Mathematical connections between various Cosmological parameters and several Ramanujan's equations

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Abstract

In this research thesis, we have analyzed further Ramanujan formulas and described other possible mathematical connections with various Cosmology parameters.

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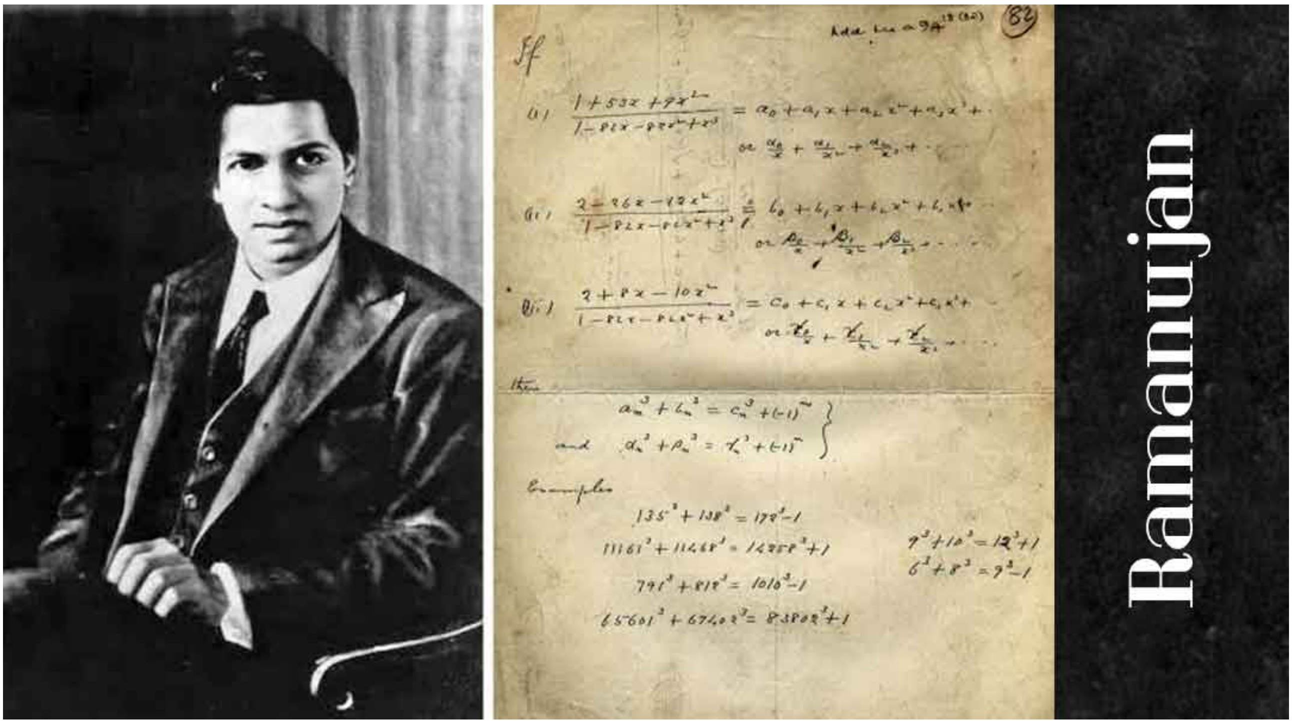


https://myindiafacts.online/30-ramanujan-random-facts-mathematical-genius/

Summary

In this research thesis, we have analyzed the possible and new connections between different formulas of Ramanujan's mathematics and some formulas concerning the 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. Moreover solutions of Ramanujan equations, connected with the masses of the π mesons (139.57 and 134.9766 MeV) have been described and highlighted. Furthermore, we have obtained also the values of some black hole entropies.

Is our opinion, that the possible connections between the mathematical developments of some Rogers-Ramanujan continued fractions, 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", the Higgs boson mass itself and the like-particle solutions (masses), are fundamental.

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

From:

Replica wormholes and the black hole interior

Geoff Penington, Stephen H. Shenker, Douglas Stanford, and Zhenbin Yang
Stanford Institute for Theoretical Physics,
Stanford University, Stanford, CA 94305 - arXiv:1911.11977v1 [hep-th] 27 Nov 2019

$$-nI_{\text{Sch}}+(n-1)S_{\text{bulk}} = n\frac{2\pi^2}{\beta}+(n-1)\left[\frac{4\pi^2}{\beta}\left(\cosh(\rho_1)+\cosh(\rho_2)\right)-\frac{c}{6}(\rho_1+\rho_2)\right]+O\left((n-1)^2\right). \quad (4.35)$$

This action has an extremum at $\sinh(\rho_1) = \sinh(\rho_2) = \beta c/24\pi^2$. This is analogous to the quantum extremal surface of [14, 15, 16, 18]. Here we have shown how it arises from a $n \to 1$ limit of a

Finding saddle points explicitly for integer $n > 1$ seems to be be significantly more difficult than in the $n \approx 1$ limit. One reason is that it is no longer possible to restrict to the SL(2,R) modes of the Schwarzian theory: a more general $\theta(\tau)$ is necessary. Gluing the two black holes together then involves a "conformal welding" problem. Without getting into the details of this, we would like to explain qualitatively why the Renyi entropy should be finite in the limit $t \to \infty$, using an argument similar to one in [24]. We caution the reader that the discussion in this section and the next one 4.7 is preliminary.

For

$n = 2$, $\beta = 24$, $\rho_1 = 3$, $\rho_2 = 5$, $c = 1$

2*2Pi^2/(24))+1((((4Pi^2/(24)*((((cosh(3)+cosh(5))))))))-1/6*(8))

Input:

$$2\times 2\times \frac{\pi^2}{24}+1\left(4\times\frac{\pi^2}{24}(\cosh(3)+\cosh(5))-\frac{1}{6}\times 8\right)$$

cosh(x) is the hyperbolic cosine function

Exact result:

$$-\frac{4}{3}+\frac{\pi^2}{6}+\frac{1}{6}\pi^2(\cosh(3)+\cosh(5))$$

Decimal approximation:

138.9427133513597562970287469970257357749788687866569015798...

138.942713…

Alternate forms:

$$\frac{1}{6}\left(-8+\pi^2+\pi^2\cosh(3)+\pi^2\cosh(5)\right)$$

$$-\frac{4}{3}+\frac{\pi^2}{6}+\frac{1}{6}\pi^2\cosh(3)+\frac{1}{6}\pi^2\cosh(5)$$

$$\frac{-16e^5+\pi^2+e^2\pi^2+2e^5\pi^2+e^8\pi^2+e^{10}\pi^2}{12e^5}$$

Alternative representations:

$$\frac{1}{24}(2\times 2)\pi^2+1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2-\frac{8}{6}\right)=-\frac{8}{6}+\frac{4\pi^2}{24}+\frac{4}{24}(\cos(-3i)+\cos(-5i))\pi^2$$

$$\frac{1}{24}(2\times 2)\pi^2+1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2-\frac{8}{6}\right)=-\frac{8}{6}+\frac{4\pi^2}{24}+\frac{4}{24}\left(\frac{1}{2}\left(\frac{1}{e^3}+e^3\right)+\frac{1}{2}\left(\frac{1}{e^5}+e^5\right)\right)\pi^2$$

$$\frac{1}{24}(2\times 2)\pi^2+1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2-\frac{8}{6}\right)=-\frac{8}{6}+\frac{4\pi^2}{24}+\frac{4}{24}(\cos(3i)+\cos(5i))\pi^2$$

Series representations:

$$\frac{1}{24}(2\times 2)\pi^2+1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2-\frac{8}{6}\right)=-\frac{4}{3}+\frac{\pi^2}{6}+\frac{1}{6}\pi^2\sum_{k=0}^{\infty}\frac{9^k+25^k}{(2k)!}$$

$$\frac{1}{24}(2\times 2)\pi^2+1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2-\frac{8}{6}\right)=-\frac{4}{3}+\frac{\pi^2}{6}+\frac{1}{6}\pi^2\sum_{k=0}^{\infty}\frac{(-i)^k\cos\left(\frac{k\pi}{2}-iz_0\right)\left((3-z_0)^k+(5-z_0)^k\right)}{k!}$$

$$\frac{1}{24}(2\times 2)\pi^2+1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2-\frac{8}{6}\right)=-\frac{4}{3}+\frac{\pi^2}{6}+\frac{1}{6}i\pi^2\sum_{k=0}^{\infty}\frac{\left(3-\frac{i\pi}{2}\right)^{1+2k}+\left(5-\frac{i\pi}{2}\right)^{1+2k}}{(1+2k)!}$$

Integral representations:

$$\frac{1}{24}(2\times 2)\pi^2+1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2-\frac{8}{6}\right)=-\frac{4}{3}+\frac{\pi^2}{2}+\int_0^1\frac{1}{6}\pi^2(3\sinh(3t)+5\sinh(5t))\,dt$$

$$\frac{1}{24}(2\times 2)\pi^2+1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2-\frac{8}{6}\right)=-\frac{4}{3}+\frac{\pi^2}{6}-\frac{1}{12}i\pi^{3/2}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{9/(4s)+s}\left(1+e^{4/s}\right)}{\sqrt{s}}\,ds \quad \text{for } \gamma>0$$

$$\frac{1}{24}(2\times 2)\pi^2 + 1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2 - \frac{8}{6}\right) = -\frac{4}{3} + \frac{\pi^2}{6} + \int_{\frac{i\pi}{2}}^{3}\left(\frac{1}{6}\pi^2\sinh(t) + \frac{\left(5-\frac{i\pi}{2}\right)\pi^2\sinh\left(\frac{i\pi-5t+\frac{i\pi t}{2}}{-3+\frac{i\pi}{2}}\right)}{6\left(3-\frac{i\pi}{2}\right)}\right)dt$$

2*2Pi^2/(24))+1((((4Pi^2/(24)*((((cosh(3)+cosh(5)))))))-1/6*(8)) + 1/golden ratio

Input:

$$2\times 2\times\frac{\pi^2}{24} + 1\left(4\times\frac{\pi^2}{24}(\cosh(3)+\cosh(5)) - \frac{1}{6}\times 8\right) + \frac{1}{\phi}$$

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

ϕ is the golden ratio

Exact result:

$$\frac{1}{\phi} - \frac{4}{3} + \frac{\pi^2}{6} + \frac{1}{6}\pi^2(\cosh(3)+\cosh(5))$$

Decimal approximation:

139.56074734010965114523333383139137389269917796646266444419...

139.56074734… result practically equal to the rest mass of Pion meson 139.57

Alternate forms:

$$\frac{1}{\phi} - \frac{4}{3} + \frac{\pi^2}{6} + \frac{1}{6}\pi^2\cosh(3) + \frac{1}{6}\pi^2\cosh(5)$$

$$\frac{1}{6}\left(3\sqrt{5}-11\right) + \frac{\pi^2}{6} + \frac{1}{6}\pi^2(\cosh(3)+\cosh(5))$$

$$-\frac{4}{3} + \frac{2}{1+\sqrt{5}} + \frac{\pi^2}{6} + \frac{1}{6}\pi^2(\cosh(3)+\cosh(5))$$

Alternative representations:

$$\frac{1}{24}(2\times 2)\pi^2 + 1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2 - \frac{8}{6}\right) + \frac{1}{\phi} = -\frac{8}{6} + \frac{1}{\phi} + \frac{4\pi^2}{24} + \frac{4}{24}(\cos(-3i)+\cos(-5i))\pi^2$$

$$\frac{1}{24}(2\times 2)\pi^2 + 1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2 - \frac{8}{6}\right) + \frac{1}{\phi} = -\frac{8}{6} + \frac{1}{\phi} + \frac{4\pi^2}{24} + \frac{4}{24}\left(\frac{1}{2}\left(\frac{1}{e^3}+e^3\right) + \frac{1}{2}\left(\frac{1}{e^5}+e^5\right)\right)\pi^2$$

$$\frac{1}{24}(2\times 2)\pi^2 + 1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2 - \frac{8}{6}\right) + \frac{1}{\phi} = -\frac{8}{6} + \frac{1}{\phi} + \frac{4\pi^2}{24} + \frac{4}{24}(\cos(3i)+\cos(5i))\pi^2$$

Series representations:

$$\frac{1}{24}(2\times 2)\pi^2 + 1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2 - \frac{8}{6}\right) + \frac{1}{\phi} = -\frac{4}{3} + \frac{1}{\phi} + \frac{\pi^2}{6} + \frac{1}{6}\pi^2 \sum_{k=0}^{\infty} \frac{9^k + 25^k}{(2k)!}$$

$$\frac{1}{24}(2\times 2)\pi^2 + 1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2 - \frac{8}{6}\right) + \frac{1}{\phi} = -\frac{4}{3} + \frac{1}{\phi} + \frac{\pi^2}{6} + \frac{1}{6}\pi^2 \sum_{k=0}^{\infty} \frac{(-i)^k \cos\left(\frac{k\pi}{2} - i z_0\right)\left((3-z_0)^k + (5-z_0)^k\right)}{k!}$$

$$\frac{1}{24}(2\times 2)\pi^2 + 1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2 - \frac{8}{6}\right) + \frac{1}{\phi} = -\frac{4}{3} + \frac{1}{\phi} + \frac{\pi^2}{6} + \frac{1}{6} i\pi^2 \sum_{k=0}^{\infty} \frac{\left(3 - \frac{i\pi}{2}\right)^{1+2k} + \left(5 - \frac{i\pi}{2}\right)^{1+2k}}{(1+2k)!}$$

Integral representations:

$$\frac{1}{24}(2\times 2)\pi^2 + 1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2 - \frac{8}{6}\right) + \frac{1}{\phi} = -\frac{4}{3} + \frac{1}{\phi} + \frac{\pi^2}{2} + \int_0^1 \frac{1}{6}\pi^2 (3\sinh(3t) + 5\sinh(5t))\,dt$$

$$\frac{1}{24}(2\times 2)\pi^2 + 1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2 - \frac{8}{6}\right) + \frac{1}{\phi} = -\frac{4}{3} + \frac{2}{1+\sqrt{5}} + \frac{\pi^2}{6} - \frac{1}{12} i\pi^{3/2} \int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{e^{9/(4s)+s}\left(1+e^{4/s}\right)}{\sqrt{s}}\,ds \quad \text{for } \gamma > 0$$

$$\frac{1}{24}(2\times 2)\pi^2 + 1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2 - \frac{8}{6}\right) + \frac{1}{\phi} =$$

$$-\frac{4}{3} + \frac{1}{\phi} + \frac{\pi^2}{6} + \int_{\frac{i\pi}{2}}^{3}\left(\frac{1}{6}\pi^2\sinh(t) + \frac{\left(5-\frac{i\pi}{2}\right)\pi^2\sinh\left(\frac{i\pi-5t+\frac{i\pi t}{2}}{-3+\frac{i\pi}{2}}\right)}{6\left(3-\frac{i\pi}{2}\right)}\right)dt$$

Furthermore, we obtain also:

1/(((2*2Pi^2/(24))+1((((4Pi^2/(24)*((((cosh(3)+cosh(5)))))))-1/6*(8))))^1/4096

Input:

$$\frac{1}{\sqrt[4096]{2\times 2\times\frac{\pi^2}{24} + 1\left(4\times\frac{\pi^2}{24}(\cosh(3)+\cosh(5)) - \frac{1}{6}\times 8\right)}}$$

cosh(x) is the hyperbolic cosine function

Exact result:

$$\frac{1}{\sqrt[4096]{-\frac{4}{3} + \frac{\pi^2}{6} + \frac{1}{6}\pi^2(\cosh(3)+\cosh(5))}}$$

Decimal approximation:

0.998796120334606089965626419033606851859373232989077197725...

0.99879612…. result very near to the value of the following Rogers-Ramanujan continued fraction:

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

and to the dilaton value **0.989117352243**

Alternate forms:

$$\sqrt[4096]{\frac{6}{\pi^2 (1+\cosh(3)+\cosh(5))-8}}$$

$$\sqrt[4096]{\frac{6}{-8+\pi^2+\pi^2\cosh(3)+\pi^2\cosh(5)}}$$

$$\frac{1}{\sqrt[4096]{-\frac{4}{3}+\frac{\pi^2}{6}+\frac{1}{6}\left(\frac{1}{2e^5}+\frac{1}{2e^3}+\frac{e^3}{2}+\frac{e^5}{2}\right)\pi^2}}$$

Alternative representations:

$$\frac{1}{\sqrt[4096]{\frac{1}{24}(2\times 2)\pi^2+1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2-\frac{8}{6}\right)}} = \frac{1}{\sqrt[4096]{-\frac{8}{6}+\frac{4\pi^2}{24}+\frac{4}{24}(\cos(-3i)+\cos(-5i))\pi^2}}$$

$$\frac{1}{\sqrt[4096]{\frac{1}{24}(2\times 2)\pi^2+1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2-\frac{8}{6}\right)}} = \frac{1}{\sqrt[4096]{-\frac{8}{6}+\frac{4\pi^2}{24}+\frac{4}{24}(\cos(3i)+\cos(5i))\pi^2}}$$

$$\frac{1}{\sqrt[4096]{\frac{1}{24}(2\times 2)\pi^2+1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2-\frac{8}{6}\right)}} = \frac{1}{\sqrt[4096]{-\frac{8}{6}+\frac{4\pi^2}{24}+\frac{4}{24}\left(\frac{1}{2}\left(\frac{1}{e^3}+e^3\right)+\frac{1}{2}\left(\frac{1}{e^5}+e^5\right)\right)\pi^2}}$$

Series representations:

$$\frac{1}{\sqrt[4096]{\frac{1}{24}(2\times 2)\pi^2+1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2-\frac{8}{6}\right)}} = \frac{\sqrt[4096]{6}}{\sqrt[4096]{-8+\pi^2+\pi^2\sum_{k=0}^{\infty}\frac{9^k+25^k}{(2k)!}}}$$

$$\frac{1}{\sqrt[4096]{\frac{1}{24}(2\times2)\pi^2+1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2-\frac{8}{6}\right)}} =$$

$$\frac{1}{\sqrt[4096]{-\frac{4}{3}+\frac{\pi^2}{6}+\frac{1}{6}\pi^2\sum_{k=0}^{\infty}\frac{(-i)^k\cos\left(\frac{k\pi}{2}-i z_0\right)\left((3-z_0)^k+(5-z_0)^k\right)}{k!}}}$$

$$\frac{1}{\sqrt[4096]{\frac{1}{24}(2\times2)\pi^2+1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2-\frac{8}{6}\right)}} =$$

$$\frac{1}{\sqrt[4096]{-\frac{4}{3}+\frac{\pi^2}{6}+\frac{1}{6}i\pi^2\sum_{k=0}^{\infty}\frac{\left(3-\frac{i\pi}{2}\right)^{1+2k}+\left(5-\frac{i\pi}{2}\right)^{1+2k}}{(1+2k)!}}}$$

Integral representations:

$$\frac{1}{\sqrt[4096]{\frac{1}{24}(2\times2)\pi^2+1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2-\frac{8}{6}\right)}} =$$

$$\frac{1}{\sqrt[4096]{-\frac{4}{3}+\frac{\pi^2}{6}+\frac{1}{6}\pi^2\left(2+\int_0^1(3\sinh(3t)+5\sinh(5t))\,dt\right)}}$$

$$\frac{1}{\sqrt[4096]{\frac{1}{24}(2\times2)\pi^2+1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2-\frac{8}{6}\right)}} =$$

$$\frac{1}{\sqrt[4096]{-\frac{4}{3}+\frac{\pi^2}{6}-\frac{1}{12}i\pi^{3/2}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{9/(4s)+s}\left(1+e^{4/s}\right)}{\sqrt{s}}\,ds}} \quad \text{for } \gamma>0$$

$$\frac{1}{\sqrt[4096]{\frac{1}{24}(2\times2)\pi^2+1\left(\frac{1}{24}(4(\cosh(3)+\cosh(5)))\pi^2-\frac{8}{6}\right)}} =$$

$$\frac{1}{\sqrt[4096]{-\frac{4}{3}+\frac{\pi^2}{6}+\frac{\pi^2}{6}\int_{\frac{i\pi}{2}}^{3}\left(\sinh(t)+\frac{\left(5-\frac{i\pi}{2}\right)\sinh\left(\frac{i\pi-5t+\frac{i\pi t}{2}}{-3+\frac{i\pi}{2}}\right)}{3-\frac{i\pi}{2}}\right)dt}}$$

For const = 10, we obtain:

$$S_{\text{bulk}} \approx \left[-\frac{c}{6}\rho_1 + \text{const}\right] + \left[-\frac{c}{6}\rho_2 + \text{const}\right]. \qquad (4.33)$$

(-1/6*3+10) + (-1/6*5+10)

Input:

$$\left(-\frac{3}{6}+10\right)+\left(-\frac{5}{6}+10\right)$$

Exact result:

$$\frac{56}{3}$$

Decimal approximation:

18.666666666666666666666666666666666666666666666666666666...

18.6666…. result very near to the black hole entropy 18.7328

$$I_{\text{Sch}} = -\frac{2\pi^2}{\beta} - 2\pi\left[\phi(\rho_1)+\phi(\rho_2)\right](n-1) + O\big((n-1)^2\big), \qquad (4.23)$$

where ρ_1, ρ_2 are the ρ coordinates of the new marked points, and

$$\phi = \frac{2\pi}{\beta}\cosh(\rho) = \frac{2\pi}{\beta}\frac{1+r^2}{1-r^2} \qquad (4.24)$$

is the dilaton profile in the $n-1$ geometry. This simple form of the final answer would follow more directly from the general results in [7, 23].

For ϕ = 0.98911, from (4.23) we obtain:

n = 2, β = 24, $\rho_1 = 3$, $\rho_2 = 5$, c = 1

(-2Pi^2)/24 – 2Pi [0.98911(3)+0.98911(5)]*1+1

Input:

$$\frac{1}{24}\left(-2\pi^2\right)-(2\pi)\left((0.98911\times 3+0.98911\times 5)\times 1\right)+1$$

Result:

$-49.5406\ldots$

-49.5406…

Alternative representations:

$$-\frac{2\pi^2}{24}-(0.98911\times 3+0.98911\times 5)\,2\pi+1 = 1-2848.64\,°-\frac{2}{24}\,(180\,°)^2$$

$$-\frac{2\pi^2}{24}-(0.98911\times 3+0.98911\times 5)\,2\pi+1 = 1+15.8258\,i\log(-1)-\frac{2}{24}\,(-i\log(-1))^2$$

$$-\frac{2\pi^2}{24}-(0.98911\times 3+0.98911\times 5)\,2\pi+1 = 1-15.8258\cos^{-1}(-1)-\frac{2}{24}\cos^{-1}(-1)^2$$

Series representations:

$$-\frac{2\pi^2}{24}-(0.98911\times 3+0.98911\times 5)\,2\pi+1 = -1.33333\left(-0.0157918+\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)\left(47.4931+\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)$$

$$-\frac{2\pi^2}{24}-(0.98911\times 3+0.98911\times 5)\,2\pi+1 = -0.333333\left(-1.03158+\sum_{k=1}^{\infty}\frac{2^k}{\binom{2k}{k}}\right)\left(93.9861+\sum_{k=1}^{\infty}\frac{2^k}{\binom{2k}{k}}\right)$$

$$-\frac{2\pi^2}{24}-(0.98911\times 3+0.98911\times 5)\,2\pi+1 = -0.0833333\left(-0.0631671+\sum_{k=0}^{\infty}\frac{2^{-k}(-6+50k)}{\binom{3k}{k}}\right)\left(189.972+\sum_{k=0}^{\infty}\frac{2^{-k}(-6+50k)}{\binom{3k}{k}}\right)$$

Integral representations:

$$-\frac{2\pi^2}{24}-(0.98911\times 3+0.98911\times 5)\,2\pi+1 = -0.333333\left(-0.0315836+\int_0^{\infty}\frac{1}{1+t^2}\,dt\right)\left(94.9861+\int_0^{\infty}\frac{1}{1+t^2}\,dt\right)$$

$$-\frac{2\pi^2}{24}-(0.98911\times 3+0.98911\times 5)\,2\pi+1 = -1.33333\left(-0.0157918+\int_0^{1}\sqrt{1-t^2}\,dt\right)\left(47.4931+\int_0^{1}\sqrt{1-t^2}\,dt\right)$$

$$-\frac{2\pi^2}{24} - (0.98911 \times 3 + 0.98911 \times 5)\, 2\pi + 1 =$$
$$-0.333333\left(-0.0315836 + \int_0^\infty \frac{\sin(t)}{t}\, dt\right)\left(94.9861 + \int_0^\infty \frac{\sin(t)}{t}\, dt\right)$$

And:

((((-2Pi^2)/24 – 2Pi [0.98911(3)+0.98911(5)]*1+1)))^2

Input:

$$\left(\frac{1}{24}(-2\pi^2) - (2\pi)((0.98911 \times 3 + 0.98911 \times 5) \times 1) + 1\right)^2$$

Result:

2454.27...

2454.27... result practically equal to the rest mass of charmed Sigma baryon 2453.98

We have that:

$$\mathcal{Z}_n \approx \int \mathrm{d}^2x_1 \mathrm{d}^2x_2 \exp\left\{(2-n)S_0 - nI_{\mathrm{Sch}} + (n-1)S_{\mathrm{bulk}}\right\} \qquad (4.34)$$

For 138.942713… and n = 0.89

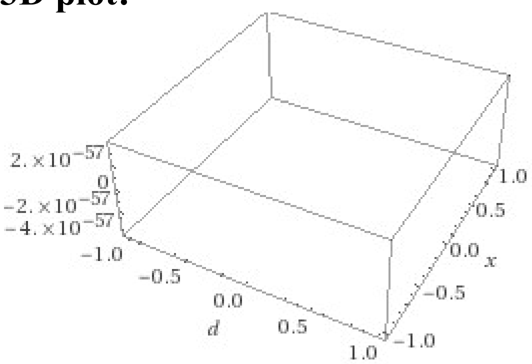
S_0 = 4Pi – 0.98911

integrate [d^2x d^2x exp((((2-0.89)*(4Pi-0.98911)-138.942713)))]

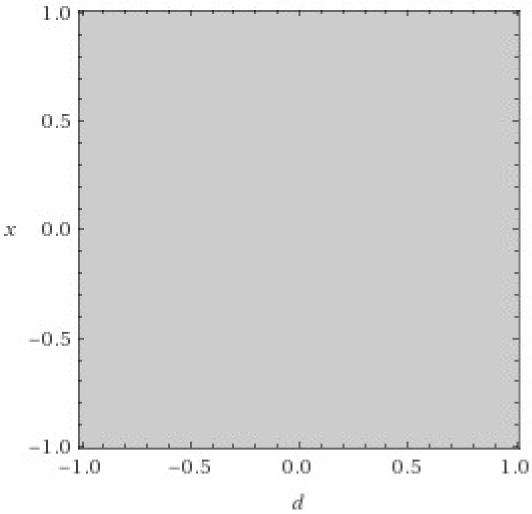
Indefinite integral:

$$\int (d^2\, x)(d^2\, x) \exp((2-0.89)(4\pi - 0.98911) - 138.942713)\, dx =$$
$$5.77882 \times 10^{-56}\, d^4\, x^3 + \text{constant}$$

3D plot:



Contour plot:



Alternate form assuming d and x are real:

$5.77882 \times 10^{-56} d^4 x^3 + 0 + \text{constant}$

For $x^3 = (((3/e)+2e) \times 10^{\wedge}6)^{\wedge}3$; $x = 6.5402019...*10^6$, we obtain:

5.77882×10^-56 * (((3/e)+2e) × 10^6)^3

Input interpretation:

$5.77882 \times 10^{-56} \left(\left(\frac{3}{e} + 2e\right) \times 10^6\right)^3$

Result:

$1.61664... \times 10^{-35}$

$1.61664...*10^{-35}$ result practically equal to the Planck length

For x = 1, performing the –ln and subtracting the golden ratio, we obtain:

-ln(5.77882×10^-56)-golden ratio

Input interpretation:

$-\log(5.77882 \times 10^{-56}) - \phi$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

125.57253...

125.57253... 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

(11+3)(((-ln(5.77882×10^-56)-golden ratio)))-29

Input interpretation:

$$(11+3)\left(-\log\left(5.77882\times 10^{-56}\right)-\phi\right)-29$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

1729.0154...

1729.0154...

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

Polchinski

From:

The Black Hole Information Problem

Joseph Polchinski - Kavli Institute for Theoretical Physics
University of California, Santa Barbara, CA 93106-4030 - This version 9am 6/26/15. Last few sections still ragged

From

$$\alpha_{\omega\nu} = 2r_s(\omega/\nu)^{1/2}(2r_s\nu)^{2ir_s\omega}e^{\pi r_s\omega}\Gamma(-2ir_s\omega)\,,$$
$$\beta_{\omega\nu} = 2r_s(\omega/\nu)^{1/2}(2r_s\nu)^{2ir_s\omega}e^{-\pi r_s\omega}\Gamma(-2ir_s\omega)\,.$$

we obtain, for $r_s = 2$, ω = 5 and ν = 3 :

2*2(5/3)^1/2*(2*2*3)^(-20) * e^(10Pi)*gamma(20)

Input:

$$2\times 2\times \frac{\sqrt{\frac{5}{3}}\ e^{10\pi}\ \Gamma(20)}{(2\times 2\times 3)^{20}}$$

$\Gamma(x)$ is the gamma function

Exact result:

$$\frac{282\,907\,625\sqrt{\frac{5}{3}}\ e^{10\pi}}{2\,229\,025\,112\,064}$$

Decimal approximation:

$7.2146888321877592338165005176944617240712092129342952\ldots\times 10^9$

$7.214688832\ldots*10^9$

Property:

$\frac{282\,907\,625\sqrt{\frac{5}{3}}\ e^{10\pi}}{2\,229\,025\,112\,064}$ is a transcendental number

Alternative representations:

$$\frac{(2\times 2)\sqrt{\frac{5}{3}}\ (e^{10\pi}\ \Gamma(20))}{(2\times 2\times 3)^{20}} = \frac{4\times 19!\sqrt{\frac{5}{3}}\ e^{10\pi}}{12^{20}}$$

$$\frac{(2\times 2)\sqrt{\frac{5}{3}}\ (e^{10\pi}\ \Gamma(20))}{(2\times 2\times 3)^{20}} = \frac{4\,\Gamma(20,0)\sqrt{\frac{5}{3}}\ e^{10\pi}}{12^{20}}$$

$$\frac{(2\times 2)\sqrt{\frac{5}{3}}\,\left(e^{10\pi}\,\Gamma(20)\right)}{(2\times 2\times 3)^{20}} = \frac{4\,(1)_{19}\sqrt{\frac{5}{3}}\,e^{10\pi}}{12^{20}}$$

Series representations:

$$\frac{(2\times 2)\sqrt{\frac{5}{3}}\,\left(e^{10\pi}\,\Gamma(20)\right)}{(2\times 2\times 3)^{20}} = \frac{\sqrt{\frac{5}{3}}\,e^{10\pi}\sum_{k=0}^{\infty}\frac{(20-z_0)^k\,\Gamma^{(k)}(z_0)}{k!}}{958\,439\,998\,111\,868\,780\,544} \quad \text{for } (z_0 \notin \mathbb{Z} \text{ or } z_0 > 0)$$

$$\frac{(2\times 2)\sqrt{\frac{5}{3}}\,\left(e^{10\pi}\,\Gamma(20)\right)}{(2\times 2\times 3)^{20}} = \frac{\sqrt{\frac{5}{3}}\,e^{10\pi}\,\pi}{958\,439\,998\,111\,868\,780\,544\sum_{k=0}^{\infty}(20-z_0)^k\sum_{j=0}^{k}\frac{(-1)^j\,\pi^{-j+k}\sin\left(\frac{1}{2}\pi(-j+k+2z_0)\right)\Gamma^{(j)}(1-z_0)}{j!\,(-j+k)!}}$$

Integral representations:

$$\frac{(2\times 2)\sqrt{\frac{5}{3}}\,\left(e^{10\pi}\,\Gamma(20)\right)}{(2\times 2\times 3)^{20}} = \frac{\sqrt{\frac{5}{3}}\,e^{10\pi}}{958\,439\,998\,111\,868\,780\,544}\int_0^{\infty} t^{19}\,\mathcal{A}^{-t}\,dt$$

$$\frac{(2\times 2)\sqrt{\frac{5}{3}}\,\left(e^{10\pi}\,\Gamma(20)\right)}{(2\times 2\times 3)^{20}} = \frac{\sqrt{\frac{5}{3}}\,e^{10\pi}}{958\,439\,998\,111\,868\,780\,544}\int_0^{1}\log^{19}\left(\frac{1}{t}\right)dt$$

$$\frac{(2\times 2)\sqrt{\frac{5}{3}}\,\left(e^{10\pi}\,\Gamma(20)\right)}{(2\times 2\times 3)^{20}} = \frac{\sqrt{\frac{5}{3}}\,e^{10\pi}\,\mathcal{A}^{\int_0^1 (19-20x+x^{20})/((-1+x)\log(x))\,dx}}{958\,439\,998\,111\,868\,780\,544}$$

2*2(5/3)^1/2*(2*2*3)^(-20) * e^(-10Pi)*gamma(20)

Input:

$$2\times 2\times\frac{\sqrt{\frac{5}{3}}\,e^{-10\pi}\,\Gamma(20)}{(2\times 2\times 3)^{20}}$$

$\Gamma(x)$ is the gamma function

Exact result:

$$\frac{282\,907\,625\sqrt{\frac{5}{3}}\; e^{-10\pi}}{2\,229\,025\,112\,064}$$

Decimal approximation:

$3.7212643978768375161568299619586639188410768748814406\ldots \times 10^{-18}$

3.7212643978…*10^{-18}

Property:

$\frac{282\,907\,625\sqrt{\frac{5}{3}}\; e^{-10\pi}}{2\,229\,025\,112\,064}$ is a transcendental number

Alternative representations:

$$\frac{(2\times 2)\sqrt{\frac{5}{3}}\left(e^{-10\pi}\,\Gamma(20)\right)}{(2\times 2\times 3)^{20}} = \frac{4\times 19!\sqrt{\frac{5}{3}}\; e^{-10\pi}}{12^{20}}$$

$$\frac{(2\times 2)\sqrt{\frac{5}{3}}\left(e^{-10\pi}\,\Gamma(20)\right)}{(2\times 2\times 3)^{20}} = \frac{4\,\Gamma(20,0)\sqrt{\frac{5}{3}}\; e^{-10\pi}}{12^{20}}$$

$$\frac{(2\times 2)\sqrt{\frac{5}{3}}\left(e^{-10\pi}\,\Gamma(20)\right)}{(2\times 2\times 3)^{20}} = \frac{4\,(1)_{19}\sqrt{\frac{5}{3}}\; e^{-10\pi}}{12^{20}}$$

Series representations:

$$\frac{(2\times 2)\sqrt{\frac{5}{3}}\left(e^{-10\pi}\,\Gamma(20)\right)}{(2\times 2\times 3)^{20}} = \frac{\sqrt{\frac{5}{3}}\; e^{-10\pi}\sum_{k=0}^{\infty}\frac{(20-z_0)^k\,\Gamma^{(k)}(z_0)}{k!}}{958\,439\,998\,111\,868\,780\,544} \quad \text{for } (z_0 \notin \mathbb{Z} \text{ or } z_0 > 0)$$

$$\frac{(2\times 2)\sqrt{\frac{5}{3}}\left(e^{-10\pi}\,\Gamma(20)\right)}{(2\times 2\times 3)^{20}} =$$

$$\frac{\sqrt{\frac{5}{3}}\; e^{-10\pi}\,\pi}{958\,439\,998\,111\,868\,780\,544\sum_{k=0}^{\infty}(20-z_0)^k\sum_{j=0}^{k}\frac{(-1)^j\,\pi^{-j+k}\sin\left(\frac{1}{2}\pi(-j+k+2z_0)\right)\Gamma^{(j)}(1-z_0)}{j!\,(-j+k)!}}$$

Integral representations:

$$\frac{(2\times 2)\sqrt{\frac{5}{3}}\left(e^{-10\pi}\,\Gamma(20)\right)}{(2\times 2\times 3)^{20}} = \frac{\sqrt{\frac{5}{3}}\,e^{-10\pi}}{958\,439\,998\,111\,868\,780\,544}\int_0^\infty t^{19}\,\mathcal{A}^{-t}\,dt$$

$$\frac{(2\times 2)\sqrt{\frac{5}{3}}\left(e^{-10\pi}\,\Gamma(20)\right)}{(2\times 2\times 3)^{20}} = \frac{\sqrt{\frac{5}{3}}\,e^{-10\pi}}{958\,439\,998\,111\,868\,780\,544}\int_0^1 \log^{19}\left(\frac{1}{t}\right)dt$$

$$\frac{(2\times 2)\sqrt{\frac{5}{3}}\left(e^{-10\pi}\,\Gamma(20)\right)}{(2\times 2\times 3)^{20}} = \frac{\sqrt{\frac{5}{3}}\,e^{-10\pi}\,\mathcal{A}^{\int_0^1 (19-20x+x^{20})/((-1+x)\log(x))\,dx}}{958\,439\,998\,111\,868\,780\,544}$$

From

$$[a_\nu, a_{\nu'}] = 2\pi\delta(\nu-\nu'), \quad [b_\omega, b_{\omega'}] = 2\pi\delta(\omega-\omega').$$

$$b_\omega = \int_0^\infty \frac{d\nu}{2\pi}\left(\alpha_{\omega\nu}a_\nu + \beta_{\omega\nu}a_\nu^\dagger\right)$$

we obtain:

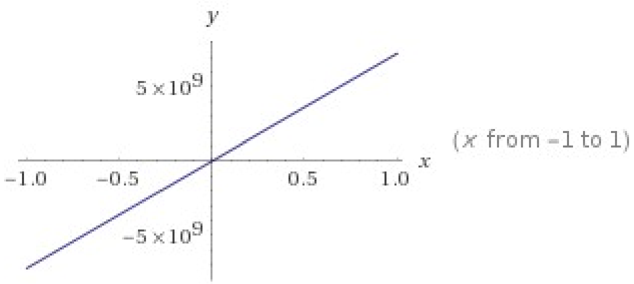
integrate [1/(2Pi) (2Pi*7.2146888321 × 10^9 + 2Pi*3.7212643978 × 10^-18)]dx

Indefinite integral:

$$\int \frac{2\pi\, 7.2146888321\times 10^9 + 2\pi\, 3.7212643978\times 10^{-18}}{2\pi}\,dx = 7.2146888321\times 10^9\,x + \text{constant}$$

$7.2146888321 * 10^9$

Plot of the integral:



(((integrate [1/(2Pi) (2Pi*7.2146888321 × 10^9 + 2Pi*3.7212643978 × 10^-18)]dx)))^1/47

Where 47 is a Lucas number

Input interpretation:

$$\sqrt[47]{\int \frac{1}{2\pi}\left(2\pi\times 7.2146888321\times 10^{9}+2\pi\times 3.7212643978\times 10^{-18}\right)dx}$$

Result:

$1.620874204621\sqrt[47]{x}$

For x = 1

Result:

1.620874204621

1.6208742…

1/1.620874204621

Input interpretation:

$$\frac{1}{1.620874204621}$$

Result:

0.616951023804974697602819467653548461671456402116956371948…

0.6169510238…

Possible closed forms:

$6\pi \tanh^{-1}\left(\frac{97}{542}\right)^2 \approx 0.61695102416735121$

$\frac{11}{5}\sqrt{\frac{2}{251}}\,\pi \approx 0.6169510257205425$

root of $34x^4 + 30x^3 - 8x^2 - 149x + 83$ near $x = 0.616951$ $\approx$
0.61695102380503420312 76

(1/1.620874204621)^1/64

Input interpretation:

$$\sqrt[64]{\frac{1}{1.620874204621}}$$

Result:

0.992482064054924...

0.992482064.... result very near to the value of the following Rogers-Ramanujan continued fraction:

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

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

2*log base 0.992482064 (1/1.620874204621)-Pi+1/golden ratio

Input interpretation:

$$2\log_{0.992482064}\left(\frac{1}{1.620874204621}\right) - \pi + \frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

125.4764...

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

Alternative representation:

$$2 \log_{0.992482}\left(\frac{1}{1.6208742046210000}\right) - \pi + \frac{1}{\phi} = -\pi + \frac{1}{\phi} + \frac{2 \log\left(\frac{1}{1.6208742046210000}\right)}{\log(0.992482)}$$

Series representations:

$$2 \log_{0.992482}\left(\frac{1}{1.6208742046210000}\right) - \pi + \frac{1}{\phi} = \frac{1}{\phi} - \pi - \frac{2 \sum_{k=1}^{\infty} \frac{(-1)^k (-0.38304897619502530)^k}{k}}{\log(0.992482)}$$

$$2 \log_{0.992482}\left(\frac{1}{1.6208742046210000}\right) - \pi + \frac{1}{\phi} = \frac{1}{\phi} - \pi - 265.03 \log(0.61695102380497470) - 2 \log(0.61695102380497470) \sum_{k=0}^{\infty} (-0.00751794)^k G(k)$$

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

2*log base 0.992482064 (1/1.620874204621)+11+1/golden ratio

Where 11 is a Lucas number

Input interpretation:

$$2 \log_{0.992482064}\left(\frac{1}{1.620874204621}\right) + 11 + \frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

139.6180...

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

Alternative representation:

$$2\log_{0.992482}\left(\frac{1}{1.6208742046210000}\right)+11+\frac{1}{\phi}=11+\frac{1}{\phi}+\frac{2\log\left(\frac{1}{1.6208742046210000}\right)}{\log(0.992482)}$$

Series representations:

$$2\log_{0.992482}\left(\frac{1}{1.6208742046210000}\right)+11+\frac{1}{\phi}=$$
$$11+\frac{1}{\phi}-\frac{2\sum_{k=1}^{\infty}\frac{(-1)^k(-0.38304897619502530)^k}{k}}{\log(0.992482)}$$

$$2\log_{0.992482}\left(\frac{1}{1.6208742046210000}\right)+11+\frac{1}{\phi}=$$
$$11+\frac{1}{\phi}-265.03\log(0.61695102380497470)-$$
$$2\log(0.61695102380497470)\sum_{k=0}^{\infty}(-0.00751794)^k G(k)$$
$$\text{for }\left(G(0)=0\text{ and }G(k)=\frac{(-1)^{1+k}k}{2(1+k)(2+k)}+\sum_{j=1}^{k}\frac{(-1)^{1+j}G(-j+k)}{1+j}\right)$$

Considering ν = 5, we have:

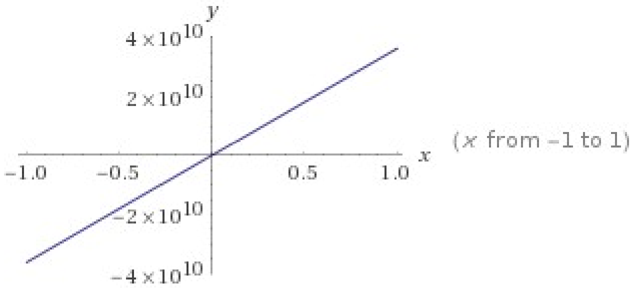
integrate [5/(2Pi) (2Pi*7.2146888321 × 10^9 + 2Pi*3.7212643978 × 10^-18)]dx

Indefinite integral:

$$\int\frac{5\left(2\pi\,7.2146888321\times10^{9}+2\pi\,3.7212643978\times10^{-18}\right)}{2\pi}\,dx=$$
$$3.6073444161\times10^{10}\,x+\text{constant}$$

$3.6073444161 * 10^{10}$

Plot of the integral:



(((integrate [5/(2Pi) (2Pi*7.2146888321 × 10^9 + 2Pi*3.7212643978 × 10^-18)]dx)))^1/49

Input interpretation:

$$\sqrt[49]{\int \frac{5}{2\pi}\left(2\pi\times 7.2146888321\times 10^{9}+2\pi\times 3.7212643978\times 10^{-18}\right)dx}$$

Result:

$1.642301192949 \sqrt[49]{x}$

For x = 1

Result:

1.642301192949

$1.642301192949 \approx \zeta(2) = \frac{\pi^2}{6} = 1.644934 \ldots$

(1/1.642301192949)^1/64

Input interpretation:

$$\sqrt[64]{\frac{1}{1.642301192949}}$$

Result:

0.992278427806357...

0.9922784278.... result very near to the value of the following Rogers-Ramanujan continued fraction:

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

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

2log base 0.9922784278 (1/1.642301192949)-Pi+1/golden ratio

Input interpretation:

$$2 \log_{0.9922784278}\left(\frac{1}{1.642301192949}\right) - \pi + \frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

125.47644...

125.47644... result very near to the dilaton mass calculated as a type of Higgs boson: 125 GeV for T = 0 and to the Higgs boson mass 125.18

Alternative representation:

$$2 \log_{0.992278}\left(\frac{1}{1.6423011929490000}\right) - \pi + \frac{1}{\phi} = -\pi + \frac{1}{\phi} + \frac{2 \log\left(\frac{1}{1.6423011929490000}\right)}{\log(0.992278)}$$

Series representations:

$$2 \log_{0.992278}\left(\frac{1}{1.6423011929490000}\right) - \pi + \frac{1}{\phi} = \frac{1}{\phi} - \pi - \frac{2 \sum_{k=1}^{\infty} \frac{(-1)^k (-0.3910982928750426 9)^k}{k}}{\log(0.992278)}$$

$$2\log_{0.992278}\left(\frac{1}{1.6423011929490000}\right)-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-\pi-258.015\log(0.60890170712495731)-$$

$$2\log(0.60890170712495731)\sum_{k=0}^{\infty}(-0.00772157)^k\,G(k)$$

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

And:

2log base 0.9922784278 (1/1.642301192949)+11+1/golden ratio

Where 11 is a Lucas number

Input interpretation:

$$2\log_{0.9922784278}\left(\frac{1}{1.642301192949}\right)+11+\frac{1}{\phi}$$

Result:

139.61803...

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

Alternative representation:

$$2\log_{0.992278}\left(\frac{1}{1.6423011929490000}\right)+11+\frac{1}{\phi}=11+\frac{1}{\phi}+\frac{2\log\left(\frac{1}{1.6423011929490000}\right)}{\log(0.992278)}$$

Series representations:

$$2\log_{0.992278}\left(\frac{1}{1.6423011929490000}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}-\frac{2\sum_{k=1}^{\infty}\frac{(-1)^k\,(-0.3910982928750426 9)^k}{k}}{\log(0.992278)}$$

$$2\log_{0.992278}\left(\frac{1}{1.6423011929490000}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}-258.015\log(0.60890170712495731)-$$

$$2\log(0.60890170712495731)\sum_{k=0}^{\infty}(-0.00772157)^k\,G(k)$$

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

Now, we have also that, from the division between the following two results, performing the ln:

2ln(7.214688832e+9 / 3.7212643978e-18)

Input interpretation:

$$2\log\left(\frac{7.214688832\times 10^{9}}{3.7212643978\times 10^{-18}}\right)$$

log(x) is the natural logarithm

Result:

125.663706144...

125.663706144... 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

Now, we have that:

$$|0\rangle_a=\mathcal{N}\exp\left(\int_0^{\infty}\frac{d\omega}{2\pi}\,e^{-\omega/2T_{\rm H}}b^{\dagger}_{\omega}\tilde{b}^{\dagger}_{\omega}\right)$$

we obtain, for $r_s = 2$, $\omega = 5$ and $\nu = 3$:

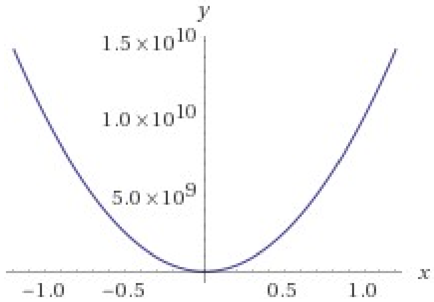
4*exp (((integrate [5/(2Pi)*e^(-5/(2*7))* 3.6073444161e+10]x)))
integrate [5/(2Pi)*e^(-5/(2*7))* 3.6073444161e+10]x

Indefinite integral:

$$\int \frac{(5\, e^{-5/(2\times 7)}\, 3.6073444161\times 10^{10})\, x}{2\pi}\, dx = 1.00425170411\times 10^{10}\, x^2 + \text{constant}$$

$1.00425170411*10^{10}$

Plot of the integral:



(x from −1.2 to 1.2)

From which:

((((4exp(1.00425170411×10^10)))))^1/(32768^2)

Input interpretation:

$$\sqrt[32768^2]{4\exp(1.00425170411\times 10^{10})}$$

Result:

11531.328498...

11531.328498

And:

1/(2Pi)(((((((4exp(1.00425170411×10^10)))))^1/(32768^2))))-89-13-5

Input interpretation:

$$\frac{1}{2\pi}\sqrt[32768^2]{4\exp(1.00425170411\times 10^{10})} - 89 - 13 - 5$$

Result:

1728.2679309...

1728.2679309…

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

11/10^3+(((((((4exp(1.00425170411×10^10)))))^1/(32768^2))))^1/19

Input interpretation:

$$\frac{11}{10^3}+\sqrt[19]{\sqrt[32768^2]{4\exp(1.00425170411\times 10^{10})}}$$

Result:

1.64699933718...

$1.6469993..... \approx \zeta(2) = \frac{\pi^2}{6} = 1.644934 ...$

1/10^27*
(((((29+7)/10^3+(((((((4exp(1.00425170411×10^10)))))^1/(32768^2))))^1/19))))

Input interpretation:

$$\frac{1}{10^{27}}\left(\frac{29+7}{10^3}+\sqrt[19]{\sqrt[32768^2]{4\exp(1.00425170411\times 10^{10})}}\right)$$

Result:

$1.67199933718... \times 10^{-27}$

$1.6719993...*10^{-27}$ result practically equal to the proton mass

(((((((4exp(1.00425170411×10^10)))))^1/(32768^2))))^1/19))))-18/10^3

Input interpretation:

$$\sqrt[19]{\sqrt[32768^2]{4\exp(1.00425170411\times 10^{10})}}-\frac{18}{10^3}$$

Result:

1.61799933718...

1.61799933718… result that is a very good approximation to the value of the golden ratio 1,618033988749...

1/((((((((((((((((4exp(1.00425170411×10^10)))))^1/(32768^2))))^1/19))))-18/10^3))))

Input interpretation:

$$\frac{1}{\sqrt[19]{\sqrt[32768^2]{4\exp(1.00425170411\times 10^{10})}} - \frac{18}{10^3}}$$

Result:

0.618047224756...

0.618047224756…

From:

The entropy of bulk quantum fields and the entanglement wedge of an evaporating black hole

Ahmed Almheiri, Netta Engelhardt, Donald Marolf, Henry Maxfield

arXiv:1905.08762v3 [hep-th] 4 Nov 2019

$$E_S = \frac{c}{24\pi}\left(\frac{2}{w_0} - f''(0)\right) \tag{3.8}$$

x/(24Pi) (2/0.08333 – 1) = y

Input:

$$\frac{x}{24\pi}\left(\frac{2}{0.08333} - 1\right) = y$$

Result:

$0.30506\,x = y$

Alternate forms:

$x = 3.27805\,y$

$0.30506\,x - y = 0$

Alternate form assuming x and y are real:

$0.30506\,x + 0 = y$

Real solution:

$y \approx 0.30506\,x + 0$

$y \approx 0.30506\,x$

y = 0.30506 * 3.27805y;   0.30506*3.27805 = 1.

Now:

1/(0.30506*3.27805)

Input interpretation:

$$\frac{1}{0.30506 \times 3.27805}$$

Result:

0.999998067003736481777380724323059883525245145701133359709...

0.999998067003736.....

(((1/(0.30506*3.27805))))^4096

Input interpretation:

$$\left(\frac{1}{0.30506 \times 3.27805}\right)^{4096}$$

Result:

0.992113700974373797377639098722269832272811958021660075552...

0.99211370097437.... result very near to the value of the following Rogers-Ramanujan continued fraction:

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

and to the dilaton value **0.989117352243 = ϕ**

2sqrt(((1/log base 0.992113700974373 (((1/(0.30506*3.27805)))))))-Pi+1/golden ratio

Input interpretation:

$$2\sqrt{\frac{1}{\log_{0.992113700974373}\left(\frac{1}{0.30506\times 3.27805}\right)}}-\pi+\frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

125.47644133516659828557346268653327907940810516199764856 75...

125.476441335…. result very near to the dilaton mass calculated as a type of Higgs boson: 125 GeV for T = 0 and to the Higgs boson mass 125.18

Alternative representation:

$$2\sqrt{\frac{1}{\log_{0.9921137009743730000}\left(\frac{1}{0.30506\times 3.27805}\right)}}-\pi+\frac{1}{\phi}=$$
$$-\pi+\frac{1}{\phi}+2\sqrt{\frac{1}{\frac{\log\left(\frac{1}{1.}\right)}{\log(0.9921137009743730000)}}}$$

Series representations:

$$2\sqrt{\frac{1}{\log_{0.9921137009743730000}\left(\frac{1}{0.30506\times 3.27805}\right)}}-\pi+\frac{1}{\phi}=$$
$$\frac{1}{\phi}-\pi+2\sqrt{-\frac{\log(0.9921137009743730000)}{\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1.933\times10^{-6}\right)^k}{k}}}$$

$$2\sqrt{\frac{1}{\log_{0.9921137009743730000}\left(\frac{1}{0.30506\times 3.27805}\right)}}-\pi+\frac{1}{\phi}=$$
$$\frac{1}{\phi}-\pi+2\sqrt{-1+\frac{1}{\log_{0.9921137009743730000}(0.999998)}}$$
$$\sum_{k=0}^{\infty}\binom{\frac{1}{2}}{k}\left(-1+\frac{1}{\log_{0.9921137009743730000}(0.999998)}\right)^{-k}$$

$$2\sqrt{\frac{1}{\log_{0.992113700974373000}\left(\frac{1}{0.30506\times 3.27805}\right)}}-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-\pi+2\sqrt{-1+\frac{1}{\log_{0.992113700974373000}(0.999998)}}$$

$$\sum_{k=0}^{\infty}\frac{(-1)^k\left(-1+\frac{1}{\log_{0.992113700974373000}(0.999998)}\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}$$

From:

Inflationary Cosmology: Exploring the Universe from the Smallest to the Largest Scales - *Alan H. Guth and David I. Kaiser*
arXiv:astro-ph/0502328v1 16 Feb 2005

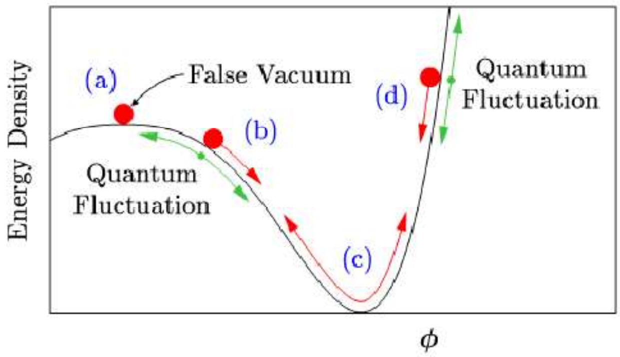


FIG. 1: In simple inflationary models, the universe at early times is dominated by the potential energy density of a scalar field, ϕ. Red arrows show the classical motion of ϕ. When ϕ is near region (a), the energy density will remain nearly constant, $\rho \simeq \rho_f$, even as the universe expands. Moreover, cosmic expansion acts like a frictional drag, slowing the motion of ϕ: Even near regions (b) and (d), ϕ behaves more like a marble moving in a bowl of molasses, slowly creeping down the side of its potential, rather than like a marble sliding down the inside of a polished bowl. During this period of "slow roll," ρ remains nearly constant. Only after ϕ has slid most of the way down its potential will it begin to oscillate around its minimum, as in region (c), ending inflation.

Table 2 The masses of inflaton, axion and gravitino, and the VEVs of F- and D-fields derived from our models by fixing the amplitude A_s according to PLANCK data – see Eq. (57). The value of $\langle F_T \rangle$ for a positive ω_1 is not fixed by A_s

α	3	4		5		6		7	
$\text{sgn}(\omega_1)$	$-$	$+$	$-$	$+$	$-$	$+$	$-$	$-$	
m_φ	2.83	2.95	2.73	2.71	2.71	2.53	2.58	1.86	$\times 10^{13}$ GeV
$m_{t'}$	0	0.93	1.73	2.02	2.02	4.97	2.01	1.56	$\times 10^{13}$ GeV
$m_{3/2}$	≥ 1.41	2.80	0.86	2.56	0.64	3.91	0.49	0.29	$\times 10^{13}$ GeV
$\langle F_T \rangle$	any	$\neq 0$	0	$\neq 0$	0	$\neq 0$	0	0	$\times 10^{31}$ GeV^2
$\langle D \rangle$	8.31	4.48	5.08	3.76	3.76	3.25	2.87	1.73	$\times 10^{31}$ GeV^2

$m_\varphi = 2.542 - 2.33 \times 10^{13}$GeV with an average of $2.636 * 10^{13}$ GeV

From:

Gravity waves and the LHC: Towards high-scale inflation with low-energy SUSY - *Temple He, Shamit Kachru, and Alexander Westphal*
https://arxiv.org/abs/1003.4265v3

We depict this behavior in Fig. 1 for an exemplary choice of parameters in eq. (3.15) given by: $A = 1$, $a = \frac{2\pi}{10}$, $W_0 = -10^{-15}$, $\alpha = 5 \times 10^{-19}$, $b = \sqrt{2/5}$, $n = 10$, and $\gamma = 2$. This choice of parameters gives an effective inflationary potential $V(\varphi) \sim \varphi^{20}$ for $\varphi \lesssim \varphi_{60} \simeq 50 M_{\rm P}$ with the choice of α giving us $\delta\rho/\rho \simeq 1.6 \times 10^{-5}$ at φ_{60}. Here we have approximated the functions f, g in eq. (3.15) by $f(X) = b + X + X^2/2$ and $g(X) = 1 + X$ for definiteness, to check explicitly that the higher-order terms do not spoil the behaviour of the model, as expected from the smallness of X during inflation. Fig. 2 shows us $|\langle W(\varphi, X(\varphi), T(\varphi))\rangle|$ as a function of the inflation φ, where $X(\varphi), T(\varphi)$ denote the fields X, T adiabatically tracking their instantaneous minima at every given value of φ.

In our model, V is dominated at large φ values by the F_X term, as it has the largest power of φ. Hence, F_X is the dominant term driving inflation, and we may approximate

$$V \sim |F_X|^2 \sim \alpha^2 \varphi^{2n} \tag{3.32}$$

for large φ. Now, the magnitude of the density perturbation at 60 e-folds is given by

$$\delta \equiv \frac{\delta\rho}{\rho} = \sqrt{\frac{1}{150\pi^2} \cdot \frac{V}{\epsilon}}\Bigg|_{\varphi=\varphi_{60}}, \tag{3.33}$$

where $\epsilon = \frac{1}{2}\left(\frac{V'}{V}\right)^2$ is the ϵ slow roll parameter and φ_{60} is the value of φ at 60 e-folds. The measured value of δ is 2×10^{-5}. However, the purpose of this paper is not to create

For:

$\varphi = 50\ M_P = 1.2175 \times 10^{20}$ GeV

From (3.32), we obtain:

(((5e-19)^2 * (50*2.435e+18)^20))

Input interpretation:

$$(5 \times 10^{-19})^2 \, (50 \times 2.435 \times 10^{18})^{20}$$

Result:

$$1.280322584573693 \times 10^{365}$$

Scientific notation:

$$1.280322584573692876237878139076277690131619131807767 1... \times 10^{365}$$

$1.28032258457...*10^{365} = V$

From (3.33), putting δ = 1.61803398e-5, we obtain the value of V'

1.61803398e-5 = sqrt(((((((5e-19)^2 * (50*2.435e+18)^20)))/(150Pi^2)*1/(0.5*((((((x/((((5e-19)^2*(50*2.435e+18)^20))))^2))))))

Input interpretation:

$$1.61803398 \times 10^{-5} = \sqrt{\frac{(5 \times 10^{-19})^2 \, (50 \times 2.435 \times 10^{18})^{20}}{150\,\pi^2} \times \frac{1}{0.5 \left(\frac{x}{(5 \times 10^{-19})^2 \, (50 \times 2.435 \times 10^{18})^{20}}\right)^2}}$$

Result:

$$0.0000161803 = 1.683831404879360 \times 10^{546} \sqrt{\frac{1}{x^2}}$$

Alternate form assuming x is real:

$$\frac{1.040665045167568 \times 10^{551}}{|x|} = 1$$

$|z|$ is the absolute value of z

Alternate form assuming x>0:

$$0.0000161803 = \frac{1.683831404879360 \times 10^{546}}{x}$$

Alternate form assuming x is positive:

$$x = 1.040665045167568 \times 10^{551}$$

$1.040665045\ldots*10^{551}$

Solutions:

$x =$

−104 066 504 516 756 771 107 837 724 904 943 202 242 906 072 398 213 429 828 ⋱
808 058 467 547 222 926 366 053 906 377 095 969 437 385 977 184 623 080 795 ⋱
980 327 453 801 153 975 424 639 840 073 397 365 748 631 300 848 567 741 425 ⋱
602 952 590 809 962 702 998 157 291 176 469 448 313 634 949 529 561 229 866 ⋱
733 036 634 022 839 988 850 090 215 241 761 500 929 288 701 864 248 718 446 ⋱
987 170 280 036 110 279 482 208 023 231 218 179 522 330 325 269 484 995 110 ⋱
576 302 182 993 798 924 312 513 327 351 477 481 255 479 236 479 722 864 423 ⋱
599 786 129 092 407 012 338 232 631 356 874 483 603 010 068 900 391 867 696 ⋱
558 208 891 717 318 270 160 306 463 258 356 279 088 218 065 324 654 538 198 ⋱
801 960 486 877 283 092 945 290 117 249 025 179 648

$x =$

104 066 504 516 756 771 107 837 724 904 943 202 242 906 072 398 213 429 828 808 ⋱
058 467 547 222 926 366 053 906 377 095 969 437 385 977 184 623 080 795 980 ⋱
327 453 801 153 975 424 639 840 073 397 365 748 631 300 848 567 741 425 602 ⋱
952 590 809 962 702 998 157 291 176 469 448 313 634 949 529 561 229 866 733 ⋱
036 634 022 839 988 850 090 215 241 761 500 929 288 701 864 248 718 446 987 ⋱
170 280 036 110 279 482 208 023 231 218 179 522 330 325 269 484 995 110 576 ⋱
302 182 993 798 924 312 513 327 351 477 481 255 479 236 479 722 864 423 599 ⋱
786 129 092 407 012 338 232 631 356 874 483 603 010 068 900 391 867 696 558 ⋱
208 891 717 318 270 160 306 463 258 356 279 088 218 065 324 654 538 198 801 ⋱
960 486 877 283 092 945 290 117 249 025 179 648

Inserting the values of V and V' in (3.33), considering that

$\epsilon = \frac{1}{2}\left(\frac{V'}{V}\right)^2$, we obtain:

sqrt((((((1.28032258e+365)))/(150Pi^2)*1/(((0.5*((((((1.040665045e+551)^2/((((1.28032258e+365))))^2)))))))))))

Input interpretation:

$$\sqrt{\frac{1.28032258\times10^{365}}{150\,\pi^2}\times\frac{1}{0.5\times\frac{(1.040665045\times10^{551})^2}{(1.28032258\times10^{365})^2}}}$$

Result:

0.0000161803...

0.0000161803…

$1.61803…*10^{-5}$ = 0.000016803….

All 2nd roots of 2.618033933220563×10^-10:

$0.00001618033971590387\, e^0 \approx 0.000016180$ (real, principal root)

$0.00001618033971590387\, e^{i\pi} \approx -0.000016180$ (real root)

Series representations:

$$\sqrt{\frac{1.28032 \times 10^{365}}{\frac{(0.5\,(1.04067 \times 10^{551})^2)(150\,\pi^2)}{(1.28032 \times 10^{365})^2}}} = \sum_{k=0}^{\infty} \frac{(-1)^k \left(-1 + \frac{2.583895922951495\times10^{-9}}{\pi^2}\right)^k \left(-\frac{1}{2}\right)_k}{k!}$$

$$\sqrt{\frac{1.28032 \times 10^{365}}{\frac{(0.5\,(1.04067 \times 10^{551})^2)(150\,\pi^2)}{(1.28032 \times 10^{365})^2}}} = \sqrt{z_0} \sum_{k=0}^{\infty} \frac{(-1)^k \left(-\frac{1}{2}\right)_k \left(\frac{2.583895922951495\times10^{-9}}{\pi^2} - z_0\right)^k z_0^{-k}}{k!}$$

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

$$\sqrt{\frac{1.28032 \times 10^{365}}{\frac{(0.5\,(1.04067 \times 10^{551})^2)(150\,\pi^2)}{(1.28032 \times 10^{365})^2}}} = -\frac{\sum_{j=0}^{\infty} \text{Res}_{s=-j} \left(-1 + \frac{2.583895922951495\times10^{-9}}{\pi^2}\right)^{-s} \Gamma\left(-\frac{1}{2} - s\right)\Gamma(s)}{2\sqrt{\pi}}$$

From the value of energy density, we obtain the following mass value:

(1.61803e-5)/(9e+16)

Input interpretation:

$$\frac{1.61803 \times 10^{-5}}{9 \times 10^{16}}$$

Result:

$1.79781111111111111111111111111111111111111111111111\ldots \times 10^{-22}$

1.7978111...*10^{-22} GeV = 3.204889×10^-49 kg

Considering this value as a black hole mass of 3.20489e-49kg , we obtain:

Mass = 3.20489e-49

Radius = 4.75979e-76

Temperature = 3.82839e+71

Entropy = 2.72474e-81

From the Ramanujan-Nardelli mock formula, we obtain:

sqrt[[[[1/(((((((4*1.962364415e+19))/((5*0.0864055^2))))*1/((3.20489e-49))* sqrt[[-(((((3.82839e+71) * 4*Pi*((4.75979e-76))^3-((4.75979e-76))^2))))) / ((6.67*10^-11))]]]]]

Input interpretation:

$$\sqrt{\left(1\middle/\left(\frac{4\times 1.962364415\times 10^{19}}{5\times 0.0864055^2}\times\frac{1}{3.20489\times 10^{-49}}\sqrt{-\frac{3.82839\times 10^{71}\times 4\pi\,(4.75979\times 10^{-76})^3-(4.75979\times 10^{-76})^2}{6.67\times 10^{-11}}}\right)\right)}$$

Result:

1.618078535678290939514627421945079164249704220773683119548...

1.618078535…

And:

1/sqrt[[[[1/(((((((4*1.962364415e+19))/((5*0.0864055^2))))*1/((3.20489e-49))* sqrt[[-(((((3.82839e+71) * 4*Pi*((4.75979e-76))^3-((4.75979e-76))^2))))) / ((6.67*10^-11))]]]]]

Input interpretation:

$$1/\left(\sqrt{\left(1/\left(\frac{4\times 1.962364415\times 10^{19}}{5\times 0.0864055^2}\times\frac{1}{3.20489\times 10^{-49}}\sqrt{-\frac{3.82839\times 10^{71}\times 4\pi(4.75979\times 10^{-76})^3-(4.75979\times 10^{-76})^2}{6.67\times 10^{-11}}}\right)\right)}\right)$$

Result:

0.61801697380578915237960584542854112776360812082549361 6889...

0.6180169738…

From the value of entropy, we have that:

(((-ln(2.72474e-81))))^1/11

Where 11 is a Lucas number and a prime number

Input interpretation:

$$\sqrt[11]{-\log(2.72474\times 10^{-81})}$$

log(x) is the natural logarithm

Result:

1.60773541...

1.60773541...

From V, we can to obtain dividing by c^2, the following mass value:

(1.28032258457*10^365)/(9e+16)

Input interpretation:

$$\frac{1.28032258457\times 10^{365}}{9\times 10^{16}}$$

Result:

$1.4225806495222222222222222222222222222222222222222... \times 10^{348}$

$1.4225806495222...*10^{348}$

convert $1.4225806495222\times 10^{348}$ GeV/c^2 to kilograms

Result:

$2.535980354348 \times 10^{321}$ kg (kilograms)

$2.535980354348 * 10^{321}$ kg

and:

(2.535980354348×10^321)^1/4

$$\sqrt[4]{2.535980354348 \times 10^{321}}$$

Result:

$2.2440703685613... \times 10^{80}$

$2.24407036...*10^{80}$

Thence: $(2.24407036... *10^{80})^4 = 2.535980354348 \times 10^{321}$

Considering this value as a black hole mass, we obtain:

Mass = (2.24407e+80)^4

Radius = (3.33281e+53)^4

Temperature = (5.46755e-58)^4

Entropy = (1.33589e+177)^4 = $3.18480462712770 \times 10^{708}$

From the Ramanujan-Nardelli mock formula, performing the 4th root of mass, radius and temperature and insert them, we obtain:

sqrt[[[[1/((((((((4*1.962364415e+19))/((5*0.0864055^2))))*1/((2.24407e+80))* sqrt[[-(((((5.46755e-58) * 4*Pi*((3.33281e+53))^3-((3.33281e+53))^2))))) / ((6.67*10^-11))]]]]]

Input interpretation:

$$\sqrt{\frac{1}{\frac{4\times 1.962364415\times 10^{19}}{5\times 0.0864055^2}\times \frac{1}{2.24407\times 10^{80}}\sqrt{-\frac{5.46755\times 10^{-58}\times 4\pi (3.33281\times 10^{53})^3-(3.33281\times 10^{53})^2}{6.67\times 10^{-11}}}}}$$

Result:

1.6180794814243303347360750538172038135451378807775243565 56...

1.6180794814…

And:

1/sqrt[[[[1/(((((((4*1.962364415e+19))/((5*0.0864055^2))))*1/((2.24407e+80))*
sqrt[[-(((((5.46755e-58) * 4*Pi*((3.33281e+53))^3-((3.33281e+53))^2))))) /
((6.67*10^-11))]]]]]

Input interpretation:

$$\frac{1}{\sqrt{\frac{1}{\frac{4\times 1.962364415\times 10^{19}}{5\times 0.0864055^2}\times\frac{1}{2.24407\times 10^{80}}\sqrt{-\frac{5.46755\times 10^{-58}\times 4\pi(3.33281\times 10^{53})^3-(3.33281\times 10^{53})^2}{6.67\times 10^{-11}}}}}}$$

Result:

0.618017...

0.618017…

From the value of entropy $3.18480462712770\times 10^{708}$, we have that:

(3.18480462712770e+708)^1/3200

Input interpretation:

$$\sqrt[3200]{3.18480462712770\times 10^{708}}$$

Result:

1.664973069780218917...

1.66497306… is very near to the 14th root of the following Ramanujan's class invariant $Q = \left(G_{505}/G_{101/5}\right)^3 = 1164{,}2696$ i.e. 1,65578...

(3.18480462712770e+708)^1/(3571-123-47-11)

Input interpretation:

$$\sqrt[3571-123-47-11]{3.18480462712770\times 10^{708}}$$

Result:

1.618072435332936370...

1.618072435… result that is a very good approximation to the value of the golden ratio 1,618033988749...

(3.18480462712770e+708)^1/3461

Where 3461 is a prime number

Input interpretation:

$$\sqrt[3461]{3.18480462712770 \times 10^{708}}$$

Result:

1.602177071111089813...

1.602177071…

With regard the value of V that is equal to $1.28032258457...*10^{365}$, we note that, from the following Ramanujan mock theta function:

$$f(q)=1+\frac{q}{(1+q)^2}+\frac{q^4}{(1+q)^2(1+q^2)^2}+\cdots$$

for

$q = e^{-t}$ = e^(-0.8)

$$\frac{1}{e^{0.8}}$$

Result:

0.449329...

0.449329…

We obtain:

1+(0.449329)/(1+0.449329)^2 + (0.449329)^4 / ((1+0.449329)^2(1+0.449329^2)^2)

$$1+\frac{0.449329}{(1+0.449329)^2}+\frac{0.449329^4}{(1+0.449329)^2\left(1+0.449329^2\right)^2}$$

Result:

1.2273432177125915759279233830100830146813788876105258188 31...

f(q) = 1.22734321771259... result very near to the above value of V = $1.28032258457*10^{365}$ that can be considered about a multiple of this mock theta function.

With regard V’ that is equal to 1.040665045…*10^{551} . Performing the ln of this value, we obtain:

ln(1.040665045e+551)

Input interpretation:

$\log(1.040665045\times 10^{551})$

$\log(x)$ is the natural logarithm

Result:

1268.764246215...

1268.764246215….

Alternative representations:

$$\log(1.04067\times 10^{551}) = \log_e(1.04067\times 10^{551})$$

$$\log(1.04067\times 10^{551}) = \log(a)\log_a(1.04067\times 10^{551})$$

$$\log(1.04067\times 10^{551}) = -\text{Li}_1(1-1.04067\times 10^{551})$$

Series representations:

$$\log(1.04067\times 10^{551}) = \log(1.040665045000000\times 10^{551}) - \sum_{k=1}^{\infty}\frac{(-1)^k e^{-1268.764246214847124\,k}}{k}$$

$$\log(1.04067\times 10^{551}) = 2 i \pi \left\lfloor \frac{\arg(1.040665045000000\times 10^{551}-x)}{2\pi}\right\rfloor + \log(x) - \sum_{k=1}^{\infty}\frac{(-1)^k (1.040665045000000\times 10^{551}-x)^k x^{-k}}{k} \quad \text{for } x<0$$

$$\log(1.04067\times 10^{551}) = \left\lfloor \frac{\arg(1.040665045000000\times 10^{551} - z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) + \log(z_0) + \left\lfloor \frac{\arg(1.040665045000000\times 10^{551} - z_0)}{2\pi} \right\rfloor \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k (1.040665045000000\times 10^{551} - z_0)^k z_0^{-k}}{k}$$

Integral representations:

$$\log(1.04067\times 10^{551}) = \int_1^{1.040665045000000\times 10^{551}} \frac{1}{t}\, dt$$

$$\log(1.04067\times 10^{551}) = \frac{1}{2 i \pi} \int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{e^{-1268.764246214847124 s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\, ds \quad \text{for } -1 < \gamma < 0$$

With regard the result 1268.764246215, from the formula of the coefficients of the "5th order" mock theta function $\psi_1(q)$

a(n) ~ sqrt(phi) * exp(Pi*sqrt(n/15)) / (2*5^(1/4)*sqrt(n))

For n = 170, a(n) ≈ 1285, we obtain:

sqrt(golden ratio) * exp(Pi*sqrt(170/15)) / (2*5^(1/4)*sqrt(170))

Input:

$$\sqrt{\phi} \times \frac{\exp\left(\pi \sqrt{\frac{170}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{170}}$$

ϕ is the golden ratio

Exact result:

$$\frac{e^{\sqrt{34/3}\,\pi}\sqrt{\frac{\phi}{34}}}{2\times 5^{3/4}}$$

Decimal approximation:

1278.4157245124635565599513317251176704799841273781223149 85...

1278.4157245…

Property:

$\frac{e^{\sqrt{34/3}\,\pi}\sqrt{\frac{\phi}{34}}}{2\times 5^{3/4}}$ is a transcendental number

Alternate forms:

$$\frac{1}{20}\sqrt{\frac{1}{17}\left(5+\sqrt{5}\right)}\,e^{\sqrt{34/3}\,\pi}$$

$$\frac{\sqrt{\frac{1}{17}\left(1+\sqrt{5}\right)}\,e^{\sqrt{34/3}\,\pi}}{4\times 5^{3/4}}$$

Series representations:

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{170}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{170}} = \frac{\exp\left(\pi\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{34}{3}-z_0\right)^k z_0^{-k}}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}}{2\sqrt[4]{5}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(170-z_0)^k z_0^{-k}}{k!}}$$

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

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{170}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{170}} = \left(\exp\left(i\pi\left\lfloor\frac{\arg(\phi-x)}{2\pi}\right\rfloor\right)\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg\left(\frac{34}{3}-x\right)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k\left(\frac{34}{3}-x\right)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k(\phi-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\Bigg/\left(2\sqrt[4]{5}\exp\left(i\pi\left\lfloor\frac{\arg(170-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(170-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)$$

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

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{170}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{170}} =$$

$$\left(\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\left\lfloor\arg\left(\frac{34}{3}-z_0\right)/(2\pi)\right\rfloor} z_0^{1/2\left(1+\left\lfloor\arg\left(\frac{34}{3}-z_0\right)/(2\pi)\right\rfloor\right)} \sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{34}{3}-z_0\right)^k z_0^{-k}}{k!}\right)\right.$$
$$\left(\frac{1}{z_0}\right)^{-1/2\lfloor\arg(170-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor} z_0^{-1/2\lfloor\arg(170-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}$$
$$\left.\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right)\Big/\left(2\sqrt[4]{5}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(170-z_0)^k z_0^{-k}}{k!}\right)$$

And for n = 169.71 we obtain:

sqrt(golden ratio) * exp(Pi*sqrt(169.71/15)) / (2*5^(1/4)*sqrt(169.71))

Input interpretation:

$$\sqrt{\phi}\times\frac{\exp\left(\pi\sqrt{\frac{169.71}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{169.71}}$$

ϕ is the golden ratio

Result:

1268.01…

1268.01…

Series representations:

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{169.71}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{169.71}} = \frac{\exp\left(\pi\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(11.314-z_0)^k z_0^{-k}}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}}{2\sqrt[4]{5}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(169.71-z_0)^k z_0^{-k}}{k!}}$$

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

$$\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{169.71}{15}}\right)}{2\sqrt[4]{5}\sqrt{169.71}} = \left(\exp\left(i\pi\left\lfloor\frac{\arg(\phi-x)}{2\pi}\right\rfloor\right)\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(11.314-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(11.314-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k(\phi-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right) / \left(2\sqrt[4]{5}\exp\left(i\pi\left\lfloor\frac{\arg(169.71-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(169.71-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)$$

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

$$\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{169.71}{15}}\right)}{2\sqrt[4]{5}\sqrt{169.71}} = \left(\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(11.314-z_0)/(2\pi)\rfloor} z_0^{1/2(1+\lfloor\arg(11.314-z_0)/(2\pi)\rfloor)}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(11.314-z_0)^k z_0^{-k}}{k!}\right)\left(\frac{1}{z_0}\right)^{-1/2\lfloor\arg(169.71-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor} z_0^{-1/2\lfloor\arg(169.71-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right) / \left(2\sqrt[4]{5}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(169.71-z_0)^k z_0^{-k}}{k!}\right)$$

With regard V = 1.28032258457 * 10^{365} , we have that:

ln(1.28032258457e+365)

Input interpretation:

$\log(1.28032258457\times10^{365})$

$\log(x)$ is the natural logarithm

Result:

840.690671008202...

840.690671008202….

Alternative representations:

$$\log(1.280322584570000\times 10^{365}) = \log_e(1.280322584570000\times 10^{365})$$

$$\log(1.280322584570000\times 10^{365}) = \log(a)\log_a(1.280322584570000\times 10^{365})$$

$$\log(1.280322584570000\times 10^{365}) = -\text{Li}_1(1 - 1.280322584570000\times 10^{365})$$

Series representations:

$$\log(1.280322584570000\times 10^{365}) = \log(1.280322584570000\times 10^{365}) - \sum_{k=1}^{\infty} \frac{(-1)^k e^{-840.6906710082020101 k}}{k}$$

$$\log(1.280322584570000\times 10^{365}) = 2 i \pi \left\lfloor \frac{\arg(1.280322584570000\times 10^{365} - x)}{2\pi} \right\rfloor + \log(x) - \sum_{k=1}^{\infty} \frac{(-1)^k (1.280322584570000\times 10^{365} - x)^k x^{-k}}{k} \quad \text{for } x < 0$$

$$\log(1.280322584570000\times 10^{365}) = \left\lfloor \frac{\arg(1.280322584570000\times 10^{365} - z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) + \log(z_0) + \left\lfloor \frac{\arg(1.280322584570000\times 10^{365} - z_0)}{2\pi} \right\rfloor \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k (1.280322584570000\times 10^{365} - z_0)^k z_0^{-k}}{k}$$

Integral representations:

$$\log(1.280322584570000\times 10^{365}) = \int_1^{1.280322584570000\times 10^{365}} \frac{1}{t}\, dt$$

$$\log(1.280322584570000\times 10^{365}) = \frac{1}{2 i \pi} \int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{e^{-840.6906710082020101 s}\, \Gamma(-s)^2\, \Gamma(1+s)}{\Gamma(1-s)}\, ds \quad \text{for } -1 < \gamma < 0$$

With regard the result 840.69067... from the formula of the coefficients of the "5th order" mock theta function $\psi_1(q)$

a(n) ~ sqrt(phi) * exp(Pi*sqrt(n/15)) / (2*5^(1/4)*sqrt(n))

For n = 155, a(n) ≈ 835, we obtain:

sqrt(golden ratio) * exp(Pi*sqrt(155/15)) / (2*5^(1/4)*sqrt(155))

Input:

$$\sqrt{\phi} \times \frac{\exp\left(\pi \sqrt{\frac{155}{15}}\right)}{2 \sqrt[4]{5} \sqrt{155}}$$

ϕ is the golden ratio

Exact result:

$$\frac{e^{\sqrt{31/3}\,\pi} \sqrt{\frac{\phi}{31}}}{2 \times 5^{3/4}}$$

Decimal approximation:

830.63806370859829434267472212491000372474812225526875725 57...

830.6380637…

Property:

$$\frac{e^{\sqrt{31/3}\,\pi} \sqrt{\frac{\phi}{31}}}{2 \times 5^{3/4}}$$ is a transcendental number

Alternate forms:

$$\frac{1}{10} \sqrt{\frac{1}{62}\left(5+\sqrt{5}\right)}\, e^{\sqrt{31/3}\,\pi}$$

$$\frac{\sqrt{\frac{1}{62}\left(1+\sqrt{5}\right)}\, e^{\sqrt{31/3}\,\pi}}{2 \times 5^{3/4}}$$

Series representations:

$$\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{155}{15}}\right)}{2\sqrt[4]{5}\sqrt{155}} = \frac{\exp\left(\pi\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{31}{3}-z_0\right)^k z_0^{-k}}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}}{2\sqrt[4]{5}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(155-z_0)^k z_0^{-k}}{k!}}$$

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

$$\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{155}{15}}\right)}{2\sqrt[4]{5}\sqrt{155}} = \left(\exp\left(i\pi\left\lfloor\frac{\arg(\phi-x)}{2\pi}\right\rfloor\right)\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg\left(\frac{31}{3}-x\right)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k\left(\frac{31}{3}-x\right)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k(\phi-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right) \Big/ \left(2\sqrt[4]{5}\exp\left(i\pi\left\lfloor\frac{\arg(155-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(155-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)$$

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

$$\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{155}{15}}\right)}{2\sqrt[4]{5}\sqrt{155}} = \left(\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\left\lfloor\arg\left(\frac{31}{3}-z_0\right)/(2\pi)\right\rfloor} z_0^{1/2\left(1+\left\lfloor\arg\left(\frac{31}{3}-z_0\right)/(2\pi)\right\rfloor\right)}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{31}{3}-z_0\right)^k z_0^{-k}}{k!}\right)\left(\frac{1}{z_0}\right)^{-1/2\lfloor\arg(155-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor} z_0^{-1/2\lfloor\arg(155-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right) \Big/ \left(2\sqrt[4]{5}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(155-z_0)^k z_0^{-k}}{k!}\right)$$

For n = 155.4 , we obtain:

sqrt(golden ratio) * exp(Pi*sqrt(155.4/15)) / (2*5^(1/4)*sqrt(155.4))

Input:

$$\sqrt{\phi}\times\frac{\exp\left(\pi\sqrt{\frac{155.4}{15}}\right)}{2\sqrt[4]{5}\sqrt{155.4}}$$

ϕ is the golden ratio

Result:

840.442…

840.442…

Series representations:

$$\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{155.4}{15}}\right)}{2\sqrt[4]{5}\sqrt{155.4}} = \frac{\exp\left(\pi\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(10.36-z_0)^k z_0^{-k}}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}}{2\sqrt[4]{5}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(155.4-z_0)^k z_0^{-k}}{k!}}$$

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

$$\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{155.4}{15}}\right)}{2\sqrt[4]{5}\sqrt{155.4}} = \left(\exp\left(i\pi\left\lfloor\frac{\arg(\phi-x)}{2\pi}\right\rfloor\right)\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(10.36-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(10.36-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k(\phi-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right) \Big/ \left(2\sqrt[4]{5}\exp\left(i\pi\left\lfloor\frac{\arg(155.4-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(155.4-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)$$

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

$$\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{155.4}{15}}\right)}{2\sqrt[4]{5}\sqrt{155.4}} = \left(\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(10.36-z_0)/(2\pi)\rfloor} z_0^{1/2(1+\lfloor\arg(10.36-z_0)/(2\pi)\rfloor)}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(10.36-z_0)^k z_0^{-k}}{k!}\right)\left(\frac{1}{z_0}\right)^{-1/2\lfloor\arg(155.4-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor} z_0^{-1/2\lfloor\arg(155.4-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right) \Big/ \left(2\sqrt[4]{5}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(155.4-z_0)^k z_0^{-k}}{k!}\right)$$

Furthermore, from the ratio between the two ln , we obtain:

ln(1.040665045e+551) / ln(1.28032258457e+365)

Input interpretation:

$$\frac{\log(1.040665045\times 10^{551})}{\log(1.28032258457\times 10^{365})}$$

log(x) is the natural logarithm

Result:

1.509192726848...

1.509192726848...

Alternative representations:

$$\frac{\log(1.04067\times 10^{551})}{\log(1.280322584570000\times 10^{365})} = \frac{\log_e(1.04067\times 10^{551})}{\log_e(1.280322584570000\times 10^{365})}$$

$$\frac{\log(1.04067\times 10^{551})}{\log(1.280322584570000\times 10^{365})} = \frac{\log(a)\log_a(1.04067\times 10^{551})}{\log(a)\log_a(1.280322584570000\times 10^{365})}$$

$$\frac{\log(1.04067\times 10^{551})}{\log(1.280322584570000\times 10^{365})} = \frac{-\text{Li}_1(1-1.04067\times 10^{551})}{-\text{Li}_1(1-1.280322584570000\times 10^{365})}$$

Series representations:

$$\frac{\log(1.04067\times 10^{551})}{\log(1.280322584570000\times 10^{365})} = \frac{\log(1.040665045000000\times 10^{551}) - \sum_{k=1}^{\infty} \frac{(-1)^k e^{-1268.764246214847124\,k}}{k}}{\log(1.280322584570000\times 10^{365}) - \sum_{k=1}^{\infty} \frac{(-1)^k e^{-840.6906710082020101\,k}}{k}}$$

$$\frac{\log(1.04067\times 10^{551})}{\log(1.280322584570000\times 10^{365})} = \left(2 i \pi \left\lfloor \frac{\arg(1.040665045000000\times 10^{551} - x)}{2\pi} \right\rfloor + \log(x) - \sum_{k=1}^{\infty} \frac{(-1)^k (1.040665045000000\times 10^{551} - x)^k x^{-k}}{k}\right) \Big/ \left(2 i \pi \left\lfloor \frac{\arg(1.280322584570000\times 10^{365} - x)}{2\pi} \right\rfloor + \log(x) - \sum_{k=1}^{\infty} \frac{(-1)^k (1.280322584570000\times 10^{365} - x)^k x^{-k}}{k}\right) \quad \text{for } x < 0$$

$$\frac{\log(1.04067\times 10^{551})}{\log(1.280322584570000\times 10^{365})} = \left(\left\lfloor \frac{\arg(1.040665045000000\times 10^{551} - z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) + \log(z_0) + \left\lfloor \frac{\arg(1.040665045000000\times 10^{551} - z_0)}{2\pi} \right\rfloor \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k (1.040665045000000\times 10^{551} - z_0)^k z_0^{-k}}{k}\right) \Big/ \left(\left\lfloor \frac{\arg(1.280322584570000\times 10^{365} - z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) + \log(z_0) + \left\lfloor \frac{\arg(1.280322584570000\times 10^{365} - z_0)}{2\pi} \right\rfloor \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k (1.280322584570000\times 10^{365} - z_0)^k z_0^{-k}}{k}\right)$$

Integral representations:

$$\frac{\log(1.04067\times 10^{551})}{\log(1.280322584570000\times 10^{365})} = \frac{\int_1^{1.040665045000000\times 10^{551}} \frac{1}{t}\, dt}{\int_1^{1.280322584570000\times 10^{365}} \frac{1}{t}\, dt}$$

$$\frac{\log(1.04067\times 10^{551})}{\log(1.280322584570000\times 10^{365})} = \frac{\int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{e^{-1268.764246214847124 s}\, \Gamma(-s)^2\, \Gamma(1+s)}{\Gamma(1-s)}\, ds}{\int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{e^{-840.6906710082020101 s}\, \Gamma(-s)^2\, \Gamma(1+s)}{\Gamma(1-s)}\, ds} \quad \text{for } -1 < \gamma < 0$$

From the following mock theta function:

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

We obtain:

0.449329+0.449329^4(1+0.449329)+0.449329^9(1+0.449329)(1+0.449329^2)

$0.449329 + 0.449329^4 (1 + 0.449329) + 0.449329^9 (1 + 0.449329) (1 + 0.449329^2)$

0.509707374450926175465106350027401141383801983986000851664...

$\phi(q)$ = 0.50970737445...

We note that $1 + \phi(q)$ = **1.50970737445...** , value very near to the above result 1.509192726848

If we consider M_P in kg, from the previous eqs. (3.32) and (3.33) we obtain:

(50*2.17645e-8)

Input interpretation:

$50 \times 2.17645 \times 10^{-8}$

Result:

1.088225×10^{-6}

$1.088225*10^{-6}$

We have also:

1/12*1/(50*2.17645e-8)-(64*48)-18+4

Input interpretation:

$$\frac{1}{12} \times \frac{1}{50 \times 2.17645 \times 10^{-8}} - 64 \times 48 - 18 + 4$$

Result:

73491.300956450488946066606936371920635285288734713256296 56...

73491.30095645…

We have the following mathematical connections:

$$\left(\frac{1}{12}\times\frac{1}{50\times 2.17645\times 10^{-8}}-64\times 48-18+4\right)=73491.30095\ldots\Rightarrow$$

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

$$-3927+2\sqrt[13]{2.2983717437\times 10^{59}+2.0823329825883\times 10^{59}}$$

$$=73490.8437525\ldots.\Rightarrow$$

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

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

$$=73491.788325481187105491595720422205480251957265634133987\,00\ldots$$

$$=73491.7883254\ldots\Rightarrow$$

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

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

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

(5e-19)^2 (50*2.17645e-8)^20

Input interpretation:

$$(5 \times 10^{-19})^2 \, (50 \times 2.17645 \times 10^{-8})^{20}$$

Result:

$$1.356169537499452995748024606347439906999339002735260\ldots \times 10^{-156}$$

$1.3561695374\ldots*10^{-156}$

1.61803398e-5 = sqrt((((((((5e-19)^2 * (50*2.17645e-8)^20)))/(150Pi^2)*1/(0.5*((((((x/((((5e-19)^2*(50*2.17645e-8)^20))))^2))))))

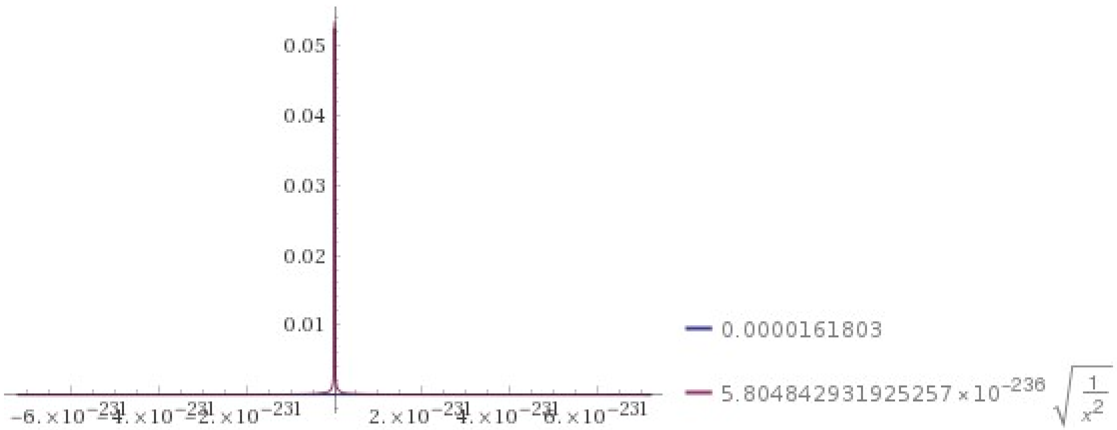
Input interpretation:

$$1.61803398 \times 10^{-5} = \sqrt{\frac{(5 \times 10^{-19})^2 \, (50 \times 2.17645 \times 10^{-8})^{20}}{150 \pi^2} \times \frac{1}{0.5 \left(\frac{x}{(5 \times 10^{-19})^2 \, (50 \times 2.17645 \times 10^{-8})^{20}}\right)^2}}$$

Result:

$$0.0000161803 = 5.804842931925257 \times 10^{-236} \sqrt{\frac{1}{x^2}}$$

Plot:



Alternate form assuming x>0:

$$0.0000161803 = \frac{5.804842931925257\times10^{-236}}{x}$$

Solutions:

$x \approx -3.58759\times10^{-231}$

$x \approx 3.58759\times10^{-231}$

Thence:

V’ = 3.58759×10^-231
V = 1.3561695374994529 × 10^-156

From which:

sqrt((((((1.35616953749e-156)))/(150Pi^2)*1/(((0.5*((((((3.58759e-231)^2/((((1.35616953749e-156))))^2)))))))))))

Input interpretation:

$$\sqrt{\frac{\frac{1.35616953749}{10^{156}}}{150\,\pi^2}\times\frac{1}{0.5\times\frac{\left(\frac{3.58759}{10^{231}}\right)^2}{\left(\frac{1.35616953749}{10^{156}}\right)^2}}}$$

Result:

0.0000161803409304423123300113699163515437446292201957 39757...

$1.618034093\ldots*10^{-5}$ as the previous result

We obtain also:

ln(1.3561695374e-156) / ln(3.58759e-231)

Input interpretation:

$$\frac{\log\left(\frac{1.3561695374}{10^{156}}\right)}{\log\left(\frac{3.58759}{10^{231}}\right)}$$

log(x) is the natural logarithm

Result:

0.676376370...

0.676376370…

Alternative representations:

$$\frac{\log\left(\frac{1.35616953740000}{10^{156}}\right)}{\log\left(\frac{3.58759}{10^{231}}\right)} = \frac{\log_e\left(\frac{1.35616953740000}{10^{156}}\right)}{\log_e\left(\frac{3.58759}{10^{231}}\right)}$$

$$\frac{\log\left(\frac{1.35616953740000}{10^{156}}\right)}{\log\left(\frac{3.58759}{10^{231}}\right)} = \frac{\log(a)\log_a\left(\frac{1.35616953740000}{10^{156}}\right)}{\log(a)\log_a\left(\frac{3.58759}{10^{231}}\right)}$$

$$\frac{\log\left(\frac{1.35616953740000}{10^{156}}\right)}{\log\left(\frac{3.58759}{10^{231}}\right)} = \frac{-\text{Li}_1\left(1-\frac{1.35616953740000}{10^{156}}\right)}{-\text{Li}_1\left(1-\frac{3.58759}{10^{231}}\right)}$$

Series representations:

$$\frac{\log\left(\frac{1.35616953740000}{10^{156}}\right)}{\log\left(\frac{3.58759}{10^{231}}\right)} = \left(2 i \pi \left\lfloor \frac{\arg(1.35616953740000\times 10^{-156}-x)}{2\pi} \right\rfloor + \log(x) - \sum_{k=1}^{\infty} \frac{(-1)^k (1.35616953740000\times 10^{-156}-x)^k x^{-k}}{k}\right) \Big/ \left(2 i \pi \left\lfloor \frac{\arg(3.58759\times 10^{-231}-x)}{2\pi} \right\rfloor + \log(x) - \sum_{k=1}^{\infty} \frac{(-1)^k (3.58759\times 10^{-231}-x)^k x^{-k}}{k}\right) \text{ for } x<0$$

$$\frac{\log\left(\frac{1.35616953740000}{10^{156}}\right)}{\log\left(\frac{3.58759}{10^{231}}\right)} = \left(\left\lfloor \frac{\arg(1.35616953740000\times 10^{-156}-z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) + \log(z_0) + \left\lfloor \frac{\arg(1.35616953740000\times 10^{-156}-z_0)}{2\pi} \right\rfloor \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k (1.35616953740000\times 10^{-156}-z_0)^k z_0^{-k}}{k}\right) \Big/ \left(\left\lfloor \frac{\arg(3.58759\times 10^{-231}-z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) + \log(z_0) + \left\lfloor \frac{\arg(3.58759\times 10^{-231}-z_0)}{2\pi} \right\rfloor \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k (3.58759\times 10^{-231}-z_0)^k z_0^{-k}}{k}\right)$$

$$\frac{\log\left(\frac{1.35616953740000}{10^{156}}\right)}{\log\left(\frac{3.58759}{10^{231}}\right)} = \left(2 i \pi \left\lfloor -\frac{-\pi + \arg\left(\frac{1.35616953740000\times 10^{-156}}{z_0}\right) + \arg(z_0)}{2\pi} \right\rfloor + \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k \left(1.35616953740000\times 10^{-156} - z_0\right)^k z_0^{-k}}{k}\right) \Bigg/ \left(2 i \pi \left\lfloor -\frac{-\pi + \arg\left(\frac{3.58759\times 10^{-231}}{z_0}\right) + \arg(z_0)}{2\pi} \right\rfloor + \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k \left(3.58759\times 10^{-231} - z_0\right)^k z_0^{-k}}{k}\right)$$

Integral representation:

$$\frac{\log\left(\frac{1.35616953740000}{10^{156}}\right)}{\log\left(\frac{3.58759}{10^{231}}\right)} = \frac{\int_1^{1.35616953740000\times 10^{-156}} \frac{1}{t}\, dt}{\int_1^{3.58759\times 10^{-231}} \frac{1}{t}\, dt}$$

And:

1/2 ((ln(3.58759e-231) / ln(1.3561695374e-156))^3

Input interpretation:

$$\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.3561695374}{10^{156}}\right)}\right)^3$$

log(x) is the natural logarithm

Result:

1.615863697584477923632071284804577337355101684534853759139...

1.6158636975844….

Alternative representations:

$$\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3 = \frac{1}{2}\left(\frac{\log_e\left(\frac{3.58759}{10^{231}}\right)}{\log_e\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3$$

$$\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3 = \frac{1}{2}\left(\frac{\log(a)\log_a\left(\frac{3.58759}{10^{231}}\right)}{\log(a)\log_a\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3$$

$$\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3 = \left(\frac{1}{2}\left(\frac{-\text{Li}_1\left(1-\frac{3.58759}{10^{231}}\right)}{-\text{Li}_1\left(1-\frac{1.35616953740000}{10^{156}}\right)}\right)^3 = \frac{1}{2}\right)$$

Series representations:

$$\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3 = \left(2 i \pi \left\lfloor \frac{\arg(3.58759\times 10^{-231}-x)}{2\pi}\right\rfloor + \log(x) - \sum_{k=1}^{\infty}\frac{(-1)^k (3.58759\times 10^{-231}-x)^k x^{-k}}{k}\right)^3 \Big/ \left(2\left(2 i \pi \left\lfloor \frac{\arg(1.35616953740000\times 10^{-156}-x)}{2\pi}\right\rfloor + \log(x) - \sum_{k=1}^{\infty}\frac{(-1)^k (1.35616953740000\times 10^{-156}-x)^k x^{-k}}{k}\right)^3\right) \text{ for } x < 0$$

$$\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3 = \left(2 i \pi \left\lfloor -\frac{-\pi + \arg\left(\frac{3.58759\times 10^{-231}}{z_0}\right) + \arg(z_0)}{2\pi}\right\rfloor + \log(z_0) - \sum_{k=1}^{\infty}\frac{(-1)^k (3.58759\times 10^{-231}-z_0)^k z_0^{-k}}{k}\right)^3 \Big/ \left(2\left(2 i \pi \left\lfloor -\frac{-\pi + \arg\left(\frac{1.35616953740000\times 10^{-156}}{z_0}\right) + \arg(z_0)}{2\pi}\right\rfloor + \log(z_0) - \sum_{k=1}^{\infty}\frac{(-1)^k (1.35616953740000\times 10^{-156}-z_0)^k z_0^{-k}}{k}\right)^3\right)$$

$$\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3 = \left(\left\lfloor\frac{\arg(3.58759\times 10^{-231}-z_0)}{2\pi}\right\rfloor \log\left(\frac{1}{z_0}\right)+\log(z_0)+\left\lfloor\frac{\arg(3.58759\times 10^{-231}-z_0)}{2\pi}\right\rfloor \log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k (3.58759\times 10^{-231}-z_0)^k z_0^{-k}}{k}\right)^3 \Big/ \left(2\left(\left\lfloor\frac{\arg(1.35616953740000\times 10^{-156}-z_0)}{2\pi}\right\rfloor \log\left(\frac{1}{z_0}\right)+\log(z_0)+\left\lfloor\frac{\arg(1.35616953740000\times 10^{-156}-z_0)}{2\pi}\right\rfloor \log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k (1.35616953740000\times 10^{-156}-z_0)^k z_0^{-k}}{k}\right)^3\right)$$

Integral representation:

$$\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3 = \frac{\left(\int_1^{3.58759\times 10^{-231}} \frac{1}{t}\,dt\right)^3}{2\left(\int_1^{1.35616953740000\times 10^{-156}} \frac{1}{t}\,dt\right)^3}$$

And:

Input interpretation:

$$\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.3561695374}{10^{156}}\right)}\right)^3}$$

Result:

0.61886408...

0.61886408…. result that is a very good approximation to the value of the golden ratio conjugate 0,618033988749...

Alternative representations:

$$\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3} = \frac{1}{\frac{1}{2}\left(\frac{\log_e\left(\frac{3.58759}{10^{231}}\right)}{\log_e\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}$$

$$\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3} = \frac{1}{\frac{1}{2}\left(\frac{\log(a)\log_a\left(\frac{3.58759}{10^{231}}\right)}{\log(a)\log_a\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}$$

$$\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3} = \frac{1}{\frac{1}{2}\left(\frac{-\text{Li}_1\left(1-\frac{3.58759}{10^{231}}\right)}{-\text{Li}_1\left(1-\frac{1.35616953740000}{10^{156}}\right)}\right)^3}$$

Series representations:

$$\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3} = \left(2\left(2 i \pi \left\lfloor \frac{\arg(1.35616953740000\times 10^{-156}-x)}{2\pi}\right\rfloor + \log(x) - \sum_{k=1}^{\infty}\frac{(-1)^k (1.35616953740000\times 10^{-156}-x)^k x^{-k}}{k}\right)^3\right) \Big/ \left(2 i \pi \left\lfloor \frac{\arg(3.58759\times 10^{-231}-x)}{2\pi}\right\rfloor + \log(x) - \sum_{k=1}^{\infty}\frac{(-1)^k (3.58759\times 10^{-231}-x)^k x^{-k}}{k}\right)^3 \quad \text{for } x < 0$$

$$\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3} = \left(2\left(2 i \pi \left\lfloor -\frac{-\pi + \arg\left(\frac{1.35616953740000\times 10^{-156}}{z_0}\right) + \arg(z_0)}{2\pi} \right\rfloor + \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k \left(1.35616953740000\times 10^{-156} - z_0\right)^k z_0^{-k}}{k}\right)^3\right) \Bigg/ \left(2 i \pi \left\lfloor -\frac{-\pi + \arg\left(\frac{3.58759\times 10^{-231}}{z_0}\right) + \arg(z_0)}{2\pi} \right\rfloor + \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k \left(3.58759\times 10^{-231} - z_0\right)^k z_0^{-k}}{k}\right)^3$$

$$\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3} = \left(2\left(\left\lfloor \frac{\arg\left(1.35616953740000\times 10^{-156} - z_0\right)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) + \log(z_0) + \left\lfloor \frac{\arg\left(1.35616953740000\times 10^{-156} - z_0\right)}{2\pi} \right\rfloor \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k \left(1.35616953740000\times 10^{-156} - z_0\right)^k z_0^{-k}}{k}\right)^3\right) \Bigg/ \left(\left\lfloor \frac{\arg\left(3.58759\times 10^{-231} - z_0\right)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) + \log(z_0) + \left\lfloor \frac{\arg\left(3.58759\times 10^{-231} - z_0\right)}{2\pi} \right\rfloor \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k \left(3.58759\times 10^{-231} - z_0\right)^k z_0^{-k}}{k}\right)^3$$

Integral representation:

$$\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3} = \frac{2\left(\int_1^{1.35616953740000\times 10^{-156}} \frac{1}{t}\, dt\right)^3}{\left(\int_1^{3.58759\times 10^{-231}} \frac{1}{t}\, dt\right)^3}$$

From which, we obtain:

((((1/(((1/2 ((ln(3.58759e-231) / ln(1.3561695374e-156))^3))))))))^1/128

Input interpretation:

$$\sqrt[128]{\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.3561695374}{10^{156}}\right)}\right)^3}}$$

Result:

0.9962580373...

0.9962580373….. result very near to the value of the following Rogers-Ramanujan continued fraction:

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

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

log base 0.9962580373 ((((1/(((1/2 ((ln(3.58759e-231) / ln(1.3561695374e-156))^3))))))))-Pi+1/golden ratio

Input interpretation:

$$\log_{0.9962580373}\left(\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.3561695374}{10^{156}}\right)}\right)^3}\right)-\pi+\frac{1}{\phi}$$

$\log(x)$ is the natural logarithm

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

ϕ is the golden ratio

Result:

125.4764...

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

Alternative representations:

$$\log_{0.996258}\left(\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right)-\pi+\frac{1}{\phi}=-\pi+\frac{1}{\phi}+\frac{\log\left(\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right)}{\log(0.996258)}$$

$$\log_{0.996258}\left(\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right)-\pi+\frac{1}{\phi}=$$

$$-\pi+\log_{0.996258}\left(\frac{1}{\frac{1}{2}\left(\frac{\log_e\left(\frac{3.58759}{10^{231}}\right)}{\log_e\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right)+\frac{1}{\phi}$$

$$\log_{0.996258}\left(\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right)-\pi+\frac{1}{\phi}=$$

$$-\pi+\log_{0.996258}\left(\frac{1}{\frac{1}{2}\left(\frac{\log(a)\log_a\left(\frac{3.58759}{10^{231}}\right)}{\log(a)\log_a\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right)+\frac{1}{\phi}$$

Series representations:

$$\log_{0.996258}\left(\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right)-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-\pi-\frac{\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+\frac{2\log^3(1.35616953740000\times10^{-156})}{\log^3(3.58759\times10^{-231})}\right)^k}{k}}{\log(0.996258)}$$

$$\log_{0.996258}\left(\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right)-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-\pi-266.739\log\left(\frac{2\log^3(1.35616953740000\times10^{-156})}{\log^3(3.58759\times10^{-231})}\right)-\log\left(\frac{2\log^3(1.35616953740000\times10^{-156})}{\log^3(3.58759\times10^{-231})}\right)\sum_{k=0}^{\infty}(-0.00374196)^k\,G(k)$$

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

$$\log_{0.996258}\left(\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right) - \pi + \frac{1}{\phi} = -\frac{1}{\phi}\left(-1 + \phi\pi - \phi\log_{0.996258}\left(\left(2\left(2 i \pi \left\lfloor \frac{\arg(1.35616953740000\times 10^{-156} - x)}{2\pi}\right\rfloor + \log(x) - \sum_{k=1}^{\infty}\frac{(-1)^k (1.35616953740000\times 10^{-156} - x)^k x^{-k}}{k}\right)^3\right) \Big/ \left(2 i \pi \left\lfloor \frac{\arg(3.58759\times 10^{-231} - x)}{2\pi}\right\rfloor + \log(x) - \sum_{k=1}^{\infty}\frac{(-1)^k (3.58759\times 10^{-231} - x)^k x^{-k}}{k}\right)^3\right)\right) \quad \text{for } x < 0$$

Integral representation:

$$\log_{0.996258}\left(\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right) - \pi + \frac{1}{\phi} = -\frac{-1 + \phi\pi - \phi\log_{0.996258}\left(\frac{2\left(\int_1^{1.35616953740000\times 10^{-156}}\frac{1}{t}\,dt\right)^3}{\left(\int_1^{3.58759\times 10^{-231}}\frac{1}{t}\,dt\right)^3}\right)}{\phi}$$

And:

log base 0.9962580373 ((((1/(((1/2 ((ln(3.58759e-231) / ln(1.3561695374e-156))^3))))))))+11+1/golden ratio

Input interpretation:

$$\log_{0.9962580373}\left(\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.3561695374}{10^{156}}\right)}\right)^3}\right)+11+\frac{1}{\phi}$$

$\log(x)$ is the natural logarithm

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

ϕ is the golden ratio

Result:

139.6180...

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

Alternative representations:

$$\log_{0.996258}\left(\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}+\frac{\log\left(\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right)}{\log(0.996258)}$$

$$\log_{0.996258}\left(\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right)+11+\frac{1}{\phi} =$$

$$11+\log_{0.996258}\left(\frac{1}{\frac{1}{2}\left(\frac{\log_e\left(\frac{3.58759}{10^{231}}\right)}{\log_e\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right)+\frac{1}{\phi}$$

$$\log_{0.996258}\left(\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right)+11+\frac{1}{\phi} =$$

$$11+\log_{0.996258}\left(\frac{1}{\frac{1}{2}\left(\frac{\log(a)\log_a\left(\frac{3.58759}{10^{231}}\right)}{\log(a)\log_a\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right)+\frac{1}{\phi}$$

Series representations:

$$\log_{0.996258}\left(\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right)+11+\frac{1}{\phi} =$$

$$11+\frac{1}{\phi}-\frac{\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+\frac{2\log^3(1.35616953740000\times10^{-156})}{\log^3(3.58759\times10^{-231})}\right)^k}{k}}{\log(0.996258)}$$

$$\log_{0.996258}\left(\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}-266.739\log\left(\frac{2\log^3(1.35616953740000\times10^{-156})}{\log^3(3.58759\times10^{-231})}\right)-\log\left(\frac{2\log^3(1.35616953740000\times10^{-156})}{\log^3(3.58759\times10^{-231})}\right)\sum_{k=0}^{\infty}(-0.00374196)^k\,G(k)$$

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

$$\log_{0.996258}\left(\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}-266.739\log\left(\frac{2\log^3(1.35616953740000\times10^{-156})}{\log^3(3.58759\times10^{-231})}\right)-\log\left(\frac{2\log^3(1.35616953740000\times10^{-156})}{\log^3(3.58759\times10^{-231})}\right)\sum_{k=0}^{\infty}(-0.00374196)^k\,G(k)$$

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

Integral representation:

$$\log_{0.996258}\left(\frac{1}{\frac{1}{2}\left(\frac{\log\left(\frac{3.58759}{10^{231}}\right)}{\log\left(\frac{1.35616953740000}{10^{156}}\right)}\right)^3}\right)+11+\frac{1}{\phi}=$$

$$\frac{1+11\,\phi+\phi\log_{0.996258}\left(\frac{2\left(\int_1^{1.35616953740000\times10^{-156}}\frac{1}{t}\,dt\right)^3}{\left(\int_1^{3.58759\times10^{-231}}\frac{1}{t}\,dt\right)^3}\right)}{\phi}$$

From:

22. Inflation
Revised August 2019 by *J. Ellis* (King's Coll. London; CERN) and D. Wands (Portsmouth U.).

The effective scalar potential for what we would nowadays call the 'inflaton' [49] takes the form

$$S = \frac{1}{2}\int d^4x\sqrt{-g}\left[R + (\partial_\mu \phi)^2 - \frac{3}{2}M^2(1 - e^{-\sqrt{2/3}\phi})^2\right] \tag{22.62}$$

when the action is written in the Einstein frame, and the potential is shown as the solid black line in Fig. 22.3. Using (Eq. (22.48)), one finds that the amplitude of the scalar density perturbations in this model is given by

$$\Delta_{\mathcal{R}} = \frac{3M^2}{8\pi^2}\sinh^4\left(\frac{\phi}{\sqrt{6}}\right), \tag{22.63}$$

The measured magnitude of the density fluctuations in the CMB requires $M \simeq 1.3 \times 10^{-5}$ in Planck units (assuming $N_* \simeq 55$), so one of the open questions in this model is why M is so small. Obtaining $N_* \simeq 55$ also requires an initial value of $\phi \simeq 5.5$, i.e., a super-Planckian initial condition, and another issue for this and many other models is how the form of the effective potential is protected and remains valid at such large field values. Using Eq. (22.51) one finds that $n_s \simeq 0.965$ for $N_* \simeq 55$ and using (Eq. (22.49)) one finds that $r \simeq 0.0035$. These predictions are consistent with the present data from *Planck* and other experiments, as seen in Fig. 22.1.

From (22.63):

$$\Delta_{\mathcal{R}} = \frac{3M^2}{8\pi^2}\sinh^4\left(\frac{\phi}{\sqrt{6}}\right),$$

((3*(1.3e-5)^2))/(8Pi^2)*sinh^4(5.5/sqrt6)

Input interpretation:

$$\frac{3(1.3\times 10^{-5})^2}{8\pi^2}\sinh^4\left(\frac{5.5}{\sqrt{6}}\right)$$

sinh(x) is the hyperbolic sine function

Result:

$3.05147... \times 10^{-9}$

$3.05147...*10^{-9}$

(((((3*(1.3e-5)^2))/(8Pi^2)*sinh^4(5.5/sqrt6))))^1/(64^2*5)

Input interpretation:

$$\sqrt[64^2\times 5]{\frac{3\,(1.3\times 10^{-5})^2}{8\,\pi^2}\sinh^4\left(\frac{5.5}{\sqrt{6}}\right)}$$

sinh(x) is the hyperbolic sine function

Result:

0.999043054...

0.999043054.... result very near to the value of the following Rogers-Ramanujan continued fraction:

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

And:

1/160* log base 0.999043054 (((((3*(1.3e-5)^2))/(8Pi^2)*sinh^4(5.5/sqrt6))))-Pi+1/golden ratio

Input interpretation:

$$\frac{1}{160}\log_{0.999043054}\left(\frac{3\,(1.3\times 10^{-5})^2}{8\,\pi^2}\sinh^4\left(\frac{5.5}{\sqrt{6}}\right)\right)-\pi+\frac{1}{\phi}$$

sinh(x) is the hyperbolic sine function
$\log_b(x)$ is the base- b logarithm
ϕ is the golden ratio

Result:

125.476...

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

1/160* log base 0.999043054 (((((3*(1.3e-5)^2))/(8Pi^2)*sinh^4(5.5/sqrt6))))+11+1/golden ratio

Input interpretation:

$$\frac{1}{160} \log_{0.999043054}\left(\frac{3\,(1.3\times 10^{-5})^2}{8\,\pi^2}\sinh^4\left(\frac{5.5}{\sqrt{6}}\right)\right)+11+\frac{1}{\phi}$$

$\sinh(x)$ is the hyperbolic sine function
$\log_b(x)$ is the base- b logarithm
ϕ is the golden ratio

Result:

139.618...

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

From:

On the slope of the curvature power spectrum in non-attractor inflation
Ogan Ozsoy, Gianmassimo Tasinato
arXiv:1912.01061v2 [astro-ph.CO] 9 Dec 2019

We have that:

$$\tilde{\mathcal{C}}_0^{G_2} = -\frac{3\,e^{-(\eta_c+3)\Delta N_3}}{2(\eta_c+3)^2}+\frac{3\,e^{-(\eta_c+5)\Delta N_3}}{(\eta_c+1)(\eta_c+5)}-\frac{3\,e^{-2(\eta_c+3)\Delta N_3}}{2(\eta_c+1)(\eta_c+3)} -\frac{3\,(\eta_c^2+6\eta_c+7)}{4(\eta_c+3)(\eta_c+5)},$$

$$\tilde{\mathcal{C}}_{-2}^{G_2} = \frac{3(\eta_c+1)\,e^{-(\eta_c+3)\Delta N_3}}{2(\eta_c+3)^2}+\frac{3\,e^{-2(\eta_c+3)\Delta N_3}}{2(\eta_c+3)^2}+\frac{3\,(\eta_c^2+4\eta_c+5)}{4(\eta_c+3)^2},$$

$$\tilde{\mathcal{C}}_{x_k^2\ln(x_k)}^{G_2} = -\frac{3\,e^{-(\eta_c+3)\Delta N_3}}{\eta_c+3}-\frac{3(\eta_c+1)}{2(\eta_c+3)}. \quad \text{(C.42)}$$

From:

$$\tilde{C}_0^{G_2} = -\frac{3\ e^{-(\eta_c+3)\Delta N_3}}{2(\eta_c+3)^2} + \frac{3\ e^{-(\eta_c+5)\Delta N_3}}{(\eta_c+1)(\eta_c+5)} - \frac{3\ e^{-2(\eta_c+3)\Delta N_3}}{2(\eta_c+1)(\eta_c+3)} - \frac{3\,(\eta_c^2+6\eta_c+7)}{4(\eta_c+3)(\eta_c+5)},$$

we obtain:

-((3e^(-(-6.8+3)*2)))/(2(-6.8+3)^2) + ((3e^(-(-6.8+5)*2)))/((-6.8+1)(-6.8+5))-((3e^(-2(-6.8+3)*2)))/((2(-6.8+1)(-6.8+3)))-((3(6.8^2+6*(-6.8)+7)))/((4(-6.8+3)(-6.8+5)))

Input:

$$-\frac{3\,e^{-(-6.8+3)\times 2}}{2\,(-6.8+3)^2} + \frac{3\,e^{-(-6.8+5)\times 2}}{(-6.8+1)\,(-6.8+5)} - \frac{3\,e^{-2\,(-6.8+3)\times 2}}{2\,(-6.8+1)\,(-6.8+3)} - \frac{3\,(6.8^2+6\times(-6.8)+7)}{4\,(-6.8+3)\,(-6.8+5)}$$

Result:

$-2.71940\ldots \times 10^5$

$-2.71940\ldots * 10^5$

Alternative representation:

$$-\frac{3\,e^{-(-6.8+3)\,2}}{2\,(-6.8+3)^2} + \frac{3\,e^{-(-6.8+5)\,2}}{(-6.8+1)\,(-6.8+5)} - \frac{3\,e^{-2\,(-6.8+3)\,2}}{2\,(-6.8+1)\,(-6.8+3)} - \frac{3\,(6.8^2+6\,(-6.8)+7)}{4\,(-6.8+3)\,(-6.8+5)} = -\frac{3\exp^{-(-6.8+3)\,2}(z)}{2\,(-6.8+3)^2} + \frac{3\exp^{-(-6.8+5)\,2}(z)}{(-6.8+1)\,(-6.8+5)} - \frac{3\exp^{-2\,(-6.8+3)\,2}(z)}{2\,(-6.8+1)\,(-6.8+3)} - \frac{3\,(6.8^2+6\,(-6.8)+7)}{4\,(-6.8+3)\,(-6.8+5)} \quad \text{for } z = 1$$

Series representations:

$$-\frac{3\,e^{-(-6.8+3)\,2}}{2\,(-6.8+3)^2} + \frac{3\,e^{-(-6.8+5)\,2}}{(-6.8+1)\,(-6.8+5)} - \frac{3\,e^{-2\,(-6.8+3)\,2}}{2\,(-6.8+1)\,(-6.8+3)} - \frac{3\,(6.8^2+6\,(-6.8)+7)}{4\,(-6.8+3)\,(-6.8+5)} = 0.287356\left(-4.74684 + \left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{3.6} - 0.361496\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{7.6} - 0.236842\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{15.2}\right)$$

$$-\frac{3\,e^{-(-6.8+3)\,2}}{2\,(-6.8+3)^2} + \frac{3\,e^{-(-6.8+5)\,2}}{(-6.8+1)\,(-6.8+5)} - \frac{3\,e^{-2\,(-6.8+3)\,2}}{2\,(-6.8+1)\,(-6.8+3)} - \frac{3\,(6.8^2+6\,(-6.8)+7)}{4\,(-6.8+3)\,(-6.8+5)} = 0.0236981\left(-57.5589 + \left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{3.6} - 0.0225935\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{7.6} - 0.0000762976\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{15.2}\right)$$

$$-\frac{3 e^{-(-6.8+3)2}}{2(-6.8+3)^2}+\frac{3 e^{-(-6.8+5)2}}{(-6.8+1)(-6.8+5)}-\frac{3 e^{-2(-6.8+3)2}}{2(-6.8+1)(-6.8+3)}-\frac{3(6.8^2+6(-6.8)+7)}{4(-6.8+3)(-6.8+5)}= 0.287356\left(-4.74684+\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{3.6}- 0.361496\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{7.6}-0.236842\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{15.2}\right)$$

-0.61803398+ln[-((3e^(-(-6.8+3)*2)))/(2(-6.8+3)^2) + ((3e^(-(-6.8+5)*2)))/((-6.8+1)(-6.8+5))-((3e^(-2(-6.8+3)*2)))/((2(-6.8+1)(-6.8+3)))-((3(6.8^2+6*(-6.8)+7)))/((4(-6.8+3)(-6.8+5)))]

Input interpretation:

$$-0.61803398+\log\left(-\frac{3 e^{-(-6.8+3)\times 2}}{2(-6.8+3)^2}+\frac{3 e^{-(-6.8+5)\times 2}}{(-6.8+1)(-6.8+5)}-\frac{3 e^{-2(-6.8+3)\times 2}}{2(-6.8+1)(-6.8+3)}-\frac{3(6.8^2+6\times(-6.8)+7)}{4(-6.8+3)(-6.8+5)}\right)$$

log(x) is the natural logarithm

Result:

11.8953... +
3.14159... i

Polar coordinates:

$r = 12.3032$ (radius), $\theta = 14.7942°$ (angle)

12.3032

Alternative representations:

$$-0.618034+\log\left(-\frac{3 e^{-(-6.8+3)2}}{2(-6.8+3)^2}+\frac{3 e^{-(-6.8+5)2}}{(-6.8+1)(-6.8+5)}-\frac{3 e^{-2(-6.8+3)2}}{2(-6.8+1)(-6.8+3)}-\frac{3(6.8^2+6(-6.8)+7)}{4(-6.8+3)(-6.8+5)}\right)= -0.618034+\log_e\left(-\frac{3(-33.8+6.8^2)}{27.36}+\frac{3 e^{3.6}}{10.44}-\frac{3 e^{15.2}}{44.08}-\frac{3 e^{7.6}}{2(-3.8)^2}\right)$$

$$-0.618034+\log\left(-\frac{3 e^{-(-6.8+3)2}}{2(-6.8+3)^2}+\frac{3 e^{-(-6.8+5)2}}{(-6.8+1)(-6.8+5)}-\frac{3 e^{-2(-6.8+3)2}}{2(-6.8+1)(-6.8+3)}-\frac{3(6.8^2+6(-6.8)+7)}{4(-6.8+3)(-6.8+5)}\right)= -0.618034+\log(a)\log_a\left(-\frac{3(-33.8+6.8^2)}{27.36}+\frac{3 e^{3.6}}{10.44}-\frac{3 e^{15.2}}{44.08}-\frac{3 e^{7.6}}{2(-3.8)^2}\right)$$

$$-0.618034+\log\left(-\frac{3e^{-(-6.8+3)2}}{2(-6.8+3)^2}+\frac{3e^{-(-6.8+5)2}}{(-6.8+1)(-6.8+5)}-\frac{3e^{-2(-6.8+3)2}}{2(-6.8+1)(-6.8+3)}-\frac{3(6.8^2+6(-6.8)+7)}{4(-6.8+3)(-6.8+5)}\right)=$$
$$-0.618034-\mathrm{Li}_1\left(1+\frac{3(-33.8+6.8^2)}{27.36}-\frac{3e^{3.6}}{10.44}+\frac{3e^{15.2}}{44.08}+\frac{3e^{7.6}}{2(-3.8)^2}\right)$$

Series representations:

$$-0.618034+\log\left(-\frac{3e^{-(-6.8+3)2}}{2(-6.8+3)^2}+\frac{3e^{-(-6.8+5)2}}{(-6.8+1)(-6.8+5)}-\frac{3e^{-2(-6.8+3)2}}{2(-6.8+1)(-6.8+3)}-\frac{3(6.8^2+6(-6.8)+7)}{4(-6.8+3)(-6.8+5)}\right)=$$
$$-0.618034+\log(-2.36404+0.287356e^{3.6}-0.103878e^{7.6}-0.0680581e^{15.2})-\sum_{k=1}^{\infty}\frac{(-1)^k(-2.36404+0.287356e^{3.6}-0.103878e^{7.6}-0.0680581e^{15.2})^{-k}}{k}$$

$$-0.618034+\log\left(-\frac{3e^{-(-6.8+3)2}}{2(-6.8+3)^2}+\frac{3e^{-(-6.8+5)2}}{(-6.8+1)(-6.8+5)}-\frac{3e^{-2(-6.8+3)2}}{2(-6.8+1)(-6.8+3)}-\frac{3(6.8^2+6(-6.8)+7)}{4(-6.8+3)(-6.8+5)}\right)=-0.618034+$$
$$2i\pi\left\lfloor\frac{\arg(-1.36404+0.287356e^{3.6}-0.103878e^{7.6}-0.0680581e^{15.2}-x)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k(-1.36404+0.287356e^{3.6}-0.103878e^{7.6}-0.0680581e^{15.2}-x)^k x^{-k}}{k}$$
for $x<0$

$$-0.618034+\log\left(-\frac{3e^{-(-6.8+3)2}}{2(-6.8+3)^2}+\frac{3e^{-(-6.8+5)2}}{(-6.8+1)(-6.8+5)}-\frac{3e^{-2(-6.8+3)2}}{2(-6.8+1)(-6.8+3)}-\frac{3(6.8^2+6(-6.8)+7)}{4(-6.8+3)(-6.8+5)}\right)=-0.618034+$$
$$2i\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{-1.36404+0.287356e^{3.6}-0.103878e^{7.6}-0.0680581e^{15.2}}{z_0}\right)+\arg(z_0)}{2\pi}\right\rfloor+\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k(-1.36404+0.287356e^{3.6}-0.103878e^{7.6}-0.0680581e^{15.2}-z_0)^k z_0^{-k}}{k}$$

Integral representation:

$$-0.618034 + \log\left(-\frac{3\,e^{-(-6.8+3)\,2}}{2\,(-6.8+3)^2} + \frac{3\,e^{-(-6.8+5)\,2}}{(-6.8+1)\,(-6.8+5)} - \frac{3\,e^{-2\,(-6.8+3)\,2}}{2\,(-6.8+1)\,(-6.8+3)} - \frac{3\,(6.8^2+6\,(-6.8)+7)}{4\,(-6.8+3)\,(-6.8+5)}\right) = -0.618034 + \int_1^{-1.36404+0.287356\,e^{3.6}-0.103878\,e^{7.6}-0.0680581\,e^{15.2}} \frac{1}{t}\,dt$$

(-[-((3e^(-(-6.8+3)*2)))/(2(-6.8+3)^2) + ((3e^(-(-6.8+5)*2)))/((-6.8+1)(-6.8+5))-((3e^(-2(-6.8+3)*2)))/((2(-6.8+1)(-6.8+3)))-((3(6.8^2+6*(-6.8)+7)))/((4(-6.8+3)(-6.8+5)))])^1/5

Input:

$$\left(-\left(-\frac{3\,e^{-(-6.8+3)\times 2}}{2\,(-6.8+3)^2} + \frac{3\,e^{-(-6.8+5)\times 2}}{(-6.8+1)\,(-6.8+5)} - \frac{3\,e^{-2\,(-6.8+3)\times 2}}{2\,(-6.8+1)\,(-6.8+3)} - \frac{3\,(6.8^2+6\times(-6.8)+7)}{4\,(-6.8+3)\,(-6.8+5)}\right)\right)^{\wedge}(1/5)$$

Result:

12.2150...

12.2150.... result very near to the black hole entropy value 12.1904

(-[-((3e^(-(-6.8+3)*2)))/(2(-6.8+3)^2) + ((3e^(-(-6.8+5)*2)))/((-6.8+1)(-6.8+5))-((3e^(-2(-6.8+3)*2)))/((2(-6.8+1)(-6.8+3)))-((3(6.8^2+6*(-6.8)+7)))/((4(-6.8+3)(-6.8+5)))])^1/25-(29+2)/10^3

Input:

$$\left(-\left(-\frac{3\,e^{-(-6.8+3)\times 2}}{2\,(-6.8+3)^2} + \frac{3\,e^{-(-6.8+5)\times 2}}{(-6.8+1)\,(-6.8+5)} - \frac{3\,e^{-2\,(-6.8+3)\times 2}}{2\,(-6.8+1)\,(-6.8+3)} - \frac{3\,(6.8^2+6\times(-6.8)+7)}{4\,(-6.8+3)\,(-6.8+5)}\right)\right)^{\wedge}(1/25) - \frac{29+2}{10^3}$$

Result:

1.61860...

1.61860…. result that is a very good approximation to the value of the golden ratio 1,618033988749...

Alternative representation:

$$\left(-\left(-\frac{3\,e^{-(-6.8+3)\,2}}{2\,(-6.8+3)^2}+\frac{3\,e^{-(-6.8+5)\,2}}{(-6.8+1)\,(-6.8+5)}-\frac{3\,e^{-2\,(-6.8+3)\,2}}{2\,(-6.8+1)\,(-6.8+3)}-\frac{3\left(6.8^2+6\,(-6.8)+7\right)}{4\,(-6.8+3)\,(-6.8+5)}\right)\right)\hat{}\,(1/25)-\frac{29+2}{10^3}=$$
$$\left(-\left(-\frac{3\exp^{-(-6.8+3)\,2}(z)}{2\,(-6.8+3)^2}+\frac{3\exp^{-(-6.8+5)\,2}(z)}{(-6.8+1)\,(-6.8+5)}-\frac{3\exp^{-2\,(-6.8+3)\,2}(z)}{2\,(-6.8+1)\,(-6.8+3)}-\frac{3\left(6.8^2+6\,(-6.8)+7\right)}{4\,(-6.8+3)\,(-6.8+5)}\right)\right)\hat{}\,(1/25)-\frac{29+2}{10^3}\quad \text{for } z=1$$

Series representations:

$$\left(-\left(-\frac{3\,e^{-(-6.8+3)\,2}}{2\,(-6.8+3)^2}+\frac{3\,e^{-(-6.8+5)\,2}}{(-6.8+1)\,(-6.8+5)}-\frac{3\,e^{-2\,(-6.8+3)\,2}}{2\,(-6.8+1)\,(-6.8+3)}-\frac{3\left(6.8^2+6\,(-6.8)+7\right)}{4\,(-6.8+3)\,(-6.8+5)}\right)\right)\hat{}\,(1/25)-\frac{29+2}{10^3}=$$
$$\frac{1}{1000}\left(-31+1000\left(1.36404-0.287356\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{3.6}+0.103878\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{7.6}+0.0680581\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{15.2}\right)\hat{}\,(1/25)\right)$$

$$\left(-\left(-\frac{3\,e^{-(-6.8+3)\,2}}{2\,(-6.8+3)^2}+\frac{3\,e^{-(-6.8+5)\,2}}{(-6.8+1)\,(-6.8+5)}-\frac{3\,e^{-2\,(-6.8+3)\,2}}{2\,(-6.8+1)\,(-6.8+3)}-\frac{3\left(6.8^2+6\,(-6.8)+7\right)}{4\,(-6.8+3)\,(-6.8+5)}\right)\right)\hat{}\,(1/25)-\frac{29+2}{10^3}=$$
$$\frac{1}{1000}\left(-31+1000\left(1.36404-0.0236981\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{3.6}+0.000535422\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{7.6}+1.80811\times10^{-6}\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{15.2}\right)\hat{}\,(1/25)\right)$$

$$\left(-\left(-\frac{3\,e^{-(-6.8+3)\,2}}{2\,(-6.8+3)^2}+\frac{3\,e^{-(-6.8+5)\,2}}{(-6.8+1)\,(-6.8+5)}-\frac{3\,e^{-2\,(-6.8+3)\,2}}{2\,(-6.8+1)\,(-6.8+3)}-\frac{3\left(6.8^2+6\,(-6.8)+7\right)}{4\,(-6.8+3)\,(-6.8+5)}\right)\right)\hat{}\,(1/25)-\frac{29+2}{10^3}=$$
$$\frac{1}{1000}\left(-31+1000\left(1.36404-0.287356\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{3.6}+0.103878\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{7.6}+0.0680581\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{15.2}\right)\hat{}\,(1/25)\right)$$

1/10^27((((((-[-((3e^(-(-3.8)*2)))/(2(-3.8)^2) + ((3e^(-(-1.8)*2)))/((-5.8)(-1.8))-((3e^(-2(-3.8)*2)))/((2(-5.8)(-3.8)))-((3(6.8^2+6*(-6.8)+7)))/((4(-3.8)(-1.8)))])^1/25+(21+2)/10^3)))))

Input:

$$\frac{1}{10^{27}}\left(\sqrt[25]{-\left(-\frac{3\,e^{-(-3.8)\times 2}}{2\,(-3.8)^2}+-\frac{3\,e^{-(-1.8)\times 2}}{5.8\times(-1.8)}-\frac{3\,e^{-2\times(-3.8)\times 2}}{2\times(-5.8)\times(-3.8)}-\frac{3\,(6.8^2+6\times(-6.8)+7)}{4\times(-3.8)\times(-1.8)}\right)}+\frac{21+2}{10^3}\right)$$

Result:

$1.67260... \times 10^{-27}$

$1.67260...*10^{-27}$ result practically equal to the proton mass

Alternative representation:

$$\frac{\sqrt[25]{-\left(-\frac{3\,e^{-(-3.8)2}}{2\,(-3.8)^2}+-\frac{3\,e^{-(-1.8)2}}{5.8\,(-1.8)}-\frac{3\,e^{-2\,(-3.8)2}}{2\,(-5.8)(-3.8)}-\frac{3\,(6.8^2+6\,(-6.8)+7)}{4\,(-3.8)(-1.8)}\right)}+\frac{21+2}{10^3}}{10^{27}}=\frac{\sqrt[25]{-\left(-\frac{3\exp^{-(-3.8)2}(z)}{2\,(-3.8)^2}+-\frac{3\exp^{-(-1.8)2}(z)}{5.8\,(-1.8)}-\frac{3\exp^{-2\,(-3.8)2}(z)}{2\,(-5.8)(-3.8)}-\frac{3\,(6.8^2+6\,(-6.8)+7)}{4\,(-3.8)(-1.8)}\right)}+\frac{21+2}{10^3}}{10^{27}}$$

for $z = 1$

Series representations:

$$\frac{\sqrt[25]{-\left(-\frac{3\,e^{-(-3.8)2}}{2\,(-3.8)^2}+-\frac{3\,e^{-(-1.8)2}}{5.8\,(-1.8)}-\frac{3\,e^{-2\,(-3.8)2}}{2\,(-5.8)(-3.8)}-\frac{3\,(6.8^2+6\,(-6.8)+7)}{4\,(-3.8)(-1.8)}\right)}+\frac{21+2}{10^3}}{10^{27}}=\left(23+1000\left(1.36404-0.287356\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{3.6}+0.103878\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{7.6}+0.0680581\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{15.2}\right)^\wedge(1/25)\right)/1\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000$$

$$\frac{\sqrt[25]{-\left(-\frac{3e^{-(-3.8)2}}{2(-3.8)^2}+-\frac{3e^{-(-1.8)2}}{5.8(-1.8)}-\frac{3e^{-2(-3.8)2}}{2(-5.8)(-3.8)}-\frac{3(6.8^2+6(-6.8)+7)}{4(-3.8)(-1.8)}\right)}+\frac{21+2}{10^3}}{10^{27}} =$$

$$\left(23+1000\left(1.36404-0.0236981\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{3.6}+0.000535422\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{7.6}+1.80811\times10^{-6}\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{15.2}\right)\text{^}(1/25)\right)/1\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000$$

$$\frac{\sqrt[25]{-\left(-\frac{3e^{-(-3.8)2}}{2(-3.8)^2}+-\frac{3e^{-(-1.8)2}}{5.8(-1.8)}-\frac{3e^{-2(-3.8)2}}{2(-5.8)(-3.8)}-\frac{3(6.8^2+6(-6.8)+7)}{4(-3.8)(-1.8)}\right)}+\frac{21+2}{10^3}}{10^{27}} =$$

$$\left(23+1000\left(1.36404-0.287356\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{3.6}+0.103878\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{7.6}+0.0680581\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{15.2}\right)\text{^}(1/25)\right)/1\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000$$

(-[-((3e^(-(-3.8)*2)))/(2(-3.8)^2) + ((3e^(-(-1.8)*2)))/((-5.8)(-1.8))-((3e^(-2(-3.8)*2)))/((2(-5.8)(-3.8)))-((3(6.8^2+6*(-6.8)+7)))/((4(-3.8)(-1.8)))])^1/25

Input:

$$\sqrt[25]{-\left(-\frac{3e^{-(-3.8)\times2}}{2(-3.8)^2}+-\frac{3e^{-(-1.8)\times2}}{5.8\times(-1.8)}-\frac{3e^{-2\times(-3.8)\times2}}{2\times(-5.8)\times(-3.8)}-\frac{3(6.8^2+6\times(-6.8)+7)}{4\times(-3.8)\times(-1.8)}\right)}$$

Result:

1.64960...

$1.64960\ldots \approx \zeta(2) = \frac{\pi^2}{6} = 1.644934\ldots$

((1/(-[-((3e^(-(-3.8)*2)))/(2(-3.8)^2) + ((3e^(-(-1.8)*2)))/((-5.8)(-1.8))-((3e^(-2(-3.8)*2)))/((2(-5.8)(-3.8)))-((3(6.8^2+6*(-6.8)+7)))/((4(-3.8)(-1.8)))])^1/25))^1/128

Input:

$$\sqrt[128]{\frac{1}{\sqrt[25]{-\left(-\frac{3\,e^{-(-3.8)\times 2}}{2\,(-3.8)^2}+-\frac{3\,e^{-(-1.8)\times 2}}{5.8\times(-1.8)}-\frac{3\,e^{-2\times(-3.8)\times 2}}{2\times(-5.8)\times(-3.8)}-\frac{3\,(6.8^2+6\times(-6.8)+7)}{4\times(-3.8)\times(-1.8)}\right)}}}$$

Result:

0.99609722...

0.99609722…

((1/(-[-((3e^(-(-3.8)*2)))/(2(-3.8)^2) + ((3e^(-(-1.8)*2)))/((-5.8)(-1.8))-((3e^(-2(-3.8)*2)))/((2(-5.8)(-3.8)))-((3(6.8^2+6*(-6.8)+7)))/((4(-3.8)(-1.8)))])^1/25))^1/64

Input:

$$\sqrt[64]{\frac{1}{\sqrt[25]{-\left(-\frac{3\,e^{-(-3.8)\times 2}}{2\,(-3.8)^2}+-\frac{3\,e^{-(-1.8)\times 2}}{5.8\times(-1.8)}-\frac{3\,e^{-2\times(-3.8)\times 2}}{2\times(-5.8)\times(-3.8)}-\frac{3\,(6.8^2+6\times(-6.8)+7)}{4\times(-3.8)\times(-1.8)}\right)}}}$$

Result:

0.99220967...

0.99220967... result very near to the value of the following Rogers-Ramanujan continued fraction:

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

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

2*log base 0.99220967(0.606207197729469)-Pi+1/golden ratio

Input interpretation:

$$2\log_{0.99220967}(0.606207197729469)-\pi+\frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

125.476...

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

Alternative representation:

$$2 \log_{0.99221}(0.6062071977294690000) - \pi + \frac{1}{\phi} = -\pi + \frac{1}{\phi} + \frac{2 \log(0.6062071977294690000)}{\log(0.99221)}$$

Series representations:

$$2 \log_{0.99221}(0.6062071977294690000) - \pi + \frac{1}{\phi} = \frac{1}{\phi} - \pi - \frac{2 \sum_{k=1}^{\infty} \frac{(-1)^k (-0.3937928022705310000)^k}{k}}{\log(0.99221)}$$

$$2 \log_{0.99221}(0.6062071977294690000) - \pi + \frac{1}{\phi} = \frac{1}{\phi} - \pi - 255.729 \log(0.6062071977294690000) - 2 \log(0.6062071977294690000) \sum_{k=0}^{\infty} (-0.00779033)^k G(k)$$

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

2*log base 0.99220967(0.606207197729469)+11+1/golden ratio

Input interpretation:

$$2 \log_{0.99220967}(0.606207197729469) + 11 + \frac{1}{\phi}$$

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

ϕ is the golden ratio

Result:

139.618...

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

Alternative representation:

$$2 \log_{0.99221}(0.6062071977294690000) + 11 + \frac{1}{\phi} = 11 + \frac{1}{\phi} + \frac{2 \log(0.6062071977294690000)}{\log(0.99221)}$$

Series representations:

$$2 \log_{0.99221}(0.6062071977294690000) + 11 + \frac{1}{\phi} = 11 + \frac{1}{\phi} - \frac{2 \sum_{k=1}^{\infty} \frac{(-1)^k (-0.3937928022705310000)^k}{k}}{\log(0.99221)}$$

$$2 \log_{0.99221}(0.6062071977294690000) + 11 + \frac{1}{\phi} = 11 + \frac{1}{\phi} - 255.729 \log(0.6062071977294690000) - 2 \log(0.6062071977294690000) \sum_{k=0}^{\infty} (-0.00779033)^k G(k)$$

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

((1/(-[-((3e^(-(-3.8)*2)))/(2(-3.8)^2) + ((3e^(-(-1.8)*2)))/((-5.8)(-1.8))-((3e^(-2(-3.8)*2)))/((2(-5.8)(-3.8)))-((3(6.8^2+6*(-6.8)+7)))/((4(-3.8)(-1.8)))])^1/25))^1/12

Input:

$$\sqrt[12]{\frac{1}{\sqrt[25]{-\left(-\frac{3\,e^{-(-3.8)\times 2}}{2\,(-3.8)^2}+-\frac{3\,e^{-(-1.8)\times 2}}{5.8\times(-1.8)}-\frac{3\,e^{-2\times(-3.8)\times 2}}{2\times(-5.8)\times(-3.8)}-\frac{3\,(6.8^2+6\times(-6.8)+7)}{4\times(-3.8)\times(-1.8)}\right)}}}$$

Result:

0.9591468...

0.9591468... result very near to the spectral index n_s , to the mesonic Regge slope, to the inflaton value at the end of the inflation 0.9402 and to the value of the following Rogers-Ramanujan continued fraction:

$$\frac{e^{-\frac{\pi}{5}}}{\sqrt{(\varphi-1)\sqrt{5}}-\varphi+1}=1-\cfrac{e^{-\pi}}{1+\cfrac{e^{-2\pi}}{1+\cfrac{e^{-3\pi}}{1+\cfrac{e^{-4\pi}}{1+\dots}}}}\approx 0.9568666373$$

From:

Astronomy & Astrophysics manuscript no. ms c ESO 2019 - September 24, 2019
Planck 2018 results. VI. Cosmological parameters

The primordial fluctuations are consistent with Gaussian purely adiabatic scalar perturbations characterized by a power spectrum with a spectral index n_s = 0.965 ± 0.004, consistent with the predictions of slow-roll, single-field, inflation.

We know that α' is the Regge slope (string tension). With regard the Omega mesons, the values are:

ω	6	$m_{u/d} = 0 - 60$	$0.910 - 0.918$
ω/ω_3	$5+3$	$m_{u/d} = 255 - 390$	$0.988 - 1.18$
ω/ω_3	$5+3$	$m_{u/d} = 240 - 345$	$0.937 - 1.000$

Now, we have that from:

$$\tilde{C}^{G_2}_{-2} = \frac{3(\eta_c+1)\ e^{-(\eta_c+3)\Delta N_3}}{2(\eta_c+3)^2} + \frac{3\ e^{-2(\eta_c+3)\Delta N_3}}{2(\eta_c+3)^2} + \frac{3\left(\eta_c^2+4\eta_c+5\right)}{4(\eta_c+3)^2}$$

we obtain:

(((((3*(-6.8+1)*((e^(-(-6.8+3)*2))))))/((2(-6.8+3)^2))) + ((3e^(-2(-6.8+3)*2)))/((2(-6.8+3)^2))+((3((-6.8^2+4(-6.8)+5)))/((4(-6.8+3)^2)))

Input:

$$\frac{3(-6.8+1)\,e^{-(-6.8+3)\times 2}}{2(-6.8+3)^2} + \frac{3\,e^{-2(-6.8+3)\times 2}}{2(-6.8+3)^2} + \frac{3\left(-6.8^2+4\times(-6.8)+5\right)}{4(-6.8+3)^2}$$

Result:

$4.13556\ldots\times 10^5$

4.13556...*10^5

Alternative representation:

$$\frac{3\left((-6.8+1)\,e^{-(-6.8+3)2}\right)}{2(-6.8+3)^2} + \frac{3\,e^{-2(-6.8+3)2}}{2(-6.8+3)^2} + \frac{3\left(-6.8^2+4(-6.8)+5\right)}{4(-6.8+3)^2} = \frac{3\left((-6.8+1)\exp^{-(-6.8+3)2}(z)\right)}{2(-6.8+3)^2} + \frac{3\exp^{-2(-6.8+3)2}(z)}{2(-6.8+3)^2} + \frac{3\left(-6.8^2+4(-6.8)+5\right)}{4(-6.8+3)^2} \quad \text{for } z = 1$$

Series representations:

$$\frac{3\left((-6.8+1)\,e^{-(-6.8+3)2}\right)}{2(-6.8+3)^2} + \frac{3\,e^{-2(-6.8+3)2}}{2(-6.8+3)^2} + \frac{3\left(-6.8^2+4(-6.8)+5\right)}{4(-6.8+3)^2} = -0.602493\left(5.9+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{7.6} - 0.172414\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{15.2}\right)$$

$$\frac{3\left((-6.8+1)\,e^{-(-6.8+3)2}\right)}{2(-6.8+3)^2} + \frac{3\,e^{-2(-6.8+3)2}}{2(-6.8+3)^2} + \frac{3\left(-6.8^2+4(-6.8)+5\right)}{4(-6.8+3)^2} = -0.00310545\left(1144.67+\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{7.6} - 0.000888677\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{15.2}\right)$$

$$\frac{3\left((-6.8+1)\, e^{-(-6.8+3)\,2}\right)}{2\,(-6.8+3)^2} + \frac{3\, e^{-2\,(-6.8+3)\,2}}{2\,(-6.8+3)^2} + \frac{3\left(-6.8^2+4\,(-6.8)+5\right)}{4\,(-6.8+3)^2} = -0.602493\left(5.9+\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{7.6} - 0.172414\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{15.2}\right)$$

and from:

$$\tilde{C}^{G_2}_{x_k^2 \ln(x_k)} = -\frac{3\ e^{-(\eta_c+3)\Delta N_3}}{\eta_c+3} - \frac{3(\eta_c+1)}{2(\eta_c+3)}$$

we obtain:

-((3e^(-(-6.8+3)*2)))/(((-6.8+3)))-((3((-6.8+1)))/((2(-6.8+3))))

Input:

$$-\frac{3\, e^{-(-6.8+3)\times 2}}{-6.8+3} - \frac{3\,(-6.8+1)}{2\,(-6.8+3)}$$

Result:

1575.23...

1575.23....

Alternative representation:

$$-\frac{3\, e^{-(-6.8+3)\,2}}{-6.8+3} - \frac{3\,(-6.8+1)}{2\,(-6.8+3)} = -\frac{3\exp^{-(-6.8+3)\,2}(z)}{-6.8+3} - \frac{3\,(-6.8+1)}{2\,(-6.8+3)} \quad \text{for } z=1$$

Series representations:

$$-\frac{3\, e^{-(-6.8+3)\,2}}{-6.8+3} - \frac{3\,(-6.8+1)}{2\,(-6.8+3)} = -2.28947 + 0.789474\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{7.6}$$

$$-\frac{3\, e^{-(-6.8+3)\,2}}{-6.8+3} - \frac{3\,(-6.8+1)}{2\,(-6.8+3)} = -2.28947 + 0.00406921\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{7.6}$$

$$-\frac{3\, e^{-(-6.8+3)\,2}}{-6.8+3} - \frac{3\,(-6.8+1)}{2\,(-6.8+3)} = -2.28947 + 0.789474\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{7.6}$$

Now, we have the following equation:

$$\frac{G_2(\tau_k)}{\tau_0^2} = \tilde{C}_0^{G_2} + \tilde{C}_{-2}^{G_2}\, x_k^2 + \tilde{C}_{x_k^2 \ln(x_k)}^{G_2}\, x_k^2 \ln(x_k) + \frac{3x_k^2}{2} \ln(x_k)^2 \qquad x_i > x_k > 1$$

and we obtain:

-271940+413556*2^2+1575.23*2^2 ln(2)+(3*2^2)/2*ln(4)

Input interpretation:

$$-271\,940 + 413\,556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \left(\frac{1}{2}\left(3 \times 2^2\right)\right)\log(4)$$

Result:

$$1.38665978\ldots \times 10^6$$

$1.38665978\ldots*10^6$ = 1386659.78

Alternative representations:

$$-271\,940 + 413\,556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2}\log(4)\left(3 \times 2^2\right) = 1\,382\,284 + 6300.92 \log(a)\log_a(2) + 6\log(a)\log_a(4)$$

$$-271\,940 + 413\,556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2}\log(4)\left(3 \times 2^2\right) = 1\,382\,284 + 6300.92 \log_e(2) + 6\log_e(4)$$

$$-271\,940 + 413\,556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2}\log(4)\left(3 \times 2^2\right) = 1\,382\,284 - 6\,\text{Li}_1(-3) - 6300.92\,\text{Li}_1(-1)$$

Series representations:

$$-271\,940 + 413\,556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2}\log(4)\left(3 \times 2^2\right) = 1.38228 \times 10^6 + 12\,601.8\, i\pi \left\lfloor \frac{\arg(2-x)}{2\pi} \right\rfloor + 12\, i\pi \left\lfloor \frac{\arg(4-x)}{2\pi} \right\rfloor + 6306.92\log(x) + \sum_{k=1}^{\infty} \frac{(-1)^k \left(-6300.92\,(2-x)^k - 6\,(4-x)^k\right) x^{-k}}{k} \quad \text{for } x < 0$$

$$-271940 + 413556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2} \log(4) (3 \times 2^2) = 1382284 + 6300.92 \left\lfloor \frac{\arg(2 - z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) + 6 \left\lfloor \frac{\arg(4 - z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) + 6306.92 \log(z_0) + 6300.92 \left\lfloor \frac{\arg(2 - z_0)}{2\pi} \right\rfloor \log(z_0) + 6 \left\lfloor \frac{\arg(4 - z_0)}{2\pi} \right\rfloor \log(z_0) + \sum_{k=1}^{\infty} \frac{(-1)^k \left(-6300.92 (2 - z_0)^k - 6 (4 - z_0)^k\right) z_0^{-k}}{k}$$

$$-271940 + 413556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2} \log(4) (3 \times 2^2) = 1.38228 \times 10^6 + 12601.8\, i \pi \left\lfloor -\frac{-\pi + \arg\left(\frac{2}{z_0}\right) + \arg(z_0)}{2\pi} \right\rfloor + 12\, i \pi \left\lfloor -\frac{-\pi + \arg\left(\frac{4}{z_0}\right) + \arg(z_0)}{2\pi} \right\rfloor + 6306.92 \log(z_0) + \sum_{k=1}^{\infty} \frac{(-1)^k \left(-6300.92 (2 - z_0)^k - 6 (4 - z_0)^k\right) z_0^{-k}}{k}$$

Integral representations:

$$-271940 + 413556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2} \log(4) (3 \times 2^2) = 1.38228 \times 10^6 + \int_1^2 \left(-\frac{18}{2 - 3t} + \frac{6300.92}{t}\right) dt$$

$$-271940 + 413556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2} \log(4) (3 \times 2^2) = 1.38228 \times 10^6 + \int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{3150.46 \times 3^{-s} (0.000952242 + 3^s) \Gamma(-s)^2 \Gamma(1+s)}{i \pi \Gamma(1-s)} ds \quad \text{for } -1 < \gamma < 0$$

From which:

(((-271940+413556*2^2+1575.23*2^2 ln(2)+(3*2^2)/2*ln(4))))^1/3+29-1/golden ratio

Where 29 is a Lucas number

Input interpretation:

$$\sqrt[3]{-271940 + 413556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \left(\frac{1}{2} (3 \times 2^2)\right) \log(4)} + 29 - \frac{1}{\phi}$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

139.894403...

139.894403… result practically equal to the rest mass of Pion meson 139.57

Alternative representations:

$$\sqrt[3]{-271940+413556\times 2^2+1575.23\times 2^2\log(2)+\frac{1}{2}\log(4)\left(3\times 2^2\right)}+29-\frac{1}{\phi}=29-\frac{1}{\phi}+\sqrt[3]{1382284+6300.92\log_e(2)+6\log_e(4)}$$

$$\sqrt[3]{-271940+413556\times 2^2+1575.23\times 2^2\log(2)+\frac{1}{2}\log(4)\left(3\times 2^2\right)}+29-\frac{1}{\phi}=29-\frac{1}{\phi}+\sqrt[3]{1382284+6300.92\log(a)\log_a(2)+6\log(a)\log_a(4)}$$

$$\sqrt[3]{-271940+413556\times 2^2+1575.23\times 2^2\log(2)+\frac{1}{2}\log(4)\left(3\times 2^2\right)}+29-\frac{1}{\phi}=29-\frac{1}{\phi}+\sqrt[3]{1382284-6\,\text{Li}_1(-3)-6300.92\,\text{Li}_1(-1)}$$

Series representations:

$$\sqrt[3]{-271940+413556\times 2^2+1575.23\times 2^2\log(2)+\frac{1}{2}\log(4)\left(3\times 2^2\right)}+29-\frac{1}{\phi}=29-\frac{1}{\phi}+\left(1.38228\times 10^6+12601.8\,i\,\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor+12\,i\,\pi\left\lfloor\frac{\arg(4-x)}{2\pi}\right\rfloor+6306.92\log(x)+\sum_{k=1}^{\infty}\frac{(-1)^k\left(-6300.92\,(2-x)^k-6\,(4-x)^k\right)x^{-k}}{k}\right)\text{^}(1/3)\quad \text{for } x<0$$

$$\sqrt[3]{-271940 + 413556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2} \log(4) (3 \times 2^2)} + 29 - \frac{1}{\phi} =$$

$$29 - \frac{1}{\phi} + \left(1.38228 \times 10^6 + 12601.8\, i \pi \left\lfloor -\frac{-\pi + \arg\left(\frac{2}{z_0}\right) + \arg(z_0)}{2 \pi} \right\rfloor + 12\, i \pi \left\lfloor -\frac{-\pi + \arg\left(\frac{4}{z_0}\right) + \arg(z_0)}{2 \pi} \right\rfloor + 6306.92 \log(z_0) + \sum_{k=1}^{\infty} \frac{(-1)^k \left(-6300.92 (2 - z_0)^k - 6 (4 - z_0)^k\right) z_0^{-k}}{k}\right)^{\wedge}(1/3)$$

$$\sqrt[3]{-271940 + 413556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2} \log(4) (3 \times 2^2)} + 29 - \frac{1}{\phi} =$$

$$\frac{1}{\phi}\left(-1 + 29 \phi + \phi \left(1382284 + 6300.92 \left(\log(z_0) + \left\lfloor \frac{\arg(2 - z_0)}{2 \pi} \right\rfloor \left(\log\left(\frac{1}{z_0}\right) + \log(z_0)\right) - \sum_{k=1}^{\infty} \frac{(-1)^k (2 - z_0)^k z_0^{-k}}{k}\right) + 6 \left(\log(z_0) + \left\lfloor \frac{\arg(4 - z_0)}{2 \pi} \right\rfloor \left(\log\left(\frac{1}{z_0}\right) + \log(z_0)\right) - \sum_{k=1}^{\infty} \frac{(-1)^k (4 - z_0)^k z_0^{-k}}{k}\right)\right)^{\wedge}(1/3)\right)$$

Integral representations:

$$\sqrt[3]{-271940 + 413556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2} \log(4) (3 \times 2^2)} + 29 - \frac{1}{\phi} =$$

$$29 - \frac{1}{\phi} + \sqrt[3]{1.38228 \times 10^6 + \int_1^2 \left(-\frac{18}{2 - 3 t} + \frac{6300.92}{t}\right) dt}$$

$$\sqrt[3]{-271940 + 413556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2} \log(4) (3 \times 2^2)} + 29 - \frac{1}{\phi} =$$

$$29 - \frac{1}{\phi} + \sqrt[3]{\frac{1.38228 \times 10^6\, i \pi + \int_{-i \infty + \gamma}^{i \infty + \gamma} \frac{3150.46 \times 3^{-s} \left(0.000952242 + 3^s\right) \Gamma(-s)^2\, \Gamma(1 + s)}{\Gamma(1 - s)} \, ds}{i \pi}} \quad \text{for } -1 < \gamma < 0$$

and:

1/7(((-271940+413556*2^2+1575.23*2^2 ln(2)+(3*2^2)/2*ln(4))))-(47+(1.65578455)^14)+1/golden ratio

where 47 is a Lucas number and 1.65578455 is the result of 14th root of the following Ramanujan's class invariant $Q = (G_{505}/G_{101/5})^3 = 1164{,}2696$

Indeed:

$$\sqrt[14]{\left(\sqrt{\frac{113+5\sqrt{505}}{8}}+\sqrt{\frac{105+5\sqrt{505}}{8}}\right)^3} = 1{,}65578455\ldots$$

Input interpretation:

$$\frac{1}{7}\left(-271\,940+413\,556\times 2^2+1575.23\times 2^2\log(2)+\left(\frac{1}{2}(3\times 2^2)\right)\log(4)\right)-(47+1.65578455^{14})+\frac{1}{\phi}$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

196883.60...

196883.60… 196884 is a fundamental number of the following j-invariant

$$j(\tau) = q^{-1} + 744 + 196884q + 21493760q^2 + 864299970q^3 + 20245856256q^4 + \cdots$$

(In mathematics, Felix Klein's j-invariant or j function, regarded as a function of a complex variable τ, is a modular function of weight zero for SL(2, Z) defined on the upper half plane of complex numbers. Several remarkable properties of j have to do with its q expansion (Fourier series expansion), written as a Laurent series in terms of $q = e^{2\pi i\tau}$ (the square of the nome), which begins:

$$j(\tau) = q^{-1} + 744 + 196884q + 21493760q^2 + 864299970q^3 + 20245856256q^4 + \cdots$$

Note that j has a simple pole at the cusp, so its q-expansion has no terms below q^{-1}.

All the Fourier coefficients are integers, which results in several almost integers, notably Ramanujan's constant:

$e^{\pi\sqrt{163}} \approx 640320^3 + 744.$

The asymptotic formula for the coefficient of q^n is given by

$$\frac{e^{4\pi\sqrt{n}}}{\sqrt{2}\,n^{3/4}},$$

as can be proved by the Hardy–Littlewood circle method)

Alternative representations:

$$\frac{1}{7}\left(-271\,940 + 413\,556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2}(3 \times 2^2)\log(4)\right) - (47 + 1.65578^{14}) + \frac{1}{\phi} = -47 - 1.65578^{14} + \frac{1}{7}(1\,382\,284 + 6300.92 \log(a)\log_a(2) + 6\log(a)\log_a(4)) + \frac{1}{\phi}$$

$$\frac{1}{7}\left(-271\,940 + 413\,556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2}(3 \times 2^2)\log(4)\right) - (47 + 1.65578^{14}) + \frac{1}{\phi} = -47 - 1.65578^{14} + \frac{1}{7}(1\,382\,284 + 6300.92 \log_e(2) + 6\log_e(4)) + \frac{1}{\phi}$$

$$\frac{1}{7}\left(-271\,940 + 413\,556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2}(3 \times 2^2)\log(4)\right) - (47 + 1.65578^{14}) + \frac{1}{\phi} = -47 - 1.65578^{14} + \frac{1}{7}(1\,382\,284 - 6\,\mathrm{Li}_1(-3) - 6300.92\,\mathrm{Li}_1(-1)) + \frac{1}{\phi}$$

Series representations:

$$\frac{1}{7}\left(-271\,940 + 413\,556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2}(3 \times 2^2)\log(4)\right) - (47 + 1.65578^{14}) + \frac{1}{\phi} = 196\,258. + \frac{1}{\phi} + 1800.26\, i\pi \left\lfloor \frac{\arg(2-x)}{2\pi} \right\rfloor + 1.71429\, i\pi \left\lfloor \frac{\arg(4-x)}{2\pi} \right\rfloor + 900.989\log(x) + \sum_{k=1}^{\infty} \frac{(-1)^k \left(-900.131\,(2-x)^k - 0.857143\,(4-x)^k\right) x^{-k}}{k} \quad \text{for } x < 0$$

$$\frac{1}{7}\left(-271940 + 413556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2}(3 \times 2^2)\log(4)\right) - (47 + 1.65578^{14}) + \frac{1}{\phi} = 196258. + \frac{1}{\phi} + 900.131 \left\lfloor \frac{\arg(2 - z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) + \frac{6}{7}\left\lfloor \frac{\arg(4 - z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) + 900.989 \log(z_0) + 900.131 \left\lfloor \frac{\arg(2 - z_0)}{2\pi} \right\rfloor \log(z_0) + \frac{6}{7}\left\lfloor \frac{\arg(4 - z_0)}{2\pi} \right\rfloor \log(z_0) + \sum_{k=1}^{\infty} -\frac{900.131 (-1)^k \left((2 - z_0)^k + 0.000952242 (4 - z_0)^k\right) z_0^{-k}}{k}$$

$$\frac{1}{7}\left(-271940 + 413556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2}(3 \times 2^2)\log(4)\right) - (47 + 1.65578^{14}) + \frac{1}{\phi} = 196258. + \frac{1}{\phi} + 1800.26\, i\, \pi \left\lfloor -\frac{-\pi + \arg\left(\frac{2}{z_0}\right) + \arg(z_0)}{2\pi} \right\rfloor + 1.71429\, i\, \pi \left\lfloor -\frac{-\pi + \arg\left(\frac{4}{z_0}\right) + \arg(z_0)}{2\pi} \right\rfloor + 900.989 \log(z_0) + \sum_{k=1}^{\infty} \frac{(-1)^k \left(-900.131 (2 - z_0)^k - 0.857143 (4 - z_0)^k\right) z_0^{-k}}{k}$$

Integral representations:

$$\frac{1}{7}\left(-271940 + 413556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2}(3 \times 2^2)\log(4)\right) - (47 + 1.65578^{14}) + \frac{1}{\phi} = 196258. + \frac{1}{\phi} + \int_1^2 \left(-\frac{2.57143}{2 - 3t} + \frac{900.131}{t}\right) dt$$

$$\frac{1}{7}\left(-271940 + 413556 \times 2^2 + 1575.23 \times 2^2 \log(2) + \frac{1}{2}(3 \times 2^2)\log(4)\right) - (47 + 1.65578^{14}) + \frac{1}{\phi} = 196258. + \frac{1}{\phi} + \int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{450.066 \times 3^{-s} (0.000952242 + 3^s)\,\Gamma(-s)^2\,\Gamma(1 + s)}{i\,\pi\,\Gamma(1 - s)}\, ds \quad \text{for } -1 < \gamma < 0$$

From 1386659.78 for the formula of the coefficients of the "5th order" mock theta function $\psi_1(q)$

a(n) ~ sqrt(phi) * exp(Pi*sqrt(n/15)) / (2*5^(1/4)*sqrt(n))

For n = 498.05403, we obtain:

sqrt(golden ratio) * exp(Pi*sqrt((498.05403)/15)) / (2*5^(1/4)*sqrt(498.05403))

Input interpretation:

$$\sqrt{\phi} \times \frac{\exp\left(\pi \sqrt{\frac{498.05403}{15}}\right)}{2 \sqrt[4]{5} \sqrt{498.05403}}$$

ϕ is the golden ratio

Result:

$1.386659551872321190254436106877893036529776038438989... \times 10^{6}$

1386659.55187232119

Series representations:

$$\frac{\sqrt{\phi} \exp\left(\pi \sqrt{\frac{498.054}{15}}\right)}{2 \sqrt[4]{5} \sqrt{498.054}} = \frac{\exp\left(\pi \sqrt{z_0} \sum_{k=0}^{\infty} \frac{(-1)^k \left(-\frac{1}{2}\right)_k (33.2036 - z_0)^k z_0^{-k}}{k!}\right) \sum_{k=0}^{\infty} \frac{(-1)^k \left(-\frac{1}{2}\right)_k (\phi - z_0)^k z_0^{-k}}{k!}}{2 \sqrt[4]{5} \sum_{k=0}^{\infty} \frac{(-1)^k \left(-\frac{1}{2}\right)_k (498.054 - z_0)^k z_0^{-k}}{k!}}$$

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

$$\frac{\sqrt{\phi} \exp\left(\pi \sqrt{\frac{498.054}{15}}\right)}{2 \sqrt[4]{5} \sqrt{498.054}} = \left(\exp\left(i \pi \left\lfloor \frac{\arg(\phi - x)}{2 \pi} \right\rfloor\right) \exp\left(\pi \exp\left(i \pi \left\lfloor \frac{\arg(33.2036 - x)}{2 \pi} \right\rfloor\right) \sqrt{x} \sum_{k=0}^{\infty} \frac{(-1)^k (33.2036 - x)^k x^{-k} \left(-\frac{1}{2}\right)_k}{k!}\right) \sum_{k=0}^{\infty} \frac{(-1)^k (\phi - x)^k x^{-k} \left(-\frac{1}{2}\right)_k}{k!}\right) \Bigg/ \left(2 \sqrt[4]{5} \exp\left(i \pi \left\lfloor \frac{\arg(498.054 - x)}{2 \pi} \right\rfloor\right) \sum_{k=0}^{\infty} \frac{(-1)^k (498.054 - x)^k x^{-k} \left(-\frac{1}{2}\right)_k}{k!}\right)$$

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

$$\frac{\sqrt{\phi}\ \exp\left(\pi\sqrt{\frac{498.054}{15}}\right)}{2\sqrt[4]{5}\ \sqrt{498.054}} = \left(\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(33.2036-z_0)/(2\pi)\rfloor} z_0^{1/2(1+\lfloor\arg(33.2036-z_0)/(2\pi)\rfloor)} \sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k (33.2036-z_0)^k z_0^{-k}}{k!}\right)\right.$$

$$\left.\left(\frac{1}{z_0}\right)^{-1/2\lfloor\arg(498.054-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor} z_0^{-1/2\lfloor\arg(498.054-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor} \sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right) \Big/$$

$$\left(2\sqrt[4]{5}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k (498.054-z_0)^k z_0^{-k}}{k!}\right)$$

Now, we have that:

On the other hand, for $\eta_i = -1$ and $x_i > x_k > 1$, $G_2(\tau_k)$ has the following form,

$$\frac{G_2(\tau_k)}{\tau_0^2} = \tilde{C}_0^{G_2} + \tilde{C}_2^{G_2}\ x_k^{-2} + \tilde{C}^{G_2}_{x_k^{-2}\ln(x_k)}\ x_k^{-2}\ln(x_k) + \frac{3x_k^2}{16} \qquad x_i > x_k > 1,$$

where

$$\begin{aligned}
\tilde{C}_0^{G_2} &= -\frac{3e^{-\Delta N_3(\eta_c+3)}}{2(\eta_c+3)} - \frac{3(\eta_c+1)}{4(\eta_c+3)},\\
\tilde{C}^{G_2}_{x_k^{-2}\ln(x_k)} &= \frac{3(\eta_c+1)e^{-\Delta N_3(\eta_c+3)}}{(\eta_c+3)^2} + \frac{3e^{-2\Delta N_3(\eta_c+3)}}{(\eta_c+3)^2} + \frac{3(\eta_c+1)^2}{4(\eta_c+3)^2},\\
\tilde{C}_2^{G_2} &= \frac{3(\eta_c+1)\ e^{-\Delta N_3(\eta_c+3)}}{2(\eta_c+3)^2} + \frac{3e^{-\Delta N_3(\eta_c+5)}}{(\eta_c+1)(\eta_c+5)} - \frac{3e^{-2\Delta N_3(\eta_c+3)}}{(\eta_c+1)(\eta_c+3)^2}\\
&\quad + \frac{3\left(3\eta_c^3+25\eta_c^2+53\eta_c+31\right)}{16(\eta_c+3)^2(\eta_c+5)} \qquad \text{(C.40)}
\end{aligned}$$

For

$$\tilde{C}_0^{G_2} = -\frac{3e^{-\Delta N_3(\eta_c+3)}}{2(\eta_c+3)} - \frac{3(\eta_c+1)}{4(\eta_c+3)},$$

We obtain:

-((3e^(-(-6.8+3)*2)))/((2(-6.8+3))-((3((-6.8+1)))/((4(-6.8+3))))

Input:

$$-\frac{3\,e^{-(2\,(-6.8+3))}}{2\,(-6.8+3)} - \frac{3\,(-6.8+1)}{4\,(-6.8+3)}$$

Result:

787.617...

787.617…

Alternative representation:

$$-\frac{3\,e^{-(2\,(-6.8+3))}}{2\,(-6.8+3)} - \frac{3\,(-6.8+1)}{4\,(-6.8+3)} = -\frac{3\,\exp^{-(2\,(-6.8+3))}(z)}{2\,(-6.8+3)} - \frac{3\,(-6.8+1)}{4\,(-6.8+3)} \quad \text{for } z = 1$$

Series representations:

$$-\frac{3\,e^{-(2\,(-6.8+3))}}{2\,(-6.8+3)} - \frac{3\,(-6.8+1)}{4\,(-6.8+3)} = -1.14474 + 0.394737 \left(\sum_{k=0}^{\infty} \frac{1}{k!}\right)^{7.6}$$

$$-\frac{3\,e^{-(2\,(-6.8+3))}}{2\,(-6.8+3)} - \frac{3\,(-6.8+1)}{4\,(-6.8+3)} = -1.14474 + 0.0020346 \left(\sum_{k=0}^{\infty} \frac{1+k}{k!}\right)^{7.6}$$

$$-\frac{3\,e^{-(2\,(-6.8+3))}}{2\,(-6.8+3)} - \frac{3\,(-6.8+1)}{4\,(-6.8+3)} = -1.14474 + 0.394737 \left(\sum_{k=0}^{\infty} \frac{(-1+k)^2}{k!}\right)^{7.6}$$

For

$$\tilde{C}^{G_2}_{x_k^{-2}\ln(x_k)} = \frac{3(\eta_c+1)e^{-\Delta N_3(\eta_c+3)}}{(\eta_c+3)^2} + \frac{3e^{-2\Delta N_3(\eta_c+3)}}{(\eta_c+3)^2} + \frac{3(\eta_c+1)^2}{4(\eta_c+3)^2},$$

We obtain:

(((3*(-6.8+1)*e^(-(-6.8+3)*2)))/(((-6.8+3)^2)))) + ((3e^(-2(-6.8+3)*2)))/(((-6.8+3)^2))+((3((-6.8+1)^2))/((4(-6.8+3)^2)))

Input:

$$\frac{3(-6.8+1)\,e^{-(2(-6.8+3))}}{(-6.8+3)^2} + \frac{3\,e^{-(2\times 2(-6.8+3))}}{(-6.8+3)^2} + \frac{3(-6.8+1)^2}{4(-6.8+3)^2}$$

Result:

$8.27120\ldots \times 10^5$

827120…

Alternative representation:

$$\frac{3\left((-6.8+1)\,e^{-(2(-6.8+3))}\right)}{(-6.8+3)^2} + \frac{3\,e^{-(2\times 2(-6.8+3))}}{(-6.8+3)^2} + \frac{3(-6.8+1)^2}{4(-6.8+3)^2} = \frac{3\left((-6.8+1)\exp^{-(2(-6.8+3))}(z)\right)}{(-6.8+3)^2} + \frac{3\exp^{-(2\times 2(-6.8+3))}(z)}{(-6.8+3)^2} + \frac{3(-6.8+1)^2}{4(-6.8+3)^2} \quad \text{for } z=1$$

Series representations:

$$\frac{3\left((-6.8+1)\,e^{-(2(-6.8+3))}\right)}{(-6.8+3)^2} + \frac{3\,e^{-(2\times 2(-6.8+3))}}{(-6.8+3)^2} + \frac{3(-6.8+1)^2}{4(-6.8+3)^2} = -1.20499\left(-1.45 + \left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{7.6} - 0.172414\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{15.2}\right)$$

$$\frac{3\left((-6.8+1)\,e^{-(2(-6.8+3))}\right)}{(-6.8+3)^2} + \frac{3\,e^{-(2\times 2(-6.8+3))}}{(-6.8+3)^2} + \frac{3(-6.8+1)^2}{4(-6.8+3)^2} = -0.00621089\left(-281.317 + \left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{7.6} - 0.000888677\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{15.2}\right)$$

$$\frac{3\left((-6.8+1)\, e^{-(2(-6.8+3))}\right)}{(-6.8+3)^2} + \frac{3\, e^{-(2\times 2(-6.8+3))}}{(-6.8+3)^2} + \frac{3(-6.8+1)^2}{4(-6.8+3)^2} =$$
$$-1.20499\left(-1.45 + \left(\sum_{k=0}^{\infty} \frac{(-1+k)^2}{k!}\right)^{7.6} - 0.172414\left(\sum_{k=0}^{\infty} \frac{(-1+k)^2}{k!}\right)^{15.2}\right)$$

For

$$\tilde{C}_2^{G_2} = \frac{3(\eta_c+1)\, e^{-\Delta N_3(\eta_c+3)}}{2(\eta_c+3)^2} + \frac{3e^{-\Delta N_3(\eta_c+5)}}{(\eta_c+1)(\eta_c+5)} - \frac{3e^{-2\Delta N_3(\eta_c+3)}}{(\eta_c+1)(\eta_c+3)^2} + \frac{3\left(3\eta_c^3+25\eta_c^2+53\eta_c+31\right)}{16(\eta_c+3)^2(\eta_c+5)}$$

we obtain:

((3(-6.8+1)e^(-(-6.8+3)*2)))/(2(-6.8+3)^2) + ((3e^(-(-6.8+5)*2)))/((-6.8+1)(-6.8+5))-((3e^(-2(-6.8+3)*2)))/(((-6.8+1)(-6.8+3)^2))+((3(3*6.8^3+25*(-6.8)^2+53*(-6.8)+31)))/((16(-6.8+3)^2*(-6.8+5)))

Input:

$$\frac{3(-6.8+1)\, e^{-(-6.8+3)\times 2}}{2(-6.8+3)^2} + \frac{3\, e^{-(-6.8+5)\times 2}}{(-6.8+1)(-6.8+5)} - \frac{3\, e^{-2(-6.8+3)\times 2}}{(-6.8+1)(-6.8+3)^2} + \frac{3\left(3\times 6.8^3 + 25(-6.8)^2 + 53\times(-6.8) + 31\right)}{16(-6.8+3)^2(-6.8+5)}$$

Result:

$1.41816\ldots \times 10^5$

141816…

Alternative representation:

$$\frac{3\left((-6.8+1)\,e^{-(-6.8+3)2}\right)}{2(-6.8+3)^2}+\frac{3\,e^{-(-6.8+5)2}}{(-6.8+1)(-6.8+5)}-\frac{3\,e^{-2(-6.8+3)2}}{(-6.8+1)(-6.8+3)^2}+\frac{3\left(3\times 6.8^3+25(-6.8)^2+53(-6.8)+31\right)}{16(-6.8+3)^2(-6.8+5)}=\frac{3\left((-6.8+1)\exp^{-(-6.8+3)2}(z)\right)}{2(-6.8+3)^2}+\frac{3\exp^{-(-6.8+5)2}(z)}{(-6.8+1)(-6.8+5)}-\frac{3\exp^{-2(-6.8+3)2}(z)}{(-6.8+1)(-6.8+3)^2}+\frac{3\left(3\times 6.8^3+25(-6.8)^2+53(-6.8)+31\right)}{16(-6.8+3)^2(-6.8+5)}\quad\text{for } z=1$$

Series representations:

$$\frac{3\left((-6.8+1)\,e^{-(-6.8+3)2}\right)}{2(-6.8+3)^2}+\frac{3\,e^{-(-6.8+5)2}}{(-6.8+1)(-6.8+5)}-\frac{3\,e^{-2(-6.8+3)2}}{(-6.8+1)(-6.8+3)^2}+\frac{3\left(3\times 6.8^3+25(-6.8)^2+53(-6.8)+31\right)}{16(-6.8+3)^2(-6.8+5)}=0.287356\left(-44.4313+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{3.6}-2.09668\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{7.6}+0.124654\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{15.2}\right)$$

$$\frac{3\left((-6.8+1)\,e^{-(-6.8+3)2}\right)}{2(-6.8+3)^2}+\frac{3\,e^{-(-6.8+5)2}}{(-6.8+1)(-6.8+5)}-\frac{3\,e^{-2(-6.8+3)2}}{(-6.8+1)(-6.8+3)^2}+\frac{3\left(3\times 6.8^3+25(-6.8)^2+53(-6.8)+31\right)}{16(-6.8+3)^2(-6.8+5)}=0.0236981\left(-538.761+\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{3.6}-0.131042\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{7.6}+0.0000401566\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{15.2}\right)$$

$$\frac{3\left((-6.8+1)\,e^{-(-6.8+3)2}\right)}{2(-6.8+3)^2}+\frac{3\,e^{-(-6.8+5)2}}{(-6.8+1)(-6.8+5)}-\frac{3\,e^{-2(-6.8+3)2}}{(-6.8+1)(-6.8+3)^2}+\frac{3\left(3\times 6.8^3+25(-6.8)^2+53(-6.8)+31\right)}{16(-6.8+3)^2(-6.8+5)}=0.287356\left(-44.4313+\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{3.6}-2.09668\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{7.6}+0.124654\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{15.2}\right)$$

From:

$$\frac{G_2(\tau_k)}{\tau_0^2} = \tilde{C}_0^{G_2} + \tilde{C}_2^{G_2}\, x_k^{-2} + \tilde{C}^{G_2}_{x_k^{-2}\ln(x_k)}\, x_k^{-2}\ln(x_k) + \frac{3x_k^2}{16} \qquad x_i > x_k > 1$$

We obtain:

787.617+141816 * 2^(-2)+827120*2^(-2) ln(2) +(3*2^2)/16

Input interpretation:

$$787.617 + \frac{141\,816}{2^2} + \frac{827\,120\log(2)}{2^2} + \frac{1}{16}(3\times 2^2)$$

log(x) is the natural logarithm

Result:

179571.34...

179571.34….

Alternative representations:

$$787.617 + \frac{141\,816}{2^2} + \frac{827\,120\log(2)}{2^2} + \frac{3\times 2^2}{16} = 36\,241.6 + 206\,780\log_e(2) + \frac{12}{16}$$

$$787.617 + \frac{141\,816}{2^2} + \frac{827\,120\log(2)}{2^2} + \frac{3\times 2^2}{16} = 36\,241.6 + 206\,780\log(a)\log_a(2) + \frac{12}{16}$$

$$787.617 + \frac{141\,816}{2^2} + \frac{827\,120\log(2)}{2^2} + \frac{3\times 2^2}{16} = 36\,241.6 + 413\,560\coth^{-1}(3) + \frac{12}{16}$$

Series representations:

$$787.617 + \frac{141\,816}{2^2} + \frac{827\,120\log(2)}{2^2} + \frac{3\times 2^2}{16} = 36\,242.4 + 413\,560\, i\,\pi \left\lfloor \frac{\arg(2-x)}{2\,\pi} \right\rfloor + 206\,780\log(x) - 206\,780\sum_{k=1}^{\infty}\frac{(-1)^k (2-x)^k x^{-k}}{k} \quad \text{for } x < 0$$

$$787.617+\frac{141816}{2^2}+\frac{827120\log(2)}{2^2}+\frac{3\times 2^2}{16}=$$
$$36242.4+206780\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\log\left(\frac{1}{z_0}\right)+206780\log(z_0)+$$
$$206780\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\log(z_0)-206780\sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}$$

$$787.617+\frac{141816}{2^2}+\frac{827120\log(2)}{2^2}+\frac{3\times 2^2}{16}=$$
$$36242.4+413560\,i\,\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{2}{z_0}\right)+\arg(z_0)}{2\pi}\right\rfloor+$$
$$206780\log(z_0)-206780\sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}$$

Integral representations:

$$787.617+\frac{141816}{2^2}+\frac{827120\log(2)}{2^2}+\frac{3\times 2^2}{16}=36242.4+206780\int_1^2\frac{1}{t}\,dt$$

$$787.617+\frac{141816}{2^2}+\frac{827120\log(2)}{2^2}+\frac{3\times 2^2}{16}=$$
$$36242.4+\frac{103390}{i\pi}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds \quad \text{for } -1<\gamma<0$$

With regard the result 179571.34, from the formula of the coefficients of the "5th order" mock theta function $\psi_1(q)$

a(n) ~ sqrt(phi) * exp(Pi*sqrt(n/15)) / (2*5^(1/4)*sqrt(n))

For n = 385.714, we obtain:

sqrt(golden ratio) * exp(Pi*sqrt((385.714)/15)) / (2*5^(1/4)*sqrt(385.714))

Input interpretation:

$$\sqrt{\phi} \times \frac{\exp\left(\pi \sqrt{\frac{385.714}{15}}\right)}{2 \sqrt[4]{5} \sqrt{385.714}}$$

ϕ is the golden ratio

Result:

179571.306604209660905387396790115259301582923135317311 7979...

179571.3066042...

Series representations:

$$\frac{\sqrt{\phi} \exp\left(\pi \sqrt{\frac{385.714}{15}}\right)}{2 \sqrt[4]{5} \sqrt{385.714}} = \frac{\exp\left(\pi \sqrt{z_0} \sum_{k=0}^{\infty} \frac{(-1)^k \left(-\frac{1}{2}\right)_k (25.7143 - z_0)^k z_0^{-k}}{k!}\right) \sum_{k=0}^{\infty} \frac{(-1)^k \left(-\frac{1}{2}\right)_k (\phi - z_0)^k z_0^{-k}}{k!}}{2 \sqrt[4]{5} \sum_{k=0}^{\infty} \frac{(-1)^k \left(-\frac{1}{2}\right)_k (385.714 - z_0)^k z_0^{-k}}{k!}}$$

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

$$\frac{\sqrt{\phi} \exp\left(\pi \sqrt{\frac{385.714}{15}}\right)}{2 \sqrt[4]{5} \sqrt{385.714}} = \left(\exp\left(i \pi \left\lfloor \frac{\arg(\phi - x)}{2 \pi} \right\rfloor\right) \exp\left(\pi \exp\left(i \pi \left\lfloor \frac{\arg(25.7143 - x)}{2 \pi} \right\rfloor\right) \sqrt{x} \sum_{k=0}^{\infty} \frac{(-1)^k (25.7143 - x)^k x^{-k} \left(-\frac{1}{2}\right)_k}{k!}\right) \sum_{k=0}^{\infty} \frac{(-1)^k (\phi - x)^k x^{-k} \left(-\frac{1}{2}\right)_k}{k!}\right) \Bigg/ \left(2 \sqrt[4]{5} \exp\left(i \pi \left\lfloor \frac{\arg(385.714 - x)}{2 \pi} \right\rfloor\right) \sum_{k=0}^{\infty} \frac{(-1)^k (385.714 - x)^k x^{-k} \left(-\frac{1}{2}\right)_k}{k!}\right)$$

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

$$\frac{\sqrt{\phi}\ \exp\left(\pi\sqrt{\frac{385.714}{15}}\right)}{2\sqrt[4]{5}\ \sqrt{385.714}} = \left(\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(25.7143-z_0)/(2\pi)\rfloor} z_0^{1/2(1+\lfloor\arg(25.7143-z_0)/(2\pi)\rfloor)} \sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k (25.7143-z_0)^k z_0^{-k}}{k!}\right)\right.$$

$$\left.\left(\frac{1}{z_0}\right)^{-1/2\lfloor\arg(385.714-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor} z_0^{-1/2\lfloor\arg(385.714-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor} \sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k (\phi-z_0)^k z_0^{-k}}{k!}\right) \Bigg/$$

$$\left(2\sqrt[4]{5}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k (385.714-z_0)^k z_0^{-k}}{k!}\right)$$

Now, we have that:

$$\frac{G_2(\tau_k)}{\tau_0^2} = \tilde{C}_{-2}^{G_2}\ x_k^2 + \tilde{C}_{(2\eta_i+4)}^{G_2}\ x_k^{-(2\eta_i+4)} + \tilde{C}_{(\eta_i+1)}^{G_2}\ x_k^{-(\eta_i+1)} + \tilde{C}_{(\eta_i+3)}^{G_2}\ x_k^{-(\eta_i+3)} \qquad x_i > x_k > 1,$$

where the coefficient of each term is given by

$$\tilde{C}_{(2\eta_i+4)}^{G_2} = \frac{6(\eta_i-\eta_c)\ e^{-(\eta_c+3)\Delta N_3}}{(\eta_i+1)(\eta_i+3)(\eta_c+3)^2} - \frac{3e^{-2(\eta_c+3)\Delta N_3}}{(\eta_i+1)(\eta_c+3)^2} - \frac{3(\eta_i-\eta_c)^2}{(\eta_i+1)(\eta_i+3)^2(\eta_c+3)^2},$$

$$\tilde{C}_{(\eta_i+1)}^{G_2} = \frac{3(\eta_i-\eta_c)}{(\eta_i+3)^2(\eta_c+3)} - \frac{3e^{-(\eta_c+3)\Delta N_3}}{(\eta_i+3)(\eta_c+3)},$$

$$\tilde{C}_{(\eta_i+3)}^{G_2} = \frac{3(\eta_c-\eta_i)\ e^{-2(\eta_c+3)\Delta N_3}}{(\eta_i+1)(\eta_c+1)(\eta_c+3)^2} + \frac{3(\eta_c-\eta_i)\ e^{-(\eta_c+3)\Delta N_3}}{(\eta_i+1)(\eta_c+3)^2} + \frac{3\ e^{-(\eta_c+5)\Delta N_3}}{(\eta_c+1)(\eta_c+5)} + \frac{3\left(\eta_i^2-\eta_i(\eta_c^2+7\eta_c+4)+\eta_c(\eta_c^2+6\eta_c+4)\right)}{(\eta_i+1)(\eta_i+5)(\eta_c+3)^2(\eta_c+5)},$$

$$\tilde{C}_{-2}^{G_2} = \frac{3}{(\eta_i+3)^2(\eta_i+5)} \tag{C.37}$$

For

$$\tilde{C}_{(2\eta_i+4)}^{G_2} = \frac{6(\eta_i-\eta_c)\ e^{-(\eta_c+3)\Delta N_3}}{(\eta_i+1)(\eta_i+3)(\eta_c+3)^2} - \frac{3e^{-2(\eta_c+3)\Delta N_3}}{(\eta_i+1)(\eta_c+3)^2} - \frac{3(\eta_i-\eta_c)^2}{(\eta_i+1)(\eta_i+3)^2(\eta_c+3)^2},$$

And $\eta_i = -2$; $\eta_c = -6.8$ we obtain:

(((6(-6.8+2)e^(-(-6.8+3)*2)))/((-1*(-6.8+3)^2)))-(((3e^(-2(-6.8+3)*2)))/(((-1)(-6.8+3)^2)))-((((3(-2+6.8)^2)))/((((-2+1)(-2+3)^2)(-6.8+3)^2)))

Input:

$$-\frac{6(-6.8+2)e^{-(-6.8+3)\times 2}}{(-6.8+3)^2}--\frac{3e^{-2(-6.8+3)\times 2}}{(-6.8+3)^2}-\frac{3(-2+6.8)^2}{((-2+1)(-2+3)^2)(-6.8+3)^2}$$

Result:

$8.33516\ldots \times 10^5$

833516…

Alternative representation:

$$-\frac{6((-6.8+2)e^{-(-6.8+3)2})}{(-6.8+3)^2}--\frac{3e^{-2(-6.8+3)2}}{(-6.8+3)^2}-\frac{3(-2+6.8)^2}{((-2+1)(-2+3)^2)(-6.8+3)^2}=$$
$$-\frac{6((-6.8+2)\exp^{-(-6.8+3)2}(z))}{(-6.8+3)^2}--\frac{3\exp^{-2(-6.8+3)2}(z)}{(-6.8+3)^2}-\frac{3(-2+6.8)^2}{((-2+1)(-2+3)^2)(-6.8+3)^2} \text{ for } z=1$$

Series representations:

$$-\frac{6((-6.8+2)e^{-(-6.8+3)2})}{(-6.8+3)^2}--\frac{3e^{-2(-6.8+3)2}}{(-6.8+3)^2}-\frac{3(-2+6.8)^2}{((-2+1)(-2+3)^2)(-6.8+3)^2}=$$
$$1.99446\left(2.4+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{7.6}+0.104167\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{15.2}\right)$$

$$-\frac{6((-6.8+2)e^{-(-6.8+3)2})}{(-6.8+3)^2}--\frac{3e^{-2(-6.8+3)2}}{(-6.8+3)^2}-\frac{3(-2+6.8)^2}{((-2+1)(-2+3)^2)(-6.8+3)^2}=$$
$$0.0102801\left(465.628+\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{7.6}+0.000536909\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{15.2}\right)$$

$$-\frac{6\left((-6.8+2)\,e^{-(-6.8+3)\,2}\right)}{(-6.8+3)^2} - -\frac{3\,e^{-2\,(-6.8+3)\,2}}{(-6.8+3)^2} - \frac{3\,(-2+6.8)^2}{\left((-2+1)\,(-2+3)^2\right)(-6.8+3)^2} = 1.99446\left(2.4+\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{7.6}+0.104167\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{15.2}\right)$$

For

$$\tilde{C}^{G_2}_{(\eta_i+1)} = \frac{3(\eta_i-\eta_c)}{(\eta_i+3)^2(\eta_c+3)} - \frac{3e^{-(\eta_c+3)\Delta N_3}}{(\eta_i+3)(\eta_c+3)};$$

We obtain:

(((3(-2+6.8)))/(((-6.8+3))*(-2+3)^2))-(((3e^(-2(-6.8+3)))/(((-2+3)(-6.8+3)))))

Input:

$$\frac{3\,(-2+6.8)}{(-6.8+3)\,(-2+3)^2} - \frac{3\,e^{-2\,(-6.8+3)}}{(-2+3)\,(-6.8+3)}$$

Result:

1573.73…

1573.73…

Alternative representation:

$$\frac{3\,(-2+6.8)}{(-6.8+3)\,(-2+3)^2} - \frac{3\,e^{-2\,(-6.8+3)}}{(-2+3)\,(-6.8+3)} = \frac{3\,(-2+6.8)}{(-6.8+3)\,(-2+3)^2} - \frac{3\,\exp^{-2\,(-6.8+3)}(z)}{(-2+3)\,(-6.8+3)} \quad \text{for } z=1$$

Series representations:

$$\frac{3\,(-2+6.8)}{(-6.8+3)\,(-2+3)^2} - \frac{3\,e^{-2\,(-6.8+3)}}{(-2+3)\,(-6.8+3)} = -3.78947+0.789474\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{7.6}$$

$$\frac{3(-2+6.8)}{(-6.8+3)(-2+3)^2} - \frac{3 e^{-2(-6.8+3)}}{(-2+3)(-6.8+3)} = -3.78947 + 0.00406921 \left(\sum_{k=0}^{\infty} \frac{1+k}{k!}\right)^{7.6}$$

$$\frac{3(-2+6.8)}{(-6.8+3)(-2+3)^2} - \frac{3 e^{-2(-6.8+3)}}{(-2+3)(-6.8+3)} = -3.78947 + 0.789474 \left(\sum_{k=0}^{\infty} \frac{(-1+k)^2}{k!}\right)^{7.6}$$

For

$$\tilde{C}^{G_2}_{(\eta_i+3)} = \frac{3(\eta_c - \eta_i)\ e^{-2(\eta_c+3)\Delta N_3}}{(\eta_i+1)(\eta_c+1)(\eta_c+3)^2} + \frac{3(\eta_c - \eta_i)\ e^{-(\eta_c+3)\Delta N_3}}{(\eta_i+1)(\eta_c+3)^2} + \frac{3\ e^{-(\eta_c+5)\Delta N_3}}{(\eta_c+1)(\eta_c+5)} + \frac{3\left(\eta_i^2 - \eta_i(\eta_c^2+7\eta_c+4) + \eta_c(\eta_c^2+6\eta_c+4)\right)}{(\eta_i+1)(\eta_i+5)(\eta_c+3)^2(\eta_c+5)},$$

((3(-2+6.8)e^(-2(-6.8+3)*2)))/(-1*(-6.8+1)*(-6.8+3)^2) + ((3(-2+6.8)e^(-(-6.8+3)*2)))/((-1)(-6.8+3)^2))+((3e^(-(-6.8+5)*2)))/(((-6.8+1)(-6.8+5)))+((3(4+2*(-6.8^2+7*(-6.8)^2+4))-6.8*(-6.8)^2+6(-6.8)+4)))/(((-3*(-6.8+3)^2*(-6.8+5)))

(3(4.8)e^(-2(-3.8)*2))/(-1*(-5.8)*(-3.8)^2)+((3(4.8)e^(-(-3.8)*2))/((-1)(-3.8)^2))+(3e^(-(-1.8)*2))/((-5.8)(-1.8))+((3(4+2*(-6.8^2+7*(-6.8)^2+4))-6.8*(-6.8)^2+6(-6.8)+4))/((-3*(-3.8)^2*(-1.8)))

Input:

$$-\frac{3\times 4.8\, e^{-2\times(-3.8)\times 2}}{-5.8\,(-3.8)^2} + -\frac{3\times 4.8\, e^{-(-3.8)\times 2}}{(-3.8)^2} + -\frac{3\, e^{-(-1.8)\times 2}}{5.8\times(-1.8)} + -\frac{3\left(4+2\left(-6.8^2+7\,(-6.8)^2+4\right)\right) - 6.8\,(-6.8)^2 + 6\times(-6.8) + 4}{3\,(-3.8)^2\times(-1.8)}$$

Result:

$6.84540\ldots \times 10^5$

684540….

Alternative representation:

$$-\frac{3\left(4.8\,e^{-2(-3.8)2}\right)}{-5.8\,(-3.8)^2}+-\frac{3\left(4.8\,e^{-(-3.8)2}\right)}{(-3.8)^2}+-\frac{3\,e^{-(-1.8)2}}{5.8\,(-1.8)}+ -\frac{3\left(4+2\left(-6.8^2+7\,(-6.8)^2+4\right)\right)-6.8\,(-6.8)^2+6\,(-6.8)+4}{3\,(-3.8)^2\,(-1.8)} = -\frac{3\left(4.8\exp^{-2(-3.8)2}(z)\right)}{-5.8\,(-3.8)^2}+-\frac{3\left(4.8\exp^{-(-3.8)2}(z)\right)}{(-3.8)^2}+-\frac{3\exp^{-(-1.8)2}(z)}{5.8\,(-1.8)}+ -\frac{3\left(4+2\left(-6.8^2+7\,(-6.8)^2+4\right)\right)-6.8\,(-6.8)^2+6\,(-6.8)+4}{3\,(-3.8)^2\,(-1.8)} \quad \text{for } z=1$$

Series representations:

$$-\frac{3\left(4.8\,e^{-2(-3.8)2}\right)}{-5.8\,(-3.8)^2}+-\frac{3\left(4.8\,e^{-(-3.8)2}\right)}{(-3.8)^2}+-\frac{3\,e^{-(-1.8)2}}{5.8\,(-1.8)}+ -\frac{3\left(4+2\left(-6.8^2+7\,(-6.8)^2+4\right)\right)-6.8\,(-6.8)^2+6\,(-6.8)+4}{3\,(-3.8)^2\,(-1.8)} = 0.287356\left(60.2229+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{3.6}-3.47036\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{7.6}+0.598338\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{15.2}\right)$$

$$-\frac{3\left(4.8\,e^{-2(-3.8)2}\right)}{-5.8\,(-3.8)^2}+-\frac{3\left(4.8\,e^{-(-3.8)2}\right)}{(-3.8)^2}+-\frac{3\,e^{-(-1.8)2}}{5.8\,(-1.8)}+ -\frac{3\left(4+2\left(-6.8^2+7\,(-6.8)^2+4\right)\right)-6.8\,(-6.8)^2+6\,(-6.8)+4}{3\,(-3.8)^2\,(-1.8)} = 0.0236981\left(730.247+\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{3.6}-0.216898\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{7.6}+0.000192752\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{15.2}\right)$$

$$-\frac{3\left(4.8\,e^{-2(-3.8)2}\right)}{-5.8\,(-3.8)^2}+-\frac{3\left(4.8\,e^{-(-3.8)2}\right)}{(-3.8)^2}+-\frac{3\,e^{-(-1.8)2}}{5.8\,(-1.8)}+ -\frac{3\left(4+2\left(-6.8^2+7\,(-6.8)^2+4\right)\right)-6.8\,(-6.8)^2+6\,(-6.8)+4}{3\,(-3.8)^2\,(-1.8)} = 0.287356\left(60.2229+\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{3.6}- 3.47036\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{7.6}+0.598338\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{15.2}\right)$$

For

$$\tilde{C}_{-2}^{G_2} = \frac{3}{(\eta_i + 3)^2(\eta_i + 5)}$$

We obtain:

3/((-2+3)^2(-2+5))

Input:

$$\frac{3}{(-2+3)^2\,(-2+5)}$$

Result:

1

1 result equal to the photon spin

Thence:

$$\frac{G_2(\tau_k)}{\tau_0^2} = \tilde{C}_{-2}^{G_2}\, x_k^2 + \tilde{C}_{(2\eta_i+4)}^{G_2}\, x_k^{-(2\eta_i+4)} + \tilde{C}_{(\eta_i+1)}^{G_2}\, x_k^{-(\eta_i+1)} + \tilde{C}_{(\eta_i+3)}^{G_2}\, x_k^{-(\eta_i+3)} \qquad x_i > x_k > 1$$

2^2+833516*1+1573.73*2+684540*2^(-1)

Input interpretation:

$$2^2 + 833516 \times 1 + 1573.73 \times 2 + \frac{684540}{2}$$

Result:

1.17893746×10^6

Decimal form:

1178937.5

1178937.5

With regard the result 1178937.5, from the formula of the coefficients of the “5th order” mock theta function $\psi_1(q)$

a(n) ~ sqrt(phi) * exp(Pi*sqrt(n/15)) / (2*5^(1/4)*sqrt(n))

For n = 487+ζ(2), we obtain:

sqrt(golden ratio) * exp(Pi*sqrt((487+(Pi^2/6))/15)) / (2*5^(1/4)*sqrt(487+(Pi^2/6))) – 11

where 11 is a Lucas number

Input:

$$\sqrt{\phi} \times \frac{\exp\left(\pi \sqrt{\frac{1}{15}\left(487 + \frac{\pi^2}{6}\right)}\right)}{2 \sqrt[4]{5} \sqrt{487 + \frac{\pi^2}{6}}} - 11$$

ϕ is the golden ratio

Exact result:

$$\frac{e^{\pi \sqrt{1/15 (487+\pi^2/6)}} \sqrt{\frac{\phi}{487+\frac{\pi^2}{6}}}}{2 \sqrt[4]{5}} - 11$$

Decimal approximation:

1.178937997396911609996253661881119163177428805716222241... × 10^6

1178937.9973….

Alternate forms:

$$\frac{e^{1/3 \pi \sqrt{1/10 (2922+\pi^2)}} \sqrt{\frac{3(1+\sqrt{5})}{2922+\pi^2}}}{2 \sqrt[4]{5}} - 11$$

$$\frac{e^{1/3 \pi \sqrt{1/10 (2922+\pi^2)}} \sqrt{\frac{6\phi}{2922+\pi^2}} - 22 \sqrt[4]{5}}{2 \sqrt[4]{5}}$$

$$\frac{1}{10}\left(5^{3/4}\, e^{1/3\,\pi\sqrt{1/10\,(2922+\pi^2)}}\sqrt{\frac{3\left(1+\sqrt{5}\right)}{2922+\pi^2}} - 110\right)$$

Series representations:

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{1}{15}\left(487+\frac{\pi^2}{6}\right)}\right)}{2\sqrt[4]{5}\sqrt{487+\frac{\pi^2}{6}}} - 11 = \left(5^{3/4}\exp\left(\pi\sqrt{z_0}\sum_{k=0}^{\infty}\frac{\left(-\frac{1}{90}\right)^k\left(-\frac{1}{2}\right)_k\left(2922+\pi^2-90\,z_0\right)^k z_0^{-k}}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!} - 110\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(487+\frac{\pi^2}{6}-z_0\right)^k z_0^{-k}}{k!}\right) \Bigg/ \left(10\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(487+\frac{\pi^2}{6}-z_0\right)^k z_0^{-k}}{k!}\right) \text{ for not } ((z_0\in\mathbb{R} \text{ and } -\infty<z_0\le 0))$$

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{1}{15}\left(487+\frac{\pi^2}{6}\right)}\right)}{2\sqrt[4]{5}\sqrt{487+\frac{\pi^2}{6}}} - 11 = \left(5^{3/4}\exp\left(i\pi\left\lfloor\frac{\arg(\phi-x)}{2\pi}\right\rfloor\right)\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg\left(\frac{1}{90}\left(2922+\pi^2-90\,x\right)\right)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{\left(-\frac{1}{90}\right)^k\left(2922+\pi^2-90\,x\right)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k(\phi-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!} - 110\exp\left(i\pi\left\lfloor\frac{\arg\left(487+\frac{\pi^2}{6}-x\right)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(487+\frac{\pi^2}{6}-x\right)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right) \Bigg/ \left(10\exp\left(i\pi\left\lfloor\frac{\arg\left(487+\frac{\pi^2}{6}-x\right)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(487+\frac{\pi^2}{6}-x\right)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)$$

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

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{1}{15}\left(487+\frac{\pi^2}{6}\right)}\right)}{2\sqrt[4]{5}\,\sqrt{487+\frac{\pi^2}{6}}}-11=$$

$$\left(5^{3/4}\exp\left(i\pi\left\lfloor\frac{\arg(\phi-x)}{2\pi}\right\rfloor\right)\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg\left(\frac{1}{15}\left(487+\frac{\pi^2}{6}\right)-x\right)}{2\pi}\right\rfloor\right)\sqrt{x}\right.\right.$$
$$\left.\sum_{k=0}^{\infty}\frac{\left(-\frac{1}{90}\right)^k(2922+\pi^2-90x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k(\phi-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}-$$
$$\left.110\exp\left(i\pi\left\lfloor\frac{\arg\left(487+\frac{\pi^2}{6}-x\right)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(487+\frac{\pi^2}{6}-x\right)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\Big/$$
$$\left(10\exp\left(i\pi\left\lfloor\frac{\arg\left(487+\frac{\pi^2}{6}-x\right)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(487+\frac{\pi^2}{6}-x\right)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)$$

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

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{1}{15}\left(487+\frac{\pi^2}{6}\right)}\right)}{2\sqrt[4]{5}\,\sqrt{487+\frac{\pi^2}{6}}}-11=$$

$$\left(\left(\frac{1}{z_0}\right)^{-1/2\left\lfloor\arg\left(487+\frac{\pi^2}{6}-z_0\right)/(2\pi)\right\rfloor} z_0^{-1/2\left\lfloor\arg\left(487+\frac{\pi^2}{6}-z_0\right)/(2\pi)\right\rfloor}\right.$$
$$\left(5^{3/4}\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\left\lfloor\arg\left(\frac{1}{15}\left(487+\frac{\pi^2}{6}\right)-z_0\right)/(2\pi)\right\rfloor} z_0^{1/2\left(1+\left\lfloor\arg\left(\frac{1}{15}\left(487+\frac{\pi^2}{6}\right)-z_0\right)/(2\pi)\right\rfloor\right)}\right.\right.$$
$$\left.\sum_{k=0}^{\infty}\frac{\left(-\frac{1}{90}\right)^k\left(-\frac{1}{2}\right)_k(2922+\pi^2-90z_0)^k z_0^{-k}}{k!}\right)$$
$$\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor} z_0^{1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}-$$
$$110\left(\frac{1}{z_0}\right)^{1/2\left\lfloor\arg\left(487+\frac{\pi^2}{6}-z_0\right)/(2\pi)\right\rfloor} z_0^{1/2\left\lfloor\arg\left(487+\frac{\pi^2}{6}-z_0\right)/(2\pi)\right\rfloor}$$
$$\left.\left.\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(487+\frac{\pi^2}{6}-z_0\right)^k z_0^{-k}}{k!}\right)\right)\Big/$$
$$\left(10\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(487+\frac{\pi^2}{6}-z_0\right)^k z_0^{-k}}{k!}\right)$$

We have also that:

On the other hand, for $\eta_i = -3$ and $x_i > x_k > 1$, $G_1(\tau_k)$ has the following form,

$$\frac{G_1(\tau_k)}{\tau_0^4} = \tilde{C}_0^{G_1} + \tilde{C}_{-2}^{G_1}\ x_k^2 + \tilde{C}_{-4}^{G_1}\ x_k^4 + \tilde{C}_{x_k^4\ln(x_k)}^{G_1}\ x_k^4 \ln(x_k) + \frac{x_k^4}{4}\ln(x_k)^2 \qquad x_i > x_k > 1,$$

$$\begin{aligned}
\tilde{C}_0^{G_1} &= \frac{1}{8}\Bigg(\frac{(\eta_c-3)\ e^{-4\Delta N_3}}{(\eta_c-1)(\eta_c+1)^2} + \frac{(3\eta_c-1)\ e^{-(\eta_c+3)\Delta N_3}}{2(\eta_c-1)(\eta_c+1)} + \frac{2e^{-2(\eta_c+3)\Delta N_3}}{(\eta_c+1)^2} \\
&\qquad - \frac{2(3\eta_c+11)\ e^{-(\eta_c+5)\Delta N_3}}{(\eta_c+1)^2(\eta_c+5)} + \frac{3\eta_c+11}{8(\eta_c+5)} - \frac{e^{-2\Delta N_3}}{\eta_c+1}\Bigg), \\
\tilde{C}_{-2}^{G_1} &= \frac{e^{-2\Delta N_3}}{8(\eta_c+3)} - \frac{e^{-(\eta_c+3)\Delta N_3}}{2(\eta_c+3)} + \frac{(3\eta_c+11)\ e^{-(\eta_c+5)\Delta N_3}}{4(\eta_c+1)(\eta_c+3)(\eta_c+5)} \\
&\qquad - \frac{e^{-2(\eta_c+3)\Delta N_3}}{2(\eta_c+1)(\eta_c+3)} - \frac{3\eta_c^2+18\eta_c+19}{16(\eta_c+3)(\eta_c+5)}, \\
\tilde{C}_{-4}^{G_1} &= \frac{(5\eta_c+7)\ e^{-(\eta_c+3)\Delta N_3}}{16(\eta_c+3)^2} + \frac{e^{-2(\eta_c+3)\Delta N_3}}{4(\eta_c+3)^2} + \frac{9\eta_c^2+34\eta_c+37}{64(\eta_c+3)^2},
\end{aligned} \qquad \text{(C.33)}$$

and

$$\tilde{C}_{x_k^4\ln(x_k)}^{G_1} = -\frac{e^{-(\eta_c+3)\Delta N_3}}{2(\eta_c+3)} - \frac{5\eta_c+7}{16(\eta_c+3)}. \qquad \text{(C.34)}$$

For $\eta_i = -3$; $\eta_c = -6.8$ we obtain:

$$\begin{aligned}
\tilde{C}_0^{G_1} &= \frac{1}{8}\Bigg(\frac{(\eta_c-3)\ e^{-4\Delta N_3}}{(\eta_c-1)(\eta_c+1)^2} + \frac{(3\eta_c-1)\ e^{-(\eta_c+3)\Delta N_3}}{2(\eta_c-1)(\eta_c+1)} + \frac{2e^{-2(\eta_c+3)\Delta N_3}}{(\eta_c+1)^2} \\
&\qquad - \frac{2(3\eta_c+11)\ e^{-(\eta_c+5)\Delta N_3}}{(\eta_c+1)^2(\eta_c-5)} + \frac{3\eta_c+11}{8(\eta_c+5)} - \frac{e^{-2\Delta N_3}}{\eta_c+1}\Bigg),
\end{aligned}$$

1/8*[(((-6.8-3)e^(-4*2)))/((-6.8-1)*(-6.8+1)^2) + ((3*(-6.8)-1))e^(-(-6.8+3)*2)))/((2(-6.8-1)(-6.8+1))-(2((3*(-6.8)+11))(e^(-(-6.8+5)*2)))/(((-6.8+1)^2(-6.8+5)))+((3(-6.8)+11))/((8(-6.8+5))) – e^(-2*2)/((-6.8+1)))]

1/8*[-9.8e^(-4*2)/(((-7.8)*(-5.8)^2))+((3*(-6.8)-1))e^(-(-3.8)*2)/(2(-7.8)(-5.8))+2e^(-2(-3.8)*2)/(-5.8)^2-(2((3*(-6.8)+11)))e^(-(-1.8)*2)/((-5.8)^2(-1.8))+((3(-6.8)+11))/(8(-1.8))-e^(-2*2)/((-5.8))]

Input:

$$\frac{1}{8}\left(-9.8\left(-\frac{e^{-4\times 2}}{7.8\,(-5.8)^2}\right)+(3\times(-6.8)-1)\times\frac{e^{-(-3.8)\times 2}}{2\times(-7.8)\times(-5.8)}+2\times\frac{e^{-2\times(-3.8)\times 2}}{(-5.8)^2}-(2\,(3\times(-6.8)+11))\times\frac{e^{-(-1.8)\times 2}}{(-5.8)^2\times(-1.8)}+\frac{3\times(-6.8)+11}{8\times(-1.8)}--\frac{e^{-2\times 2}}{5.8}\right)$$

Result:

29612.5...

29612.5

Alternative representation:

$$\frac{1}{8}\left(\frac{-9.8\,e^{-4\times 2}}{-7.8\,(-5.8)^2}+\frac{(3\,(-6.8)-1)\,e^{-(-3.8)\,2}}{2\,(-7.8)\,(-5.8)}+\frac{2\,e^{-2\,(-3.8)\,2}}{(-5.8)^2}-\frac{(2\,(3\,(-6.8)+11))\,e^{-(-1.8)\,2}}{(-5.8)^2\,(-1.8)}+\frac{3\,(-6.8)+11}{8\,(-1.8)}--\frac{e^{-2\times 2}}{5.8}\right)=\frac{1}{8}\left(\frac{-9.8\exp^{-4\times 2}(z)}{-7.8\,(-5.8)^2}+\frac{(3\,(-6.8)-1)\exp^{-(-3.8)\,2}(z)}{2\,(-7.8)\,(-5.8)}+\frac{2\exp^{-2\,(-3.8)\,2}(z)}{(-5.8)^2}-\frac{(2\,(3\,(-6.8)+11))\exp^{-(-1.8)\,2}(z)}{(-5.8)^2\,(-1.8)}+\frac{3\,(-6.8)+11}{8\,(-1.8)}--\frac{\exp^{-2\times 2}(z)}{5.8}\right)\text{ for } z=1$$

Series representations:

$$\frac{1}{8}\left(\frac{-9.8\,e^{-4\times 2}}{-7.8\,(-5.8)^2}+\frac{(3\,(-6.8)-1)\,e^{-(-3.8)\,2}}{2\,(-7.8)\,(-5.8)}+\frac{2\,e^{-2\,(-3.8)\,2}}{(-5.8)^2}-\frac{(2\,(3\,(-6.8)+11))\,e^{-(-1.8)\,2}}{(-5.8)^2\,(-1.8)}+\frac{3\,(-6.8)+11}{8\,(-1.8)}--\frac{e^{-2\times 2}}{5.8}\right)=-\frac{1}{\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^8}0.0388096\left(-0.120295-0.555319\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^4-2.1025\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^8+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{11.6}+0.761784\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{15.6}-0.191489\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{23.2}\right)$$

$$\frac{1}{8}\left(\frac{-9.8\,e^{-4\times 2}}{-7.8\,(-5.8)^2}+\frac{(3\,(-6.8)-1)\,e^{-(-3.8)\,2}}{2\,(-7.8)\,(-5.8)}+\frac{2\,e^{-2\,(-3.8)\,2}}{(-5.8)^2}-\frac{(2\,(3\,(-6.8)+11))\,e^{-(-1.8)\,2}}{(-5.8)^2\,(-1.8)}+\frac{3\,(-6.8)+11}{8\,(-1.8)}--\frac{e^{-2\times 2}}{5.8}\right)=$$

$$-0.0388096\left(-2.1025+\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{3.6}+0.761784\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{7.6}-0.191489\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{15.2}-0.555319\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}\right)^4-0.120295\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}\right)^8\right)$$

$$\frac{1}{8}\left(\frac{-9.8\,e^{-4\times 2}}{-7.8\,(-5.8)^2}+\frac{(3\,(-6.8)-1)\,e^{-(-3.8)\,2}}{2\,(-7.8)\,(-5.8)}+\frac{2\,e^{-2\,(-3.8)\,2}}{(-5.8)^2}-\frac{(2\,(3\,(-6.8)+11))\,e^{-(-1.8)\,2}}{(-5.8)^2\,(-1.8)}+\frac{3\,(-6.8)+11}{8\,(-1.8)}--\frac{e^{-2\times 2}}{5.8}\right)=$$

$$0.0815972-0.0388096\left(3-\sum_{k=0}^{\infty}\frac{1+k}{(3+k)!}\right)^{3.6}-0.0295645\left(3-\sum_{k=0}^{\infty}\frac{1+k}{(3+k)!}\right)^{7.6}+0.00743163\left(3-\sum_{k=0}^{\infty}\frac{1+k}{(3+k)!}\right)^{15.2}+\frac{0.00466859}{\left(-3+\sum_{k=0}^{\infty}\frac{1+k}{(3+k)!}\right)^8}+\frac{0.0215517}{\left(-3+\sum_{k=0}^{\infty}\frac{1+k}{(3+k)!}\right)^4}$$

For

$$\tilde{C}_{-2}^{G_1}=\frac{e^{-2\Delta N_3}}{8(\eta_c+3)}-\frac{e^{-(\eta_c+3)\Delta N_3}}{2(\eta_c+3)}+\frac{(3\eta_c+11)\;e^{-(\eta_c+5)\Delta N_3}}{4(\eta_c+1)(\eta_c+3)(\eta_c+5)}-\frac{e^{-2(\eta_c+3)\Delta N_3}}{2(\eta_c+1)(\eta_c+3)}-\frac{3\eta_c^2+18\eta_c+19}{16(\eta_c+3)(\eta_c+5)},$$

(e^(-2*2))/(8(-3.8))-(e^(-(-3.8)*2))/((2(-3.8)))+(((3*(-6.8)+11))e^(-(-1.8)*2))/((4(-5.8)(-3.8)(-1.8)))-((e^(-2(-3.8)*2)))/((2(-5.8)(-3.8)))-(((3(-6.8)^2+18*(-6.8)+19)))/(((16(-3.8))(-1.8)))

Input:

$$\frac{e^{-2\times 2}}{8\times(-3.8)}-\frac{e^{-(-3.8)\times 2}}{2\times(-3.8)}+\frac{(3\times(-6.8)+11)\,e^{-(-1.8)\times 2}}{4\times(-5.8)\times(-3.8)\times(-1.8)}-\frac{e^{-2\times(-3.8)\times 2}}{2\times(-5.8)\times(-3.8)}-\frac{3\,(-6.8)^2+18\times(-6.8)+19}{(16\times(-3.8))\times(-1.8)}$$

Result:

$-90315.7\ldots$

-90315.7…

Alternative representation:

$$\frac{e^{-2\times 2}}{8(-3.8)}-\frac{e^{-(-3.8)2}}{2(-3.8)}+\frac{(3(-6.8)+11)e^{-(-1.8)2}}{4(-5.8)(-3.8)(-1.8)}-\frac{e^{-2(-3.8)2}}{2(-5.8)(-3.8)}-\frac{3(-6.8)^2+18(-6.8)+19}{(16(-3.8))(-1.8)}=\frac{\exp^{-2\times 2}(z)}{8(-3.8)}-\frac{\exp^{-(-3.8)2}(z)}{2(-3.8)}+\frac{(3(-6.8)+11)\exp^{-(-1.8)2}(z)}{4(-5.8)(-3.8)(-1.8)}-\frac{\exp^{-2(-3.8)2}(z)}{2(-5.8)(-3.8)}-\frac{3(-6.8)^2+18(-6.8)+19}{(16(-3.8))(-1.8)}\quad\text{for } z=1$$

Series representations:

$$\frac{e^{-2\times 2}}{8(-3.8)}-\frac{e^{-(-3.8)2}}{2(-3.8)}+\frac{(3(-6.8)+11)e^{-(-1.8)2}}{4(-5.8)(-3.8)(-1.8)}-\frac{e^{-2(-3.8)2}}{2(-5.8)(-3.8)}-\frac{3(-6.8)^2+18(-6.8)+19}{(16(-3.8))(-1.8)}=0.0592357\left(-5.4483+\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{3.6}+2.22128\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{7.6}-0.382979\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{15.2}-0.555319\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}\right)^4\right)$$

$$\frac{e^{-2\times 2}}{8(-3.8)}-\frac{e^{-(-3.8)2}}{2(-3.8)}+\frac{(3(-6.8)+11)e^{-(-1.8)2}}{4(-5.8)(-3.8)(-1.8)}-\frac{e^{-2(-3.8)2}}{2(-5.8)(-3.8)}-\frac{3(-6.8)^2+18(-6.8)+19}{(16(-3.8))(-1.8)}=\frac{1}{\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^4}0.0592357\left(-0.555319-5.4483\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^4+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{7.6}+2.22128\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{11.6}-0.382979\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{19.2}\right)$$

$$\frac{e^{-2\times 2}}{8(-3.8)} - \frac{e^{-(-3.8)2}}{2(-3.8)} + \frac{(3(-6.8)+11)e^{-(-1.8)2}}{4(-5.8)(-3.8)(-1.8)} - \frac{e^{-2(-3.8)2}}{2(-5.8)(-3.8)} - \frac{3(-6.8)^2+18(-6.8)+19}{(16(-3.8))(-1.8)} =$$
$$-0.322734 + 0.0592357\left(3 - \sum_{k=0}^{\infty}\frac{1+k}{(3+k)!}\right)^{3.6} + 0.131579\left(3 - \sum_{k=0}^{\infty}\frac{1+k}{(3+k)!}\right)^{7.6} - 0.022686\left(3 - \sum_{k=0}^{\infty}\frac{1+k}{(3+k)!}\right)^{15.2} - \frac{0.0328947}{\left(-3 + \sum_{k=0}^{\infty}\frac{1+k}{(3+k)!}\right)^4}$$

For

$$\tilde{C}_{-4}^{G_1} = \frac{(5\eta_c + 7)\ e^{-(\eta_c+3)\Delta N_3}}{16(\eta_c+3)^2} + \frac{e^{-2(\eta_c+3)\Delta N_3}}{4(\eta_c+3)^2} + \frac{9\eta_c^2 + 34\eta_c + 37}{64(\eta_c+3)^2}$$

we obtain:

(((5*(-6.8)+7))e^(-(-3.8)*2))/((16(-6.8+3)^2))+((e^(-2(-3.8)*2)))/((4(-6.8+3)^2))+(((9(-6.8)^2+34*(-6.8)+37)))/(((64(-6.8+3)^2)))

Input:

$$\frac{(5\times(-6.8)+7)e^{-(-3.8)\times 2}}{16(-6.8+3)^2} + \frac{e^{-2\times(-3.8)\times 2}}{4(-6.8+3)^2} + \frac{9(-6.8)^2+34\times(-6.8)+37}{64(-6.8+3)^2}$$

Result:

68893.9...

68893.9…

Alternative representation:

$$\frac{(5(-6.8)+7)e^{-(-3.8)2}}{16(-6.8+3)^2} + \frac{e^{-2(-3.8)2}}{4(-6.8+3)^2} + \frac{9(-6.8)^2+34(-6.8)+37}{64(-6.8+3)^2} = \frac{(5(-6.8)+7)\exp^{-(-3.8)2}(z)}{16(-6.8+3)^2} + \frac{\exp^{-2(-3.8)2}(z)}{4(-6.8+3)^2} + \frac{9(-6.8)^2+34(-6.8)+37}{64(-6.8+3)^2} \quad \text{for } z = 1$$

Series representations:

$$\frac{(5(-6.8)+7)e^{-(-3.8)2}}{16(-6.8+3)^2} + \frac{e^{-2(-3.8)2}}{4(-6.8+3)^2} + \frac{9(-6.8)^2+34(-6.8)+37}{64(-6.8+3)^2} = -0.116863\left(-2.05519 + \left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{7.6} - 0.148148\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{15.2}\right)$$

$$\frac{(5(-6.8)+7)e^{-(-3.8)2}}{16(-6.8+3)^2}+\frac{e^{-2(-3.8)2}}{4(-6.8+3)^2}+\frac{9(-6.8)^2+34(-6.8)+37}{64(-6.8+3)^2}=$$
$$-0.00060235\left(-398.73+\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{7.6}-0.000763604\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{15.2}\right)$$

$$\frac{(5(-6.8)+7)e^{-(-3.8)2}}{16(-6.8+3)^2}+\frac{e^{-2(-3.8)2}}{4(-6.8+3)^2}+\frac{9(-6.8)^2+34(-6.8)+37}{64(-6.8+3)^2}=$$
$$-0.116863\left(-2.05519+\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{7.6}-0.148148\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{15.2}\right)$$

And:

$$\tilde{C}^{G_1}_{x_k^4\ln(x_k)}=-\frac{e^{-(\eta_c+3)\Delta N_3}}{2(\eta_c+3)}-\frac{5\eta_c+7}{16(\eta_c+3)}.$$

((e^(-(-6.8+3)*2)))/((2(-6.8+3)))-(((5(-6.8)+7)))/(((16(-6.8+3))))

Input:

$$\frac{e^{-(-6.8+3)\times 2}}{2(-6.8+3)}-\frac{5\times(-6.8)+7}{16(-6.8+3)}$$

Result:

-263.365…

-263.365…

Alternative representation:

$$\frac{e^{-(-6.8+3)2}}{2(-6.8+3)}-\frac{5(-6.8)+7}{16(-6.8+3)}=\frac{\exp^{-(-6.8+3)2}(z)}{2(-6.8+3)}-\frac{5(-6.8)+7}{16(-6.8+3)} \text{ for } z=1$$

Series representations:

$$\frac{e^{-(-6.8+3)2}}{2(-6.8+3)}-\frac{5(-6.8)+7}{16(-6.8+3)}=-0.444079-0.131579\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{7.6}$$

$$\frac{e^{-(-6.8+3)2}}{2(-6.8+3)}-\frac{5(-6.8)+7}{16(-6.8+3)}=-0.444079-0.000678201\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{7.6}$$

$$\frac{e^{-(-6.8+3)\,2}}{2\,(-6.8+3)} - \frac{5\,(-6.8)+7}{16\,(-6.8+3)} = -0.444079 - 0.131579 \left(\sum_{k=0}^{\infty} \frac{(-1+k)^2}{k!}\right)^{7.6}$$

Thence:

$$\frac{G_1(\tau_k)}{\tau_0^4} = \tilde{C}_0^{G_1} + \tilde{C}_{-2}^{G_1}\, x_k^2 + \tilde{C}_{-4}^{G_1}\, x_k^4 + \tilde{C}_{x_k^4 \ln(x_k)}^{G_1}\, x_k^4 \ln(x_k) + \frac{x_k^4}{4} \ln(x_k)^2$$

29612.5-90315.7*2^2+68893.9*2^4-263.365*2^4 ln(2)+(2^4)/4 * ln(4)

Input interpretation:

$$29\,612.5 + 2^2 \times (-90\,315.7) + 68\,893.9 \times 2^4 - (263.365 \times 2^4) \log(2) + \frac{2^4}{4} \log(4)$$

$\log(x)$ is the natural logarithm

Result:

$7.67737... \times 10^5$

767737…. = 767736.8338621137596

Alternative representations:

$$29\,612.5 - 90\,315.7 \times 2^2 + 68\,893.9 \times 2^4 - \log(2)\, 263.365 \times 2^4 + \frac{1}{4} \log(4)\, 2^4 = -331\,650. + 68\,893.9 \times 2^4 - 263.365 \log(a) \log_a(2)\, 2^4 + \frac{1}{4} \log(a) \log_a(4)\, 2^4$$

$$29\,612.5 - 90\,315.7 \times 2^2 + 68\,893.9 \times 2^4 - \log(2)\, 263.365 \times 2^4 + \frac{1}{4} \log(4)\, 2^4 = -331\,650. + 68\,893.9 \times 2^4 - 263.365 \log_e(2)\, 2^4 + \frac{\log_e(4)\, 2^4}{4}$$

$$29\,612.5 - 90\,315.7 \times 2^2 + 68\,893.9 \times 2^4 - \log(2)\, 263.365 \times 2^4 + \frac{1}{4} \log(4)\, 2^4 = -331\,650. + 68\,893.9 \times 2^4 + 263.365\, \mathrm{Li}_1(-1)\, 2^4 - \frac{1}{4} \mathrm{Li}_1(-3)\, 2^4$$

Series representations:

$$29612.5-90315.7\times 2^2+68893.9\times 2^4-\log(2)\,263.365\times 2^4+\frac{1}{4}\log(4)\,2^4=$$
$$770652.-8427.68\,i\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor+8\,i\pi\left\lfloor\frac{\arg(4-x)}{2\pi}\right\rfloor-4209.84\log(x)+\sum_{k=1}^{\infty}\frac{(-1)^k\left(4213.84\,(2-x)^k-4\,(4-x)^k\right)x^{-k}}{k}\quad\text{for } x<0$$

$$29612.5-90315.7\times 2^2+68893.9\times 2^4-\log(2)\,263.365\times 2^4+\frac{1}{4}\log(4)\,2^4=$$
$$770652.-4213.84\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\log\left(\frac{1}{z_0}\right)+4\left\lfloor\frac{\arg(4-z_0)}{2\pi}\right\rfloor\log\left(\frac{1}{z_0}\right)-4209.84\log(z_0)-4213.84\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\log(z_0)+4\left\lfloor\frac{\arg(4-z_0)}{2\pi}\right\rfloor\log(z_0)+\sum_{k=1}^{\infty}\frac{(-1)^k\left(4213.84\,(2-z_0)^k-4\,(4-z_0)^k\right)z_0^{-k}}{k}$$

$$29612.5-90315.7\times 2^2+68893.9\times 2^4-\log(2)\,263.365\times 2^4+\frac{1}{4}\log(4)\,2^4=$$
$$770652.-8427.68\,i\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{2}{z_0}\right)+\arg(z_0)}{2\pi}\right\rfloor+8\,i\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{4}{z_0}\right)+\arg(z_0)}{2\pi}\right\rfloor-4209.84\log(z_0)+\sum_{k=1}^{\infty}\frac{(-1)^k\left(4213.84\,(2-z_0)^k-4\,(4-z_0)^k\right)z_0^{-k}}{k}$$

Integral representations:

$$29612.5-90315.7\times 2^2+68893.9\times 2^4-\log(2)\,263.365\times 2^4+\frac{1}{4}\log(4)\,2^4=770652.+\int_1^2\left(-\frac{4213.84}{t}+\frac{12}{-2+3t}\right)dt$$

$$29612.5-90315.7\times 2^2+68893.9\times 2^4-\log(2)\,263.365\times 2^4+\frac{1}{4}\log(4)\,2^4=$$
$$770652.+\int_{-i\infty+\gamma}^{i\infty+\gamma}-\frac{2106.92\times 3^{-s}\,(-0.000949253+3^s)\,\Gamma(-s)^2\,\Gamma(1+s)}{i\pi\,\Gamma(1-s)}\,ds\quad\text{for } -1<\gamma<0$$

We obtain, from this result, also:

(((29612.5-90315.7*2^2+68893.9*2^4-263.365*2^4 ln(2)+(2^4)/4 * ln(4))))*1/(64*8-64)+16-1/golden ratio

Input interpretation:

$$\left(29\,612.5 + 2^2 \times (-90\,315.7) + 68\,893.9 \times 2^4 - (263.365 \times 2^4)\log(2) + \frac{2^4}{4}\log(4)\right) \times \frac{1}{64 \times 8 - 64} + 16 - \frac{1}{\phi}$$

log(x) is the natural logarithm

ϕ is the golden ratio

Result:

1729.08...

1729.08

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:

$$\frac{29\,612.5 - 90\,315.7 \times 2^2 + 68\,893.9 \times 2^4 - (263.365 \times 2^4)\log(2) + \frac{1}{4} \times 2^4 \log(4)}{64 \times 8 - 64} + 16 - \frac{1}{\phi} = 16 + \frac{1}{448}\left(-331\,650. + 68\,893.9 \times 2^4 - 263.365 \log(a)\log_a(2)\,2^4 + \frac{1}{4}\log(a)\log_a(4)\,2^4\right) - \frac{1}{\phi}$$

$$\frac{29\,612.5 - 90\,315.7 \times 2^2 + 68\,893.9 \times 2^4 - (263.365 \times 2^4)\log(2) + \frac{1}{4} \times 2^4 \log(4)}{64 \times 8 - 64} + 16 - \frac{1}{\phi} = 16 + \frac{1}{448}\left(-331\,650. + 68\,893.9 \times 2^4 - 263.365 \log_e(2)\,2^4 + \frac{\log_e(4)\,2^4}{4}\right) - \frac{1}{\phi}$$

$$\frac{29\,612.5 - 90\,315.7 \times 2^2 + 68\,893.9 \times 2^4 - (263.365 \times 2^4)\log(2) + \frac{1}{4} \times 2^4 \log(4)}{64 \times 8 - 64} + 16 - \frac{1}{\phi} = 16 + \frac{1}{448}\left(-331\,650. + 68\,893.9 \times 2^4 + 263.365\,\mathrm{Li}_1(-1)\,2^4 - \frac{1}{4}\mathrm{Li}_1(-3)\,2^4\right) - \frac{1}{\phi}$$

Series representations:

$$\frac{29612.5 - 90315.7 \times 2^2 + 68893.9 \times 2^4 - (263.365 \times 2^4)\log(2) + \frac{1}{4} \times 2^4 \log(4)}{64 \times 8 - 64} + 16 - \frac{1}{\phi} = 1736.21 - \frac{1}{\phi} - 18.8118\, i\,\pi \left\lfloor \frac{\arg(2-x)}{2\pi} \right\rfloor + \frac{1}{56}\, i\,\pi \left\lfloor \frac{\arg(4-x)}{2\pi} \right\rfloor - 9.39696 \log(x) + \sum_{k=1}^{\infty} \frac{9.40589\,(-1)^k \left((2-x)^k - 0.000949253\,(4-x)^k\right) x^{-k}}{k} \quad \text{for } x < 0$$

$$\frac{29612.5 - 90315.7 \times 2^2 + 68893.9 \times 2^4 - (263.365 \times 2^4)\log(2) + \frac{1}{4} \times 2^4 \log(4)}{64 \times 8 - 64} + 16 - \frac{1}{\phi} = 1736.21 - \frac{1}{\phi} - 9.40589 \left\lfloor \frac{\arg(2-z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) + \frac{1}{112} \left\lfloor \frac{\arg(4-z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) - 9.39696 \log(z_0) - 9.40589 \left\lfloor \frac{\arg(2-z_0)}{2\pi} \right\rfloor \log(z_0) + \frac{1}{112} \left\lfloor \frac{\arg(4-z_0)}{2\pi} \right\rfloor \log(z_0) + \sum_{k=1}^{\infty} \frac{9.40589\,(-1)^k \left((2-z_0)^k - 0.000949253\,(4-z_0)^k\right) z_0^{-k}}{k}$$

$$\frac{29612.5 - 90315.7 \times 2^2 + 68893.9 \times 2^4 - (263.365 \times 2^4)\log(2) + \frac{1}{4} \times 2^4 \log(4)}{64 \times 8 - 64} + 16 - \frac{1}{\phi} = 1736.21 - \frac{1}{\phi} - 18.8118\, i\,\pi \left\lfloor -\frac{-\pi + \arg\left(\frac{2}{z_0}\right) + \arg(z_0)}{2\pi} \right\rfloor + 0.0178571\, i\,\pi \left\lfloor -\frac{-\pi + \arg\left(\frac{4}{z_0}\right) + \arg(z_0)}{2\pi} \right\rfloor - 9.39696 \log(z_0) + \sum_{k=1}^{\infty} \frac{(-1)^k \left(9.40589\,(2-z_0)^k - 0.00892857\,(4-z_0)^k\right) z_0^{-k}}{k}$$

Integral representations:

$$\frac{29612.5 - 90315.7 \times 2^2 + 68893.9 \times 2^4 - (263.365 \times 2^4)\log(2) + \frac{1}{4} \times 2^4 \log(4)}{64 \times 8 - 64} + 16 - \frac{1}{\phi} = 1736.21 - \frac{1}{\phi} + \int_1^2 \left(-\frac{0.0267857}{2-3t} - \frac{9.40589}{t}\right) dt$$

$$\frac{29612.5 - 90315.7 \times 2^2 + 68893.9 \times 2^4 - (263.365 \times 2^4)\log(2) + \frac{1}{4} \times 2^4 \log(4)}{64 \times 8 - 64} + 16 - \frac{1}{\phi} = 1736.21 - \frac{1}{\phi} + \int_{-i\infty+\gamma}^{i\infty+\gamma} -\frac{4.70295 \times 3^{-s}\,(-0.000949253 + 3^s)\,\Gamma(-s)^2\,\Gamma(1+s)}{i\,\pi\,\Gamma(1-s)}\, ds \quad \text{for } -1 < \gamma < 0$$

And:

((1/(((29612.5-90315.7*2^2+68893.9*2^4-263.365*2^4 ln(2)+(2^4)/4 * ln(4))))))^1/4096

Input interpretation:

$$\sqrt[4096]{\frac{1}{29612.5+2^2\times(-90315.7)+68893.9\times 2^4-(263.365\times 2^4)\log(2)+\frac{2^4}{4}\log(4)}}$$

log(x) is the natural logarithm

Result:

0.996697068...

0.996697068... result very near to the value of the following Rogers-Ramanujan continued fraction:

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

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

2*sqrt(((log base 0.996697068 ((1/(((29612.5-90315.7*2^2+68893.9*2^4-263.365*2^4 ln(2)+(2^4)/4 * ln(4)))))))))-Pi+1/golden ratio

Input interpretation:

$$2\sqrt{\log_{0.996697068}\left(\frac{1}{29612.5+2^2\times(-90315.7)+68893.9\times 2^4-(263.365\times 2^4)\log(2)+\frac{2^4}{4}\log(4)}\right)}-\pi+\frac{1}{\phi}$$

log(x) is the natural logarithm

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

ϕ is the golden ratio

Result:

125.4764...

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

Alternative representations:

$$2\sqrt{\log_{0.996697}\left(\frac{1}{29612.5-90315.7\times 2^2+68893.9\times 2^4-\log(2)\,263.365\times 2^4+\frac{1}{4}\log(4)\,2^4}\right)}-\pi+\frac{1}{\phi}=$$
$$-\pi+\frac{1}{\phi}+2\sqrt{\frac{\log\left(\frac{1}{-331650.+68893.9\times 2^4-263.365\log(2)\,2^4+\frac{1}{4}\log(4)\,2^4}\right)}{\log(0.996697)}}$$

$$2\sqrt{\log_{0.996697}\left(\frac{1}{29612.5-90315.7\times 2^2+68893.9\times 2^4-\log(2)\,263.365\times 2^4+\frac{1}{4}\log(4)\,2^4}\right)}-\pi+\frac{1}{\phi}=$$
$$-\pi+\frac{1}{\phi}+2\sqrt{\log_{0.996697}\left(\frac{1}{-331650.+68893.9\times 2^4-263.365\log_e(2)\,2^4+\frac{\log_e(4)\,2^4}{4}}\right)}$$

$$2\sqrt{\log_{0.996697}\left(\frac{1}{29612.5-90315.7\times 2^2+68893.9\times 2^4-\log(2)\,263.365\times 2^4+\frac{1}{4}\log(4)\,2^4}\right)}-\pi+\frac{1}{\phi}=-\pi+\frac{1}{\phi}+2\sqrt{\log_{0.996697}\left(\frac{1}{-331650.+68893.9\times 2^4-263.365\log(a)\log_a(2)\,2^4+\frac{1}{4}\log(a)\log_a(4)\,2^4}\right)}$$

Series representations:

$$2\sqrt{\log_{0.996697}\left(1\Big/\left(29612.5-90315.7\times 2^2+68893.9\times 2^4-\log(2)\,263.365\times 2^4+\frac{1}{4}\log(4)\,2^4\right)\right)}-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-\pi+2\exp\left(i\pi\left\lfloor\frac{\arg\left(-x+\log_{0.996697}\left(\frac{1}{770652.-4213.84\log(2)+4\log(4)}\right)\right)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k x^{-k}\left(-x+\log_{0.996697}\left(\frac{1}{770652.-4213.84\log(2)+4\log(4)}\right)\right)^k\left(-\frac{1}{2}\right)_k}{k!}$$

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

$$2\sqrt{\log_{0.996697}\left(\frac{1}{29612.5-90315.7\times 2^2+68893.9\times 2^4-\log(2)\,263.365\times 2^4+\frac{1}{4}\log(4)\,2^4}\right)}-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-\pi+2\left(\frac{1}{z_0}\right)^{1/2\left\lfloor\arg\left(\log_{0.996697}\left(\frac{1}{770652.-4213.84\log(2)+4\log(4)}\right)-z_0\right)/(2\pi)\right\rfloor} z_0^{1/2\left(1+\left\lfloor\arg\left(\log_{0.996697}\left(\frac{1}{770652.-4213.84\log(2)+4\log(4)}\right)-z_0\right)/(2\pi)\right\rfloor\right)}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\log_{0.996697}\left(\frac{1}{770652.-4213.84\log(2)+4\log(4)}\right)-z_0\right)^k z_0^{-k}}{k!}$$

Integral representations:

$$2\sqrt{\log_{0.996697}\left(\frac{1}{29612.5-90315.7\times 2^2+68893.9\times 2^4-\log(2)\,263.365\times 2^4+\frac{1}{4}\log(4)\,2^4}\right)}-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-\pi+2\sqrt{\log_{0.996697}\left(\frac{1}{770652.+\int_1^2\left(-\frac{4213.84}{t}+\frac{12}{-2+3t}\right)dt}\right)}$$

$$2\sqrt{\log_{0.996697}\left(1\Big/\left(29612.5-90315.7\times 2^2+68893.9\times 2^4-\log(2)\,263.365\times 2^4+\frac{1}{4}\log(4)\,2^4\right)\right)}-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-\pi+2\sqrt{\log_{0.996697}\left(\frac{1.2976\times 10^{-6}\,i\pi}{i\pi+\int_{-i\infty+\gamma}^{i\infty+\gamma}-\frac{0.00273394\times 3^{-s}\left(-0.000949253+3^s\right)\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}\right)}$$

for $-1 < \gamma < 0$

2*sqrt(((log base 0.996697068 ((1/(((29612.5-90315.7*2^2+68893.9*2^4-263.365*2^4 ln(2)+(2^4)/4 * ln(4)))))))))+11+1/golden ratio

Input interpretation:

$$2\sqrt{\log_{0.99669706 8}\left(\frac{1}{29\,612.5+2^2\times(-90\,315.7)+68\,893.9\times 2^4-(263.365\times 2^4)\log(2)+\frac{2^4}{4}\log(4)}\right)}+11+\frac{1}{\phi}$$

log(x) is the natural logarithm

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

ϕ is the golden ratio

Result:

139.6180...

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

Alternative representations:

$$2\sqrt{\log_{0.996697}\left(\frac{1}{29\,612.5-90\,315.7\times 2^2+68\,893.9\times 2^4-\log(2)\,263.365\times 2^4+\frac{1}{4}\log(4)\,2^4}\right)}+11+\frac{1}{\phi}=$$
$$11+\frac{1}{\phi}+2\sqrt{\frac{\log\left(\frac{1}{-331\,650.+68\,893.9\times 2^4-263.365\log(2)\,2^4+\frac{1}{4}\log(4)\,2^4}\right)}{\log(0.996697)}}$$

$$2\sqrt{\log_{0.996697}\left(\frac{1}{29\,612.5-90\,315.7\times 2^2+68\,893.9\times 2^4-\log(2)\,263.365\times 2^4+\frac{1}{4}\log(4)\,2^4}\right)}+11+\frac{1}{\phi}=$$
$$11+\frac{1}{\phi}+2\sqrt{\log_{0.996697}\left(\frac{1}{-331\,650.+68\,893.9\times 2^4-263.365\log_e(2)\,2^4+\frac{\log_e(4)\,2^4}{4}}\right)}$$

$$2\sqrt{\log_{0.996697}\left(\frac{1}{29\,612.5-90\,315.7\times 2^2+68\,893.9\times 2^4-\log(2)\,263.365\times 2^4+\frac{1}{4}\log(4)\,2^4}\right)}+11+\frac{1}{\phi}=11+\frac{1}{\phi}+2\sqrt{\log_{0.996697}\left(\frac{1}{-331\,650.+68\,893.9\times 2^4-263.365\log(a)\log_a(2)\,2^4+\frac{1}{4}\log(a)\log_a(4)\,2^4}\right)}$$

Series representations:

$$2\sqrt{\log_{0.996697}\left(1\Big/\left(29612.5-90315.7\times 2^2+68893.9\times 2^4-\log(2)\,263.365\times 2^4+\frac{1}{4}\log(4)\,2^4\right)\right)}+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}+2\exp\left(i\pi\left\lfloor\frac{\arg\left(-x+\log_{0.996697}\left(\frac{1}{770652.-4213.84\log(2)+4\log(4)}\right)\right)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k x^{-k}\left(-x+\log_{0.996697}\left(\frac{1}{770652.-4213.84\log(2)+4\log(4)}\right)\right)^k\left(-\frac{1}{2}\right)_k}{k!}$$

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

$$2\sqrt{\log_{0.996697}\left(\frac{1}{29612.5-90315.7\times 2^2+68893.9\times 2^4-\log(2)\,263.365\times 2^4+\frac{1}{4}\log(4)\,2^4}\right)}+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}+2\left(\frac{1}{z_0}\right)^{1/2\left\lfloor\arg\left(\log_{0.996697}\left(\frac{1}{770652.-4213.84\log(2)+4\log(4)}\right)-z_0\right)/(2\pi)\right\rfloor} z_0^{1/2\left(1+\left\lfloor\arg\left(\log_{0.996697}\left(\frac{1}{770652.-4213.84\log(2)+4\log(4)}\right)-z_0\right)/(2\pi)\right\rfloor\right)}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\log_{0.996697}\left(\frac{1}{770652.-4213.84\log(2)+4\log(4)}\right)-z_0\right)^k z_0^{-k}}{k!}$$

Integral representations:

$$2\sqrt{\log_{0.996697}\left(\frac{1}{29612.5-90315.7\times 2^2+68893.9\times 2^4-\log(2)\,263.365\times 2^4+\frac{1}{4}\log(4)\,2^4}\right)}+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}+2\sqrt{\log_{0.996697}\left(\frac{1}{770652.+\int_1^2\left(-\frac{4213.84}{t}+\frac{12}{-2+3t}\right)dt}\right)}$$

$$2\sqrt{\log_{0.996697}\left(1\Big/\left(29612.5-90315.7\times 2^2+68893.9\times 2^4-\log(2)\,263.365\times 2^4+\frac{1}{4}\log(4)\,2^4\right)\right)}+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}+2\sqrt{\log_{0.996697}\left(\frac{1.2976\times 10^{-6}\,i\pi}{i\pi+\int_{-i\infty+\gamma}^{i\infty+\gamma}-\frac{0.00273394\times 3^{-s}\left(-0.000949253+3^s\right)\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}\right)}$$

for $-1<\gamma<0$

With regard the result 767736.8338621..., from the formula of the coefficients of the "5th order" mock theta function $\psi_1(q)$

a(n) ~ sqrt(phi) * exp(Pi*sqrt(n/15)) / (2*5^(1/4)*sqrt(n))

For n = 464, a(n) ≈ 767763, we obtain:

sqrt(golden ratio) * exp(Pi*sqrt(464/15)) / (2*5^(1/4)*sqrt(464))

Input:

$$\sqrt{\phi} \times \frac{\exp\left(\pi \sqrt{\frac{464}{15}}\right)}{2 \sqrt[4]{5} \sqrt{464}}$$

ϕ is the golden ratio

Exact result:

$$\frac{e^{4 \sqrt{29/15}\, \pi} \sqrt{\frac{\phi}{29}}}{8 \sqrt[4]{5}}$$

Decimal approximation:

765271.7288508692563941585404586842674917454707573901411583...

765271.72885…

Property:

$$\frac{e^{4 \sqrt{29/15}\, \pi} \sqrt{\frac{\phi}{29}}}{8 \sqrt[4]{5}} \text{ is a transcendental number}$$

Alternate forms:

$$\frac{1}{8}\sqrt{\frac{1}{290}\left(5+\sqrt{5}\right)}\ e^{4\sqrt{29/15}\ \pi}$$

$$\frac{\sqrt{\frac{1}{58}\left(1+\sqrt{5}\right)}\ e^{4\sqrt{29/15}\ \pi}}{8\sqrt[4]{5}}$$

Series representations:

$$\frac{\sqrt{\phi}\ \exp\left(\pi\sqrt{\frac{464}{15}}\right)}{2\sqrt[4]{5}\ \sqrt{464}} = \frac{\exp\left(\pi\sqrt{z_0}\ \sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{464}{15}-z_0\right)^k z_0^{-k}}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}}{2\sqrt[4]{5}\ \sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(464-z_0)^k z_0^{-k}}{k!}}$$

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

$$\frac{\sqrt{\phi}\ \exp\left(\pi\sqrt{\frac{464}{15}}\right)}{2\sqrt[4]{5}\ \sqrt{464}} = \left(\exp\left(i\pi\left\lfloor\frac{\arg(\phi-x)}{2\pi}\right\rfloor\right)\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg\left(\frac{464}{15}-x\right)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k\left(\frac{464}{15}-x\right)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k(\phi-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\Big/\left(2\sqrt[4]{5}\ \exp\left(i\pi\left\lfloor\frac{\arg(464-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(464-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)$$

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

$$\frac{\sqrt{\phi}\ \exp\left(\pi\sqrt{\frac{464}{15}}\right)}{2\sqrt[4]{5}\ \sqrt{464}} = \left(\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\left\lfloor\arg\left(\frac{464}{15}-z_0\right)/(2\pi)\right\rfloor} z_0^{1/2\left(1+\left\lfloor\arg\left(\frac{464}{15}-z_0\right)/(2\pi)\right\rfloor\right)}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{464}{15}-z_0\right)^k z_0^{-k}}{k!}\right)\left(\frac{1}{z_0}\right)^{-1/2\lfloor\arg(464-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor} z_0^{-1/2\lfloor\arg(464-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right)\Big/\left(2\sqrt[4]{5}\ \sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(464-z_0)^k z_0^{-k}}{k!}\right)$$

For n = 464.1812, we obtain:

sqrt(golden ratio) * exp(Pi*sqrt(464.1812/15)) / (2*5^(1/4)*sqrt(464.1812))

Input interpretation:

$$\sqrt{\phi} \times \frac{\exp\left(\pi \sqrt{\frac{464.1812}{15}}\right)}{2 \sqrt[4]{5} \sqrt{464.1812}}$$

ϕ is the golden ratio

Result:

767736.932675073212179443521721311782855865052438360549355 8...

767736.9326…

Series representations:

$$\frac{\sqrt{\phi} \exp\left(\pi \sqrt{\frac{464.181}{15}}\right)}{2 \sqrt[4]{5} \sqrt{464.181}} = \frac{\exp\left(\pi \sqrt{z_0} \sum_{k=0}^{\infty} \frac{(-1)^k \left(-\frac{1}{2}\right)_k (30.9454 - z_0)^k z_0^{-k}}{k!}\right) \sum_{k=0}^{\infty} \frac{(-1)^k \left(-\frac{1}{2}\right)_k (\phi - z_0)^k z_0^{-k}}{k!}}{2 \sqrt[4]{5} \sum_{k=0}^{\infty} \frac{(-1)^k \left(-\frac{1}{2}\right)_k (464.181 - z_0)^k z_0^{-k}}{k!}}$$

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

$$\frac{\sqrt{\phi} \exp\left(\pi \sqrt{\frac{464.181}{15}}\right)}{2 \sqrt[4]{5} \sqrt{464.181}} = \left(\exp\left(i \pi \left\lfloor \frac{\arg(\phi - x)}{2 \pi} \right\rfloor\right) \exp\left(\pi \exp\left(i \pi \left\lfloor \frac{\arg(30.9454 - x)}{2 \pi} \right\rfloor\right) \sqrt{x} \sum_{k=0}^{\infty} \frac{(-1)^k (30.9454 - x)^k x^{-k} \left(-\frac{1}{2}\right)_k}{k!}\right) \sum_{k=0}^{\infty} \frac{(-1)^k (\phi - x)^k x^{-k} \left(-\frac{1}{2}\right)_k}{k!}\right) \Bigg/ \left(2 \sqrt[4]{5} \exp\left(i \pi \left\lfloor \frac{\arg(464.181 - x)}{2 \pi} \right\rfloor\right) \sum_{k=0}^{\infty} \frac{(-1)^k (464.181 - x)^k x^{-k} \left(-\frac{1}{2}\right)_k}{k!}\right)$$

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

$$\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{464.181}{15}}\right)}{2\sqrt[4]{5}\sqrt{464.181}} = \left(\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(30.9454-z_0)/(2\pi)\rfloor} z_0^{1/2(1+\lfloor\arg(30.9454-z_0)/(2\pi)\rfloor)}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(30.9454-z_0)^k z_0^{-k}}{k!}\right)\left(\frac{1}{z_0}\right)^{-1/2\lfloor\arg(464.181-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor} z_0^{-1/2\lfloor\arg(464.181-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right) / \left(2\sqrt[4]{5}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(464.181-z_0)^k z_0^{-k}}{k!}\right)$$

From the previous mock expression for n = 464, we obtain:

sqrt(golden ratio) * exp(Pi*sqrt(464/15)) / (2*5^(1/4)*sqrt(464)) + (2467.8 - 5 +golden ratio)

where 2467.8 is the rest mass of the charmed Xi baryon

Input interpretation:

$$\sqrt{\phi}\times\frac{\exp\left(\pi\sqrt{\frac{464}{15}}\right)}{2\sqrt[4]{5}\sqrt{464}}+(2467.8-5+\phi)$$

ϕ is the golden ratio

Result:

767736.1...

767736.1….

Series representations:

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{464}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{464}}+(2467.8-5+\phi)=$$

$$\left(2462.8\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(464-z_0)^k z_0^{-k}}{k!}+\phi\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(464-z_0)^k z_0^{-k}}{k!}+0.33437\right.$$
$$\left.\exp\left(\pi\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{464}{15}-z_0\right)^k z_0^{-k}}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right)\Big/$$
$$\left(\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(464-z_0)^k z_0^{-k}}{k!}\right)\quad\text{for not }((z_0\in\mathbb{R}\text{ and }-\infty<z_0\leq 0))$$

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{464}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{464}}+(2467.8-5+\phi)=$$

$$\left(2462.8\exp\left(i\pi\left\lfloor\frac{\arg(464-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(464-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}+\right.$$
$$\phi\exp\left(i\pi\left\lfloor\frac{\arg(464-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(464-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}+$$
$$0.33437\exp\left(i\pi\left\lfloor\frac{\arg(\phi-x)}{2\pi}\right\rfloor\right)\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg\left(\frac{464}{15}-x\right)}{2\pi}\right\rfloor\right)\sqrt{x}\right.$$
$$\left.\left.\sum_{k=0}^{\infty}\frac{(-1)^k\left(\frac{464}{15}-x\right)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k(\phi-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\Big/$$
$$\left(\exp\left(i\pi\left\lfloor\frac{\arg(464-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(464-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\quad\text{for }(x\in\mathbb{R}\text{ and }x<0)$$

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{464}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{464}} + (2467.8 - 5 + \phi) =$$

$$\left(\left(\frac{1}{z_0}\right)^{-1/2\lfloor\arg(464-z_0)/(2\pi)\rfloor} z_0^{-1/2\lfloor\arg(464-z_0)/(2\pi)\rfloor}\left(2462.8\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(464-z_0)/(2\pi)\rfloor} z_0^{1/2\lfloor\arg(464-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(464-z_0)^k z_0^{-k}}{k!} + \phi\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(464-z_0)/(2\pi)\rfloor} z_0^{1/2\lfloor\arg(464-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(464-z_0)^k z_0^{-k}}{k!} + 0.33437\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\left\lfloor\arg\left(\frac{464}{15}-z_0\right)/(2\pi)\right\rfloor} z_0^{1/2\left(1+\left\lfloor\arg\left(\frac{464}{15}-z_0\right)/(2\pi)\right\rfloor\right)}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{464}{15}-z_0\right)^k z_0^{-k}}{k!}\right)\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor} z_0^{1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right)\right) \Big/ \left(\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(464-z_0)^k z_0^{-k}}{k!}\right)$$

Or, also:

sqrt(golden ratio) * exp(Pi*sqrt(464/15)) / (2*5^(1/4)*sqrt(464)) + [(64^2+256)/2+288+1/golden ratio]

Input:

$$\sqrt{\phi}\times\frac{\exp\left(\pi\sqrt{\frac{464}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{464}} + \left(\frac{1}{2}\left(64^2+256\right)+288+\frac{1}{\phi}\right)$$

ϕ is the golden ratio

Exact result:

$$\frac{e^{4\sqrt{29/15}\,\pi}\sqrt{\frac{\phi}{29}}}{8\sqrt[4]{5}} + \frac{1}{\phi} + 2464$$

Decimal approximation:

767736.3468848580062890067450455186331298631910665699469211...

767736.34688...

Property:

$2464 + \frac{e^{4\sqrt{29/15}\,\pi}\sqrt{\frac{\phi}{29}}}{8\sqrt[4]{5}} + \frac{1}{\phi}$ is a transcendental number

Alternate forms:

$$\frac{1}{2}\left(4927+\sqrt{5}\right)+\frac{1}{8}\sqrt{\frac{1}{290}\left(5+\sqrt{5}\right)}\,e^{4\sqrt{29/15}\,\pi}$$

$$2464+\frac{2}{1+\sqrt{5}}+\frac{\sqrt{\frac{1}{58}\left(1+\sqrt{5}\right)}\,e^{4\sqrt{29/15}\,\pi}}{8\sqrt[4]{5}}$$

$$\frac{e^{4\sqrt{29/15}\,\pi}\,\phi^{3/2}+8\sqrt[4]{5}\,\sqrt{29}\,(2464\,\phi+1)}{8\sqrt[4]{5}\,\sqrt{29}\,\phi}$$

Series representations:

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{464}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{464}}+\left(\frac{1}{2}\left(64^2+256\right)+288+\frac{1}{\phi}\right)=$$

$$\left(10\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(464-z_0)^k\,z_0^{-k}}{k!}+24640\,\phi\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(464-z_0)^k\,z_0^{-k}}{k!}+5^{3/4}\,\phi\right.$$
$$\left.\exp\left(\pi\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{464}{15}-z_0\right)^k z_0^{-k}}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k\,z_0^{-k}}{k!}\right)\Big/$$
$$\left(10\,\phi\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(464-z_0)^k\,z_0^{-k}}{k!}\right)\quad\text{for not } ((z_0\in\mathbb{R}\text{ and }-\infty<z_0\le 0))$$

$$\frac{\sqrt{\phi}\ \exp\left(\pi\sqrt{\frac{464}{15}}\right)}{2\sqrt[4]{5}\ \sqrt{464}} + \left(\frac{1}{2}\left(64^2+256\right)+288+\frac{1}{\phi}\right) =$$

$$\left(10\exp\left(i\pi\left\lfloor\frac{\arg(464-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k (464-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!} + 24\,640\,\phi\exp\left(i\pi\left\lfloor\frac{\arg(464-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k (464-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!} + 5^{3/4}\phi\exp\left(i\pi\left\lfloor\frac{\arg(\phi-x)}{2\pi}\right\rfloor\right)\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg\left(\frac{464}{15}-x\right)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k\left(\frac{464}{15}-x\right)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k(\phi-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right) \Bigg/ \left(10\,\phi\exp\left(i\pi\left\lfloor\frac{\arg(464-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k (464-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)$$

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

$$\frac{\sqrt{\phi}\ \exp\left(\pi\sqrt{\frac{464}{15}}\right)}{2\sqrt[4]{5}\ \sqrt{464}} + \left(\frac{1}{2}\left(64^2+256\right)+288+\frac{1}{\phi}\right) =$$

$$\left(\left(\frac{1}{z_0}\right)^{-1/2\lfloor\arg(464-z_0)/(2\pi)\rfloor} z_0^{-1/2\lfloor\arg(464-z_0)/(2\pi)\rfloor}\left(10\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(464-z_0)/(2\pi)\rfloor} z_0^{1/2\lfloor\arg(464-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(464-z_0)^k z_0^{-k}}{k!} + 24\,640\,\phi\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(464-z_0)/(2\pi)\rfloor} z_0^{1/2\lfloor\arg(464-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(464-z_0)^k z_0^{-k}}{k!} + 5^{3/4}\phi\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\left\lfloor\arg\left(\frac{464}{15}-z_0\right)/(2\pi)\right\rfloor} z_0^{1/2\left(1+\left\lfloor\arg\left(\frac{464}{15}-z_0\right)/(2\pi)\right\rfloor\right)}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{464}{15}-z_0\right)^k z_0^{-k}}{k!}\right)\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor} z_0^{1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right)\right) \Bigg/ \left(10\,\phi\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(464-z_0)^k z_0^{-k}}{k!}\right)$$

Now, we have that;

On the other hand, for $\eta_i = -1$ and $x_i > x_k > 1$, $G_1(\tau_k)$ has the following form,

$$\frac{G_1(\tau_k)}{\tau_0^4} = \tilde{\mathcal{C}}_0^{G_1} + \tilde{\mathcal{C}}_{\ln(x_k)}^{G_1} \ \ln(x_k) + \tilde{\mathcal{C}}_{\ln(x_k)^2}^{G_1} \ \ln(x_k)^2 + \tilde{\mathcal{C}}_{-2}^{G_1} \ x_k^2 + \tilde{\mathcal{C}}_{x_k^2 \ln(x_k)}^{G_1} \ x_k^2 \ln(x_k) + \frac{3x_k^4}{64} \qquad x_i > x_k > 1,$$

where

$$\tilde{\mathcal{C}}_0^{G_1} = \frac{(\eta_c^2 + \eta_c + 2)\, e^{-(\eta_c+3)\Delta N_3}}{4(\eta_c - 1)(\eta_c + 3)^2} + \frac{(\eta_c - 3)\ e^{-4\Delta N_3}}{8(\eta_c - 1)(\eta_c + 1)^2} + \frac{e^{-2(\eta_c+3)\Delta N_3}}{(\eta_c + 1)^2(\eta_c + 3)^2} - \frac{(3\eta_c + 11)\ e^{-(\eta_c+5)\Delta N_3}}{2(\eta_c + 1)^2(\eta_c + 3)(\eta_c + 5)} + \frac{e^{-2\Delta N_3}}{8(\eta_c + 3)} + \frac{(\eta_c + 1)\,(9\eta_c^2 + 66\eta_c + 101)}{64(\eta_c + 3)^2(\eta_c + 5)} \qquad \text{(C.26)}$$

$$\tilde{\mathcal{C}}_{\ln(x_k)}^{G_1} = \frac{(3\eta_c + 11)\ e^{-(\eta_c+5)\Delta N_3}}{2(\eta_c + 1)(\eta_c + 3)(\eta_c + 5)} - \frac{2e^{-2(\eta_c+3)\Delta N_3}}{(\eta_c + 1)(\eta_c + 3)^2} + \frac{(\eta_c + 1)\,(5\eta_c^2 + 34\eta_c + 41)}{16(\eta_c + 3)^2(\eta_c + 5)} + \frac{(3\eta_c + 1)\ e^{-(\eta_c+3)\Delta N_3}}{4(\eta_c + 3)^2} + \frac{e^{-2\Delta N_3}}{4(\eta_c + 3)} \qquad \text{(C.27)}$$

$$\begin{aligned} \tilde{\mathcal{C}}_{\ln(x_k)^2}^{G_1} &= \frac{(\eta_c + 1)\ e^{-(\eta_c+3)\Delta N_3}}{(\eta_c + 3)^2} + \frac{e^{-2(\eta_c+3)\Delta N_3}}{(\eta_c + 3)^2} + \frac{(\eta_c + 1)^2}{4(\eta_c + 3)^2}, \\ \tilde{\mathcal{C}}_{-2}^{G_1} &= -\frac{\eta_c\ e^{-(\eta_c+3)\Delta N_3}}{4(\eta_c + 1)(\eta_c + 3)} - \frac{e^{-2\Delta N_3}}{8(\eta_c + 1)} - \frac{3(\eta_c + 1)}{16(\eta_c + 3)}, \\ \tilde{\mathcal{C}}_{x_k^2 \ln(x_k)}^{G_1} &= -\frac{e^{-(\eta_c+3)\Delta N_3}}{4(\eta_c + 3)} - \frac{\eta_c + 1}{8(\eta_c + 3)} \end{aligned} \qquad \text{(C.28)}$$

For $\eta_i = -3$; $\eta_c = -6.8$ we obtain:

$$\tilde{\mathcal{C}}_0^{G_1} = \frac{(\eta_c^2 + \eta_c + 2)\, e^{-(\eta_c+3)\Delta N_3}}{4(\eta_c - 1)(\eta_c + 3)^2} + \frac{(\eta_c - 3)\ e^{-4\Delta N_3}}{8(\eta_c - 1)(\eta_c + 1)^2} + \frac{e^{-2(\eta_c+3)\Delta N_3}}{(\eta_c + 1)^2(\eta_c + 3)^2} - \frac{(3\eta_c + 11)\ e^{-(\eta_c+5)\Delta N_3}}{2(\eta_c + 1)^2(\eta_c + 3)(\eta_c + 5)} + \frac{e^{-2\Delta N_3}}{8(\eta_c + 3)} + \frac{(\eta_c + 1)\,(9\eta_c^2 + 66\eta_c + 101)}{64(\eta_c + 3)^2(\eta_c + 5)}$$

((((-6.8)^2-6.8+2))e^(-(-3.8)*2))/((4(-7.8)(-3.8)^2))+(((-9.8)e^(-4*2)))/((8(-7.8)(-5.8)^2))+(((e^(-2(-3.8)*2))/((-5.8)^2(-3.8)^2)))

Input:

$$\frac{((-6.8)^2 - 6.8 + 2)\, e^{-(-3.8)\times 2}}{4\times(-7.8)\,(-3.8)^2} + \frac{-9.8\, e^{-4\times 2}}{8\times(-7.8)\,(-5.8)^2} + \frac{e^{-2\times(-3.8)\times 2}}{(-5.8)^2\,(-3.8)^2}$$

Result:

8035.85...

8035.85…

Alternative representation:

$$\frac{((-6.8)^2-6.8+2)\,e^{-(-3.8)2}}{4\,(-7.8)\,(-3.8)^2}+-\frac{9.8\,e^{-4\times 2}}{8\,(-7.8)\,(-5.8)^2}+\frac{e^{-2\,(-3.8)\,2}}{(-5.8)^2\,(-3.8)^2}=\frac{((-6.8)^2-6.8+2)\exp^{-(-3.8)2}(z)}{4\,(-7.8)\,(-3.8)^2}+-\frac{9.8\exp^{-4\times 2}(z)}{8\,(-7.8)\,(-5.8)^2}+\frac{\exp^{-2\,(-3.8)\,2}(z)}{(-5.8)^2\,(-3.8)^2}\text{ for }z=1$$

Series representations:

$$\frac{((-6.8)^2-6.8+2)\,e^{-(-3.8)2}}{4\,(-7.8)\,(-3.8)^2}+-\frac{9.8\,e^{-4\times 2}}{8\,(-7.8)\,(-5.8)^2}+\frac{e^{-2\,(-3.8)\,2}}{(-5.8)^2\,(-3.8)^2}=-\frac{0.091981\left(-0.050756+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{15.6}-0.022381\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{23.2}\right)}{\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{8}}$$

$$\frac{((-6.8)^2-6.8+2)\,e^{-(-3.8)2}}{4\,(-7.8)\,(-3.8)^2}+-\frac{9.8\,e^{-4\times 2}}{8\,(-7.8)\,(-5.8)^2}+\frac{e^{-2\,(-3.8)\,2}}{(-5.8)^2\,(-3.8)^2}=-\frac{0.0004741\left(-2520.9+\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{15.6}-0.000115359\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{23.2}\right)}{\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{8}}$$

$$\frac{((-6.8)^2-6.8+2)\,e^{-(-3.8)2}}{4\,(-7.8)\,(-3.8)^2}+-\frac{9.8\,e^{-4\times 2}}{8\,(-7.8)\,(-5.8)^2}+\frac{e^{-2\,(-3.8)\,2}}{(-5.8)^2\,(-3.8)^2}=-\frac{0.091981\left(-0.050756+\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{15.6}-0.022381\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{23.2}\right)}{\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{8}}$$

$$-\frac{(3\eta_c+11)\;e^{-(\eta_c+5)\Delta N_3}}{2(\eta_c+1)^2(\eta_c+3)(\eta_c+5)}+\frac{e^{-2\Delta N_3}}{8(\eta_c+3)}+\frac{(\eta_c+1)\,(9\eta_c^2+66\eta_c+101)}{64(\eta_c+3)^2(\eta_c-5)}$$

-(((3*(-6.8)+11))e^(-(-1.8)*2))/((2(-5.8)^2(-3.8)(-1.8))+(((e^(-2*2)))/((8(-3.8)+(((-5.8)(9*(-6.8)^2+66*(-6.8)+101))/(((64*(-3.8)^2(-1.8))))

Input:

$$-\frac{(3\times(-6.8)+11)\,e^{-(-1.8)\times 2}}{2\,(-5.8)^2\times(-3.8)\times(-1.8)}+\frac{e^{-2\times 2}}{8\times(-3.8)}+\frac{-5.8\,\left(9\,(-6.8)^2+66\times(-6.8)+101\right)}{64\,(-3.8)^2\times(-1.8)}$$

Result:

0.985305...

-0.985305...

Input interpretation:

$$-0.985305+\frac{\left((-6.8)^2-6.8+2\right)e^{-(-3.8)\times 2}}{4\times(-7.8)\,(-3.8)^2}+\frac{-9.8\,e^{-4\times 2}}{8\times(-7.8)\,(-5.8)^2}+\frac{e^{-2\times(-3.8)\times 2}}{(-5.8)^2\,(-3.8)^2}$$

Result:

8034.86...

8034.86…

Alternative representation:

$$-0.985305+\frac{\left((-6.8)^2-6.8+2\right)e^{-(-3.8)2}}{4\,(-7.8)\,(-3.8)^2}+-\frac{9.8\,e^{-4\times 2}}{8\,(-7.8)\,(-5.8)^2}+\frac{e^{-2\,(-3.8)\,2}}{(-5.8)^2\,(-3.8)^2}=-0.985305+\frac{\left((-6.8)^2-6.8+2\right)\exp^{-(-3.8)2}(z)}{4\,(-7.8)\,(-3.8)^2}+-\frac{9.8\exp^{-4\times 2}(z)}{8\,(-7.8)\,(-5.8)^2}+\frac{\exp^{-2\,(-3.8)\,2}(z)}{(-5.8)^2\,(-3.8)^2}\quad\text{for } z=1$$

Series representations:

$$-0.985305+\frac{\left((-6.8)^2-6.8+2\right)e^{-(-3.8)2}}{4\,(-7.8)\,(-3.8)^2}+-\frac{9.8\,e^{-4\times 2}}{8\,(-7.8)\,(-5.8)^2}+\frac{e^{-2\,(-3.8)\,2}}{(-5.8)^2\,(-3.8)^2}=-0.091981\left(10.7121+\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{7.6}-0.022381\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{15.2}-0.050756\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}\right)^{8}\right)$$

$$-0.985305+\frac{((-6.8)^2-6.8+2)\,e^{-(-3.8)2}}{4(-7.8)(-3.8)^2}+-\frac{9.8\,e^{-4\times 2}}{8(-7.8)(-5.8)^2}+\frac{e^{-2(-3.8)2}}{(-5.8)^2(-3.8)^2}=$$

$$-0.985305-0.091981\left(3-\sum_{k=0}^{\infty}\frac{1+k}{(3+k)!}\right)^{7.6}+$$

$$0.00205862\left(3-\sum_{k=0}^{\infty}\frac{1+k}{(3+k)!}\right)^{15.2}+\frac{0.00466859}{\left(-3+\sum_{k=0}^{\infty}\frac{1+k}{(3+k)!}\right)^{8}}$$

$$-0.985305+\frac{((-6.8)^2-6.8+2)\,e^{-(-3.8)2}}{4(-7.8)(-3.8)^2}+-\frac{9.8\,e^{-4\times 2}}{8(-7.8)(-5.8)^2}+\frac{e^{-2(-3.8)2}}{(-5.8)^2(-3.8)^2}=$$

$$-\frac{0.091981\left(-0.050756+10.7121\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{8}+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{15.6}-0.022381\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{23.2}\right)}{\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{8}}$$

$$\tilde{\mathcal{C}}^{G_1}_{\ln(x_k)}=\frac{(3\eta_c+11)\,e^{-(\eta_c+5)\Delta N_3}}{2(\eta_c+1)(\eta_c+3)(\eta_c+5)}-\frac{2e^{-2(\eta_c+3)\Delta N_3}}{(\eta_c+1)(\eta_c+3)^2}+\frac{(\eta_c+1)(5\eta_c^2+34\eta_c+41)}{16(\eta_c+3)^2(\eta_c+5)}+\frac{(3\eta_c+1)\,e^{-(\eta_c+3)\Delta N_3}}{4(\eta_c+3)^2}+\frac{e^{-2\Delta N_3}}{4(\eta_c+3)} \quad (C.27)$$

(((3*(-6.8)+11))e^(-(-1.8)*2))/((2(-5.8)(-3.8)(-1.8)))-((2(e^(-2*-3.8*2)))/(((-5.8)(-3.8)^2)))+(((-5.8)(5*(-6.8)^2+34*(-6.8)+41)))/(((16*(-3.8)^2(-1.8))))

Input:

$$\frac{(3\times(-6.8)+11)\,e^{-(-1.8)\times 2}}{2\times(-5.8)\times(-3.8)\times(-1.8)}--\frac{2\,e^{-2\times(-3.8)\times 2}}{5.8(-3.8)^2}+\frac{-5.8(5(-6.8)^2+34\times(-6.8)+41)}{16(-3.8)^2\times(-1.8)}$$

Result:

95352.8…

95352.8…

$$+\frac{(3\eta_c+1)\,e^{-(\eta_c+3)\Delta N_3}}{4(\eta_c+3)^2}+\frac{e^{-2\Delta N_3}}{4(\eta_c+3)}$$

(((3*(-6.8)+1))e^(-(-3.8)*2))/((4(-3.8)^2))+(((e^(-2*2)))/((4(-3.8)))

Input:

$$\frac{(3\times(-6.8)+1)\,e^{-(-3.8)\times 2}}{4\,(-3.8)^2}+\frac{e^{-2\times 2}}{4\times(-3.8)}$$

Result:

$-671.140...$

-671.140…

Final result:

Input interpretation:

$$-671.140+\frac{(3\times(-6.8)+11)\,e^{-(-1.8)\times 2}}{2\times(-5.8)\times(-3.8)\times(-1.8)}-\\-\frac{2\,e^{-2\times(-3.8)\times 2}}{5.8\,(-3.8)^2}+\frac{-5.8\,(5\,(-6.8)^2+34\times(-6.8)+41)}{16\,(-3.8)^2\times(-1.8)}$$

Result:

$94681.6...$

94681.6…

Alternative representation:

$$-671.14+\frac{(3\,(-6.8)+11)\,e^{-(-1.8)\,2}}{2\,(-5.8)\,(-3.8)\,(-1.8)}--\frac{2\,e^{-2\,(-3.8)\,2}}{5.8\,(-3.8)^2}+-\frac{5.8\,(5\,(-6.8)^2+34\,(-6.8)+41)}{16\,(-3.8)^2\,(-1.8)}=\\-671.14+\frac{(3\,(-6.8)+11)\exp^{-(-1.8)\,2}(z)}{2\,(-5.8)\,(-3.8)\,(-1.8)}-\\-\frac{2\exp^{-2\,(-3.8)\,2}(z)}{5.8\,(-3.8)^2}+-\frac{5.8\,(5\,(-6.8)^2+34\,(-6.8)+41)}{16\,(-3.8)^2\,(-1.8)}\quad\text{for } z=1$$

Series representations:

$$-671.14+\frac{(3\,(-6.8)+11)\,e^{-(-1.8)\,2}}{2\,(-5.8)\,(-3.8)\,(-1.8)}--\frac{2\,e^{-2\,(-3.8)\,2}}{5.8\,(-3.8)^2}+-\frac{5.8\,(5\,(-6.8)^2+34\,(-6.8)+41)}{16\,(-3.8)^2\,(-1.8)}=\\0.118471\left(-5660.17+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{3.6}+0.201568\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{15.2}\right)$$

$$-671.14+\frac{(3(-6.8)+11)e^{-(-1.8)2}}{2(-5.8)(-3.8)(-1.8)}--\frac{2e^{-2(-3.8)2}}{5.8(-3.8)^2}+-\frac{5.8(5(-6.8)^2+34(-6.8)+41)}{16(-3.8)^2(-1.8)}=$$
$$0.00977025\left(-68633.7+\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{3.6}+0.0000649341\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{15.2}\right)$$

$$-671.14+\frac{(3(-6.8)+11)e^{-(-1.8)2}}{2(-5.8)(-3.8)(-1.8)}--\frac{2e^{-2(-3.8)2}}{5.8(-3.8)^2}+-\frac{5.8(5(-6.8)^2+34(-6.8)+41)}{16(-3.8)^2(-1.8)}=$$
$$0.118471\left(-5660.17+\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{3.6}+0.201568\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{15.2}\right)$$

$$\tilde{C}^{G_1}_{\ln(x_k)^2}=\frac{(\eta_c+1)\,e^{-(\eta_c+3)\Delta N_3}}{(\eta_c+3)^2}+\frac{e^{-2(\eta_c+3)\Delta N_3}}{(\eta_c+3)^2}+\frac{(\eta_c+1)^2}{4(\eta_c+3)^2},$$

(((-5.8)e^(-(-3.8)*2))/(((-3.8)^2)))+(((e^(-2*-3.8*2))))/((((-3.8)^2)))+(((-5.8)^2))/(((4*(-3.8)^2)))

Input:

$$\frac{-5.8\,e^{-(-3.8)\times 2}}{(-3.8)^2}+\frac{e^{-2\times(-3.8)\times 2}}{(-3.8)^2}+\frac{(-5.8)^2}{4(-3.8)^2}$$

Result:

275706.76655258610099686444416895134329101156528444268092 57...

275706.76655…

Alternative representation:

$$-\frac{5.8\,e^{-(-3.8)2}}{(-3.8)^2}+\frac{e^{-2(-3.8)2}}{(-3.8)^2}+\frac{(-5.8)^2}{4(-3.8)^2}=-\frac{5.8\exp^{-(-3.8)2}(z)}{(-3.8)^2}+\frac{\exp^{-2(-3.8)2}(z)}{(-3.8)^2}+\frac{(-5.8)^2}{4(-3.8)^2}\quad\text{for } z=1$$

Series representations:

$$-\frac{5.8\,e^{-(-3.8)2}}{(-3.8)^2}+\frac{e^{-2(-3.8)2}}{(-3.8)^2}+\frac{(-5.8)^2}{4(-3.8)^2}=$$
$$-0.401662\left(-1.45+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{7.6}-0.172414\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{15.2}\right)$$

$$-\frac{5.8\,e^{-(-3.8)\,2}}{(-3.8)^2}+\frac{e^{-2\,(-3.8)\,2}}{(-3.8)^2}+\frac{(-5.8)^2}{4\,(-3.8)^2}=$$
$$-0.0020703\left(-281.317+\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{7.6}-0.000888677\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{15.2}\right)$$

$$-\frac{5.8\,e^{-(-3.8)\,2}}{(-3.8)^2}+\frac{e^{-2\,(-3.8)\,2}}{(-3.8)^2}+\frac{(-5.8)^2}{4\,(-3.8)^2}=$$
$$-0.401662\left(-1.45+\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{7.6}-0.172414\left(\sum_{k=0}^{\infty}\frac{(-1+k)^2}{k!}\right)^{15.2}\right)$$

$$\tilde{C}_{-2}^{G_1}=-\frac{\eta_c\,e^{-(\eta_c+3)\Delta N_3}}{4(\eta_c+1)(\eta_c+3)}-\frac{e^{-2\Delta N_3}}{8(\eta_c+1)}-\frac{3(\eta_c+1)}{16(\eta_c+3)},$$

-(((-6.8)e^(-(-3.8)*2)))/((4(-5.8)(-3.8))-(((e^(-2*2))))/(((8(-5.8))))-((3(-5.8)))/(((16*(-3.8))))

Input:

$$-\frac{-6.8\,e^{-(-3.8)\times 2}}{4\times(-5.8)\times(-3.8)}-\frac{e^{-2\times 2}}{8\times(-5.8)}-\frac{3\times(-5.8)}{16\times(-3.8)}$$

Result:

153.840…

153.840…

Alternative representation:

$$-\frac{-6.8\,e^{-(-3.8)\,2}}{4\,(-5.8)\,(-3.8)}-\frac{e^{-2\times 2}}{8\,(-5.8)}-\frac{3\,(-5.8)}{16\,(-3.8)}=$$
$$-\frac{-6.8\exp^{-(-3.8)\,2}(z)}{4\,(-5.8)\,(-3.8)}-\frac{\exp^{-2\times 2}(z)}{8\,(-5.8)}-\frac{3\,(-5.8)}{16\,(-3.8)}\quad\text{for } z=1$$

Series representations:

$$-\frac{-6.8\,e^{-(-3.8)\,2}}{4\,(-5.8)\,(-3.8)}-\frac{e^{-2\times 2}}{8\,(-5.8)}-\frac{3\,(-5.8)}{16\,(-3.8)}=$$
$$0.0771325\left(-3.71029+\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{7.6}+0.279412\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}\right)^4\right)$$

$$-\frac{-6.8\,e^{-(-3.8)\,2}}{4\,(-5.8)\,(-3.8)} - \frac{e^{-2\times 2}}{8\,(-5.8)} - \frac{3\,(-5.8)}{16\,(-3.8)} = -0.286184 + 0.0771325\left(3 - \sum_{k=0}^{\infty}\frac{1+k}{(3+k)!}\right)^{7.6} + \frac{0.0215517}{\left(-3+\sum_{k=0}^{\infty}\frac{1+k}{(3+k)!}\right)^{4}}$$

$$-\frac{-6.8\,e^{-(-3.8)\,2}}{4\,(-5.8)\,(-3.8)} - \frac{e^{-2\times 2}}{8\,(-5.8)} - \frac{3\,(-5.8)}{16\,(-3.8)} = \frac{0.0771325\left(0.279412 - 3.71029\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{4} + \left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{11.6}\right)}{\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{4}}$$

$$\tilde{C}^{G_1}_{x_k^2\ln(x_k)} = -\frac{e^{-(\eta_c+3)\Delta N_3}}{4(\eta_c+3)} - \frac{\eta_c+1}{8(\eta_c+3)}$$

-(((e^(-(-3.8)*2))))/((4(-3.8)))-(((-5.8)))/(((8(-3.8))))

Input:

$$-\frac{e^{-(-3.8)\times 2}}{4\times(-3.8)} - -\frac{5.8}{8\times(-3.8)}$$

Result:

131.269…

131.269…

Alternative representation:

$$-\frac{e^{-(-3.8)\,2}}{4\,(-3.8)} - -\frac{5.8}{8\,(-3.8)} = -\frac{\exp^{-(-3.8)\,2}(z)}{4\,(-3.8)} - -\frac{5.8}{8\,(-3.8)} \quad \text{for } z = 1$$

Series representations:

$$-\frac{e^{-(-3.8)\,2}}{4\,(-3.8)} - -\frac{5.8}{8\,(-3.8)} = -0.190789 + 0.0657895\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{7.6}$$

$$-\frac{e^{-(-3.8)\,2}}{4\,(-3.8)} - -\frac{5.8}{8\,(-3.8)} = -0.190789 + 0.000339101\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{7.6}$$

$$-\frac{e^{-(-3.8)2}}{4(-3.8)} - -\frac{5.8}{8(-3.8)} = -0.190789 + 0.0657895 \left(\sum_{k=0}^{\infty} \frac{(-1+k)^2}{k!} \right)^{7.6}$$

We have, in conclusion:

$$\frac{G_1(\tau_k)}{\tau_0^4} = \tilde{C}_0^{G_1} + \tilde{C}_{\ln(x_k)}^{G_1} \ln(x_k) + \tilde{C}_{\ln(x_k)^2}^{G_1} \ln(x_k)^2 + \tilde{C}_{-2}^{G_1} x_k^2 + \tilde{C}_{x_k^2 \ln(x_k)}^{G_1} x_k^2 \ln(x_k) + \frac{3x_k^4}{64}$$

$$x_i > x_k > 1$$

8034.86+94681.6*ln(2)+275706.76 * ln(4) +153.840*4+131.269*4 ln(2)+(3*2^4)/64

Input interpretation:

$$8034.86 + 94681.6 \log(2) + 275706.76 \log(4) + 153.840 \times 4 + 131.269 \times 4 \log(2) + \frac{1}{64}(3 \times 2^4)$$

log(x) is the natural logarithm

Result:

456853.9...

456853.9

Alternative representations:

$$8034.86 + 94681.6 \log(2) + 275707. \log(4) + 153.84 \times 4 + 131.269 \times 4 \log(2) + \frac{3 \times 2^4}{64} = 8650.22 + 95206.7 \log(a) \log_a(2) + 275707. \log(a) \log_a(4) + \frac{3 \times 2^4}{64}$$

$$8034.86 + 94681.6 \log(2) + 275707. \log(4) + 153.84 \times 4 + 131.269 \times 4 \log(2) + \frac{3 \times 2^4}{64} = 8650.22 + 95206.7 \log_e(2) + 275707. \log_e(4) + \frac{3 \times 2^4}{64}$$

$$8034.86 + 94681.6 \log(2) + 275707. \log(4) + 153.84 \times 4 + 131.269 \times 4 \log(2) + \frac{3 \times 2^4}{64} = 8650.22 - 275707. \operatorname{Li}_1(-3) - 95206.7 \operatorname{Li}_1(-1) + \frac{3 \times 2^4}{64}$$

Series representations:

$$8034.86 + 94681.6\log(2) + 275707.\log(4) + 153.84\times 4 + 131.269\times 4\log(2) + \frac{3\times 2^4}{64} = 8650.97 + 190413.\,i\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor + 551414.\,i\pi\left\lfloor\frac{\arg(4-x)}{2\pi}\right\rfloor + 370913.\log(x) + \sum_{k=1}^{\infty}\frac{(-1)^k\left(-95206.7(2-x)^k - 275707.(4-x)^k\right)x^{-k}}{k} \quad \text{for } x<0$$

$$8034.86 + 94681.6\log(2) + 275707.\log(4) + 153.84\times 4 + 131.269\times 4\log(2) + \frac{3\times 2^4}{64} = 8650.97 + 95206.7\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\log\left(\frac{1}{z_0}\right) + 275707.\left\lfloor\frac{\arg(4-z_0)}{2\pi}\right\rfloor\log\left(\frac{1}{z_0}\right) + 370913.\log(z_0) + 95206.7\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\log(z_0) + 275707.\left\lfloor\frac{\arg(4-z_0)}{2\pi}\right\rfloor\log(z_0) + \sum_{k=1}^{\infty}\frac{(-1)^k\left(-95206.7(2-z_0)^k - 275707.(4-z_0)^k\right)z_0^{-k}}{k}$$

$$8034.86 + 94681.6\log(2) + 275707.\log(4) + 153.84\times 4 + 131.269\times 4\log(2) + \frac{3\times 2^4}{64} = 8650.97 + 190413.\,i\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{2}{z_0}\right)+\arg(z_0)}{2\pi}\right\rfloor + 551414.\,i\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{4}{z_0}\right)+\arg(z_0)}{2\pi}\right\rfloor + 370913.\log(z_0) + \sum_{k=1}^{\infty}\frac{(-1)^k\left(-95206.7(2-z_0)^k - 275707.(4-z_0)^k\right)z_0^{-k}}{k}$$

Integral representations:

$$8034.86 + 94681.6\log(2) + 275707.\log(4) + 153.84\times 4 + 131.269\times 4\log(2) + \frac{3\times 2^4}{64} = 8650.97 + \int_1^2\left(-\frac{827120.}{2-3t} + \frac{95206.7}{t}\right)dt$$

$$8034.86 + 94681.6\log(2) + 275707.\log(4) + 153.84\times 4 + 131.269\times 4\log(2) + \frac{3\times 2^4}{64} = 8650.97 + \int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{47603.3\times 3^{-s}(2.89588+3^s)\Gamma(-s)^2\Gamma(1+s)}{i\pi\Gamma(1-s)}\,ds \quad \text{for } -1<\gamma<0$$

With regard the result 456853.9..., from the formula of the coefficients of the "5th order" mock theta function $\psi_1(q)$

a(n) ~ sqrt(phi) * exp(Pi*sqrt(n/15)) / (2*5^(1/4)*sqrt(n))

For n = 435, we obtain:

sqrt(golden ratio) * exp(Pi*sqrt(((435+(ln3)/3))/15)) / (2*5^(1/4)*sqrt((435+(ln3)/3)))

Input:

$$\sqrt{\phi} \times \frac{\exp\left(\pi \sqrt{\frac{1}{15}\left(435 + \frac{\log(3)}{3}\right)}\right)}{2\sqrt[4]{5}\sqrt{435 + \frac{\log(3)}{3}}}$$

log(x) is the natural logarithm

ϕ is the golden ratio

Exact result:

$$\frac{e^{\pi \sqrt{1/15 (435+\log(3)/3)}} \sqrt{\frac{\phi}{435+\frac{\log(3)}{3}}}}{2\sqrt[4]{5}}$$

Decimal approximation:

456854.1094145282112225478180412533574333660839742261146104...

456854.1094...

Alternate forms:

$$\frac{e^{1/3 \pi \sqrt{261+\log(3)/5}} \sqrt{\frac{3\phi}{1305+\log(3)}}}{2\sqrt[4]{5}}$$

$$\frac{e^{1/3\,\pi\sqrt{1/5\,(1305+\log(3))}}\sqrt{\frac{3\left(1+\sqrt{5}\right)}{2\,(1305+\log(3))}}}{2\sqrt[4]{5}}$$

$$\frac{e^{\pi\sqrt{1/15\,(435+\log(3)/3)}}\sqrt{\frac{1+\sqrt{5}}{435+\frac{\log(3)}{3}}}}{2\sqrt{2}\sqrt[4]{5}}$$

Alternative representations:

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{1}{15}\left(435+\frac{\log(3)}{3}\right)}\right)}{2\sqrt[4]{5}\sqrt{435+\frac{\log(3)}{3}}}=\frac{\exp\left(\pi\sqrt{\frac{1}{15}\left(435+\frac{\log_e(3)}{3}\right)}\right)\sqrt{\phi}}{2\sqrt[4]{5}\sqrt{435+\frac{\log_e(3)}{3}}}$$

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{1}{15}\left(435+\frac{\log(3)}{3}\right)}\right)}{2\sqrt[4]{5}\sqrt{435+\frac{\log(3)}{3}}}=\frac{\exp\left(\pi\sqrt{\frac{1}{15}\left(435+\frac{1}{3}\log(a)\log_a(3)\right)}\right)\sqrt{\phi}}{2\sqrt[4]{5}\sqrt{435+\frac{1}{3}\log(a)\log_a(3)}}$$

Series representations:

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{1}{15}\left(435+\frac{\log(3)}{3}\right)}\right)}{2\sqrt[4]{5}\sqrt{435+\frac{\log(3)}{3}}}=$$

$$\frac{\sqrt{\frac{3}{2}\left(1+\sqrt{5}\right)}\,e^{\frac{\pi\sqrt{1305+\log(2)-\sum_{k=1}^{\infty}\frac{\left(-\frac{1}{2}\right)^k}{k}}}{3\sqrt{5}}}\sqrt{\frac{1}{1305+\log(2)-\sum_{k=1}^{\infty}\frac{\left(-\frac{1}{2}\right)^k}{k}}}}{2\sqrt[4]{5}}$$

$$\frac{\sqrt{\phi}\ \exp\left(\pi\sqrt{\frac{1}{15}\left(435+\frac{\log(3)}{3}\right)}\right)}{2\sqrt[4]{5}\ \sqrt{435+\frac{\log(3)}{3}}} =$$

$$\frac{1}{2\sqrt[4]{5}}\ \sqrt{\frac{3}{2}\left(1+\sqrt{5}\right)}\ \exp\left(\frac{\pi\sqrt{1305+2\,i\,\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}}{k}}}{3\sqrt{5}}\right)$$
$$\sqrt{-\frac{i}{-1305\,i+2\,\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor-i\log(x)+i\sum_{k=1}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}}{k}}}\quad \text{for } x<0$$

$$\frac{\sqrt{\phi}\ \exp\left(\pi\sqrt{\frac{1}{15}\left(435+\frac{\log(3)}{3}\right)}\right)}{2\sqrt[4]{5}\ \sqrt{435+\frac{\log(3)}{3}}} = \frac{1}{2\sqrt[4]{5}}\ \sqrt{\frac{3}{2}\left(1+\sqrt{5}\right)}$$
$$\exp\left(\frac{\pi\sqrt{1305+\mathrm{Res}_{s=0}\ \frac{2^{-s}\,\Gamma(-s)\,\Gamma(1+s)}{s}+\sum_{j=1}^{\infty}\mathrm{Res}_{s=j}\ \frac{2^{-s}\,\Gamma(-s)\,\Gamma(1+s)}{s}}}{3\sqrt{5}}\right)$$
$$\sqrt{\frac{1}{1305+\mathrm{Res}_{s=0}\ \frac{2^{-s}\,\Gamma(-s)\,\Gamma(1+s)}{s}+\sum_{j=1}^{\infty}\mathrm{Res}_{s=j}\ \frac{2^{-s}\,\Gamma(-s)\,\Gamma(1+s)}{s}}}$$

Integral representations:

$$\frac{\sqrt{\phi}\ \exp\left(\pi\sqrt{\frac{1}{15}\left(435+\frac{\log(3)}{3}\right)}\right)}{2\sqrt[4]{5}\ \sqrt{435+\frac{\log(3)}{3}}} = \frac{\sqrt{\frac{3}{2}\left(1+\sqrt{5}\right)}\ e^{\left(\pi\sqrt{1305+\int_1^3\frac{1}{t}\,dt}\right)/\left(3\sqrt{5}\right)}\ \sqrt{\frac{1}{1305+\int_1^3\frac{1}{t}\,dt}}}{2\sqrt[4]{5}}$$

$$\frac{\sqrt{\phi}\ \exp\left(\pi\sqrt{\frac{1}{15}\left(435+\frac{\log(3)}{3}\right)}\right)}{2\sqrt[4]{5}\ \sqrt{435+\frac{\log(3)}{3}}} =$$

$$\frac{1}{2\sqrt[4]{5}}\ \exp\left(\frac{1}{3}\sqrt{\frac{\pi}{10}}\ \sqrt{2610\,\pi-i\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{2^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}\right)$$
$$\sqrt{3\left(1+\sqrt{5}\right)\pi}\ \sqrt{\frac{1}{2610\,\pi-i\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{2^{-s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds}}\quad \text{for } -1<\gamma<0$$

Or:

sqrt(golden ratio) * exp(Pi*sqrt(435.36618/15)) / (2*5^(1/4)*sqrt(435.36618))

Input interpretation:

$$\sqrt{\phi}\times\frac{\exp\left(\pi\sqrt{\frac{435.36618}{15}}\right)}{2\sqrt[4]{5}\sqrt{435.36618}}$$

ϕ is the golden ratio

Result:

456853.9...

456853.9…

Series representations:

$$\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{435.366}{15}}\right)}{2\sqrt[4]{5}\sqrt{435.366}}=\frac{\exp\left(\pi\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(29.0244-z_0)^k z_0^{-k}}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}}{2\sqrt[4]{5}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(435.366-z_0)^k z_0^{-k}}{k!}}$$

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

$$\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{435.366}{15}}\right)}{2\sqrt[4]{5}\sqrt{435.366}}=\left(\exp\left(i\pi\left\lfloor\frac{\arg(\phi-x)}{2\pi}\right\rfloor\right)\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(29.0244-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(29.0244-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k(\phi-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\Bigg/\left(2\sqrt[4]{5}\exp\left(i\pi\left\lfloor\frac{\arg(435.366-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(435.366-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)$$

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

$$\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{435.366}{15}}\right)}{2\sqrt[4]{5}\sqrt{435.366}} = \left(\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(29.0244-z_0)/(2\pi)\rfloor} z_0^{1/2(1+\lfloor\arg(29.0244-z_0)/(2\pi)\rfloor)}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(29.0244-z_0)^k z_0^{-k}}{k!}\right)\right.$$
$$\left(\frac{1}{z_0}\right)^{-1/2\lfloor\arg(435.366-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}$$
$$\left. z_0^{-1/2\lfloor\arg(435.366-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right) \Bigg/$$
$$\left(2\sqrt[4]{5}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(435.366-z_0)^k z_0^{-k}}{k!}\right)$$

Now, we take all the results obtained:

1386659.78; 179571.34; 1178937.5; 767737; 456853.9

(1386659.78 - 1178937.5 + 179571.34 + 767737 + 456853.9)*2/(64^2)

Input interpretation:

$$(1.38665978\times10^6 - 1.1789375\times10^6 + 179\,571.34 + 767\,737 + 456\,853.9)\times\frac{2}{64^2}$$

Result:

787.05298828125

787.05298828125 result near to the rest mass of Omega meson 782.65

(1386659.78 - 1178937.5 + 179571.34 + 767737 + 456853.9)/((Pi(64^2)))

Input interpretation:

$$\frac{1.38665978\times10^6 - 1.1789375\times10^6 + 179\,571.34 + 767\,737 + 456\,853.9}{\pi\times64^2}$$

Result:

125.2634...

125.2634... 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

Alternative representations:

$$\frac{1.38666\times10^6 - 1.17894\times10^6 + 179571. + 767737 + 456854.}{\pi\, 64^2} = \frac{1.61188\times10^6}{180^\circ\, 64^2}$$

$$\frac{1.38666\times10^6 - 1.17894\times10^6 + 179571. + 767737 + 456854.}{\pi\, 64^2} = -\frac{1.61188\times10^6}{i\left(\log(-1)\, 64^2\right)}$$

$$\frac{1.38666\times10^6 - 1.17894\times10^6 + 179571. + 767737 + 456854.}{\pi\, 64^2} = \frac{1.61188\times10^6}{\cos^{-1}(-1)\, 64^2}$$

Series representations:

$$\frac{1.38666\times10^6 - 1.17894\times10^6 + 179571. + 767737 + 456854.}{\pi\, 64^2} = \frac{98.3816}{\sum_{k=0}^{\infty} \frac{(-1)^k}{1+2k}}$$

$$\frac{1.38666\times10^6 - 1.17894\times10^6 + 179571. + 767737 + 456854.}{\pi\, 64^2} = \frac{196.763}{-1 + \sum_{k=1}^{\infty} \frac{2^k}{\binom{2k}{k}}}$$

$$\frac{1.38666\times10^6 - 1.17894\times10^6 + 179571. + 767737 + 456854.}{\pi\, 64^2} = \frac{393.526}{\sum_{k=0}^{\infty} \frac{2^{-k}(-6+50k)}{\binom{3k}{k}}}$$

Integral representations:

$$\frac{1.38666\times10^6 - 1.17894\times10^6 + 179571. + 767737 + 456854.}{\pi\, 64^2} = \frac{196.763}{\int_0^{\infty} \frac{1}{1+t^2}\, dt}$$

$$\frac{1.38666\times10^6 - 1.17894\times10^6 + 179571. + 767737 + 456854.}{\pi\, 64^2} = \frac{98.3816}{\int_0^{1} \sqrt{1-t^2}\, dt}$$

$$\frac{1.38666\times10^6 - 1.17894\times10^6 + 179571. + 767737 + 456854.}{\pi\, 64^2} = \frac{196.763}{\int_0^{\infty} \frac{\sin(t)}{t}\, dt}$$

(1386659.78 + 1178937.5 + 179571.34 + 767737 + 456853.9)/1729-(729)^1/3

Input interpretation:

$$\frac{1.38665978\times10^6 + 1.1789375\times10^6 + 179571.34 + 767737 + 456853.9}{1729} - \sqrt[3]{729}$$

Result:

2286.985841526894158473105841526894158473105841526894158473...

2286.98584152… result practically equal to the rest mass of charmed Lambda baryon 2286.46

Repeating decimal:

$2286.98\overline{584152689415847310}$ (period 18)

(1386659.78 + 1178937.5 + 179571.34 + 767737 + 456853.9)/(14258*2)

Input interpretation:

$$\frac{1.38665978\times10^6 + 1.1789375\times10^6 + 179571.34 + 767737 + 456853.9}{14258\times2}$$

Result:

139.2116538083882732501052040959461355028755786225277037452...

139.211653808… result practically equal to the rest mass of Pion meson 139.57

(1386659.78 + 1178937.5 + 179571.34 + 767737 + 456853.9)/(791+812)-9

Input interpretation:

$$\frac{1.38665978\times10^6 + 1.1789375\times10^6 + 179571.34 + 767737 + 456853.9}{791+812} - 9$$

Result:

2467.456344354335620711166562694946974422956955708047411104...

2467.45634435…

ln(1386659.78 + 1178937.5 + 179571.34 + 767737 + 456853.9)-3

Input interpretation:

$$\log(1.38665978\times10^6 + 1.1789375\times10^6 + 179571.34 + 767737 + 456853.9) - 3$$

log(x) is the natural logarithm

Result:

12.1942161...

12.1942161… result practically equal to the black hole entropy 12.1904

Alternative representations:

$$\log(1.38666\times10^6+1.17894\times10^6+179571.+767737+456854.)-3=-3+\log_e(3.96976\times10^6)$$

$$\log(1.38666\times10^6+1.17894\times10^6+179571.+767737+456854.)-3=-3+\log(a)\log_a(3.96976\times10^6)$$

$$\log(1.38666\times10^6+1.17894\times10^6+179571.+767737+456854.)-3=-3-\text{Li}_1(-3.96976\times10^6)$$

Series representations:

$$\log(1.38666\times10^6+1.17894\times10^6+179571.+767737+456854.)-3=-3+\log(3.96976\times10^6)-\sum_{k=1}^{\infty}\frac{(-1)^k e^{-15.1942 k}}{k}$$

$$\log(1.38666\times10^6+1.17894\times10^6+179571.+767737+456854.)-3=-3+2 i\pi\left\lfloor\frac{\arg(3.96976\times10^6-x)}{2\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k(3.96976\times10^6-x)^k x^{-k}}{k}\quad\text{for } x<0$$

$$\log(1.38666\times10^6+1.17894\times10^6+179571.+767737+456854.)-3=-3+\left\lfloor\frac{\arg(3.96976\times10^6-z_0)}{2\pi}\right\rfloor\log\left(\frac{1}{z_0}\right)+\log(z_0)+\left\lfloor\frac{\arg(3.96976\times10^6-z_0)}{2\pi}\right\rfloor\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k(3.96976\times10^6-z_0)^k z_0^{-k}}{k}$$

Integral representations:

$$\log\left(1.38666\times10^{6}+1.17894\times10^{6}+179571.+767737+456854.\right)-3=$$
$$-3+\int_{1}^{3.96976\times10^{6}}\frac{1}{t}\,dt$$

$$\log\left(1.38666\times10^{6}+1.17894\times10^{6}+179571.+767737+456854.\right)-3=$$
$$-3+\frac{1}{2\,i\,\pi}\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{e^{-15.1942\,s}\,\Gamma(-s)^{2}\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\quad\text{for } -1<\gamma<0$$

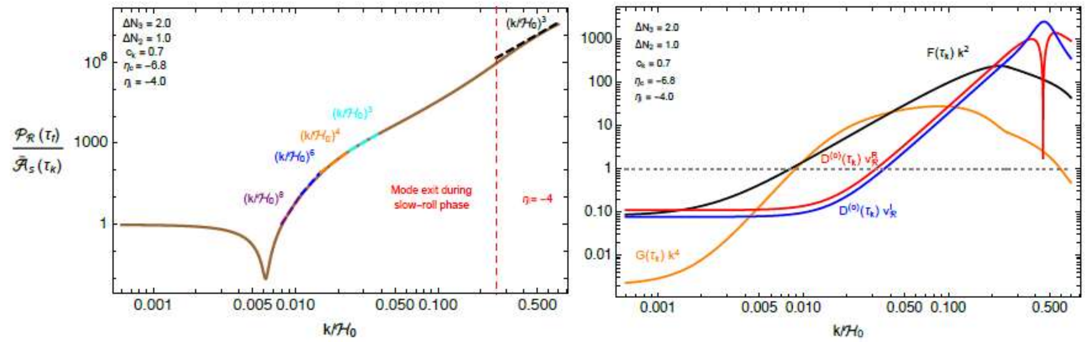


Figure 7. *The shape of the power spectrum normalized by $\bar{\mathcal{A}}_s \equiv H^2/(8\pi^2\epsilon_{\rm sr}M_{\rm pl}^2)$ for wavenumbers that exit the horizon before the transition to the non-attractor era, i.e. $k/\mathcal{H}_0 < c_k$ where we have used (3.10) and (3.11) (solid brown curve) (Left). Competing terms in the enhancement factor α_k in (2.32) and (2.33) using the same parameter choices (Right). In these plots, we have the following choices for model parameters in* **Model 2**: $\Delta N_2 = 1.0, \Delta N_3 = 2.0, c_k = 0.7, \eta_{\rm c} = -6.8, \eta_{\rm i} = -4$.

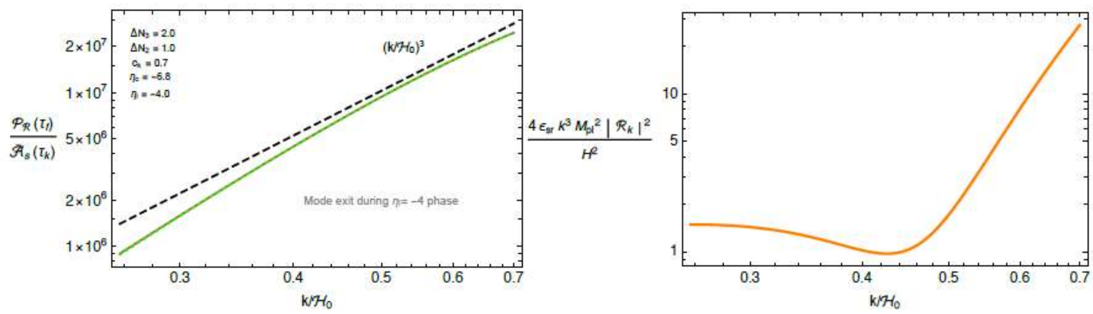


Figure 8. *Approximated power spectrum (green dotted curve) using (3.14) with (3.15) and the full result of the power spectrum (solid brown curve) using (3.11) are shown where both spectrum are normalized by $\bar{\mathcal{A}}_s \equiv H^2/(8\pi^2\epsilon_{\rm sr}M_{\rm pl}^2)$ (Left). Non-monotonic behavior of the $|\mathcal{R}_k(\tau_k)|^2$ for modes that leave the horizon during the intermediate stage (Right). In these plots, we have the following choice of parameters: $\Delta N_2 = 1.0, \Delta N_3 = 2.0, c_k = 0.7, \eta_{\rm c} = -6.8, \eta_{\rm i} = -4$.*

On the other hand, for $\eta_i = -3$, we have

$$D^{(0)}(\tau_k) = 1 - \frac{3e^{3\Delta N_2}}{\eta_c + 3}\left[e^{-(\eta_c+3)\Delta N_3} + \frac{\eta_c}{3} - (\eta_c+3)\Delta N_2\right] x_k^{-3} \qquad \text{(C.4)}$$

$$\equiv \mathcal{C}_0^D + \mathcal{C}_3^D\; x_k^{-3} \qquad x_k > x_i > 1,$$

and

$$D^{(0)}(\tau_k) = -\frac{3}{\eta_c + 3}\left[e^{-(\eta_c+3)\Delta N_3} - 1\right] + 3\ln(x_k) \qquad \text{(C.5)}$$

$$\equiv \tilde{\mathcal{C}}_0^D + \tilde{\mathcal{C}}_{\ln(x_k)}^D\; \ln x_k \qquad x_i > x_k > 1.$$

We have, for $x_k = 2$:

1-[(3e^(3)/(-6.8+3)]*[(((exp(-3.8)*2)-6.8/3-(-6.8+3)))] 1/2^3

Input:

$$1 - 3\times\frac{e^3}{-6.8+3}\left(\exp(-3.8)\times 2 - \frac{6.8}{3} - (-6.8+3)\right)\times\frac{1}{2^3}$$

Result:

4.12794...

4.12794…

Alternative representations:

$$1 - \frac{3\left(e^3\left(\exp(-3.8)\,2 - \frac{6.8}{3} - (-6.8+3)\right)\right)}{(-6.8+3)\,2^3} = 1 - \frac{3\left(z^3\left(\exp(-3.8)\,2 - \frac{6.8}{3} - (-6.8+3)\right)\right)}{(-6.8+3)\,2^3} \text{ for } z = e$$

$$1 - \frac{3\left(e^3\left(\exp(-3.8)\,2 - \frac{6.8}{3} - (-6.8+3)\right)\right)}{(-6.8+3)\,2^3} = 1 - -\frac{3\,(1.53333 + 2\exp(-3.8))\left(1 + \frac{2}{-1+\coth\left(\frac{3}{2}\right)}\right)}{3.8\times 8}$$

$$1-\frac{3\left(e^3\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)\right)}{(-6.8+3)\,2^3}=$$
$$1--\frac{3\,(1.53333+2\exp(-3.8))\left(-1+\frac{2}{1-\tanh\left(\frac{3}{2}\right)}\right)}{3.8\times 8}$$

Series representations:

$$1-\frac{3\left(e^3\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)\right)}{(-6.8+3)\,2^3}=1+0.197368\,(0.766667+\exp(-3.8))\sum_{k=0}^{\infty}\frac{3^k}{k!}$$

$$1-\frac{3\left(e^3\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)\right)}{(-6.8+3)\,2^3}=$$
$$1+0.197368\,(0.766667+\exp(-3.8))\sum_{k=0}^{\infty}\frac{3^{-1+2k}\,(3+2k)}{(2k)!}$$

$$1-\frac{3\left(e^3\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)\right)}{(-6.8+3)\,2^3}=$$
$$1+0.394737\,(0.766667+\exp(-3.8))\sum_{k=0}^{\infty}\frac{9^k\,(2+k)}{(1+2k)!}$$

-3/(-6.8+3)*[((e^(-(-6.8+3)*2)))-1]+3ln(2)

Input:

$$-\frac{3}{-6.8+3}\left(e^{-(-6.8+3)\times 2}-1\right)+3\log(2)$$

log(x) is the natural logarithm

Result:

1578.81…

1578.81…

Alternative representations:

$$\frac{\left(e^{-(-6.8+3)\,2}-1\right)(-3)}{-6.8+3}+3\log(2)=3\log_e(2)--\frac{3\left(-1+e^{7.6}\right)}{3.8}$$

$$\frac{\left(e^{-(-6.8+3)\,2}-1\right)(-3)}{-6.8+3}+3\log(2)=3\log(a)\log_a(2)--\frac{3\left(-1+e^{7.6}\right)}{3.8}$$

$$\frac{\left(e^{-(-6.8+3)2}-1\right)(-3)}{-6.8+3}+3\log(2)=6\coth^{-1}(3)--\frac{3\left(-1+e^{7.6}\right)}{3.8}$$

Series representations:

$$\frac{\left(e^{-(-6.8+3)2}-1\right)(-3)}{-6.8+3}+3\log(2)=-0.789474+0.789474\,e^{7.6}+6\,i\,\pi\left\lfloor\frac{\arg(2-x)}{2\,\pi}\right\rfloor+3\log(x)-3\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-x)^k\,x^{-k}}{k}\quad\text{for } x<0$$

$$\frac{\left(e^{-(-6.8+3)2}-1\right)(-3)}{-6.8+3}+3\log(2)=-0.789474+0.789474\,e^{7.6}+3\left\lfloor\frac{\arg(2-z_0)}{2\,\pi}\right\rfloor\log\left(\frac{1}{z_0}\right)+3\log(z_0)+3\left\lfloor\frac{\arg(2-z_0)}{2\,\pi}\right\rfloor\log(z_0)-3\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}$$

$$\frac{\left(e^{-(-6.8+3)2}-1\right)(-3)}{-6.8+3}+3\log(2)=-0.789474+0.789474\,e^{7.6}+6\,i\,\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{2}{z_0}\right)+\arg(z_0)}{2\,\pi}\right\rfloor+3\log(z_0)-3\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}$$

Integral representations:

$$\frac{\left(e^{-(-6.8+3)2}-1\right)(-3)}{-6.8+3}+3\log(2)=-0.789474+0.789474\,e^{7.6}+3\int_1^2\frac{1}{t}\,dt$$

$$\frac{\left(e^{-(-6.8+3)2}-1\right)(-3)}{-6.8+3}+3\log(2)=-0.789474+0.789474\,e^{7.6}+\frac{3}{2\,i\,\pi}\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\quad\text{for } -1<\gamma<0$$

(((-3/(-6.8+3)*[((exp(-(-6.8+3)*2)))-1]+3ln(2)))) + ((1-[(3exp(3)/(-6.8+3)]*[(((exp(-3.8)*2)-6.8/3-(-6.8+3)))] 1/2^3)))

Input:

$$\left(-\frac{3}{-6.8+3}\left(\exp(-(-6.8+3)\times 2)-1\right)+3\log(2)\right)+\left(1-3\times\frac{\exp(3)}{-6.8+3}\left(\exp(-3.8)\times 2-\frac{6.8}{3}-(-6.8+3)\right)\times\frac{1}{2^3}\right)$$

log(x) is the natural logarithm

Result:

1582.94…

1582.94…

Alternative representations:

$$\left(\frac{(\exp(-(-6.8+3)\,2)-1)\,(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{3\left(\exp(3)\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)\right)}{(-6.8+3)\,2^3}\right)=1+3\log_e(2)--\frac{3\,(-1+\exp(7.6))}{3.8}--\frac{3\,(1.53333+2\exp(-3.8))\exp(3)}{3.8\times 8}$$

$$\left(\frac{(\exp(-(-6.8+3)\,2)-1)\,(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{3\left(\exp(3)\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)\right)}{(-6.8+3)\,2^3}\right)=1+3\log(a)\log_a(2)--\frac{3\,(-1+\exp(7.6))}{3.8}--\frac{3\,(1.53333+2\exp(-3.8))\exp(3)}{3.8\times 8}$$

Series representations:

$$\left(\frac{(\exp(-(-6.8+3)\,2)-1)\,(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{3\left(\exp(3)\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)\right)}{(-6.8+3)\,2^3}\right)=0.210526+0.151316\exp(3)+0.197368\exp(-3.8)\exp(3)+0.789474\exp(7.6)+6\,i\,\pi\left\lfloor\frac{\arg(2-x)}{2\,\pi}\right\rfloor+3\log(x)-3\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-x)^k\,x^{-k}}{k}\quad\text{for } x<0$$

$$\left(\frac{(\exp(-(-6.8+3)\,2)-1)\,(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{3\left(\exp(3)\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)\right)}{(-6.8+3)\,2^3}\right)=0.210526+0.151316\exp(3)+0.197368\exp(-3.8)\exp(3)+0.789474\exp(7.6)+3\left\lfloor\frac{\arg(2-z_0)}{2\,\pi}\right\rfloor\log\left(\frac{1}{z_0}\right)+3\log(z_0)+3\left\lfloor\frac{\arg(2-z_0)}{2\,\pi}\right\rfloor\log(z_0)-3\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}$$

$$\left(\frac{(\exp(-(-6.8+3)\,2)-1)\,(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{3\left(\exp(3)\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)\right)}{(-6.8+3)\,2^3}\right)=$$
$$0.210526+0.151316\exp(3)+0.197368\exp(-3.8)\exp(3)+0.789474\exp(7.6)+6\,i\,\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{2}{z_0}\right)+\arg(z_0)}{2\,\pi}\right\rfloor+3\log(z_0)-3\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}$$

Integral representations:

$$\left(\frac{(\exp(-(-6.8+3)\,2)-1)\,(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{3\left(\exp(3)\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)\right)}{(-6.8+3)\,2^3}\right)=0.210526+$$
$$0.151316\exp(3)+0.197368\exp(-3.8)\exp(3)+0.789474\exp(7.6)+3\int_1^2\frac{1}{t}\,dt$$

$$\left(\frac{(\exp(-(-6.8+3)\,2)-1)\,(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{3\left(\exp(3)\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)\right)}{(-6.8+3)\,2^3}\right)=$$
$$0.210526+0.151316\exp(3)+0.197368\exp(-3.8)\exp(3)+0.789474\exp(7.6)+\frac{3}{2\,i\,\pi}\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds \quad \text{for } -1<\gamma<0$$

(((-3/(-6.8+3)*(((exp(-(-6.8+3)*2)))-1)+3ln(2)))) + ((1-((3exp(3)/(-6.8+3))(((exp(-3.8)*2)-6.8/3-(-6.8+3)))*1/2^3))) -47

Where 47 is a Lucas number

Input:

$$\left(-\frac{3}{-6.8+3}\,(\exp(-(-6.8+3)\times 2)-1)+3\log(2)\right)+\left(1-\left(3\times\frac{\exp(3)}{-6.8+3}\right)\left(\exp(-3.8)\times 2-\frac{6.8}{3}-(-6.8+3)\right)\times\frac{1}{2^3}\right)-47$$

log(x) is the natural logarithm

Result:

1535.94...

1535.94… result practically equal to the rest mass of Xi baryon 1535

Alternative representations:

$$\left(\frac{(\exp(-(-6.8+3)2)-1)(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{(3\exp(3))\left(\exp(-3.8)2-\frac{6.8}{3}-(-6.8+3)\right)}{(-6.8+3)2^3}\right)-47=-46+3\log_e(2)--\frac{3(-1+\exp(7.6))}{3.8}--\frac{3(1.53333+2\exp(-3.8))\exp(3)}{3.8\times 8}$$

$$\left(\frac{(\exp(-(-6.8+3)2)-1)(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{(3\exp(3))\left(\exp(-3.8)2-\frac{6.8}{3}-(-6.8+3)\right)}{(-6.8+3)2^3}\right)-47=-46+3\log(a)\log_a(2)--\frac{3(-1+\exp(7.6))}{3.8}--\frac{3(1.53333+2\exp(-3.8))\exp(3)}{3.8\times 8}$$

Series representations:

$$\left(\frac{(\exp(-(-6.8+3)2)-1)(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{(3\exp(3))\left(\exp(-3.8)2-\frac{6.8}{3}-(-6.8+3)\right)}{(-6.8+3)2^3}\right)-47=-46.7895+0.151316\exp(3)+0.197368\exp(-3.8)\exp(3)+0.789474\exp(7.6)+6i\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor+3\log(x)-3\sum_{k=1}^{\infty}\frac{(-1)^k(2-x)^k x^{-k}}{k}\quad\text{for } x<0$$

$$\left(\frac{(\exp(-(-6.8+3)2)-1)(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{(3\exp(3))\left(\exp(-3.8)2-\frac{6.8}{3}-(-6.8+3)\right)}{(-6.8+3)2^3}\right)-47=-46.7895+0.151316\exp(3)+0.197368\exp(-3.8)\exp(3)+0.789474\exp(7.6)+3\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\log\left(\frac{1}{z_0}\right)+3\log(z_0)+3\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\log(z_0)-3\sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}$$

$$\left(\frac{(\exp(-(-6.8+3)\,2)-1)\,(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{(3\exp(3))\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)}{(-6.8+3)\,2^3}\right)-47 =$$
$$-46.7895+0.151316\exp(3)+0.197368\exp(-3.8)\exp(3)+0.789474\exp(7.6)+6\,i\,\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{2}{z_0}\right)+\arg(z_0)}{2\pi}\right\rfloor+3\log(z_0)-3\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}$$

Integral representations:

$$\left(\frac{(\exp(-(-6.8+3)\,2)-1)\,(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{(3\exp(3))\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)}{(-6.8+3)\,2^3}\right)-47=-46.7895+$$
$$0.151316\exp(3)+0.197368\exp(-3.8)\exp(3)+0.789474\exp(7.6)+3\int_1^2\frac{1}{t}\,dt$$

$$\left(\frac{(\exp(-(-6.8+3)\,2)-1)\,(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{(3\exp(3))\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)}{(-6.8+3)\,2^3}\right)-47 =$$
$$-46.7895+0.151316\exp(3)+0.197368\exp(-3.8)\exp(3)+0.789474\exp(7.6)+\frac{1.5}{i\pi}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds \quad \text{for } -1<\gamma<0$$

(((-3/(-6.8+3)*(((exp(-(-6.8+3)*2)))-1)+3ln(2)))) + ((1-((3exp(3)/(-6.8+3))(((exp(-3.8)*2)-6.8/3-(-6.8+3)))*1/2^3))) +199-47-7

Where 199, 47 and 7 are Lucas numbers

Input:

$$\left(-\frac{3}{-6.8+3}\,(\exp(-(-6.8+3)\times 2)-1)+3\log(2)\right)+\left(1-\left(3\times\frac{\exp(3)}{-6.8+3}\right)\left(\exp(-3.8)\times 2-\frac{6.8}{3}-(-6.8+3)\right)\times\frac{1}{2^3}\right)+199-47-7$$

$\log(x)$ is the natural logarithm

Result:

1727.94...

1727.94…

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:

$$\left(\frac{(\exp(-(-6.8+3)\,2)-1)(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{(3\exp(3))\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)}{(-6.8+3)\,2^3}\right)+199-47-7=146+3\log_e(2)--\frac{3(-1+\exp(7.6))}{3.8}--\frac{3(1.53333+2\exp(-3.8))\exp(3)}{3.8\times 8}$$

$$\left(\frac{(\exp(-(-6.8+3)\,2)-1)(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{(3\exp(3))\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)}{(-6.8+3)\,2^3}\right)+199-47-7=146+3\log(a)\log_a(2)--\frac{3(-1+\exp(7.6))}{3.8}--\frac{3(1.53333+2\exp(-3.8))\exp(3)}{3.8\times 8}$$

Series representations:

$$\left(\frac{(\exp(-(-6.8+3)\,2)-1)(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{(3\exp(3))\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)}{(-6.8+3)\,2^3}\right)+199-47-7=145.211+0.151316\exp(3)+0.197368\exp(-3.8)\exp(3)+0.789474\exp(7.6)+6\,i\,\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor+3\log(x)-3\sum_{k=1}^{\infty}\frac{(-1)^k(2-x)^k x^{-k}}{k}\quad\text{for } x<0$$

$$\left(\frac{(\exp(-(-6.8+3)\,2)-1)(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{(3\exp(3))\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)}{(-6.8+3)\,2^3}\right)+199-47-7=145.211+0.151316\exp(3)+0.197368\exp(-3.8)\exp(3)+0.789474\exp(7.6)+3\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\log\left(\frac{1}{z_0}\right)+3\log(z_0)+3\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\log(z_0)-3\sum_{k=1}^{\infty}\frac{(-1)^k(2-z_0)^k z_0^{-k}}{k}$$

$$\left(\frac{(\exp(-(-6.8+3)\,2)-1)\,(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{(3\exp(3))\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)}{(-6.8+3)\,2^3}\right)+199-47-7=$$
$$145.211+0.151316\exp(3)+0.197368\exp(-3.8)\exp(3)+0.789474\exp(7.6)+6\,i\,\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{2}{z_0}\right)+\arg(z_0)}{2\,\pi}\right\rfloor+3\log(z_0)-3\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}$$

Integral representations:

$$\left(\frac{(\exp(-(-6.8+3)\,2)-1)\,(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{(3\exp(3))\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)}{(-6.8+3)\,2^3}\right)+199-47-7=145.211+$$
$$0.151316\exp(3)+0.197368\exp(-3.8)\exp(3)+0.789474\exp(7.6)+3\int_1^2\frac{1}{t}\,dt$$

$$\left(\frac{(\exp(-(-6.8+3)\,2)-1)\,(-3)}{-6.8+3}+3\log(2)\right)+\left(1-\frac{(3\exp(3))\left(\exp(-3.8)\,2-\frac{6.8}{3}-(-6.8+3)\right)}{(-6.8+3)\,2^3}\right)+199-47-7=$$
$$145.211+0.151316\exp(3)+0.197368\exp(-3.8)\exp(3)+0.789474\exp(7.6)+\frac{1.5}{i\,\pi}\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds \quad \text{for } -1<\gamma<0$$

On the other hand, for $\eta_{\rm i} = -3$, $F(\tau_k)$ is given by

$$\frac{F(\tau_k)}{\tau_0^2} = \frac{x_k^2}{6} + e^{3\Delta N_2}\left[\frac{e^{-(\eta_c+3)\Delta N_3}-1}{\eta_c+3} - \Delta N_2 + \frac{1}{3}\right] x_k^{-1} \tag{C.10}$$

$$+ \frac{(e^{-(\eta_c+3)\Delta N_3}-1)}{(\eta_c+3)}\left[\frac{\eta_c+3}{2(\eta_c+1)} - \frac{3e^{2\Delta N_2}}{2}\right] + \frac{3e^{2\Delta N_2}(2\Delta N_2 - 1)}{4}$$

$$+ \frac{1}{4} - \frac{(e^{-2\Delta N_3}-1)}{2(\eta_c+1)}$$

$$\equiv \mathcal{C}^F_{-2}\ x_k^2 + \mathcal{C}^F_1\ x_k^{-1} + \mathcal{C}^F_0 \qquad x_k > x_i > 1,$$

and

$$\frac{F(\tau_k)}{\tau_0^2} = -\left[\frac{(e^{-(\eta_c+3)\Delta N_3}-1)}{2(\eta_c+3)} + \frac{1}{4}\right] x_k^2 + \frac{x_k^2}{2}\ln(x_k) + \frac{(e^{-(\eta_c+3)\Delta N_3}-1)}{2(\eta_c+1)} \tag{C.11}$$

$$+ \frac{1}{4} - \frac{(e^{-2\Delta N_3}-1)}{2(\eta_c+1)}$$

$$\equiv \tilde{\mathcal{C}}^F_{-2}\ x_k^2 + \tilde{\mathcal{C}}^F_{x_k^2\ln(x_k)}\ x_k^2\ \ln(x_k) + \tilde{\mathcal{C}}^F_0 \qquad x_i > x_k > 1.$$

4/6-e^3*[(((e^(-(-3.8)*2)-1)))/(-3.8)-1+1/3]*2^-1 + [(((e^(-(-3.8)*2)-1)))/(-3.8)]*[(-3.8/(2(-5.8)))-(3e^2)/2]+(3e^2(1/4))+1/4-(e^(-2*2)-1)/(2(-5.8))

Input:

$$\frac{4}{6} - \frac{1}{2}e^3\left(-\frac{e^{-(-3.8)\times 2}-1}{3.8} - 1 + \frac{1}{3}\right) + -\frac{e^{-(-3.8)\times 2}-1}{3.8}\left(-\frac{3.8}{2\times(-5.8)} - \frac{1}{2}(3e^2)\right) + 3e^2 \times \frac{1}{4} + \frac{1}{4} - \frac{e^{-2\times 2}-1}{2\times(-5.8)}$$

Result:

10944.4...

10944.4…

Alternative representation:

$$\frac{4}{6}-\frac{1}{2}e^3\left(-\frac{e^{-(-3.8)2}-1}{3.8}-1+\frac{1}{3}\right)+-\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3e^2}{2}\right)\left(e^{-(-3.8)2}-1\right)}{3.8}+\frac{3e^2}{4}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}=\frac{4}{6}-\frac{1}{2}\exp^3(z)\left(-\frac{\exp^{-(-3.8)2}(z)-1}{3.8}-1+\frac{1}{3}\right)+-\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3\exp^2(z)}{2}\right)\left(\exp^{-(-3.8)2}(z)-1\right)}{3.8}+\frac{3\exp^2(z)}{4}+\frac{1}{4}-\frac{\exp^{-2\times 2}(z)-1}{2(-5.8)}\quad \text{for } z=1$$

Series representations:

$$\frac{4}{6}-\frac{1}{2}e^3\left(-\frac{e^{-(-3.8)2}-1}{3.8}-1+\frac{1}{3}\right)+-\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3e^2}{2}\right)\left(e^{-(-3.8)2}-1\right)}{3.8}+\frac{3e^2}{4}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}=-\frac{1}{\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^4}0.0862069\left(-1-10.6333\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^4-4.12105\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^6-2.34035\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^7+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{11.6}-4.57895\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{13.6}-1.52632\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{14.6}\right)$$

$$\frac{4}{6}-\frac{1}{2}e^3\left(-\frac{e^{-(-3.8)2}-1}{3.8}-1+\frac{1}{3}\right)+-\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3e^2}{2}\right)\left(e^{-(-3.8)2}-1\right)}{3.8}+\frac{3e^2}{4}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}=-\frac{1}{\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^4}0.000444339\left(-3104.19-2062.99\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^4-199.883\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^6-56.7569\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^7+\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{11.6}-1.14474\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{13.6}-0.190789\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{14.6}\right)$$

$$\frac{4}{6}-\frac{1}{2}e^3\left(-\frac{e^{-(-3.8)2}-1}{3.8}-1+\frac{1}{3}\right)+-\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3e^2}{2}\right)\left(e^{-(-3.8)2}-1\right)}{3.8}+$$
$$\frac{3e^2}{4}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}=-\frac{1}{\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}\right)^3}0.0862069$$
$$\left(-2.34035+\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{4.6}-4.57895\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{6.6}-1.52632\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{7.6}-\right.$$
$$\left.4.12105\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}-10.6333\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}\right)^3-1.\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}\right)^7\right)$$

-[(((e^(-(-3.8)*2)-1)))/(2(-3.8))+1/4]*4+2ln(2)+[(((e^(-(-3.8)*2)-1)))/(2(-3.8))]+1/4-[(e^(-2*2)-1)/(2(-5.8))]

Input:

$$-\left(\frac{e^{-(-3.8)\times 2}-1}{2\times(-3.8)}+\frac{1}{4}\right)\times 4+2\log(2)+\frac{e^{-(-3.8)\times 2}-1}{2\times(-3.8)}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2\times(-5.8)}$$

log(x) is the natural logarithm

Result:

788.918...

788.918…

Alternative representations:

$$-\left(\frac{e^{-(-3.8)2}-1}{2(-3.8)}+\frac{1}{4}\right)4+2\log(2)+\frac{e^{-(-3.8)2}-1}{2(-3.8)}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}=$$
$$2\log_e(2)+\frac{1}{4}--\frac{-1+\frac{1}{e^4}}{11.6}-4\left(\frac{1}{4}+-\frac{-1+e^{7.6}}{7.6}\right)+-\frac{-1+e^{7.6}}{7.6}$$

$$-\left(\frac{e^{-(-3.8)2}-1}{2(-3.8)}+\frac{1}{4}\right)4+2\log(2)+\frac{e^{-(-3.8)2}-1}{2(-3.8)}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}=$$
$$2\log(a)\log_a(2)+\frac{1}{4}--\frac{-1+\frac{1}{e^4}}{11.6}-4\left(\frac{1}{4}+-\frac{-1+e^{7.6}}{7.6}\right)+-\frac{-1+e^{7.6}}{7.6}$$

$$-\left(\frac{e^{-(-3.8)2}-1}{2(-3.8)}+\frac{1}{4}\right)4+2\log(2)+\frac{e^{-(-3.8)2}-1}{2(-3.8)}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}=$$
$$4\coth^{-1}(3)+\frac{1}{4}--\frac{-1+\frac{1}{e^4}}{11.6}-4\left(\frac{1}{4}+-\frac{-1+e^{7.6}}{7.6}\right)+-\frac{-1+e^{7.6}}{7.6}$$

Series representations:

$$-\left(\frac{e^{-(-3.8)2}-1}{2(-3.8)}+\frac{1}{4}\right)4+2\log(2)+\frac{e^{-(-3.8)2}-1}{2(-3.8)}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}=$$
$$-1.23094+\frac{0.0862069}{e^4}+0.394737\,e^{7.6}+$$
$$4\,i\,\pi\left\lfloor\frac{\arg(2-x)}{2\pi}\right\rfloor+2\log(x)-2\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-x)^k\,x^{-k}}{k}\quad\text{for } x<0$$

$$-\left(\frac{e^{-(-3.8)2}-1}{2(-3.8)}+\frac{1}{4}\right)4+2\log(2)+\frac{e^{-(-3.8)2}-1}{2(-3.8)}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}=$$
$$-1.23094+\frac{0.0862069}{e^4}+0.394737\,e^{7.6}+2\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\log\left(\frac{1}{z_0}\right)+$$
$$2\log(z_0)+2\left\lfloor\frac{\arg(2-z_0)}{2\pi}\right\rfloor\log(z_0)-2\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}$$

$$-\left(\frac{e^{-(-3.8)2}-1}{2(-3.8)}+\frac{1}{4}\right)4+2\log(2)+\frac{e^{-(-3.8)2}-1}{2(-3.8)}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}=$$
$$-1.23094+\frac{0.0862069}{e^4}+0.394737\,e^{7.6}+$$
$$4\,i\,\pi\left\lfloor-\frac{-\pi+\arg\left(\frac{2}{z_0}\right)+\arg(z_0)}{2\pi}\right\rfloor+2\log(z_0)-2\sum_{k=1}^{\infty}\frac{(-1)^k\,(2-z_0)^k\,z_0^{-k}}{k}$$

Integral representations:

$$-\left(\frac{e^{-(-3.8)2}-1}{2(-3.8)}+\frac{1}{4}\right)4+2\log(2)+\frac{e^{-(-3.8)2}-1}{2(-3.8)}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}=$$
$$-1.23094+\frac{0.0862069}{e^4}+0.394737\,e^{7.6}+2\int_1^2\frac{1}{t}\,dt$$

$$-\left(\frac{e^{-(-3.8)2}-1}{2(-3.8)}+\frac{1}{4}\right)4+2\log(2)+\frac{e^{-(-3.8)2}-1}{2(-3.8)}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}=-1.23094+$$
$$\frac{0.0862069}{e^4}+0.394737\,e^{7.6}+\frac{1}{i\pi}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\quad\text{for } -1<\gamma<0$$

788.918467097949 + 4/6-e^3*[(((e^(-(-3.8)*2)-1)))/(-3.8)-1+1/3]*2^-1 + [(((e^(-(-3.8)*2)-1)))/(-3.8)]*[(-3.8/(2(-5.8)))-(3e^2)/2]+(3e^2(1/4))+1/4-(e^(-2*2)-1)/(2(-5.8))

Input interpretation:

$$788.918467097949+\frac{4}{6}-\frac{1}{2}e^3\left(-\frac{e^{-(-3.8)\times 2}-1}{3.8}-1+\frac{1}{3}\right)+-\frac{e^{-(-3.8)\times 2}-1}{3.8}\left(-\frac{3.8}{2\times(-5.8)}-\frac{1}{2}(3e^2)\right)+3e^2\times\frac{1}{4}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2\times(-5.8)}$$

Result:

11733.4...

11733.4...

Alternative representation:

$$788.9184670979490000+\frac{4}{6}-\frac{1}{2}e^3\left(-\frac{e^{-(-3.8)2}-1}{3.8}-1+\frac{1}{3}\right)+-\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3e^2}{2}\right)\left(e^{-(-3.8)2}-1\right)}{3.8}+\frac{3e^2}{4}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}=788.9184670979490000+\frac{4}{6}-\frac{1}{2}\exp^3(z)\left(-\frac{\exp^{-(-3.8)2}(z)-1}{3.8}-1+\frac{1}{3}\right)+-\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3\exp^2(z)}{2}\right)\left(\exp^{-(-3.8)2}(z)-1\right)}{3.8}+\frac{3\exp^2(z)}{4}+\frac{1}{4}-\frac{\exp^{-2\times 2}(z)-1}{2(-5.8)}\text{ for } z=1$$

Series representations:

$$788.9184670979490000+\frac{4}{6}-\frac{1}{2}e^3\left(-\frac{e^{-(-3.8)2}-1}{3.8}-1+\frac{1}{3}\right)+-\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3e^2}{2}\right)\left(e^{-(-3.8)2}-1\right)}{3.8}+\frac{3e^2}{4}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}=-\frac{1}{\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^4}0.0862069\left(-1-9162.09\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^4-4.12105\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^6-2.34035\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^7+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{11.6}-4.57895\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{13.6}-1.52632\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{14.6}\right)$$

$$788.9184670979490000+\frac{4}{6}-\frac{1}{2}e^3\left(-\frac{e^{-(-3.8)2}-1}{3.8}-1+\frac{1}{3}\right)+-\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3e^2}{2}\right)\left(e^{-(-3.8)2}-1\right)}{3.8}+\frac{3e^2}{4}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}=$$

$$-\frac{1}{\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^4}0.000444339\left(-3104.19-1.77755\times 10^6\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^4-199.883\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^6-56.7569\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^7+\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{11.6}-1.14474\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{13.6}-0.190789\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{14.6}\right)$$

$$788.9184670979490000+\frac{4}{6}-\frac{1}{2}e^3\left(-\frac{e^{-(-3.8)2}-1}{3.8}-1+\frac{1}{3}\right)+-\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3e^2}{2}\right)\left(e^{-(-3.8)2}-1\right)}{3.8}+\frac{3e^2}{4}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}=-\frac{1}{\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}\right)^3}0.0862069$$

$$\left(-2.34035+\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{4.6}-4.57895\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{6.6}-1.52632\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{7.6}-4.12105\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}-9162.09\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}\right)^3-1.\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}\right)^7\right)$$

And:

-788.918467097949 + 4/6-e^3*[(((e^(-(-3.8)*2)-1)))/(-3.8)-1+1/3]*2^-1 + [(((e^(-(-3.8)*2)-1)))/(-3.8)]*[(-3.8/(2(-5.8)))-(3e^2)/2]+(3e^2(1/4))+1/4-(e^(-2*2)-1)/(2(-5.8))

Input interpretation:

$$-788.918467097949+\frac{4}{6}-\frac{1}{2}e^3\left(-\frac{e^{-(-3.8)\times 2}-1}{3.8}-1+\frac{1}{3}\right)+-\frac{e^{-(-3.8)\times 2}-1}{3.8}\left(-\frac{3.8}{2\times(-5.8)}-\frac{1}{2}\left(3e^2\right)\right)+3e^2\times\frac{1}{4}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2\times(-5.8)}$$

Result:

10155.5...

10155.5…

Alternative representation:

$$-788.9184670979490000+\frac{4}{6}-\frac{1}{2}e^3\left(-\frac{e^{-(-3.8)2}-1}{3.8}-1+\frac{1}{3}\right)+ -\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3e^2}{2}\right)\left(e^{-(-3.8)2}-1\right)}{3.8}+\frac{3e^2}{4}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}= -788.9184670979490000+\frac{4}{6}-\frac{1}{2}\exp^3(z)\left(-\frac{\exp^{-(-3.8)2}(z)-1}{3.8}-1+\frac{1}{3}\right)+ -\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3\exp^2(z)}{2}\right)\left(\exp^{-(-3.8)2}(z)-1\right)}{3.8}+ \frac{3\exp^2(z)}{4}+\frac{1}{4}-\frac{\exp^{-2\times 2}(z)-1}{2(-5.8)} \text{ for } z=1$$

Series representations:

$$-788.9184670979490000+\frac{4}{6}-\frac{1}{2}e^3\left(-\frac{e^{-(-3.8)2}-1}{3.8}-1+\frac{1}{3}\right)+ -\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3e^2}{2}\right)\left(e^{-(-3.8)2}-1\right)}{3.8}+\frac{3e^2}{4}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}= -\frac{1}{\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^4}0.0862069\left(-1+9140.82\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^4-4.12105\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^6- 2.34035\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^7+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{11.6}-4.57895\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{13.6}-1.52632\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{14.6}\right)$$

$$-788.9184670979490000+\frac{4}{6}-\frac{1}{2}e^3\left(-\frac{e^{-(-3.8)2}-1}{3.8}-1+\frac{1}{3}\right)+ -\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3e^2}{2}\right)\left(e^{-(-3.8)2}-1\right)}{3.8}+\frac{3e^2}{4}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}= -\frac{1}{\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^4}0.000444339\left(-3104.19+1.77343\times 10^6\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^4- 199.883\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^6-56.7569\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^7+\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{11.6}- 1.14474\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{13.6}-0.190789\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{14.6}\right)$$

$$-788.9184670979490000+\frac{4}{6}-\frac{1}{2}e^3\left(-\frac{e^{-(-3.8)2}-1}{3.8}-1+\frac{1}{3}\right)+-\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3e^2}{2}\right)\left(e^{-(-3.8)2}-1\right)}{3.8}+\frac{3e^2}{4}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}=-\frac{1}{\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}\right)^3}0.0862069$$

$$\left(-2.34035+\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{4.6}-4.57895\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{6.6}-1.52632\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{7.6}-4.12105\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}+9140.82\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}\right)^3-1.\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}\right)^7\right)$$

-788.918467097949 + 4/6-e^3*[(((e^(-(-3.8)*2)-1)))/(-3.8)-1+1/3]*2^-1 + [(((e^(-(-3.8)*2)-1)))/(-3.8)]*[(-3.8/(2(-5.8)))-(3e^2)/2]+(3e^2(1/4))+1/4-(e^(-2*2)-1)/(2(-5.8)) - 729 + 34

Input interpretation:

$$-788.918467097949+\frac{4}{6}-\frac{1}{2}e^3\left(-\frac{e^{-(-3.8)\times 2}-1}{3.8}-1+\frac{1}{3}\right)+-\frac{e^{-(-3.8)\times 2}-1}{3.8}\left(-\frac{3.8}{2\times(-5.8)}-\frac{1}{2}\left(3e^2\right)\right)+3e^2\times\frac{1}{4}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2\times(-5.8)}-729+34$$

Result:

9460.52...

9460.52… result practically equal to the rest mass of Upsilon meson 9460.30

Alternative representation:

$$-788.9184670979490000+\frac{4}{6}-\frac{1}{2}e^3\left(-\frac{e^{-(-3.8)2}-1}{3.8}-1+\frac{1}{3}\right)+$$
$$-\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3e^2}{2}\right)\left(e^{-(-3.8)2}-1\right)}{3.8}+\frac{3e^2}{4}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}-729+34=$$
$$-788.9184670979490000+\frac{4}{6}-\frac{1}{2}\exp^3(z)\left(-\frac{\exp^{-(-3.8)2}(z)-1}{3.8}-1+\frac{1}{3}\right)+$$
$$-\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3\exp^2(z)}{2}\right)\left(\exp^{-(-3.8)2}(z)-1\right)}{3.8}+$$
$$\frac{3\exp^2(z)}{4}+\frac{1}{4}-\frac{\exp^{-2\times 2}(z)-1}{2(-5.8)}-729+34 \quad \text{for } z=1$$

Series representations:

$$-788.9184670979490000+\frac{4}{6}-\frac{1}{2}e^3\left(-\frac{e^{-(-3.8)2}-1}{3.8}-1+\frac{1}{3}\right)+$$
$$-\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3e^2}{2}\right)\left(e^{-(-3.8)2}-1\right)}{3.8}+\frac{3e^2}{4}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}-729+34=$$
$$-\frac{1}{\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^4}0.0862069\left(-1+17\,202.8\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^4-4.12105\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^6-\right.$$
$$\left.2.34035\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^7+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{11.6}-4.57895\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{13.6}-1.52632\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{14.6}\right)$$

$$-788.9184670979490000+\frac{4}{6}-\frac{1}{2}e^3\left(-\frac{e^{-(-3.8)2}-1}{3.8}-1+\frac{1}{3}\right)+$$
$$-\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3e^2}{2}\right)\left(e^{-(-3.8)2}-1\right)}{3.8}+\frac{3e^2}{4}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}-729+34=$$
$$-\frac{1}{\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^4}0.000444339\left(-3104.19+3.33755\times 10^6\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^4-\right.$$
$$199.883\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^6-56.7569\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^7+\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{11.6}-$$
$$\left.1.14474\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{13.6}-0.190789\left(\sum_{k=0}^{\infty}\frac{1+k}{k!}\right)^{14.6}\right)$$

$$-788.9184670979490000+\frac{4}{6}-\frac{1}{2}e^{3}\left(-\frac{e^{-(-3.8)2}-1}{3.8}-1+\frac{1}{3}\right)+-\frac{\left(-\frac{3.8}{2(-5.8)}-\frac{3e^{2}}{2}\right)\left(e^{-(-3.8)2}-1\right)}{3.8}+\frac{3e^{2}}{4}+\frac{1}{4}-\frac{e^{-2\times 2}-1}{2(-5.8)}-729+34=-\frac{1}{\left(\sum_{k=0}^{\infty}\frac{(-1)^{k}}{k!}\right)^{3}}0.0862069\left(-2.34035+\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^{k}}{k!}}\right)^{4.6}-4.57895\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^{k}}{k!}}\right)^{6.6}-1.52632\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^{k}}{k!}}\right)^{7.6}-4.12105\sum_{k=0}^{\infty}\frac{(-1)^{k}}{k!}+17\,202.8\left(\sum_{k=0}^{\infty}\frac{(-1)^{k}}{k!}\right)^{3}-1.\left(\sum_{k=0}^{\infty}\frac{(-1)^{k}}{k!}\right)^{7}\right)$$

Now, we analyze the two results 1582.94 and 11733.4
The sum is equal to 13316.34

With regard this value, from the formula of the coefficients of the "5th order" mock theta function $\psi_1(q)$

a(n) ~ sqrt(phi) * exp(Pi*sqrt(n/15)) / (2*5^(1/4)*sqrt(n))

for n = 262.265, we obtain:

sqrt(golden ratio) * exp(Pi*sqrt(262.265/15)) / (2*5^(1/4)*sqrt(262.265))

Input interpretation:

$$\sqrt{\phi}\times\frac{\exp\left(\pi\sqrt{\frac{262.265}{15}}\right)}{2\sqrt[4]{5}\sqrt{262.265}}$$

ϕ is the golden ratio

Result:

13316.54424696978074119961270888972335825443525531893798334...

13316.54….

Series representations:

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{262.265}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{262.265}} = \frac{\exp\left(\pi\sqrt{z_0}\,\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(17.4843-z_0)^k z_0^{-k}}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}}{2\sqrt[4]{5}\,\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(262.265-z_0)^k z_0^{-k}}{k!}}$$

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

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{262.265}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{262.265}} = \left(\exp\left(i\pi\left\lfloor\frac{\arg(\phi-x)}{2\pi}\right\rfloor\right)\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(17.4843-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(17.4843-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k(\phi-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\Big/\left(2\sqrt[4]{5}\,\exp\left(i\pi\left\lfloor\frac{\arg(262.265-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(262.265-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)$$

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

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{262.265}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{262.265}} = \left(\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(17.4843-z_0)/(2\pi)\rfloor} z_0^{1/2(1+\lfloor\arg(17.4843-z_0)/(2\pi)\rfloor)}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(17.4843-z_0)^k z_0^{-k}}{k!}\right)\left(\frac{1}{z_0}\right)^{-1/2\lfloor\arg(262.265-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor} z_0^{-1/2\lfloor\arg(262.265-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right)\Big/\left(2\sqrt[4]{5}\,\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(262.265-z_0)^k z_0^{-k}}{k!}\right)$$

From the single values, we have, for n = 177.66:

sqrt(golden ratio) * exp(Pi*sqrt(177.66/15)) / (2*5^(1/4)*sqrt(177.66))

Input interpretation:

$$\sqrt{\phi} \times \frac{\exp\left(\pi \sqrt{\frac{177.66}{15}}\right)}{2 \sqrt[4]{5} \sqrt{177.66}}$$

ϕ is the golden ratio

Result:

1582.862273662501199359751965195691602909113068326514289141...

1582.862...

Series representations:

$$\frac{\sqrt{\phi} \exp\left(\pi \sqrt{\frac{177.66}{15}}\right)}{2 \sqrt[4]{5} \sqrt{177.66}} = \frac{\exp\left(\pi \sqrt{z_0} \sum_{k=0}^{\infty} \frac{(-1)^k \left(-\frac{1}{2}\right)_k (11.844 - z_0)^k z_0^{-k}}{k!}\right) \sum_{k=0}^{\infty} \frac{(-1)^k \left(-\frac{1}{2}\right)_k (\phi - z_0)^k z_0^{-k}}{k!}}{2 \sqrt[4]{5} \sum_{k=0}^{\infty} \frac{(-1)^k \left(-\frac{1}{2}\right)_k (177.66 - z_0)^k z_0^{-k}}{k!}}$$

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

$$\frac{\sqrt{\phi} \exp\left(\pi \sqrt{\frac{177.66}{15}}\right)}{2 \sqrt[4]{5} \sqrt{177.66}} = \left(\exp\left(i \pi \left\lfloor \frac{\arg(\phi - x)}{2 \pi} \right\rfloor\right) \exp\left(\pi \exp\left(i \pi \left\lfloor \frac{\arg(11.844 - x)}{2 \pi} \right\rfloor\right) \sqrt{x} \sum_{k=0}^{\infty} \frac{(-1)^k (11.844 - x)^k x^{-k} \left(-\frac{1}{2}\right)_k}{k!}\right) \sum_{k=0}^{\infty} \frac{(-1)^k (\phi - x)^k x^{-k} \left(-\frac{1}{2}\right)_k}{k!}\right) \Big/ \left(2 \sqrt[4]{5} \exp\left(i \pi \left\lfloor \frac{\arg(177.66 - x)}{2 \pi} \right\rfloor\right) \sum_{k=0}^{\infty} \frac{(-1)^k (177.66 - x)^k x^{-k} \left(-\frac{1}{2}\right)_k}{k!}\right)$$

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

$$\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{177.66}{15}}\right)}{2\sqrt[4]{5}\sqrt{177.66}} = \left(\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\lfloor\arg(11.844-z_0)/(2\pi)\rfloor} z_0^{1/2(1+\lfloor\arg(11.844-z_0)/(2\pi)\rfloor)}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k (11.844-z_0)^k z_0^{-k}}{k!}\right)\left(\frac{1}{z_0}\right)^{-1/2\lfloor\arg(177.66-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor} z_0^{-1/2\lfloor\arg(177.66-z_0)/(2\pi)\rfloor+1/2\lfloor\arg(\phi-z_0)/(2\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right) \Big/ \left(2\sqrt[4]{5}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(177.66-z_0)^k z_0^{-k}}{k!}\right)$$

And for n = 256.821:

sqrt(golden ratio) * exp(Pi*sqrt(256.821/15)) / (2*5^(1/4)*sqrt(256.821))

Input interpretation:

$$\sqrt{\phi}\times\frac{\exp\left(\pi\sqrt{\frac{256.821}{15}}\right)}{2\sqrt[4]{5}\sqrt{256.821}}$$

ϕ is the golden ratio

Result:

11733.4...

11733.4….

Series representations:

$$\frac{\sqrt{\phi}\exp\left(\pi\sqrt{\frac{256.821}{15}}\right)}{2\sqrt[4]{5}\sqrt{256.821}} = \frac{\exp\left(\pi\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(17.1214-z_0)^k z_0^{-k}}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}}{2\sqrt[4]{5}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(256.821-z_0)^k z_0^{-k}}{k!}}$$

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

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{256.821}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{256.821}} = \left(\exp\left(i\,\pi\left\lfloor\frac{\arg(\phi-x)}{2\,\pi}\right\rfloor\right)\right.$$

$$\exp\left(\pi\exp\left(i\,\pi\left\lfloor\frac{\arg(17.1214-x)}{2\,\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k\,(17.1214-x)^k\,x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)$$

$$\left.\sum_{k=0}^{\infty}\frac{(-1)^k\,(\phi-x)^k\,x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\Bigg/$$

$$\left(2\sqrt[4]{5}\,\exp\left(i\,\pi\left\lfloor\frac{\arg(256.821-x)}{2\,\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k\,(256.821-x)^k\,x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)$$

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

$$\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{256.821}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{256.821}} = \left(\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\,\lfloor\arg(17.1214-z_0)/(2\,\pi)\rfloor}\right.\right.$$

$$\left.z_0^{1/2\,(1+\lfloor\arg(17.1214-z_0)/(2\,\pi)\rfloor)}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\,(17.1214-z_0)^k\,z_0^{-k}}{k!}\right)$$

$$\left(\frac{1}{z_0}\right)^{-1/2\,\lfloor\arg(256.821-z_0)/(2\,\pi)\rfloor+1/2\,\lfloor\arg(\phi-z_0)/(2\,\pi)\rfloor}$$

$$\left.z_0^{-1/2\,\lfloor\arg(256.821-z_0)/(2\,\pi)\rfloor+1/2\,\lfloor\arg(\phi-z_0)/(2\,\pi)\rfloor}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\,(\phi-z_0)^k\,z_0^{-k}}{k!}\right)\Bigg/$$

$$\left(2\sqrt[4]{5}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\,(256.821-z_0)^k\,z_0^{-k}}{k!}\right)$$

The results highlighted in red, represent the mathematical connections between the cosmological equations and Ramanujan mock theta functions coefficients (5^{th} order)

References

S. Ramanujan to G.H. Hardy 12 January 1920 - University of Madras

"Coefficients of the 5th order mock theta function $\psi_1(q)$" - https://oeis.org/A053261