\mathrm{Li}_1(-1)}+\sqrt{\frac{\mathrm{Li}_1(-7)-\frac{\mathrm{Li}_1(-6)}{8\pi}}{-1+2^{8/\pi}}}\right)$$

Series representations:

$$24\left(3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+11.1242143835961434422600000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)+29-4-\phi=453.418-\phi+53.5385\,i+\sum_{k=0}^{\infty}\binom{\frac{1}{2}}{k}\left(24\,(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+24\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}}-24\,(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

$$24\left(3.95432+(2.77220441832487732700000+2.230772909177530000\,i)+11.12421438359614344226000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)+29-4-\phi=$$

$$453.418-\phi+53.5385\,i+\sum_{k=0}^{\infty}\left(24\binom{\frac{1}{2}}{k}(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+24\binom{\frac{1}{2}}{k}\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+\sqrt[\pi]{256}}}-24\binom{\frac{1}{2}}{k}(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

$$24\left(3.95432+(2.77220441832487732700000+2.230772909177530000\,i)+11.12421438359614344226000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)+29-4-\phi=453.418-\phi+53.53854982026072000\,i+$$

$$\sum_{k=0}^{\infty}\left(24\binom{\frac{1}{2}}{k}(-1+6\log(2))^{-k}\sqrt{-1+6\log(2)}+24\binom{\frac{1}{2}}{k}\left(-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+2^{8/\pi}}\right)^{-k}\sqrt{-1+\frac{\frac{\log(7)}{8\pi}-\log(8)}{-1+2^{8/\pi}}}-24\binom{\frac{1}{2}}{k}(-1+\log(16))^{-k}\sqrt{-1+\log(16)}\right)$$

Integral representations:

$$24\left(3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+11.124214383596143442260000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)+29-4-\phi=$$

$$-\left(-453.418+\phi-53.5385\,i-24\sqrt{\frac{1}{-1+\sqrt[\pi]{256}}\int_1^7\left(\frac{7}{1-7t}+\frac{1}{8\pi t}\right)dt}-24\sqrt{6\int_1^2\frac{1}{t}\,dt}+24\sqrt{\int_1^{16}\frac{1}{t}\,dt}\right)$$

$$24\left(3.95432+(2.7722044183248773270000+2.230772909177530000\,i)+11.124214383596143442260000+\sqrt{(1+5)\log(2)}+\sqrt{\frac{\frac{\log(7)}{8\pi}-\log(8)}{2^{8/\pi}-1}}-\sqrt{\log(2\times 8)}\right)+29-4-\phi=$$

$$-\left(-453.418+\phi-53.5385\,i-24\sqrt{\frac{3}{\pi\mathcal{A}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}+24\sqrt{\frac{1}{2\pi\mathcal{A}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{15^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}-24\sqrt{\frac{1}{-1+2^{8/\pi}}\int_{-\mathcal{A}\infty+\gamma}^{\mathcal{A}\infty+\gamma}\frac{2^{-4-s}\times 21^{-s}\,(7^s-2^{3+s}\times 3^s\,\pi)\,\Gamma(-s)^2\,\Gamma(1+s)}{\pi^2\,\mathcal{A}\,\Gamma(1-s)}\,ds}\right)$$

for $-1<\gamma<0$

Now, we have that:

$$\frac{\log(1+a_\lambda)}{\log(1-1/\lambda)}=-\frac{\log p_1}{\log 2}+O(\lambda).\quad\ldots\ldots\ldots\ldots\ldots\ldots(171)$$

For: $a_\nu = 1$, $\nu = 3$, $\mu = 8$, $\lambda = 5$, $a_2 = 4$, $p_1 = 11$ and $a_\lambda = 7$, we obtain, developing the following equation:

((ln(1+7)/ln(1-1/5)))x = -ln(11)/ln(2) + O(5)

Input:

$$\frac{\log(1+7)}{\log\left(1-\frac{1}{5}\right)}\, x = -\frac{\log(11)}{\log(2)} + O(5)$$

log(x) is the natural logarithm

Exact result:

$$-\frac{x\log(8)}{\log\left(\frac{5}{4}\right)} = O(5) - \frac{\log(11)}{\log(2)}$$

Alternate forms:

$$-O(5) - \frac{x\log(8)}{\log\left(\frac{5}{4}\right)} + \frac{\log(11)}{\log(2)} = 0$$

$$-\frac{x\log(8)}{\log\left(\frac{5}{4}\right)} = \frac{O(5)\log(2) - \log(11)}{\log(2)}$$

$$x = \frac{O(5)\,(2\log(2) - \log(5))}{3\log(2)} - \frac{(2\log(2) - \log(5))\log(11)}{3\log^2(2)}$$

Alternate form assuming x>0:

$$-\frac{3x\log(2)}{\log(5) - 2\log(2)} = O(5) - \frac{\log(11)}{\log(2)}$$

Solution:

$$x = \frac{\log\left(\frac{5}{4}\right)(\log(11) - O(5)\log(2))}{3\log^2(2)}, \quad O(5) \in \mathbb{R}$$

From:

$$x = \frac{\log\left(\frac{5}{4}\right)(\log(11) - O(5)\log(2))}{3\log^2(2)}, \quad O(5) \in \mathbb{R}$$

For $O(5) = 0.5$, we obtain:

(log(5/4) (log(11) - log(2) (0.5)))/(3 log^2(2))

Input:

$$\frac{\log\left(\frac{5}{4}\right)(\log(11) - \log(2)\times 0.5)}{3\log^2(2)}$$

$\log(x)$ is the natural logarithm

Result:

0.3175747…

0.3175747…

Alternative representations:

$$\frac{\log\left(\frac{5}{4}\right)(\log(11) - \log(2)\,0.5)}{3\log^2(2)} = \frac{(-0.5\log_e(2) + \log_e(11))\log_e\left(\frac{5}{4}\right)}{3\log_e^2(2)}$$

$$\frac{\log\left(\frac{5}{4}\right)(\log(11) - \log(2)\,0.5)}{3\log^2(2)} = \frac{\log(a)\,(-0.5\log(a)\log_a(2) + \log(a)\log_a(11))\log_a\left(\frac{5}{4}\right)}{3\,(\log(a)\log_a(2))^2}$$

$$\frac{\log\left(\frac{5}{4}\right)(\log(11) - \log(2)\,0.5)}{3\log^2(2)} = -\frac{(-\text{Li}_1(-10) + 0.5\,\text{Li}_1(-1))\,\text{Li}_1\left(1 - \frac{5}{4}\right)}{3\,(-\text{Li}_1(-1))^2}$$

Series representations:

$$\frac{\log\left(\frac{5}{4}\right)(\log(11) - \log(2)\,0.5)}{3\log^2(2)} = \left(\left(\log(z_0) + \left\lfloor\frac{\arg\left(\frac{5}{4} - z_0\right)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right) + \log(z_0)\right) - \sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{5}{4} - z_0\right)^k z_0^{-k}}{k}\right)\left(\log(z_0) + \left\lfloor\frac{\arg(11 - z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right) + \log(z_0)\right) - 0.5\left(\log(z_0) + \left\lfloor\frac{\arg(2 - z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right) + \log(z_0)\right) - \sum_{k=1}^{\infty}\frac{(-1)^k(2 - z_0)^k z_0^{-k}}{k}\right) - \sum_{k=1}^{\infty}\frac{(-1)^k(11 - z_0)^k z_0^{-k}}{k}\right)\right) \Bigg/ \left(3\left(\log(z_0) + \left\lfloor\frac{\arg(2 - z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right) + \log(z_0)\right) - \sum_{k=1}^{\infty}\frac{(-1)^k(2 - z_0)^k z_0^{-k}}{k}\right)^2\right)$$

$$\frac{\log\left(\frac{5}{4}\right)(\log(11) - \log(2)\, 0.5)}{3 \log^2(2)} =$$

$$-\left(\left(0.166667\left(i^2 \pi^2 \left\lfloor \frac{\arg\left(\frac{5}{4} - x\right)}{2\pi} \right\rfloor \left\lfloor \frac{\arg(2 - x)}{2\pi} \right\rfloor - 2\, i^2 \pi^2 \left\lfloor \frac{\arg\left(\frac{5}{4} - x\right)}{2\pi} \right\rfloor \left\lfloor \frac{\arg(11 - x)}{2\pi} \right\rfloor - \right.\right.\right.$$

$$0.5\, i\, \pi \left\lfloor \frac{\arg\left(\frac{5}{4} - x\right)}{2\pi} \right\rfloor \log(x) + 0.5\, i\, \pi \left\lfloor \frac{\arg(2 - x)}{2\pi} \right\rfloor \log(x) -$$

$$i\left(\pi \left\lfloor \frac{\arg(11 - x)}{2\pi} \right\rfloor \log(x)\right) - 0.25 \log^2(x) -$$

$$0.5\, i\, \pi \left\lfloor \frac{\arg(2 - x)}{2\pi} \right\rfloor \sum_{k=1}^{\infty} \frac{(-1)^k \left(\frac{5}{4} - x\right)^k x^{-k}}{k} +$$

$$i\, \pi \left\lfloor \frac{\arg(11 - x)}{2\pi} \right\rfloor \sum_{k=1}^{\infty} \frac{(-1)^k \left(\frac{5}{4} - x\right)^k x^{-k}}{k} + 0.25 \log(x)$$

$$\sum_{k=1}^{\infty} \frac{(-1)^k \left(\frac{5}{4} - x\right)^k x^{-k}}{k} - 0.5\, i\, \pi \left\lfloor \frac{\arg\left(\frac{5}{4} - x\right)}{2\pi} \right\rfloor \sum_{k=1}^{\infty} \frac{(-1)^k (2 - x)^k x^{-k}}{k} -$$

$$0.25 \log(x) \sum_{k=1}^{\infty} \frac{(-1)^k (2 - x)^k x^{-k}}{k} + i\, \pi \left\lfloor \frac{\arg\left(\frac{5}{4} - x\right)}{2\pi} \right\rfloor$$

$$\sum_{k=1}^{\infty} \frac{(-1)^k (11 - x)^k x^{-k}}{k} + 0.5 \log(x) \sum_{k=1}^{\infty} \frac{(-1)^k (11 - x)^k x^{-k}}{k} +$$

$$0.25 \sum_{k_1=1}^{\infty} \sum_{k_2=1}^{\infty} \frac{(-1)^{k_1 + k_2} \left(\frac{5}{4} - x\right)^{k_1} (2 - x)^{k_2} x^{-k_1 - k_2}}{k_1 k_2} -$$

$$\left.\left.\left. 0.5 \sum_{k_1=1}^{\infty} \sum_{k_2=1}^{\infty} \frac{(-1)^{k_1 + k_2} \left(\frac{5}{4} - x\right)^{k_1} (11 - x)^{k_2} x^{-k_1 - k_2}}{k_1 k_2} \right)\right)\right/$$

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

$$
\begin{aligned}
&\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)} = \\
&-\Bigg(\Bigg(0.166667\Bigg(i^2\pi^2\left\lfloor\frac{\pi-\arg\left(\frac{5}{4z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor\left\lfloor\frac{\pi-\arg\left(\frac{2}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor - \\
&\quad 2i^2\pi^2\left\lfloor\frac{\pi-\arg\left(\frac{5}{4z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor\left\lfloor\frac{\pi-\arg\left(\frac{11}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor - \\
&\quad 0.5\,i\pi\left\lfloor\frac{\pi-\arg\left(\frac{5}{4z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor\log(z_0)+0.5\,i\pi\left\lfloor\frac{\pi-\arg\left(\frac{2}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor \\
&\quad \log(z_0)-i\left(\pi\left\lfloor\frac{\pi-\arg\left(\frac{11}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor\log(z_0)\right)-0.25\log^2(z_0) - \\
&\quad 0.5\,i\pi\left\lfloor\frac{\pi-\arg\left(\frac{2}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{5}{4}-z_0\right)^k z_0^{-k}}{k} + \\
&\quad i\pi\left\lfloor\frac{\pi-\arg\left(\frac{11}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{5}{4}-z_0\right)^k z_0^{-k}}{k} + \\
&\quad 0.25\log(z_0)\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{5}{4}-z_0\right)^k z_0^{-k}}{k} - \\
&\quad 0.5\,i\pi\left\lfloor\frac{\pi-\arg\left(\frac{5}{4z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor\sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k} - \\
&\quad 0.25\log(z_0)\sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}+i\pi\left\lfloor\frac{\pi-\arg\left(\frac{5}{4z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor \\
&\quad \sum_{k=1}^{\infty}\frac{(-1)^k(11-z_0)^k z_0^{-k}}{k}+0.5\log(z_0)\sum_{k=1}^{\infty}\frac{(-1)^k(11-z_0)^k z_0^{-k}}{k} + \\
&\quad 0.25\sum_{k_1=1}^{\infty}\sum_{k_2=1}^{\infty}\frac{(-1)^{k_1+k_2}\left(\frac{5}{4}-z_0\right)^{k_1}(2-z_0)^{k_2}z_0^{-k_1-k_2}}{k_1k_2} - \\
&\quad 0.5\sum_{k_1=1}^{\infty}\sum_{k_2=1}^{\infty}\frac{(-1)^{k_1+k_2}\left(\frac{5}{4}-z_0\right)^{k_1}(11-z_0)^{k_2}z_0^{-k_1-k_2}}{k_1k_2}\Bigg)\Bigg)\Bigg/ \\
&\left(i\pi\left\lfloor\frac{\pi-\arg\left(\frac{2}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+0.5\log(z_0)-0.5\sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}\right)^2\Bigg)
\end{aligned}
$$

Integral representations:

$$\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)} = -\frac{0.166667\left(\int_1^{\frac{5}{4}}\frac{1}{t}\,dt\right)\left(\int_1^2\frac{1}{t}\,dt-2\int_1^{11}\frac{1}{t}\,dt\right)}{\left(\int_1^2\frac{1}{t}\,dt\right)^2}$$

$$\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)} = -\left(\left(0.166667\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{4^s\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds-2\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{10^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)\right)\Big/\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)^2\right) \quad \text{for } -1<\gamma<0$$

From which:

1/(((((log(5/4) (log(11) - log(2) (0.5)))/(3 log^2(2))))))

Input:

$$\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\times 0.5)}{3\log^2(2)}}$$

log(x) is the natural logarithm

Result:

3.148865...

3.148865…. ≈ π

Alternative representations:

$$\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)}} = \frac{1}{\frac{(-0.5\log_e(2)+\log_e(11))\log_e\left(\frac{5}{4}\right)}{3\log_e^2(2)}}$$

$$\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)}} = \frac{1}{\frac{\log(a)(-0.5\log(a)\log_a(2)+\log(a)\log_a(11))\log_a\left(\frac{5}{4}\right)}{3(\log(a)\log_a(2))^2}}$$

$$\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)}} = -\frac{1}{\frac{(-\text{Li}_1(-10)+0.5\,\text{Li}_1(-1))\,\text{Li}_1\left(1-\frac{5}{4}\right)}{3(-\text{Li}_1(-1))^2}}$$

Series representations:

$$\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)0.5)}{3\log^2(2)}} = -\left(\left(6\left(i^2\pi^2\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor^2 + i\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor\log(x) + 0.25\log^2(x) - i\left(\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor\sum_{k=1}^{\infty}\frac{(-1)^k(2-x)^k x^{-k}}{k}\right) - 0.5\log(x)\sum_{k=1}^{\infty}\frac{(-1)^k(2-x)^k x^{-k}}{k} + 0.25\left(\sum_{k=1}^{\infty}\frac{(-1)^k(2-x)^k x^{-k}}{k}\right)^2\right)\right) \Big/ \left(\left(i\pi\left\lfloor\frac{\arg\left(\frac{5}{4}-x\right)}{2\pi}\right\rfloor + 0.5\log(x) - 0.5\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{5}{4}-x\right)^k x^{-k}}{k}\right)\left(i\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor - 2i\pi\left\lfloor\frac{\arg(11-x)}{2\pi}\right\rfloor - 0.5\log(x) - 0.5\sum_{k=1}^{\infty}\frac{(-1)^k(2-x)^k x^{-k}}{k} + \sum_{k=1}^{\infty}\frac{(-1)^k(11-x)^k x^{-k}}{k}\right)\right)\right) \quad \text{for } x<0$$

$$\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)0.5)}{3\log^2(2)}} = -\left(\left(6\left(i^2\pi^2\left\lfloor\frac{\pi-\arg\left(\frac{2}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor^2 + i\pi\left\lfloor\frac{\pi-\arg\left(\frac{2}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor\log(z_0) + 0.25\log^2(z_0) - i\left(\pi\left\lfloor\frac{\pi-\arg\left(\frac{2}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor\sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}\right) - 0.5\log(z_0)\sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k} + 0.25\left(\sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}\right)^2\right)\right) \Big/ \left(\left(i\pi\left\lfloor\frac{\pi-\arg\left(\frac{5}{4z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor + 0.5\log(z_0) - 0.5\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{5}{4}-z_0\right)^k z_0^{-k}}{k}\right)\left(i\pi\left\lfloor\frac{\pi-\arg\left(\frac{2}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor - 2i\pi\left\lfloor\frac{\pi-\arg\left(\frac{11}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor - 0.5\log(z_0) - 0.5\sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k} + \sum_{k=1}^{\infty}\frac{(-1)^k(11-z_0)^k z_0^{-k}}{k}\right)\right)\right)$$

$$\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)0.5)}{3\log^2(2)}} = -\left(\left(6\left(\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor^2 \log^2\left(\frac{1}{z_0}\right) + 2\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor \log\left(\frac{1}{z_0}\right)\log(z_0) + 2\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor^2 \log\left(\frac{1}{z_0}\right)\log(z_0) + \log^2(z_0) + 2\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor \log^2(z_0) + \left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor^2 \log^2(z_0) - 2\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor \log\left(\frac{1}{z_0}\right)\sum_{k=1}^{\infty}\frac{(-1)^k (2-z_0)^k z_0^{-k}}{k} - 2\log(z_0)\sum_{k=1}^{\infty}\frac{(-1)^k (2-z_0)^k z_0^{-k}}{k} - 2\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor \log(z_0)\sum_{k=1}^{\infty}\frac{(-1)^k (2-z_0)^k z_0^{-k}}{k} + \left(\sum_{k=1}^{\infty}\frac{(-1)^k (2-z_0)^k z_0^{-k}}{k}\right)^2\right)\right) \Big/ \left(\left(\left\lfloor\frac{\arg\left(\frac{5}{4}-z_0\right)}{2\pi}\right\rfloor \log\left(\frac{1}{z_0}\right) + \log(z_0) + \left\lfloor\frac{\arg\left(\frac{5}{4}-z_0\right)}{2\pi}\right\rfloor \log(z_0) - \sum_{k=1}^{\infty}\frac{(-1)^k \left(\frac{5}{4}-z_0\right)^k z_0^{-k}}{k}\right) \left(\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor \log\left(\frac{1}{z_0}\right) - 2\left\lfloor\frac{\arg(11-z_0)}{2\pi}\right\rfloor \log\left(\frac{1}{z_0}\right) - \log(z_0) + \left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor \log(z_0) - 2\left\lfloor\frac{\arg(11-z_0)}{2\pi}\right\rfloor \log(z_0) - \sum_{k=1}^{\infty}\frac{(-1)^k (2-z_0)^k z_0^{-k}}{k} + 2\sum_{k=1}^{\infty}\frac{(-1)^k (11-z_0)^k z_0^{-k}}{k}\right)\right)\right)$$

Integral representations:

$$\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)0.5)}{3\log^2(2)}} = \frac{3\left(\int_1^2 \frac{1}{t}\,dt\right)^2}{\left(\int_1^{\frac{5}{4}} \frac{1}{t}\,dt\right)\int_1^2\left(-\frac{0.5}{t} + \frac{10}{-9+10t}\right)dt}$$

$$\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)0.5)}{3\log^2(2)}} = -\frac{6\left(\int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)^2}{\left(\int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{4^s\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)\int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{10^{-s}\left(-2+10^s\right)\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}$$

for $-1 < \gamma < 0$

1/6((((1/(((((log(5/4) (log(11) - log(2) (0.5)))/(3 log^2(2)))))))))^2

Input:

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\times 0.5)}{3\log^2(2)}}\right)^2$$

log(x) is the natural logarithm

Result:

1.65256...

1.65256…. result that is very near to the 14th root of the following Ramanujan's class invariant $Q = (G_{505}/G_{101/5})^3 = 1164,2696$ i.e. 1,65578...

Alternative representations:

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)}}\right)^2 = \frac{1}{6}\left(\frac{1}{\frac{(-0.5\log_e(2)+\log_e(11))\log_e\left(\frac{5}{4}\right)}{3\log_e^2(2)}}\right)^2$$

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)}}\right)^2 = \frac{1}{6}\left(\frac{1}{\frac{\log(a)(-0.5\log(a)\log_a(2)+\log(a)\log_a(11))\log_a\left(\frac{5}{4}\right)}{3(\log(a)\log_a(2))^2}}\right)^2$$

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)}}\right)^2 = \frac{1}{6}\left(-\frac{1}{\frac{(-\text{Li}_1(-10)+0.5\,\text{Li}_1(-1))\text{Li}_1\left(1-\frac{5}{4}\right)}{3(-\text{Li}_1(-1))^2}}\right)^2$$

Series representations:

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)}}\right)^2 = \left(3\left(2\,i\,\pi\left\lfloor\frac{\arg(2-x)}{2\,\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-x)^k\,x^{-k}}{k}\right)^4\right)/ \left(2\left(2\,i\,\pi\left\lfloor\frac{\arg\left(\frac{5}{4}-x\right)}{2\,\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{5}{4}-x\right)^k x^{-k}}{k}\right)^2 \left(2\,i\,\pi\left\lfloor\frac{\arg(11-x)}{2\,\pi}\right\rfloor+\log(x)-0.5\left(2\,i\,\pi\left\lfloor\frac{\arg(2-x)}{2\,\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-x)^k\,x^{-k}}{k}\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(11-x)^k\,x^{-k}}{k}\right)^2\right) \quad \text{for } x<0$$

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)}}\right)^2 = \left(3\left(\log(z_0)+\left\lfloor\frac{\arg(2-z_0)}{2\,\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}\right)^4\right)/ \left(2\left(\log(z_0)+\left\lfloor\frac{\arg\left(\frac{5}{4}-z_0\right)}{2\,\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{5}{4}-z_0\right)^k z_0^{-k}}{k}\right)^2 \left(\log(z_0)+\left\lfloor\frac{\arg(11-z_0)}{2\,\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-0.5\left(\log(z_0)+\left\lfloor\frac{\arg(2-z_0)}{2\,\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(11-z_0)^k\,z_0^{-k}}{k}\right)^2\right)$$

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)0.5)}{3\log^2(2)}}\right)^2 =$$

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

$$\left(2\left(2 i \pi \left\lfloor \frac{\pi - \arg\left(\frac{5}{4 z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor + \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k \left(\frac{5}{4}-z_0\right)^k z_0^{-k}}{k}\right)^2\right.$$

$$\left(2 i \pi \left\lfloor \frac{\pi - \arg\left(\frac{11}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor + \log(z_0) - 0.5\left(2 i \pi \left\lfloor \frac{\pi - \arg\left(\frac{2}{z_0}\right) - \arg(z_0)}{2\pi} \right\rfloor + \right.\right.$$

$$\left.\left.\left.\log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k (2-z_0)^k z_0^{-k}}{k}\right) - \sum_{k=1}^{\infty} \frac{(-1)^k (11-z_0)^k z_0^{-k}}{k}\right)^2\right)$$

1/6((((1/(((((log(5/4) (log(11) - log(2) (0.5)))/(3 log^2(2)))))))))^2 - 34/10^3

Input:

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\times 0.5)}{3\log^2(2)}}\right)^2 - \frac{34}{10^3}$$

log(x) is the natural logarithm

Result:

1.61856...

1.61856…. result that is a very good approximation to the value of the golden ratio 1,618033988749...

Alternative representations:

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)0.5)}{3\log^2(2)}}\right)^2 - \frac{34}{10^3} = -\frac{34}{10^3} + \frac{1}{6}\left(\frac{1}{\frac{(-0.5\log_e(2)+\log_e(11))\log_e\left(\frac{5}{4}\right)}{3\log_e^2(2)}}\right)^2$$

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)}}\right)^2-\frac{34}{10^3}=$$
$$-\frac{34}{10^3}+\frac{1}{6}\left(\frac{1}{\frac{\log(a)\,(-0.5\log(a)\log_a(2)+\log(a)\log_a(11))\log_a\left(\frac{5}{4}\right)}{3\,(\log(a)\log_a(2))^2}}\right)^2$$

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)}}\right)^2-\frac{34}{10^3}=-\frac{34}{10^3}+\frac{1}{6}\left(-\frac{1}{\frac{(-\text{Li}_1(-10)+0.5\,\text{Li}_1(-1))\,\text{Li}_1\left(1-\frac{5}{4}\right)}{3\,(-\text{Li}_1(-1))^2}}\right)^2$$

Series representations:

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)}}\right)^2-\frac{34}{10^3}=$$
$$-\frac{17}{500}+\left(3\left(2\,i\,\pi\left\lfloor\frac{\arg(2-x)}{2\,\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-x)^k\,x^{-k}}{k}\right)^4\right)\Big/$$
$$\left(2\left(2\,i\,\pi\left\lfloor\frac{\arg\left(\frac{5}{4}-x\right)}{2\,\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{5}{4}-x\right)^k x^{-k}}{k}\right)^2\right.$$
$$\left(2\,i\,\pi\left\lfloor\frac{\arg(11-x)}{2\,\pi}\right\rfloor+\log(x)-0.5\left(2\,i\,\pi\left\lfloor\frac{\arg(2-x)}{2\,\pi}\right\rfloor+\log(x)-\right.\right.$$
$$\left.\left.\left.\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-x)^k\,x^{-k}}{k}\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(11-x)^k\,x^{-k}}{k}\right)^2\right)\quad\text{for } x<0$$

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)}}\right)^2-\frac{34}{10^3}=$$

$$-\frac{17}{500}+\left(3\left(\log(z_0)+\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}\right)^4\right)\Bigg/$$
$$\left(2\left(\log(z_0)+\left\lfloor\frac{\arg\left(\frac{5}{4}-z_0\right)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{5}{4}-z_0\right)^k z_0^{-k}}{k}\right)^2\right.$$
$$\left(\log(z_0)+\left\lfloor\frac{\arg(11-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\right.$$
$$0.5\left(\log(z_0)+\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\right.$$
$$\left.\left.\left.\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(11-z_0)^k\,z_0^{-k}}{k}\right)^2\right)$$

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)}}\right)^2-\frac{34}{10^3}=$$

$$-\frac{17}{500}+\left(3\left(2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{2}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}\right)^4\right)\Bigg/$$
$$\left(2\left(2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{5}{4z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{5}{4}-z_0\right)^k z_0^{-k}}{k}\right)^2\right.$$
$$\left(2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{11}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+\log(z_0)-0.5\left(2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{2}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+\right.\right.$$
$$\left.\left.\left.\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(11-z_0)^k\,z_0^{-k}}{k}\right)^2\right)$$

Furthermore:

1/6((((1/(((((log(5/4) (log(11) - log(2) (0.5)))/(3 log^2(2)))))))))))^2 - 34/10^3 + 11/10

Input:

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\times 0.5)}{3\log^2(2)}}\right)^2 - \frac{34}{10^3} + \frac{11}{10}$$

$\log(x)$ is the natural logarithm

Result:

2.718559...

2.718559…. ≈ e

Alternative representations:

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)}}\right)^2 - \frac{34}{10^3} + \frac{11}{10} = \frac{11}{10} - \frac{34}{10^3} + \frac{1}{6}\left(\frac{1}{\frac{(-0.5\log_e(2)+\log_e(11))\log_e\left(\frac{5}{4}\right)}{3\log_e^2(2)}}\right)^2$$

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)}}\right)^2 - \frac{34}{10^3} + \frac{11}{10} = \frac{11}{10} - \frac{34}{10^3} + \frac{1}{6}\left(\frac{1}{\frac{\log(a)(-0.5\log(a)\log_a(2)+\log(a)\log_a(11))\log_a\left(\frac{5}{4}\right)}{3(\log(a)\log_a(2))^2}}\right)^2$$

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)}}\right)^2 - \frac{34}{10^3} + \frac{11}{10} = \frac{11}{10} - \frac{34}{10^3} + \frac{1}{6}\left(-\frac{1}{\frac{(-\text{Li}_1(-10)+0.5\,\text{Li}_1(-1))\text{Li}_1\left(1-\frac{5}{4}\right)}{3(-\text{Li}_1(-1))^2}}\right)^2$$

Series representations:

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)}}\right)^2-\frac{34}{10^3}+\frac{11}{10}=$$

$$\frac{533}{500}+\left(3\left(2\,i\,\pi\left\lfloor\frac{\arg(2-x)}{2\,\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-x)^k\,x^{-k}}{k}\right)^4\right)\Big/$$
$$\left(2\left(2\,i\,\pi\left\lfloor\frac{\arg\left(\frac{5}{4}-x\right)}{2\,\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{5}{4}-x\right)^k x^{-k}}{k}\right)^2\right.$$
$$\left(2\,i\,\pi\left\lfloor\frac{\arg(11-x)}{2\,\pi}\right\rfloor+\log(x)-0.5\left(2\,i\,\pi\left\lfloor\frac{\arg(2-x)}{2\,\pi}\right\rfloor+\log(x)-\right.\right.$$
$$\left.\left.\left.\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-x)^k\,x^{-k}}{k}\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(11-x)^k\,x^{-k}}{k}\right)^2\right)\quad\text{for } x<0$$

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\,0.5)}{3\log^2(2)}}\right)^2-\frac{34}{10^3}+\frac{11}{10}=$$

$$\frac{533}{500}+\left(3\left(\log(z_0)+\left\lfloor\frac{\arg(2-z_0)}{2\,\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}\right)^4\right)\Big/$$
$$\left(2\left(\log(z_0)+\left\lfloor\frac{\arg\left(\frac{5}{4}-z_0\right)}{2\,\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{5}{4}-z_0\right)^k z_0^{-k}}{k}\right)^2\right.$$
$$\left(\log(z_0)+\left\lfloor\frac{\arg(11-z_0)}{2\,\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\right.$$
$$0.5\left(\log(z_0)+\left\lfloor\frac{\arg(2-z_0)}{2\,\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\right.$$
$$\left.\left.\left.\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(11-z_0)^k\,z_0^{-k}}{k}\right)^2\right)$$

$$\frac{1}{6}\left(\frac{1}{\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)0.5)}{3\log^2(2)}}\right)^2-\frac{34}{10^3}+\frac{11}{10}=$$

$$\frac{533}{500}+\left(3\left(2 i \pi\left\lfloor\frac{\pi-\arg\left(\frac{2}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k (2-z_0)^k z_0^{-k}}{k}\right)^4\right)\Bigg/$$
$$\left(2\left(2 i \pi\left\lfloor\frac{\pi-\arg\left(\frac{5}{4 z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k \left(\frac{5}{4}-z_0\right)^k z_0^{-k}}{k}\right)^2\right.$$
$$\left(2 i \pi\left\lfloor\frac{\pi-\arg\left(\frac{11}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+\log(z_0)-0.5\left(2 i \pi\left\lfloor\frac{\pi-\arg\left(\frac{2}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+\right.\right.$$
$$\left.\left.\left.\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k (2-z_0)^k z_0^{-k}}{k}\right)-\sum_{k=1}^{\infty}\frac{(-1)^k (11-z_0)^k z_0^{-k}}{k}\right)^2\right)$$

From the following closed form

$$\frac{-1435+175\pi+131\pi^2}{58+\pi+9\pi^2}\approx 2.71855864725135356111 4$$

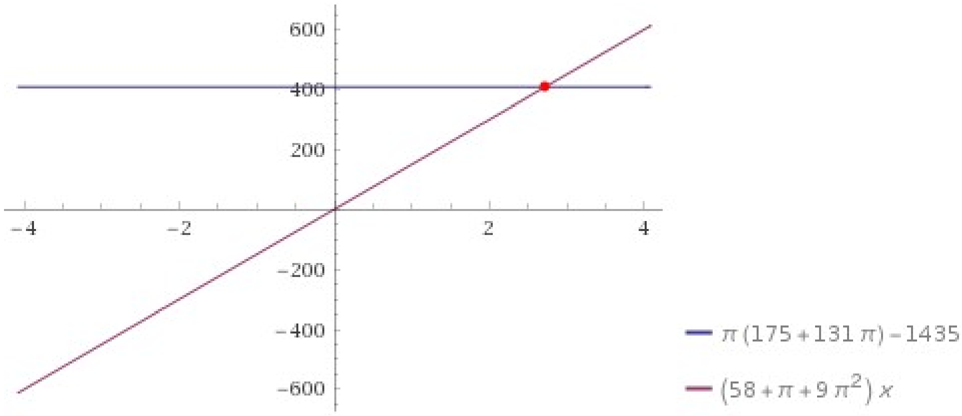
we obtain:

-1435 + Pi(175 + 131Pi) = x(58 + Pi + 9Pi^2)

Input:

$$-1435+\pi(175+131\pi)=x\left(58+\pi+9\pi^2\right)$$

Plot:



Alternate forms:

$-1435 + 175\pi + 131\pi^2 = (58 + \pi + 9\pi^2)x$

$-9\pi^2 x - \pi x - 58x + 131\pi^2 + 175\pi - 1435 = 0$

Alternate form assuming x>0:

$\pi(175 + 131\pi) - 1435 = 9\pi^2 x + \pi x + 58x$

Expanded form:

$-1435 + 175\pi + 131\pi^2 = 9\pi^2 x + \pi x + 58x$

Solution:

$x \approx 2.7186$

$2.7186 \approx e$

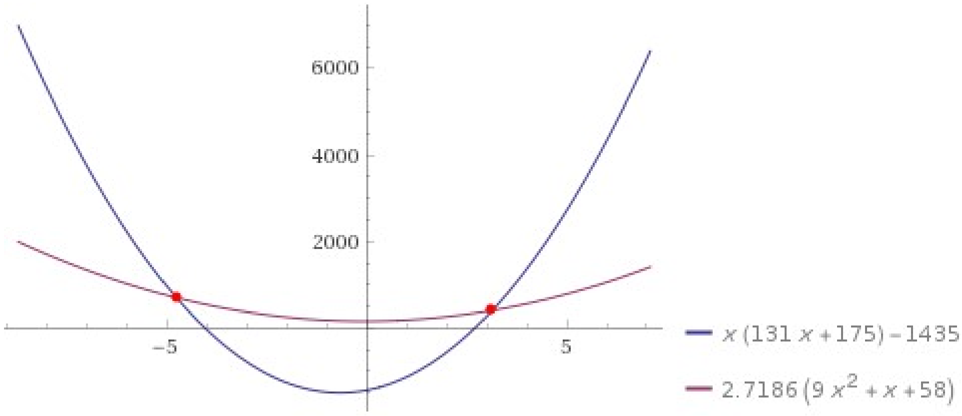
and:

-1435 + x(175 + 131x) = 2.7186(58 + x + 9x^2)

Input interpretation:

$-1435 + x(175 + 131x) = 2.7186(58 + x + 9x^2)$

Plot:



Alternate forms:

$106.533 x^2 + 172.281 x - 1592.68 = 0$

$131 x^2 + 175 x - 1435 = 24.4674 (x^2 + 0.111111 x + 6.44444)$

Alternate form assuming x>0:

$x (131 x + 175) - 1435 = 24.4674 x^2 + 2.7186 x + 157.679$

Expanded form:

$131 x^2 + 175 x - 1435 = 24.4674 x^2 + 2.7186 x + 157.679$

Solutions:

$x \approx -4.75877$

$x \approx 3.1416$

3.1416 = π

We have that:

-1435 + Pi*175 + 131Pi^2 < 2.7186(58 + Pi + 9Pi^2)

Input interpretation:

$-1435 + \pi \times 175 + 131 \pi^2 < 2.7186 (58 + \pi + 9 \pi^2)$

Result:

True

Difference:

-0.00620159

and:

2.7186(58 + Pi + 9Pi^2)

Input interpretation:

$2.7186\left(58+\pi+9\pi^2\right)$

Result:

407.703…

407.703…

Alternative representations:

$2.7186\left(58+\pi+9\pi^2\right)=2.7186\left(58+180\,°+9\,(180\,°)^2\right)$

$2.7186\left(58+\pi+9\pi^2\right)=2.7186\left(58-i\log(-1)+9\,(-i\log(-1))^2\right)$

$2.7186\left(58+\pi+9\pi^2\right)=2.7186\left(58+\cos^{-1}(-1)+9\cos^{-1}(-1)^2\right)$

Series representations:

$$2.7186\left(58+\pi+9\pi^2\right)=391.478\left(0.402778+0.0277778\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}+\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^2\right)$$

$$2.7186\left(58+\pi+9\pi^2\right)=97.8696\left(2.55556-1.94444\sum_{k=1}^{\infty}\frac{2^k}{\binom{2k}{k}}+\left(\sum_{k=1}^{\infty}\frac{2^k}{\binom{2k}{k}}\right)^2\right)$$

$$2.7186\left(58+\pi+9\pi^2\right)=24.4674\left(6.44444+0.111111\sum_{k=0}^{\infty}\frac{2^{-k}(-6+50k)}{\binom{3k}{k}}+\left(\sum_{k=0}^{\infty}\frac{2^{-k}(-6+50k)}{\binom{3k}{k}}\right)^2\right)$$

Integral representations:

$$2.7186\left(58+\pi+9\pi^2\right)=97.8696\left(1.61111+0.0555556\int_0^{\infty}\frac{1}{1+t^2}\,dt+\left(\int_0^{\infty}\frac{1}{1+t^2}\,dt\right)^2\right)$$

$$2.7186\left(58+\pi+9\pi^2\right)=97.8696\left(1.61111+0.0555556\int_0^{\infty}\frac{\sin(t)}{t}\,dt+\left(\int_0^{\infty}\frac{\sin(t)}{t}\,dt\right)^2\right)$$

$$2.7186\left(58+\pi+9\pi^2\right) = 391.478\left(0.402778+0.0277778\int_0^1\sqrt{1-t^2}\,dt+\left(\int_0^1\sqrt{1-t^2}\,dt\right)^2\right)$$

2.7186(58 + Pi + 9Pi^2) + 76

where 76 is a Lucas number

Input interpretation:

$$2.7186\left(58+\pi+9\pi^2\right)+76$$

Result:

483.703...

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

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

Alternative representations:

$$2.7186\left(58+\pi+9\pi^2\right)+76 = 76+2.7186\left(58+180\,°+9\,(180\,°)^2\right)$$

$$2.7186\left(58+\pi+9\pi^2\right)+76 = 76+2.7186\left(58-i\log(-1)+9\,(-i\log(-1))^2\right)$$

$$2.7186\left(58+\pi+9\pi^2\right)+76 = 76+2.7186\left(58+\cos^{-1}(-1)+9\cos^{-1}(-1)^2\right)$$

Series representations:

$$2.7186\left(58+\pi+9\pi^2\right)+76 = 391.478\left(0.596914+0.0277778\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}+\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^2\right)$$

$$2.7186\left(58+\pi+9\pi^2\right)+76 = 97.8696\left(3.3321-1.94444\sum_{k=1}^{\infty}\frac{2^k}{\binom{2k}{k}}+\left(\sum_{k=1}^{\infty}\frac{2^k}{\binom{2k}{k}}\right)^2\right)$$

$$2.7186\left(58+\pi+9\pi^2\right)+76 = 24.4674\left(9.55062+0.111111\sum_{k=0}^{\infty}\frac{2^{-k}(-6+50k)}{\binom{3k}{k}}+\left(\sum_{k=0}^{\infty}\frac{2^{-k}(-6+50k)}{\binom{3k}{k}}\right)^2\right)$$

Integral representations:

$$2.7186\,(58+\pi+9\,\pi^2)+76 = 97.8696\left(2.38765+0.0555556\int_0^\infty \frac{1}{1+t^2}\,dt+\left(\int_0^\infty \frac{1}{1+t^2}\,dt\right)^2\right)$$

$$2.7186\,(58+\pi+9\,\pi^2)+76 = 97.8696\left(2.38765+0.0555556\int_0^\infty \frac{\sin(t)}{t}\,dt+\left(\int_0^\infty \frac{\sin(t)}{t}\,dt\right)^2\right)$$

$$2.7186\,(58+\pi+9\,\pi^2)+76 = 391.478\left(0.596914+0.0277778\int_0^1 \sqrt{1-t^2}\,dt+\left(\int_0^1 \sqrt{1-t^2}\,dt\right)^2\right)$$

2.7186(58 + Pi + 9Pi^2) + 76 +11-golden ratio

where 76 and 11 are Lucas numbers

Input interpretation:

$$2.7186\,(58+\pi+9\,\pi^2)+76+11-\phi$$

ϕ is the golden ratio

Result:

493.085...

493.085…. result very near to the rest mass of Kaon meson 493.677

Alternative representations:

$$2.7186\,(58+\pi+9\,\pi^2)+76+11-\phi = 87+2\cos(216\,°)+2.7186\,(58+\pi+9\,\pi^2)$$

$$2.7186\,(58+\pi+9\,\pi^2)+76+11-\phi = 87-2\cos\left(\frac{\pi}{5}\right)+2.7186\,(58+\pi+9\,\pi^2)$$

$$2.7186\,(58+\pi+9\,\pi^2)+76+11-\phi = 87+2\cos(216\,°)+2.7186\,(58+180\,°+9\,(180\,°)^2)$$

Series representations:

$$2.7186\left(58+\pi+9\pi^2\right)+76+11-\phi = -\left(-244.679+\phi-10.8744\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}-391.478\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^2\right)$$

$$2.7186\left(58+\pi+9\pi^2\right)+76+11-\phi = -\left(-337.111+\phi+190.302\sum_{k=1}^{\infty}\frac{2^k}{\binom{2k}{k}}-97.8696\left(\sum_{k=1}^{\infty}\frac{2^k}{\binom{2k}{k}}\right)^2\right)$$

$$2.7186\left(58+\pi+9\pi^2\right)+76+11-\phi = -\left(-244.679+\phi-2.7186\sum_{k=0}^{\infty}\frac{2^{-k}(-6+50k)}{\binom{3k}{k}}-24.4674\left(\sum_{k=0}^{\infty}\frac{2^{-k}(-6+50k)}{\binom{3k}{k}}\right)^2\right)$$

Integral representations:

$$2.7186\left(58+\pi+9\pi^2\right)+76+11-\phi = -\left(-244.679+\phi-5.4372\int_0^{\infty}\frac{1}{1+t^2}\,dt-97.8696\left(\int_0^{\infty}\frac{1}{1+t^2}\,dt\right)^2\right)$$

$$2.7186\left(58+\pi+9\pi^2\right)+76+11-\phi = -\left(-244.679+\phi-5.4372\int_0^{\infty}\frac{\sin(t)}{t}\,dt-97.8696\left(\int_0^{\infty}\frac{\sin(t)}{t}\,dt\right)^2\right)$$

$$2.7186\left(58+\pi+9\pi^2\right)+76+11-\phi = -\left(-244.679+\phi-10.8744\int_0^{1}\sqrt{1-t^2}\,dt-391.478\left(\int_0^{1}\sqrt{1-t^2}\,dt\right)^2\right)$$

We have also:

Pi*(log(5/4) (log(11) - log(2) (0.5)))/(3 log^2(2)) + 108/10^3 - golden ratio/10^5

1/10^52* (((Pi*(log(5/4) (log(11) - log(2) (0.5)))/(3 log^2(2)) + 108/10^3 - golden ratio/10^5)))

Input:

$$\frac{1}{10^{52}}\left(\pi\times\frac{\log\left(\frac{5}{4}\right)(\log(11)-\log(2)\times 0.5)}{3\log^2(2)}+\frac{108}{10^3}-\frac{\phi}{10^5}\right)$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

$1.105674\ldots \times 10^{-52}$

1.105674…*10^-52

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

Alternative representations:

$$\frac{\frac{\pi\left(\log\left(\frac{5}{4}\right)(\log(11)-\log(2)0.5)\right)}{3\log^2(2)}+\frac{108}{10^3}-\frac{\phi}{10^5}}{10^{52}}=\frac{\frac{108}{10^3}-\frac{\phi}{10^5}+\frac{\pi(-0.5\log_e(2)+\log_e(11))\log_e\left(\frac{5}{4}\right)}{3\log_e^2(2)}}{10^{52}}$$

$$\frac{\frac{\pi\left(\log\left(\frac{5}{4}\right)(\log(11)-\log(2)0.5)\right)}{3\log^2(2)}+\frac{108}{10^3}-\frac{\phi}{10^5}}{10^{52}}=$$
$$\frac{\frac{108}{10^3}-\frac{\phi}{10^5}+\frac{\pi\log(a)(-0.5\log(a)\log_a(2)+\log(a)\log_a(11))\log_a\left(\frac{5}{4}\right)}{3(\log(a)\log_a(2))^2}}{10^{52}}$$

$$\frac{\frac{\pi\left(\log\left(\frac{5}{4}\right)(\log(11)-\log(2)0.5)\right)}{3\log^2(2)}+\frac{108}{10^3}-\frac{\phi}{10^5}}{10^{52}}=\frac{\frac{108}{10^3}-\frac{\phi}{10^5}-\frac{\pi(-\text{Li}_1(-10)+0.5\,\text{Li}_1(-1))\text{Li}_1\left(1-\frac{5}{4}\right)}{3(-\text{Li}_1(-1))^2}}{10^{52}}$$

Series representations:

$$\frac{\frac{\pi\left(\log\left(\frac{5}{4}\right)(\log(11)-\log(2)0.5)\right)}{3\log^2(2)}+\frac{108}{10^3}-\frac{\phi}{10^5}}{10^{52}}=$$

$$\left(\frac{27}{250}-\frac{\phi}{100\,000}+\left(\pi\left(2\,i\,\pi\left\lfloor\frac{\arg\left(\frac{5}{4}-x\right)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{5}{4}-x\right)^k x^{-k}}{k}\right)\left(2\,i\,\pi\left\lfloor\frac{\arg(11-x)}{2\pi}\right\rfloor+\log(x)-0.5\left(2\,i\,\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k(2-x)^k x^{-k}}{k}\right)-\sum_{k=1}^{\infty}\frac{(-1)^k(11-x)^k x^{-k}}{k}\right)\right)\Bigg/\left(3\left(2\,i\,\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k(2-x)^k x^{-k}}{k}\right)^2\right)\right)\Bigg/ 10\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000 \quad \text{for } x<0$$

$$\frac{\frac{\pi\left(\log\left(\frac{5}{4}\right)(\log(11)-\log(2)0.5)\right)}{3\log^2(2)}+\frac{108}{10^3}-\frac{\phi}{10^5}}{10^{52}}=$$

$$\left(\frac{27}{250}-\frac{\phi}{100\,000}+\left(\pi\left(\log(z_0)+\left\lfloor\frac{\arg\left(\frac{5}{4}-z_0\right)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{5}{4}-z_0\right)^k z_0^{-k}}{k}\right)\left(\log(z_0)+\left\lfloor\frac{\arg(11-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-0.5\left(\log(z_0)+\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}\right)-\sum_{k=1}^{\infty}\frac{(-1)^k(11-z_0)^k z_0^{-k}}{k}\right)\right)\Bigg/\left(3\left(\log(z_0)+\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\left(\log\left(\frac{1}{z_0}\right)+\log(z_0)\right)-\sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}\right)^2\right)\right)\Bigg/ 10\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000$$

$$\frac{\frac{\pi\left(\log\left(\frac{5}{4}\right)(\log(11)-\log(2)0.5)\right)}{3\log^2(2)}+\frac{108}{10^3}-\frac{\phi}{10^5}}{10^{52}} =$$

$$\left(\frac{27}{250}-\frac{\phi}{100\,000}+\left(\pi\left(2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{5}{4 z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{5}{4}-z_0\right)^k z_0^{-k}}{k}\right)\right.\right.$$
$$\left(2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{11}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+\log(z_0)-\right.$$
$$0.5\left(2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{2}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}\right)-$$
$$\left.\left.\left.\sum_{k=1}^{\infty}\frac{(-1)^k(11-z_0)^k z_0^{-k}}{k}\right)\right)\right)\Bigg/$$
$$\left(\left(3\left(2\,i\,\pi\left\lfloor\frac{\pi-\arg\left(\frac{2}{z_0}\right)-\arg(z_0)}{2\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}\right)^2\right)\right)\Bigg/$$
$$10\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000$$

Integral representations:

$$\frac{\frac{\pi\left(\log\left(\frac{5}{4}\right)(\log(11)-\log(2)0.5)\right)}{3\log^2(2)}+\frac{108}{10^3}-\frac{\phi}{10^5}}{10^{52}} = \frac{1}{\left(\int_1^2\frac{1}{t}\,dt\right)^2}$$
$$\left(1.08\times10^{-53}\left(\int_1^2\frac{1}{t}\,dt\right)^2-1\times10^{-57}\,\phi\left(\int_1^2\frac{1}{t}\,dt\right)^2+\right.$$
$$\left.4\int_0^1\int_0^1\frac{1}{(4+t_1)(1+t_2)}\,dt_2\,dt_1+4\int_0^1\int_0^1\frac{1}{(4+t_1)(1+10\,t_2)}\,dt_2\,dt_1\right)$$

$$\frac{\frac{\pi\left(\log\left(\frac{5}{4}\right)(\log(11)-\log(2)0.5)\right)}{3\log^2(2)}+\frac{108}{10^3}-\frac{\phi}{10^5}}{10^{52}}=$$

$$\left(1.08\times10^{-53}\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)^2-1\times10^{-57}\,\phi\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)^2-\right.$$
$$1.66667\times10^{-53}\,\pi\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{4^s\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds+$$
$$3.33333\times10^{-53}\,\pi\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{4^s\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)$$
$$\left.\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{10^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)\Big/$$
$$\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\right)^2\quad\text{for } -1<\gamma<0$$

Conclusion

We highlight how the solutions are obtained from the development of the various equations of Ramanujan's mathematics using methodically and logically the numbers of the Lucas and Fibonacci sequences that are the basis of the golden ratio 1.61803398 ....

Acknowledgments

We would like to thank Prof. **George E. Andrews** Evan Pugh Professor of Mathematics at Pennsylvania State University for his great availability and kindness towards me

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