

Consideration of the Riemann hypothesis

Toshiro Takami*
mmm82889@yahoo.co.jp

Abstract

I considered Riemann's hypothesis. At first, the purpose was to prove, but can not to prove.

It is written in the middle of the proof, but it can not been proved at all.

(The calculation formula is also written, but the real value 0.5 was not shown at all)

The non-trivial zero values match perfectly in the formula of this paper.

However, the formula did not reach the real value 0.5.

In this case, it only reaches the pole near the real value 0.5.

introduction

The formula is (1).

$$\zeta(s) = \sum_{n=1}^{\infty} \frac{1}{n^s} \quad s = a + bi \quad (1)$$

if $a=0.5$, and b are non-trivial zero values, The above equation is zero.

$$\sum_{n=1}^{\infty} \left[\frac{\sin(x \ln(2n-1))}{(2n-1)^c} - \frac{\sin(x \ln(2n))}{(2n)^c} \right] \quad (2)$$

if $c=0.5$, and x are non-trivial zero values, the above question are zero.

$$\sum_{n=1}^{\infty} \left[\frac{\cos(x \ln(2n-1))}{(2n-1)^c} - \frac{\cos(x \ln(2n))}{(2n)^c} \right] \quad (3)$$

if $c=0.5$, and x are nont-rivial zero values, (2) and (3) are zero.

Although x is treated as a real number, x is a non-trivial zero values.

That is, it takes eternal number of non-trivial zeros of the positive and negative regions on the axis 0.5.

Looking at the formula of Euler's formula(1), I sought out if this could be handled as a cross series.

*47-8 Kuyamadai Isahaya-shi, Nagasaki-prefecture, Japan 854-0067

$$\sum_{n=1}^{\infty} \frac{(-1)^{n-1}}{n^{1-k}} = \sum_{n=1}^{\infty} \left[\frac{1}{(2n-1)^{1-k}} - \frac{1}{(2n)^{1-k}} \right] \quad (4)$$

$$\text{insert } \cos\theta + i \sin\theta = e^{i\theta} \quad (5)$$

$$\sum_{n=1}^{\infty} \left[\frac{\cos(x \ln(2n-1)) + i \sin(x \ln(2n-1))}{(2n-1)^{\frac{1}{2}-d}} - \frac{\cos(x \ln(2n)) + i \sin(x \ln(2n))}{(2n)^{\frac{1}{2}-d}} \right] \quad (6)$$

if $d=0$, and x is non-trivial zero values, The above equation is zero.

Discussion

$$\zeta(s) = \zeta(1-s) \quad (7)$$

From Eq.(7), Eq.(8) is derived from Eq.(6).

$$\sum_{n=1}^{\infty} \left[\frac{\cos(x \ln(2n-1)) + i \sin(x \ln(2n-1))}{(2n-1)^{\frac{1}{2}+d}} - \frac{\cos(x \ln(2n)) + i \sin(x \ln(2n))}{(2n)^{\frac{1}{2}+d}} \right] \quad (8)$$

if $d=0$, and x is non-trivial zero values, The above equation is zero.

Eq.(2) and Eq.(3) are derived from Eq.(6) and Eq.(8).

From Eq.(6) and Eq.(8).

$1/2 - d = 1/2 + d = 0.5$, equal $d=0$. $C = 0.5$

The proof is completed.

In this, it says "The proof is completed" but it does not prove at all.

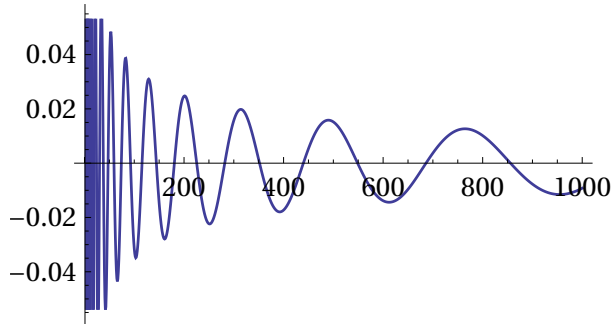
Discussion

Chapter 1

(14.1347- 0.001)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(14.1337) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(14.1337) \ln(2n)]}{(2n)^{0.5}} \right] \quad (9)$$

= -0.009225305555779525779463237679646088942314....



[10000]= 0.0004908595315669325720

[100000]= 0.0009616985990964528738

[1000000]= 0.0001156893510012422144

[10000000]= -0.0001607114065385512091

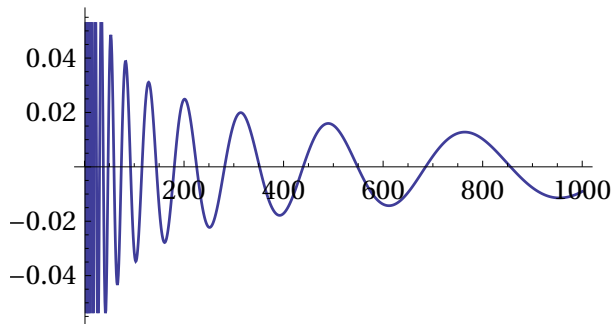
[100000000]= -0.0001509936635404196949

not converge

(14.1347 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(14.1347) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(14.1347) \ln(2n)]}{(2n)^{0.5}} \right] \quad (10)$$

= -0.009063013671335821519956190406232181070163....

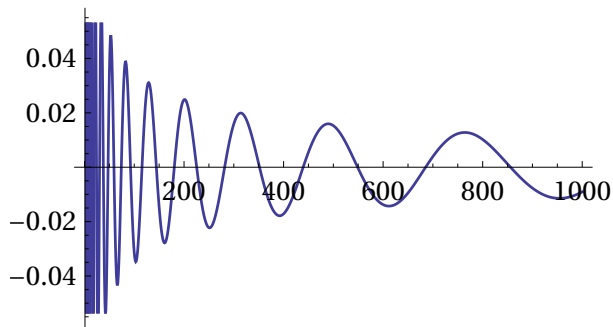


[10000]=0.0006381011115495365026
 [100000]=0.0010780432416684295090
 [1000000]=0.0002245632899122298001
 [10000000]=-0.0000496479275200912434
 [100000000]=0.0000382288508812898928
 converge

(14.1347+ 0.01=14.1447)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(14.1447) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(14.1447) \ln(2n)]}{(2n)^{0.5}} \right] \quad (11)$$

= -0.007243403455155722480043192935285864376....

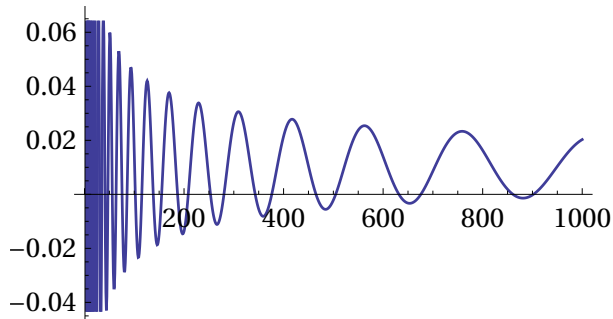


[100000]=0.0024009439859531173274
 [1000000]=0.0014791973611828108937
 [10000000]=0.0012301792406834031936
 [100000000]=0.0012585154544851192247
 not converge

(21.022 - 0.01=21.012)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.0120) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(21.0120) \ln(2n)]}{(2n)^{0.5}} \right] \quad (12)$$

= 0.0202848925540409088275801345992109429....

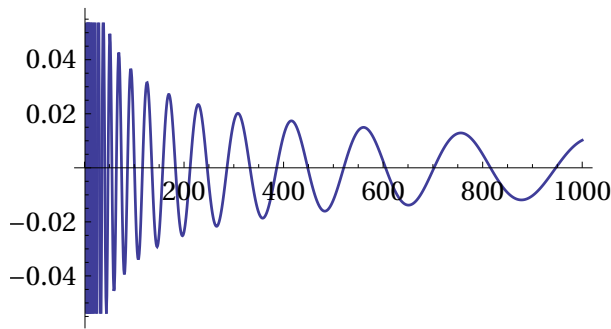


[10000]= 0.0079126943260740684183
 [100000]= 0.0100352227300254896042
 [1000000]= 0.0108565621646344659390
 [10000000]= 0.0104843503975115531074
 [100000000]=0.0104746550659218524287
 not converge

(21.0220 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.0220) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(21.0220) \ln(2n)]}{(2n)^{0.5}} \right] \quad (13)$$

= 0.01020305097297970756165091906533606755457....

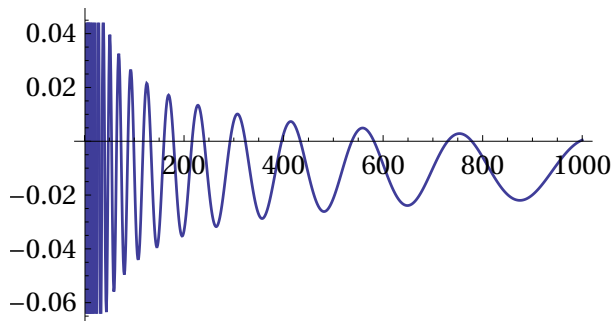


[10000]=-0.0023018856406172511289
 [100000]=-0.0005496921657573621087
 [1000000]=0.0003817627764431225329
 [10000000]=0.0000380957809653702473
 [100000000]=0.0000070544092957442871
 converge

(21.0220+0.01=22.0320)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.0320) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(21.0320) \ln(2n)]}{(2n)^{0.5}} \right] \quad (14)$$

0.009213501661674673769220937361896999026864....

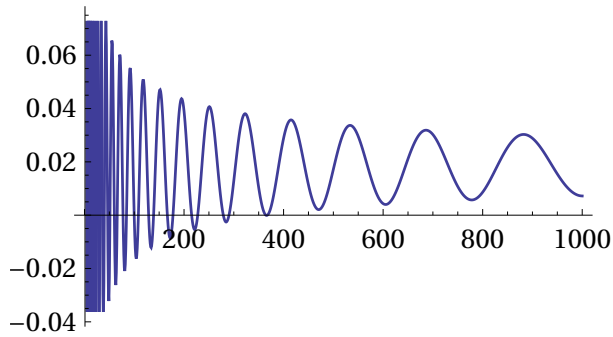


[10000]=-0.0120947862362253185514
 [100000]=-0.0107270996987019039820
 [1000000]=-0.0097014813569226230477
 [10000000]=-0.0100093633835118597103
 [100000000]=-0.0100605988203420360777
 not converge

(25.0109-0.01=25.0009)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(25.0009) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(25.0009) \ln(2n)]}{(2n)^{0.5}} \right] \quad (15)$$

= 0.007208956867091058558975679870786427234417....

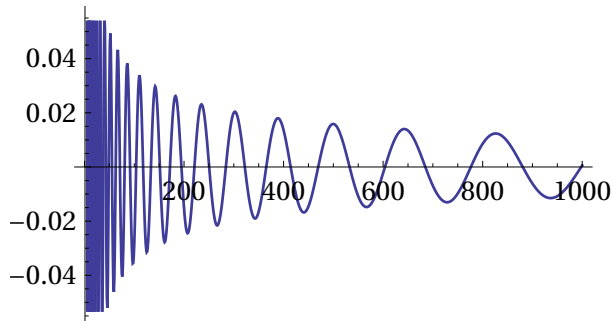


[10000]=-0.0109792843912182164212
 [100000]=-0.0129018421697284571548
 [1000000]=-0.0138749666260562180137
 [10000000]=-0.0140059815308212903817
 [100000000]=-0.0139521725046484450922
 not converge

(25.0109 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(25.0109) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(25.0109) \ln(2n)]}{(2n)^{0.5}} \right] \quad (16)$$

= 0.00056641687695438541751539844982701950807....

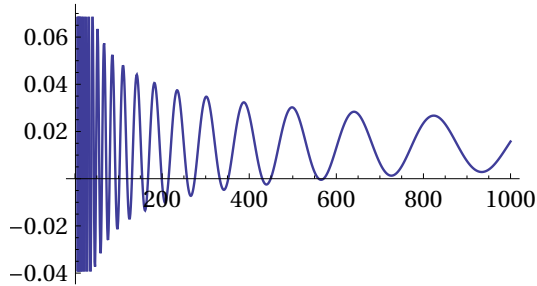


[10000]=0.0031794539716973957769
[100000]=0.0010129648076460495264
[1000000]=0.0000527725990851316977
[10000000]=-0.0000375544556307302004
[100000000]=0.0000296005134758246658
converge

$$(25.0109+0.01=25.0209)$$

$$\sum_{n=1}^{1000} \left[\frac{\cos[(25.0209) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(25.0209) \ln(2n)]}{(2n)^{0.5}} \right] \quad (17)$$

$$= 0.0157543246388970080680775464029165522593....$$

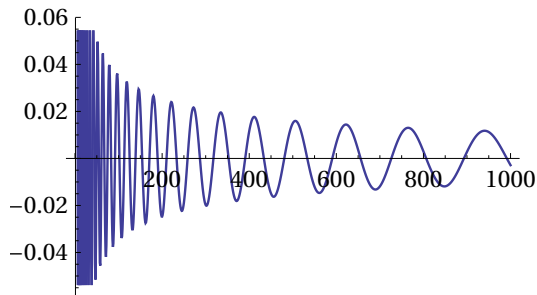


[10000]=0.0176700155045441953394
 [100000]=0.0152759853426839738166
 [1000000]=0.0143430581229324321385
 [10000000]=0.0142960181287969719660
 [100000000]=0.0143748762762403066440
 not converge

$$(30.4249 - 0.01=30.4149)$$

$$\sum_{n=1}^{1000} \left[\frac{\cos[(30.4149) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(30.4149) \ln(2n)]}{(2n)^{0.5}} \right] \quad (18)$$

$$= -0.00285640901825724095173253445652917101....$$

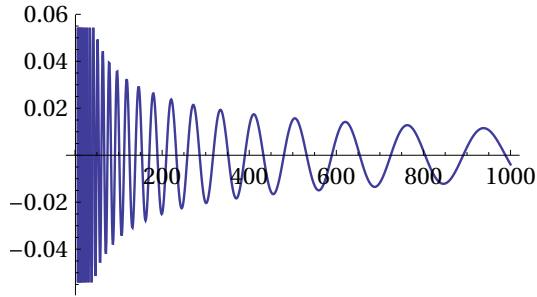


[10000]= -0.0030388948279709746512
 [100000]= -0.0007134501610826229565
 [1000000]= 0.0002059339855287456835
 [10000000]= 0.0003267595999544659156
 [100000000]=0.0002812429594458024443
 not converge

(30.4249 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(30.4249) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(30.4249) \ln(2n)]}{(2n)^{0.5}} \right] \quad (19)$$

= -0.00390909023513576029354093055012477....

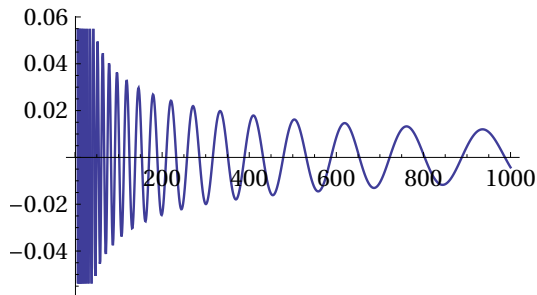


[10000]=-0.0033980444366637999748
 [100000]=-0.0008825379930712329637
 [1000000]=0.0000110835698303654228
 [10000000]=0.0000925555270059981509
 [100000000]=0.0000335427373431973819
 converge

(30.4249+0.01=30.4349)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(30.4349) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(30.4349) \ln(2n)]}{(2n)^{0.5}} \right] \quad (20)$$

-0.004252440526184255650794899059877558....

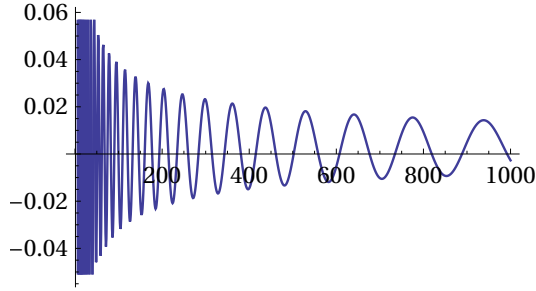


[10000]=-0.0030371364011003336783
 [100000]=-0.0003517351831407830760
 [1000000]=0.0005027598472046472316
 [10000000]=0.0005425030774031609814
 [100000000]=0.0004713839500665595187
 not converge

(32.9351 -0.01=32.9251)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(32.9251) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(32.9251) \ln(2n)]}{(2n)^{0.5}} \right] \quad (21)$$

= -0.0027020078807583326034090009613837....

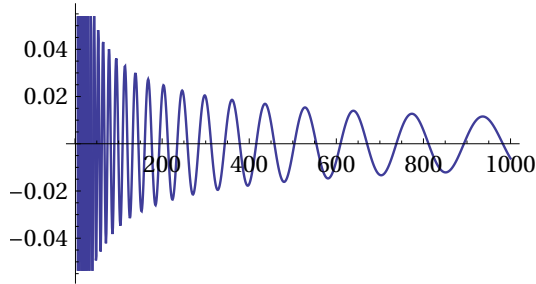


[10000]=-0.0000354846146526247106
 [100000]=0.0016892426191820577100
 [1000000]=0.0024278271134448151970
 [10000000]=0.0026830551451150455762
 [100000000]=0.0027569421199088403086
 not converge

(32.9351 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(32.9351) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(32.9351) \ln(2n)]}{(2n)^{0.5}} \right] \quad (22)$$

= -0.0062113502323384285481355315202462....

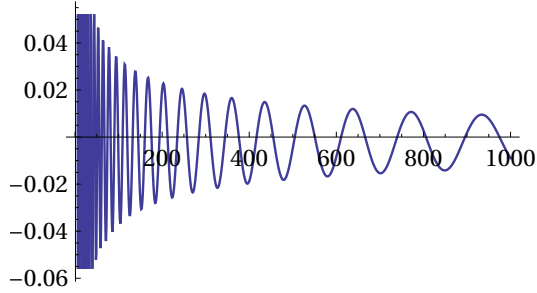


[10000]=-0.0030187974933814079245
 [100000]=-0.0011198358022496601640
 [1000000]=-0.0003446395140902848734
 [10000000]=-0.0000903248133043883523
 [100000000]=-0.0000221594074273025880
 converge

(32.9351+0.01= 32.9451)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(32.9451) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(32.9451) \ln(2n)]}{(2n)^{0.5}} \right] \quad (23)$$

= -0.00893128024726900802406637151594713....

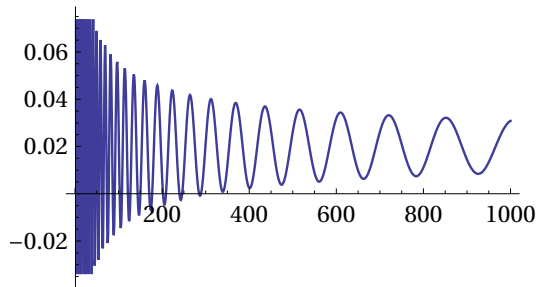


[10000]=-0.0052190215982851530935
 [100000]= -0.0031587929966095914039
 [1000000]=-0.0023564632518479375171
 [10000000]=-0.0021078236331256560571
 [100000000]=-0.0020471956046321931888
 not converge

(37.5862- 0.01= 37.5762)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(37.5762) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(37.5762) \ln(2n)]}{(2n)^{0.5}} \right] \quad (24)$$

0.030834015062143617825619153097923....

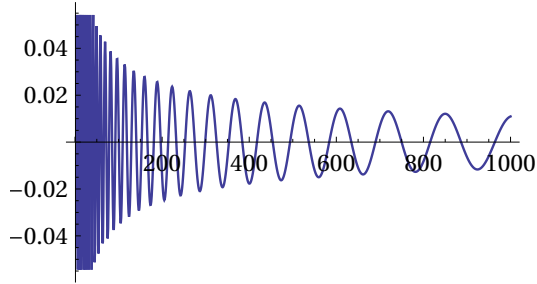


[10000]=0.0195359368608285441371
 [100000]=0.0189196414524257991441
 [1000000]=0.0199973689427138945351
 [10000000]=0.0201460868782911001196
 [100000000]=0.0200503760585013374174
 not converge

(37.5862 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(37.5862) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(37.5862) \ln(2n)]}{(2n)^{0.5}} \right] \quad (25)$$

0.0109417953902648082779919017459911428....

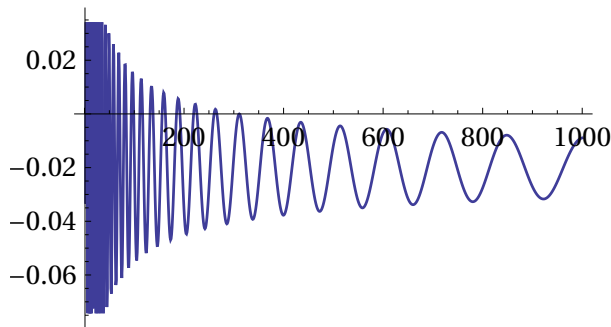


[10000]=-0.0001969237257829878525
 [100000]=-0.0011553773481789157869
 [1000000]=-0.0001343416061451328184
 [10000000]=0.0000587167172489908842
 [100000000]=-0.0000249459169129748873
 converge

(37.5862 +0.01= 37.5962)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(37.5962) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(37.5962) \ln(2n)]}{(2n)^{0.5}} \right] \quad (26)$$

= -0.0089460208968219524737939523273562....

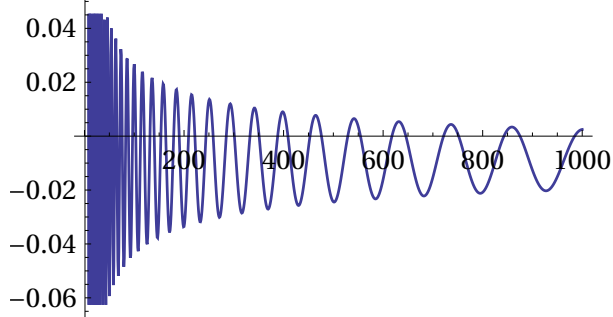


[10000]=-0.0198604388135492707090
 [100000]=-0.0211460105720736035728
 [1000000]=-0.0201963046130781143095
 [10000000]=-0.0199636989117923310810
 [100000000]=-0.0200331095329610020528
 not converge

(40.9187 -0.01= 40.9087)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(40.9087) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(40.9087) \ln(2n)]}{(2n)^{0.5}} \right] \quad (27)$$

=0.00248093561144567463626037082051005....



[10000]=-0.0051677833489781012030

[100000]=-0.0075751568755802805785

[1000000]=-0.0083312236007446627967

[10000000]=-0.0085680467375924898588

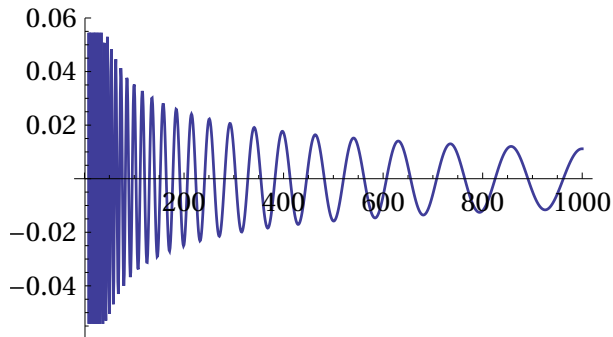
[100000000]=-0.0086420189500060091981

not converge

(40.9187 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(40.9187) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(40.9187) \ln(2n)]}{(2n)^{0.5}} \right] \quad (28)$$

= 0.011161443040664347323838871759731....



[10000]=0.0035169104243255207287

[100000]=0.0010989171823213882747

[1000000]=0.0003349281342070774877

[10000000]=0.0000937391247718045875

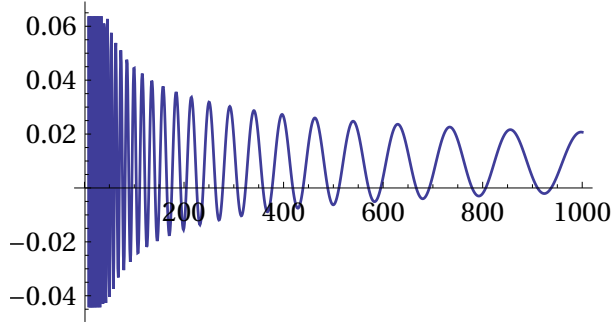
[100000000]=0.0000176604734510305102

converge

$$(40.9187 + 0.01 = 40.9287)$$

$$\sum_{n=1}^{1000} \left[\frac{\cos[(40.9287) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(40.9287) \ln(2n)]}{(2n)^{0.5}} \right] \quad (29)$$

= 0.0206878312138471015409368846686....

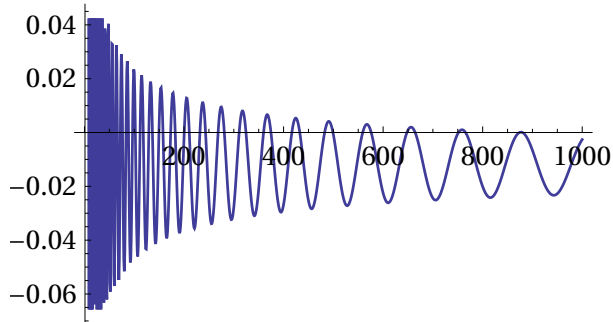


[10000]=0.0130774066708262623471
 [100000]=0.0106668189248659613794
 [1000000]=0.0099041156067228991455
 [10000000]=0.0096628311670022160734
 [100000000]=0.0095865032449445348323
 not converge

$$(43.3271 - 0.01 = 43.3171)$$

$$\sum_{n=1}^{1000} \left[\frac{\cos[(43.3171) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(43.3171) \ln(2n)]}{(2n)^{0.5}} \right] \quad (30)$$

= -0.0026271844642819244706123872647....

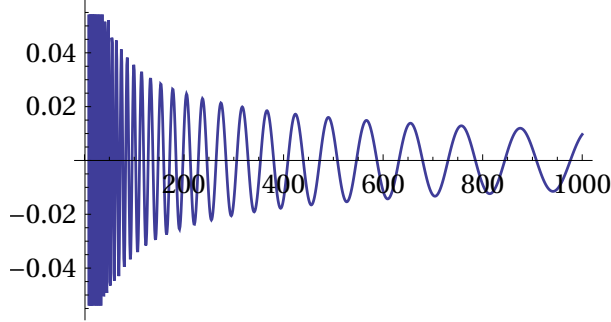


[10000]=-0.0112300972457555110762
 [100000]=-0.0124630776424045092848
 [1000000]=-0.0121568283539716555375
 [10000000]=-0.0118974800268731202568
 [100000000]=-0.0118126252156423548756
 not converge

(43.3271 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(43.3271) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(43.3271) \ln(2n)]}{(2n)^{0.5}} \right] \quad (31)$$

= 0.009670906260156884143514330311804340....



[10000]=0.0009520515105505345573

[100000]=-0.0005078252057554809556

[1000000]=-0.0003051887688908388216

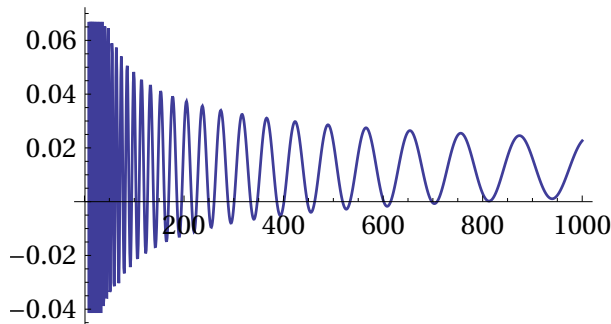
[10000000]=-0.0000672058546933808392

converge

(43.3271 +0.01= 43.3371)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(43.3371) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(43.3371) \ln(2n)]}{(2n)^{0.5}} \right] \quad (32)$$

= 0.0096709062601568841435143303118....



[10000]=0.0138611334436689482424

[100000]=0.0121914127967915099371

[1000000]= 0.0122894928302838823964

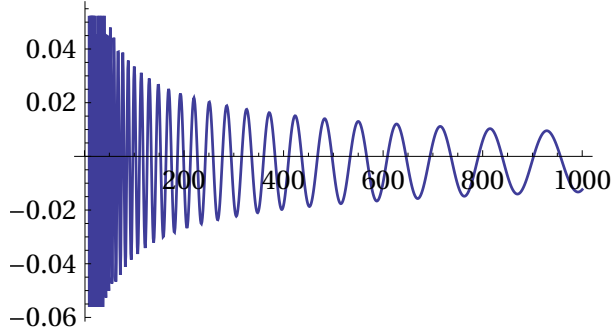
[10000000]=0.0125018265102611169509

not converge

(48.0052 - 0.01 = 47.9952)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(47.9952) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(47.9952) \ln(2n)]}{(2n)^{0.5}} \right] \quad (33)$$

= -0.012377763685720218921643303546....

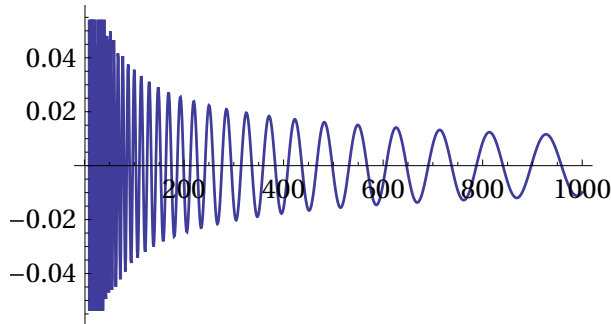


[10000]=0.0000285799991242556995
 [100000]=-0.0021376413863578289966
 [1000000]=-0.0022192255925806937331
 [10000000]=-0.0019585239647509334292
 not converge

(48.0052 is non-trivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(48.0052) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(48.0052) \ln(2n)]}{(2n)^{0.5}} \right] \quad (34)$$

= -0.009954710963835234494265321374....

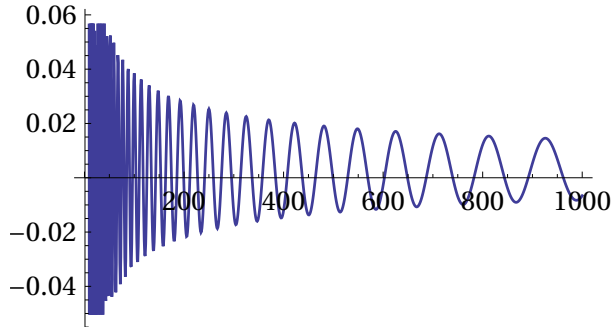


[10000]=0.0018032285340410843938
 [100000]=0.0000660014107200388242
 [1000000]=-0.0001954933851270815727
 [10000000]=0.0001168501874528188322
 [100000000]=-0.0000222158682941726699
 converge

(48.0052 +0.01=48.0152)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(48.0152) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(48.0152) \ln(2n)]}{(2n)^{0.5}} \right] \quad (35)$$

= -0.00659781565293379915294435589....

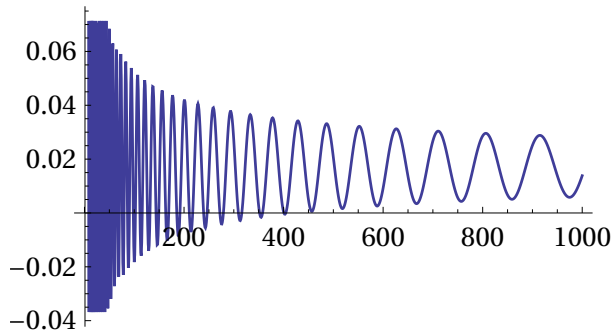


[10000]= 0.0044366094516016078841
 [100000]=0.0031451285025022525550
 [1000000]=0.0027088886322526439104
 [10000000]=0.0030655599344365370811
 [100000000]=0.0029234203769221956369
 not converge

(49.7738- 0.01=49.7638)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(49.7638) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(49.7638) \ln(2n)]}{(2n)^{0.5}} \right] \quad (36)$$

= 0.013838181877048842824089368339....

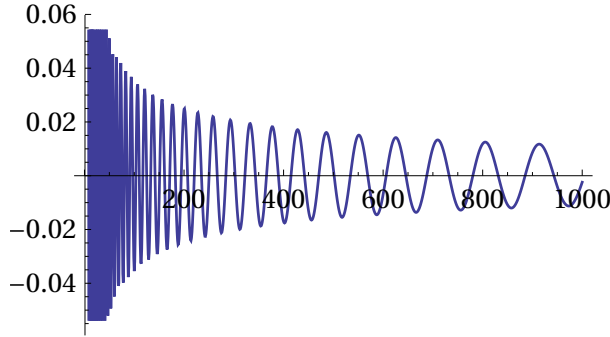


[10000]=0.0204037589236460217834
 [100000]=0.0176524483959972777747
 [1000000]=0.0168391658695661756984
 [10000000]=0.0170716013967882086766
 [100000000]=0.0171650920761718187024
 not converge

(49.7738 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(49.7738) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(49.7738) \ln(2n)]}{(2n)^{0.5}} \right] \quad (37)$$

= -0.00242552247843460002977902405986....

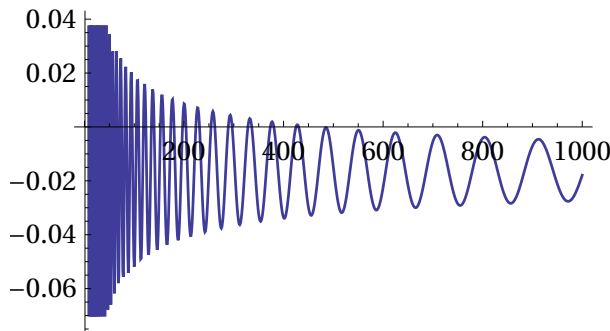


[10000]=0.0034374613798155602418
 [100000]=0.0004433508278073949134
 [1000000]=-0.0002692269558208497827
 [10000000]=0.0000031448364606872906
 [100000000]=0.0000016971109376292873
 converge

(49.7738+ 0.01=49.7838)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(49.7838) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(49.7838) \ln(2n)]}{(2n)^{0.5}} \right] \quad (38)$$

= -0.01792553042791727447634460232379546....

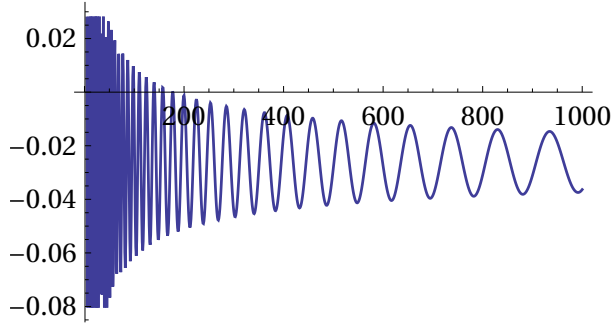


[10000]=-0.0128126155902118996077
 [100000]=-0.0160221607044494576688
 [1000000]=-0.0166214463360710926199
 [10000000]=-0.0163144944504915699601
 [100000000]=-0.0162474302505595455398
 not converge

(52.9703 - 0.01 = 52.9603)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(52.9603) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(52.9603) \ln(2n)]}{(2n)^{0.5}} \right] \quad (39)$$

= -0.036355181418336957787246132966042....

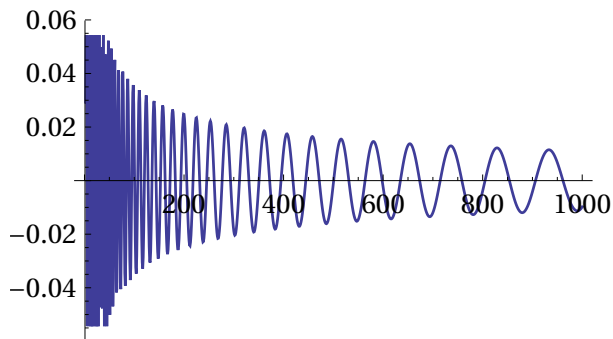


[10000] = -0.0227243930148252754053
 [100000] = -0.0270512158174514988351
 [1000000] = -0.0261265188041285185971
 [10000000] = -0.0261841661259985397647
 [100000000] = -0.0262460615983426404085
 not converge

(52.9703 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(52.9703) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(52.9703) \ln(2n)]}{(2n)^{0.5}} \right] \quad (40)$$

= 0.0094785200140687480985874....

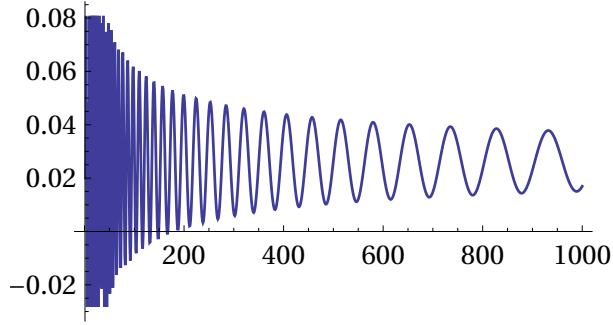


[10000] = 0.0034739734404261226469
 [100000] = -0.0009736503195389328066
 [1000000] = 0.0000840864838235658814
 [10000000] = -0.0000402288186734236711
 [100000000] = -0.0000791109926 464973008
 converge

(52.9703+ 0.01=52.9803)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(52.9803) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(52.9803) \ln(2n)]}{(2n)^{0.5}} \right] \quad (41)$$

= -0.025638210257456366874529600147.....

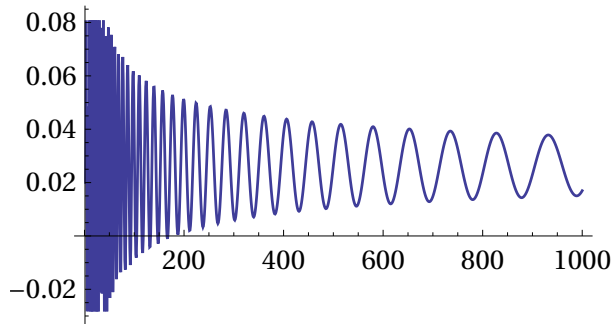


[10000]=0.0298009149632027132981
 [100000]=0.0252807368145561497941
 [1000000]=0.0264549124817869858728
 [10000000]=0.0262664254861674946462
 [100000000]=0.0262518399485283625283
 not converge

(56.4462- 0.01=56.4362)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(52.9603) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(52.9603) \ln(2n)]}{(2n)^{0.5}} \right] \quad (42)$$

= 0.02661362850362773718971974636737....

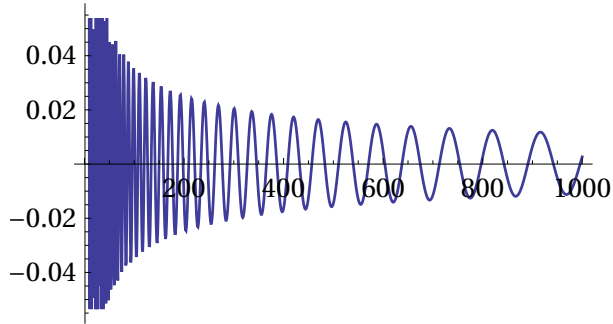


[10000]=0.0215213375849595336953
 [100000]=0.0256454199486976612554
 [1000000]=0.0250592910221035559959
 [10000000]=0.0248005396480182084551
 [100000000]=0.0249269290298672584194
 not converge

(56.4462 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(52.9603) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(52.9603) \ln(2n)]}{(2n)^{0.5}} \right] \quad (43)$$

= 0.00265184131020865474001054929688....

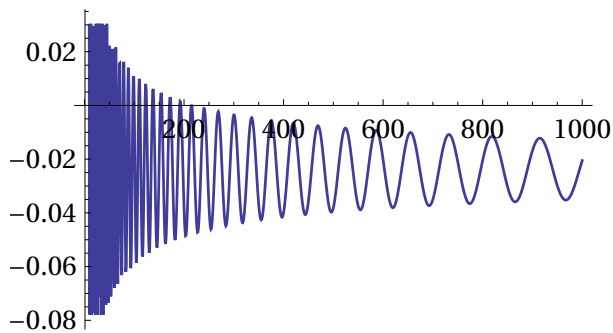


[10000]=-0.0033569416558486631433
 [100000]=0.0007412009666034661236
 [1000000]=0.0003082564029241538104
 [10000000]=0.0000061648527900334994
 [100000000]=0.0001245625213175247570
 converge

(56.4462+ 0.01=56.4562)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(56.4562) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(56.4562) \ln(2n)]}{(2n)^{0.5}} \right] \quad (44)$$

= -0.020518507917862853064414308975874....

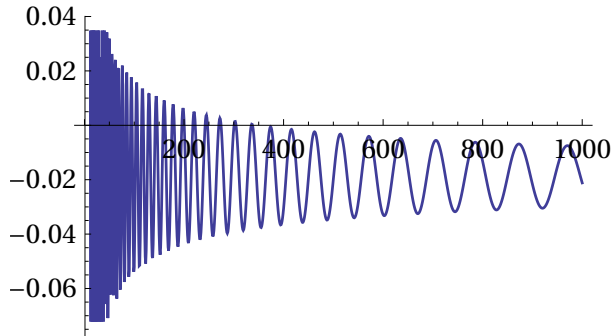


[10000]=-0.0273951025018738907046
 [100000]=-0.0233662356193842200847
 [1000000]=-0.0236407303330016561882
 [10000000]=-0.0239790227111441045516
 [100000000]=-0.0238720224947596565412
 not converge

(59.3470 -0.01=59.3370)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(59.337) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(59.337) \ln(2n)]}{(2n)^{0.5}} \right] \quad (45)$$

= -0.02117544407868147009046644659813....



[10000]=-0.0153470935301642623372

[100000]=-0.0186832345035133039202

[1000000]=-0.0191851092465768376105

[10000000]=-0.0188416207259528324658

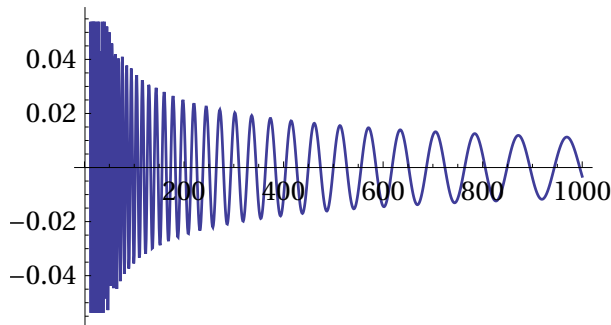
[100000000]=-0.0187981369915568748141

not converge

(59.3470 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(59.347) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(59.347) \ln(2n)]}{(2n)^{0.5}} \right] \quad (46)$$

= -0.003249397427817426257297031928....



[10000]=0.0033272037996214297653

[100000]=0.0001999944676262767817

[1000000]=-0.0004266637864907864286

[10000000]=-0.0001107110726185287755

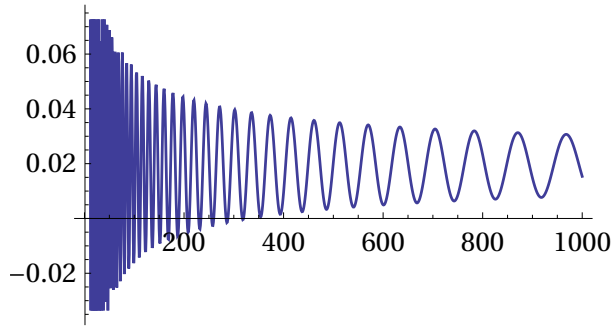
[100000000]=-0.0000496121879175364362

converge

(59.3470 +0.01=59.3570)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(59.357) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(59.357) \ln(2n)]}{(2n)^{0.5}} \right] \quad (47)$$

= 0.0153674637271575901453641388809426....

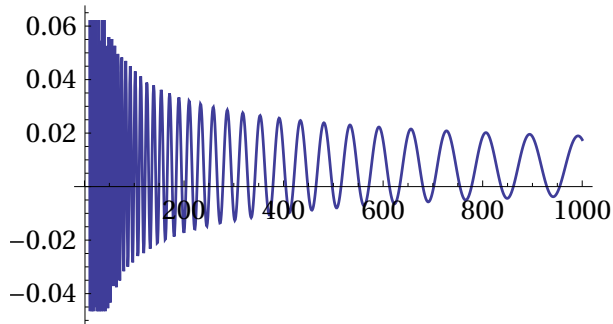


[10000]=0.0226406059802710668549
 [100000]=0.0197515319113135204288
 [1000000]=0.0190115164934722205570
 [10000000]=0.0192934859950445840304
 [100000000]=0.0193701943315789659739
 not converge

(60.8318 -0.01=60.8218)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(60.8218) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(60.8218) \ln(2n)]}{(2n)^{0.5}} \right] \quad (48)$$

= 0.017535560535969578881737935277711....

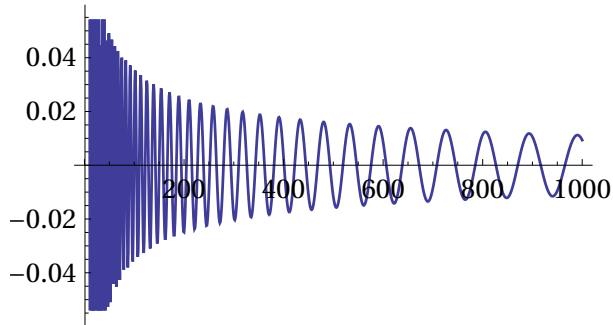


[10000]=0.0053634168996513102365
 [100000]=0.0071097290555579180371
 [1000000]=0.0080656137459530069522
 [10000000]=0.0077438534214533767328
 [100000000]=0.0076979062723852836186
 not converge

(60.8318 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(60.8318) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(60.8318) \ln(2n)]}{(2n)^{0.5}} \right] \quad (49)$$

= 0.00935045339563112002833035659962320....

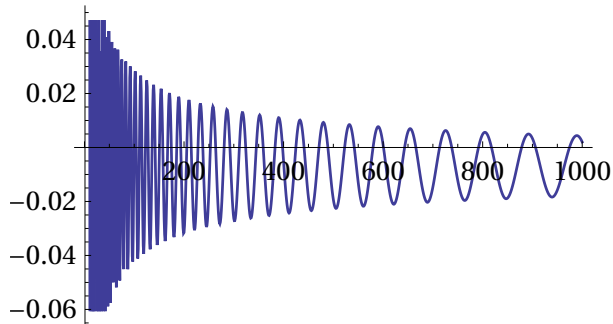


[10000]=-0.0026329489910695037802
 [100000]=-0.0005211427047658763467
 [1000000]=-0.0003308650681597519964
 [10000000]=-0.0000234504367579117287
 [100000000]=-0.0000489979146843307173
 converge

(60.8318 +0.01=60.8418)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(60.8418) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(60.8418) \ln(2n)]}{(2n)^{0.5}} \right] \quad (50)$$

= 0.0020340324872867370159732423317063180....

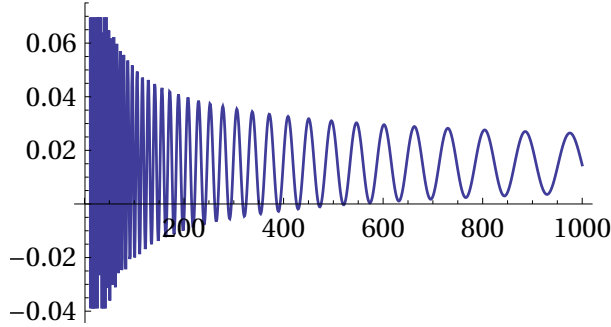


[10000]=-0.0096808902961095563006
 [100000]=-0.0072217173963795193783
 [1000000]=-0.0064883898884115342315
 [10000000]=-0.0068677592993540365410
 [100000000]=-0.0068719124842466644543
 not converge

(65.1125 - 0.01 = 65.1025)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(65.1025) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(65.1025) \ln(2n)]}{(2n)^{0.5}} \right] \quad (51)$$

= 0.01455354766716725850019791519965069408....



[10000]=0.0178130662139432995039

[100000]=0.0162484992948911007027

[1000000]=0.0153178316294963045435

[10000000]=0.0151053012272931840715

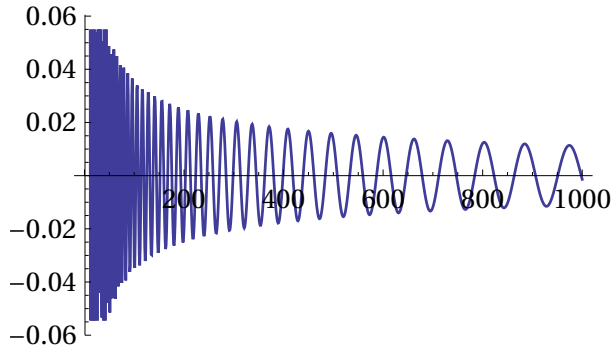
[100000000]=0.0151140151910756879994

not converge

(65.1125 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(65.1125) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(65.1125) \ln(2n)]}{(2n)^{0.5}} \right] \quad (52)$$

= -0.0013760257837058265259987472825....



[10000]=0.0024868485483015901651

[100000]=0.0011808038497076905112

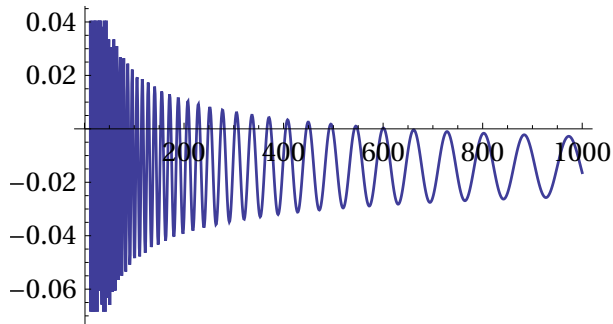
[1000000]=0.0002774053647495089620

[10000000]=0.0000397292122541242009
 [100000000]=0.0000330684738521100997
 converge

(65.1125 +0.01=65.1225)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(65.1225) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(65.1225) \ln(2n)]}{(2n)^{0.5}} \right] \quad (53)$$

= -0.01639371889042223977588544036025566....

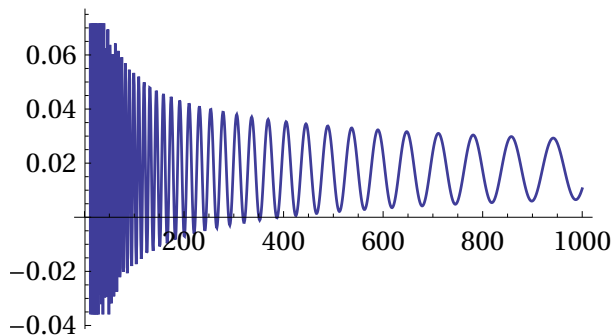


[10000]=-0.0119595467599865334929
 [100000]=-0.0129999415740921740736
 [1000000]=-0.0138639340077547287833
 [10000000]=-0.0141215839941903811144
 [100000000]=-0.0141431734096021752972
 not converge

(67.0798 -0.01=67.0698)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(67.0698) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(67.0698) \ln(2n)]}{(2n)^{0.5}} \right] \quad (54)$$

= 0.01054340101298597874827370995356065....

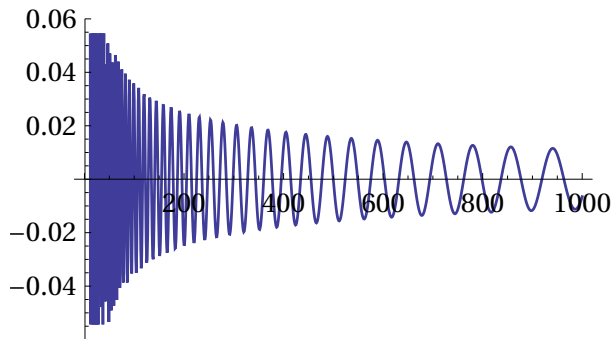


[10000]=0.0185272576419921730650
 [100000]=0.0180575446703839549711
 [1000000]=0.0175087936290795401217
 [10000000]=0.0178615209629044355277
 [100000000]=0.0177201662173655516419
 not converge

(67.0798 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(67.0798) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(67.0798) \ln(2n)]}{(2n)^{0.5}} \right] \quad (55)$$

= -0.0065237542293612301177290343425925....

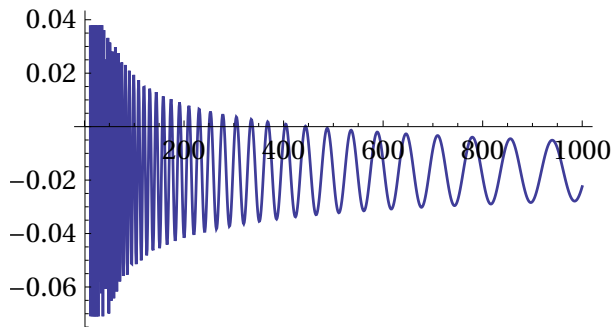


[10000]=0.0004455620242284032877
 [100000]=0.0004495504034751115607
 [1000000]=-0.0002621111366443582480
 [10000000]=0.0001288477260946204589
 [100000000]=-0.0000147163868139592400
 converge

(67.0798 +0.01=67.0898)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(67.0898) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(67.0898) \ln(2n)]}{(2n)^{0.5}} \right] \quad (56)$$

= -0.022435645618969822822622562110867639....

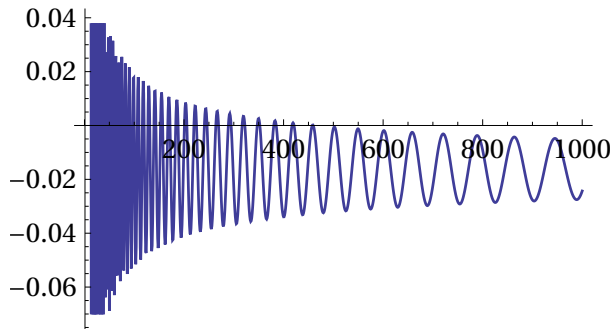


[10000]=-0.0165228379532093849758
 [100000]=-0.0160473792921948035795
 [1000000]=-0.0169096431198623928238
 [10000000]=-0.0164894634928593915302
 [100000000]=-0.0166309192179651989252
 not converge

(69.5464 -0.01= 69.5364)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(69.5364) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(69.5364) \ln(2n)]}{(2n)^{0.5}} \right] \quad (57)$$

= -0.0243297577962054059566184331757303259....



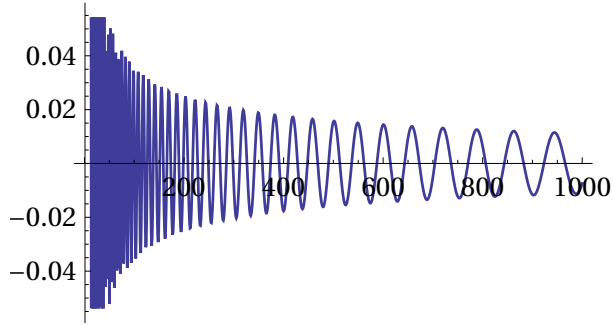
[10000]=-0.0134734792416161801992
 [100000]=-0.0172578985580090112084
 [1000000]=-0.0159753770631393052226
 [10000000]=-0.0164030485920629576224
 [100000000]=-0.0162623947872419447047
 not converge

(69.5464 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(69.5464) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(69.5464) \ln(2n)]}{(2n)^{0.5}} \right] \quad (58)$$

= -0.00742194981868251334108790488075153....

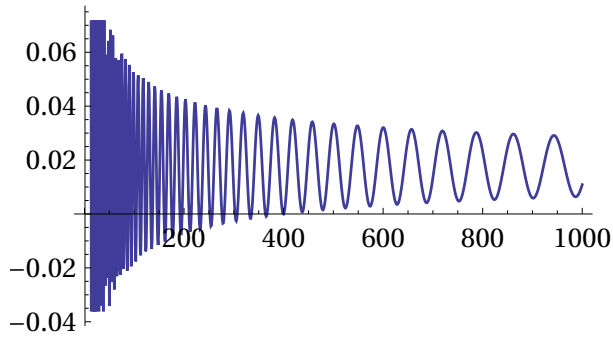
[10000]=0.0025963455525007681293
 [100000]=-0.0008871211367050240836
 [1000000]=0.0002940474711544655657
 [10000000]=-0.0001016062203650079822
 [100000000]=0.0000296025170157569742
 converge



$$(69.5464 + 0.01 = 69.5564)$$

$$\sum_{n=1}^{1000} \left[\frac{\cos[(69.5564) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(69.5564) \ln(2n)]}{(2n)^{0.5}} \right] \quad (59)$$

$$= 0.010867804829161603203853104882137222....$$

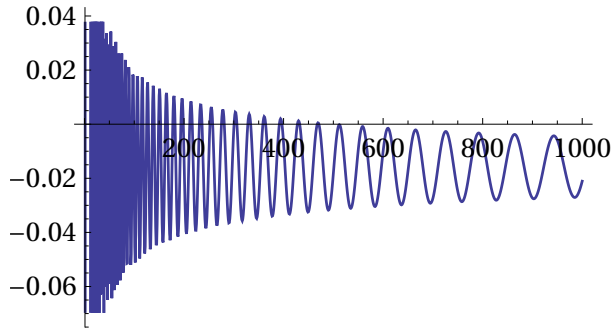


[10000]=0.0199797996968321539546
 [100000]=0.0168359155842571633910
 [1000000]=0.0178963339534679265197
 [10000000]=0.0175417209470739889066
 [100000000]=0.0176595177076413131778
 not converge

$$(72.0672 - 0.01 = 72.0572)$$

$$\sum_{n=1}^{1000} \left[\frac{\cos[(72.0572) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(72.0572) \ln(2n)]}{(2n)^{0.5}} \right] \quad (60)$$

$$= -0.0210743033551647014364941401522796....$$

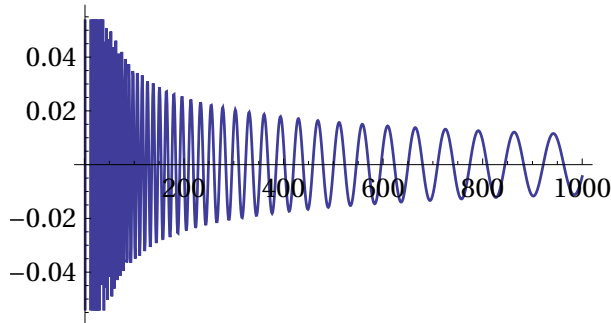


[10000]=-0.0126713775327911490343
 [100000]=-0.0169220760051842292193
 [1000000]=-0.0155397673872098192327
 [10000000]=-0.0158425049243976420743
 [100000000]=-0.0158212729604979597531
 not converge

(72.0672 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(72.0672) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(72.0672) \ln(2n)]}{(2n)^{0.5}} \right] \quad (61)$$

= -0.004433077941905571139525695057394011....

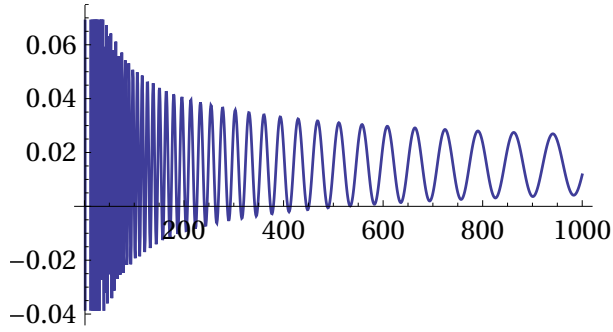


[10000]=0.0030294285324277098019
 [100000]=-0.0010518535189544097729
 [1000000]=0.0003671456814411551135
 [10000000]=0.0000169455603833922448
 [100000000]=0.0000622802048020602324
 converge

(72.0672 +0.01=72.0772)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(72.0672) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(72.0672) \ln(2n)]}{(2n)^{0.5}} \right] \quad (62)$$

= 0.01170363676792169905229332806333232....

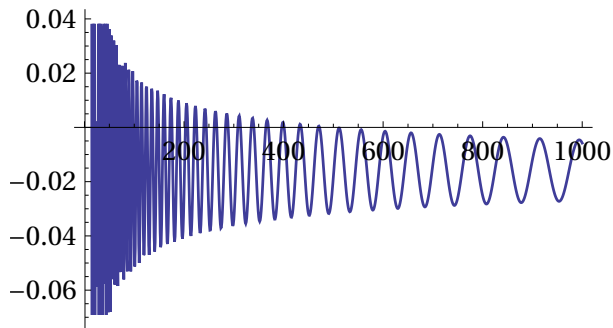


[10000]=0.0181707007646028824432
 [100000]=0.0143045111219020221194
 [1000000]=0.0157372394547144987820
 [10000000]=0.0153472886281138462539
 [100000000]=0.0154154791762151199136
 not converge

(75.7047 -0.01=75.6947)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(75.6947) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(75.6947) \ln(2n)]}{(2n)^{0.5}} \right] \quad (63)$$

= -0.005767602040275194888056795583206626735159....

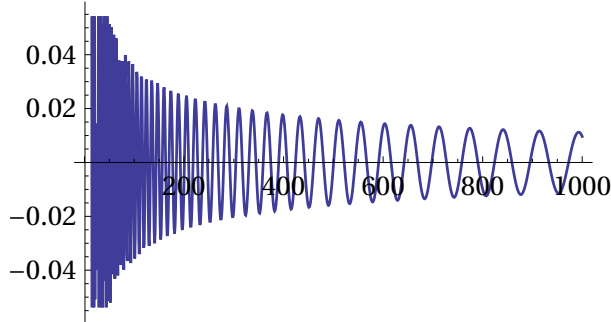


[10000]=-0.0145183117659648756176
 [100000]=-0.0168743137361940659380
 [1000000]=-0.0158932270594019514620
 [10000000]=-0.0156984831255221751745
 [100000000]=-0.0158045871196352515076
 not converge

(75.7047 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(75.7047) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(75.7047) \ln(2n)]}{(2n)^{0.5}} \right] \quad (64)$$

= 0.00965362801211004223122426163063638....

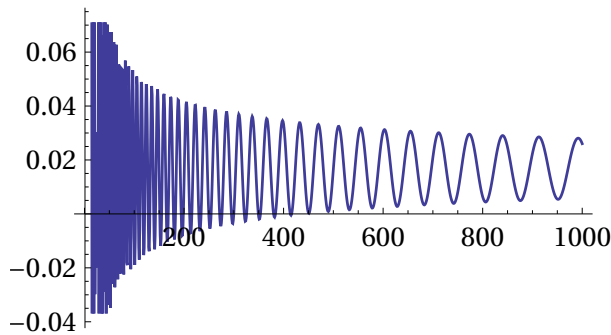


[10000]=0.0016245600108993024473
 [100000]=-0.0010015153125604158314
 [1000000]=-0.0001182290513657512342
 [10000000]=0.0001204084346666212352
 [100000000]=0.0000257517189773427849
 converge

(75.7047 +0.01=75.7147)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(75.7147) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(75.7147) \ln(2n)]}{(2n)^{0.5}} \right] \quad (65)$$

= 0.02603757915450419183152249404869049....

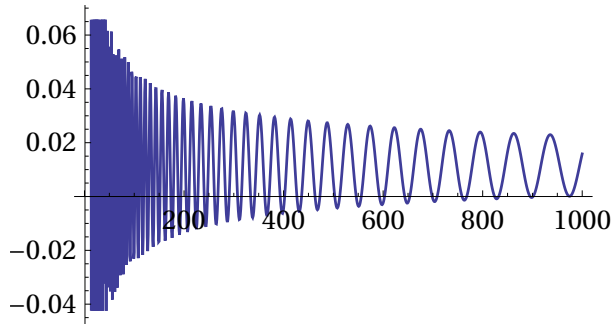


[10000]=0.0187700429043501960946
 [100000]=0.0159047949088703503839
 [1000000]=0.0166779554338473551267
 [10000000]=0.0169547162854766578222
 [100000000]=0.0168740888732249530446
 not converge

(77.1448 - 0.01 = 77.1348)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(77.1348) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(77.1348) \ln(2n)]}{(2n)^{0.5}} \right] \quad (66)$$

= 0.01583745539074428146647286370734127500....

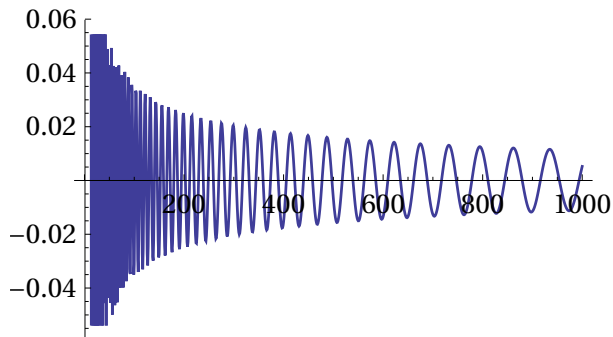


[10000]=0.0145234041256118440177
 [100000]=0.0107811168707620391727
 [1000000]=0.0111512206798152439108
 [10000000]=0.0115001989383124846728
 [100000000]=0.0114390960849727763710
 not converge

(77.1448 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(77.1448) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(77.1448) \ln(2n)]}{(2n)^{0.5}} \right] \quad (67)$$

= 0.005230027651272115755657184376504....



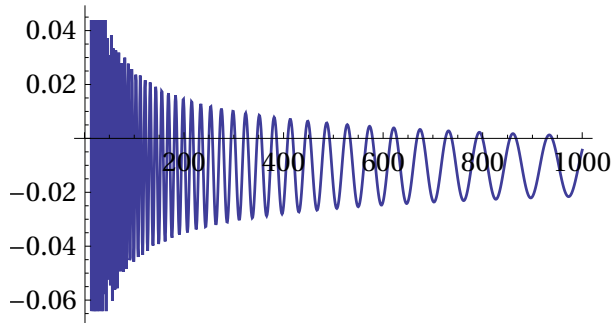
[10000]=0.0029664779953020377519
 [100000]=-0.0007006166354271297931
 [1000000]=-0.0001870419726466966779

[10000000]=0.0001371403920681105127
 [100000000]=0.0000587154729794121019
 converge

(77.1448 +0.01=77.1548)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(77.1548) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(77.1548) \ln(2n)]}{(2n)^{0.5}} \right] \quad (68)$$

= -0.0043608609812712112493907874542557....

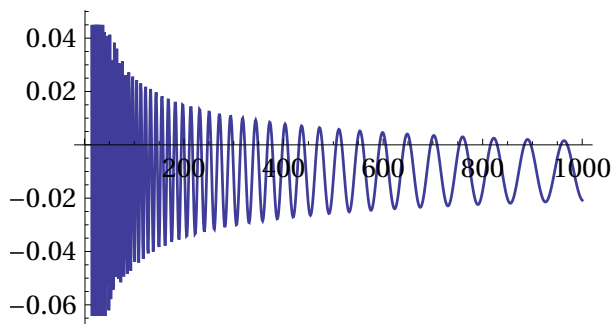


[10000]=-0.0075726021271640304999
 [100000]=-0.0111247864798120002505
 [1000000]=-0.0104739693260100571320
 [10000000]=-0.0101820675996653637468
 not converge

(79.3374 -0.01=79.3274)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(79.3274) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(79.3274) \ln(2n)]}{(2n)^{0.5}} \right] \quad (69)$$

= -0.02076513152075744354907712109053746....

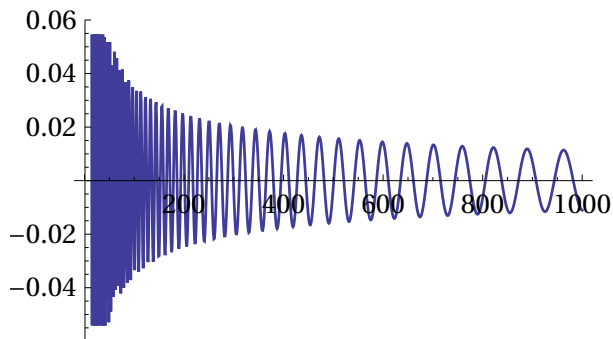


[10000]=0.0081757550311770624957
 [100000]=0.0107178805140204780333
 [1000000]=0.0113446414910911078100
 [10000000]=0.0114396706861565559260
 [100000000]=0.0114299609176478494943
 not converge

(79.3374 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(79.3374) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(79.3374) \ln(2n)]}{(2n)^{0.5}} \right] \quad (70)$$

= -0.01106011860300484314739118389904421....

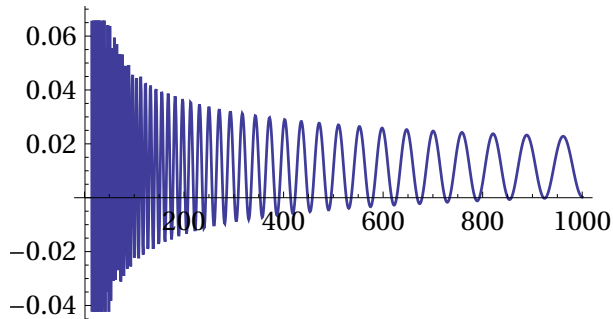


[10000]=-0.0033286483613430535924
 [100000]=-0.0007622145135349513156
 [1000000]=-0.0000828611800183551403
 [10000000]=0.0000436829234382010275
 [100000000]=0.0000471368163292867377
 converge

(79.3374 +0.01=79.3474)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(79.3474) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(79.3474) \ln(2n)]}{(2n)^{0.5}} \right] \quad (71)$$

= 0.0002394727927926906226549451014682763....

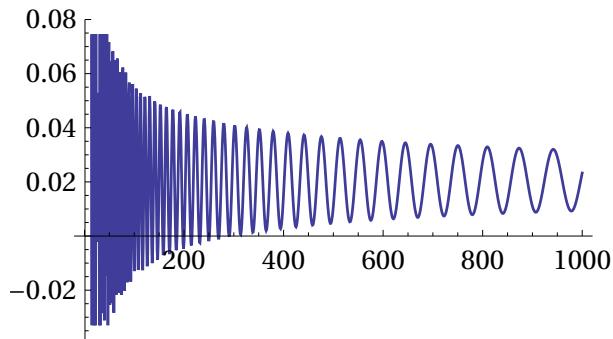


[10000]=0.0081757550311770624957
 [100000]=0.0107178805140204780333
 [1000000]=0.0113446414910911078100
 [10000000]=0.0114396706861565559260
 [100000000]=0.0114299609176478494943
 not converge

(82.9104 -0.01=82.9004)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(82.9004) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(82.9004) \ln(2n)]}{(2n)^{0.5}} \right] \quad (72)$$

= 0.023282073861962337559387459755070270....

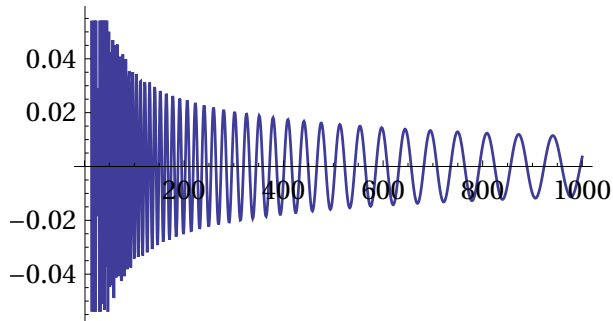


[10000]=0.0222846263592452326074
 [100000]=0.0194543229123889487020
 [1000000]=0.0208411982389801672677
 [10000000]=0.0204842003462149778448
 [100000000]=0.0205104126644407684654
 not converge

(82.9104 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(82.9104) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(82.9104) \ln(2n)]}{(2n)^{0.5}} \right] \quad (73)$$

= 0.00353445588698973299308904117790351....

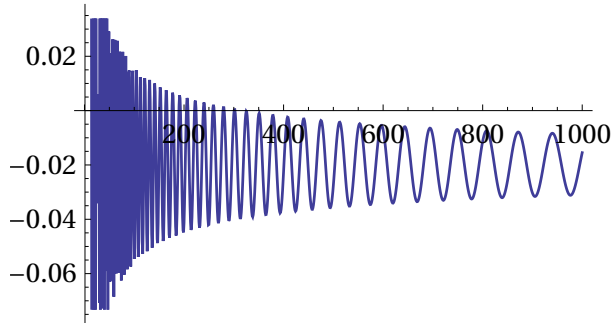


[10000]=0.0014103623601796036642
 [100000]=-0.0010605598122671972775
 [1000000)=0.0002978867961682382442
 [10000000]=-0.0000952393762674968021
 [100000000]=-0.0000456358162302138902
 converge

(82.9104 +0.01=82.9204)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(82.9204) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(82.9204) \ln(2n)]}{(2n)^{0.5}} \right] \quad (74)$$

= -0.0154899634910662258389046813497956....

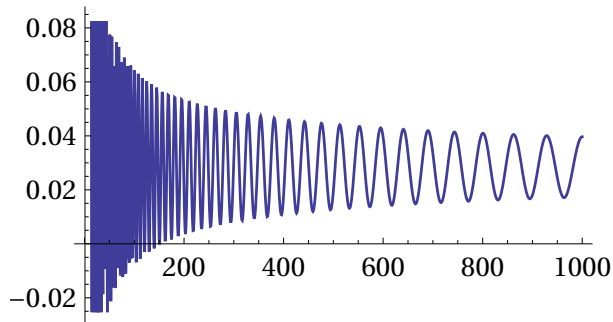


[10000]=-0.0187342688547805988342
 [100000]=-0.0208164032433105182507
 [1000000]=-0.0195086635481445599960
 [10000000]=-0.0199292508559919707978
 not converge

(84.7355 -0.01=84.7255)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(84.7255) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(84.7255) \ln(2n)]}{(2n)^{0.5}} \right] \quad (75)$$

= 0.0396645733911028256955546774667570504....

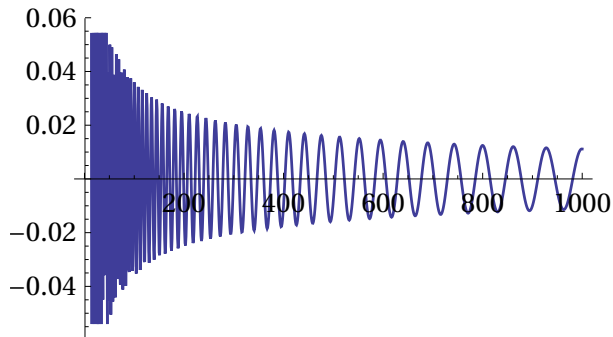


[10000]=0.0318872204225595853866
 [100000]=0.0294184557494009089884
 [1000000]=0.0287067629290724581070
 [10000000]=0.0285249567043578157455
 [100000000]=0.0284865943793785082738
 not converge

(84.7355 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(84.7355) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(84.7355) \ln(2n)]}{(2n)^{0.5}} \right] \quad (76)$$

= 0.01114105160265642993787875398772657....

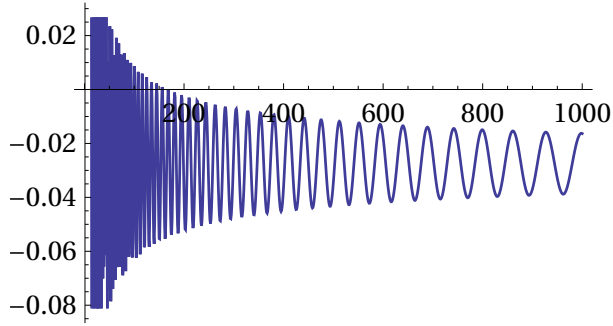


[10000]=0.0032716683727916544625
 [100000]=0.0008326779381843932206
 [1000000]=0.0001606701190157385807
 [10000000]=0.0000029354452761063156
 [100000000]=-0.0000241664658097951197
 converge

(84.7355 +0.01=84.7455)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(84.7455) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(84.7455) \ln(2n)]}{(2n)^{0.5}} \right] \quad (77)$$

= -0.01634507197229332832488362753685614....

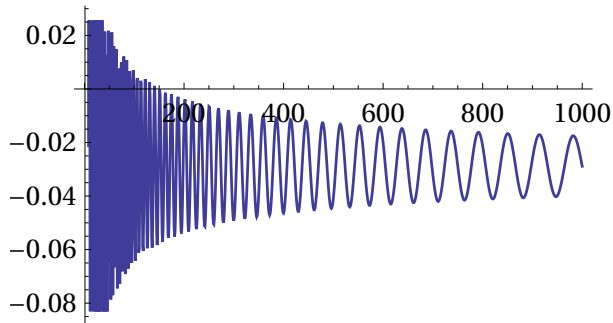


[10000]=-0.0242742873721646205964
 [100000]=-0.0266639316485210234320
 [1000000]=-0.0272873605024068974223
 [10000000]=-0.0274178711569532593262
 [100000000]=-0.0274329111587670940176
 not converge

(87.4253 - 0.01=87.4153)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(87.4153) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(87.4153) \ln(2n)]}{(2n)^{0.5}} \right] \quad (78)$$

= -0.028868238867705496470309995403830767....

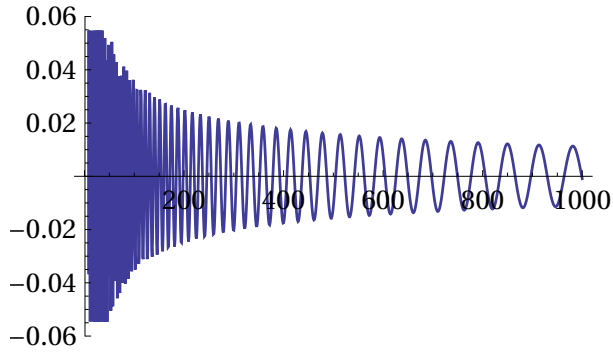


[10000]=-0.0294905492735248811464
 [100000]=-0.0292174614920240223459
 [1000000]=-0.0289672758022459127247
 [10000000]=-0.0288395349215854295000
 [100000000]=-0.0287856788587947144686
 not converge

(87.4253 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(87.4253) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(87.4253) \ln(2n)]}{(2n)^{0.5}} \right] \quad (79)$$

= -0.0008885814873853968282314147822626937....

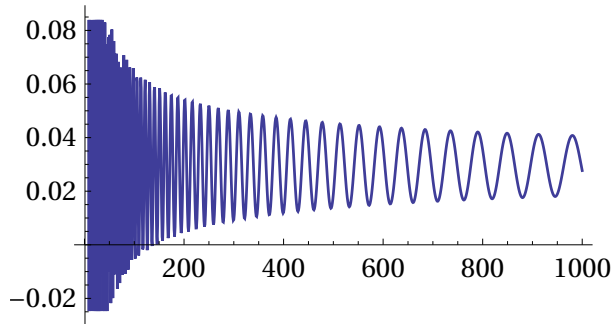


[10000]= -0.0010004497393000491741
 [100000]= -0.0005095242227744967893
 [1000000]= -0.0001774559399960536792
 [10000000]= -0.0000220674631672737237
 converge

(87.4253 +0.01=87.4353)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(87.4353) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(87.4353) \ln(2n)]}{(2n)^{0.5}} \right] \quad (80)$$

= 0.02770447484589880891303818419140328....

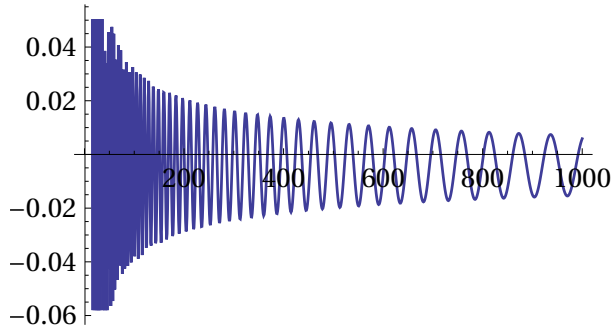


[10000]=0.0281080194080228738807
 [100000]=0.0288149360292453242394
 [1000000]=0.0292254876163264634692
 [10000000]=0.0294059482673889455162
 [100000000]=0.0294750496713673745819
 not converge

(88.8091 -0.01=88.7991)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(88.7991) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(88.7991) \ln(2n)]}{(2n)^{0.5}} \right] \quad (81)$$

= 0.00585253027583306986688681062022843....

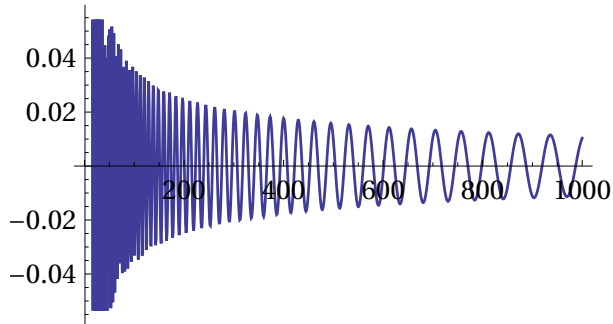


[10000]=-0.0075802629627276293250
 [100000]=-0.0030150819828270061622
 [1000000]=-0.0044697337538711374300
 [10000000]=-0.0040379390189374331568
 [100000000]=-0.0041561060838526033695
 not converge

(88.8091 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(88.8091) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(88.8091) \ln(2n)]}{(2n)^{0.5}} \right] \quad (82)$$

= 0.0103328970781082668980115307749628....

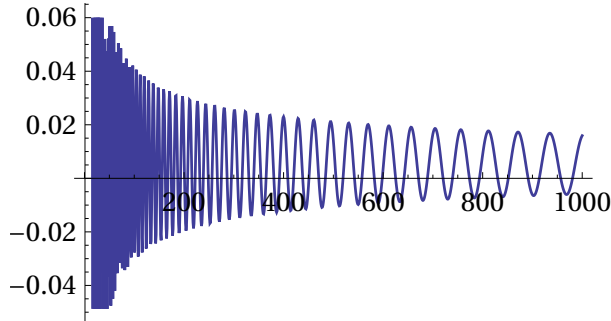


[10000]= -0.0035136809338557582760
 [100000]= 0.0010982711272328137507
 [1000000]= -0.0003239705664555260706
 [10000000]= 0.0000776637060144497345
 [100000000]= -0.0000237365082598473473
 converge

(88.8091 +0.01=88.8191)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(88.8191) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(88.8191) \ln(2n)]}{(2n)^{0.5}} \right] \quad (83)$$

= 0.01593493283752298348725610077429899....

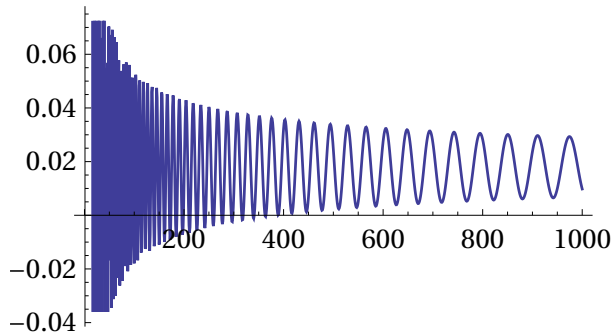


[10000]=0.0017686547806949515400
 [100000]=0.0063765745429264107311
 [1000000]=0.0050098608074647396973
 [10000000]=0.0053722992267073851544
 [100000000]=0.0052906766583897986422
 not converge

(92.4919 -0.01=92.4819)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(92.4819) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(92.4819) \ln(2n)]}{(2n)^{0.5}} \right] \quad (84)$$

= 0.0098019674300467981702972710862591060....

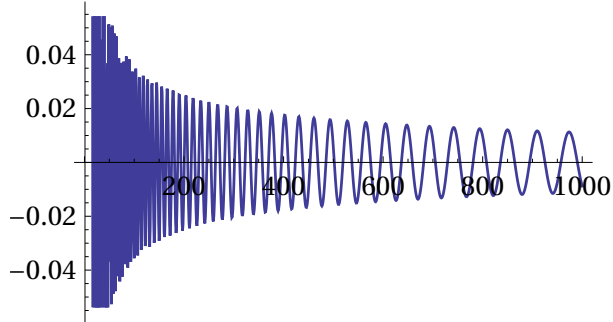


[10000]=0.0175727899371627450942
 [100000]=0.0185962823074991082106
 [1000000]=0.0183356254448237623866
 [10000000]=0.0181058644958792085145
 [100000000]=0.0180190368161497645183
 not converge

(92.4919 is nontrivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(92.4919) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(92.4919) \ln(2n)]}{(2n)^{0.5}} \right] \quad (85)$$

0.008547365010250874501406981302547....

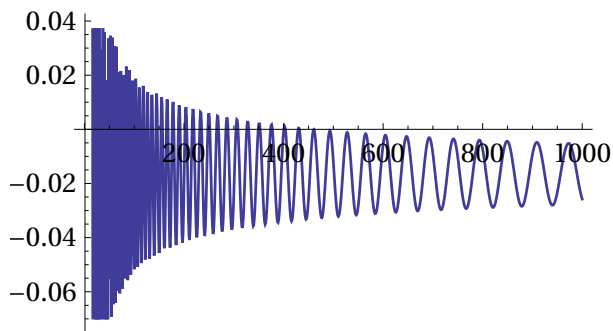


[10000]= -0.0007743076968254169329
 [100000]= 0.0004744262043307513350
 [1000000]= 0.0003134308227507082872
 [10000000]= 0.0001086453122232273349
 [100000000]= 0.0000222759238317110844
 converge

(92.4919 +0.01=92.5019)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(92.5019) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(92.5019) \ln(2n)]}{(2n)^{0.5}} \right] \quad (86)$$

= -0.025769922882814007897222100511552408....

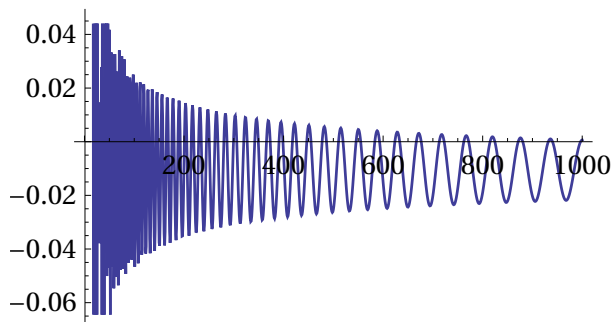


[10000]=-0.0176244246733206419431
 [100000]=-0.0161651034310129684823
 [1000000]=-0.0162259716204928086669
 [10000000]=-0.0164022678319018025417
 [100000000]=-0.0164859373527452453264
 not converge

(The axis is $94.6513 - 0.01 = 94.6413$)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(94.6413) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(94.6413) \ln(2n)]}{(2n)^{0.5}} \right] \quad (87)$$

= 0.000660819168786540468218909859131396....



[10000] = -0.0121569785214179423849

[100000] = -0.0112000894592297842861

[1000000] = -0.0101682718652411838156

[10000000] = -0.0105313846942306915677

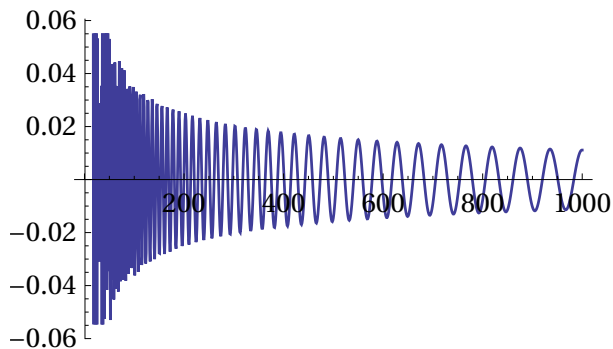
[100000000] = -0.0105406836417775116865

not converge

(94.6513 is nontrivial zero value as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(94.6513) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(94.6513) \ln(2n)]}{(2n)^{0.5}} \right] \quad (88)$$

= 0.011127005476330245290336596568709....



[10000] = -0.0013765254567662944633

[100000] = -0.0008392212363509909913

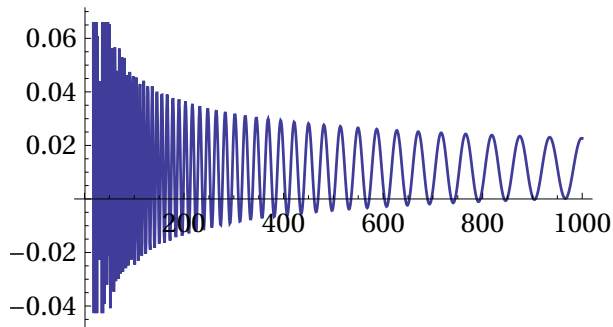
[1000000] = 0.0002788508501267524431

[10000000]= -0.0000497038044914837129
 [100000000]=-0.0000309521760194209424
 converge

(4.6513 +0.01=94.6613)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(94.6613) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(94.6613) \ln(2n)]}{(2n)^{0.5}} \right] \quad (89)$$

= 0.0226177350640789660336991357925295....

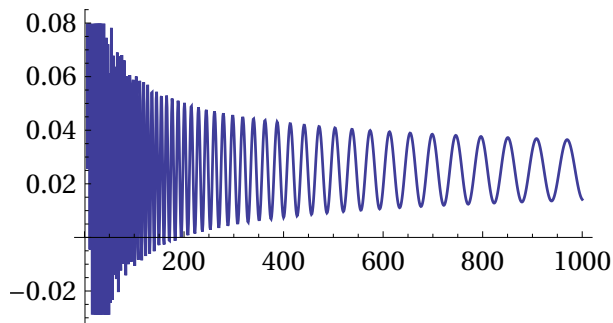


[10000]=0.0105060236444533584843
 [100000]=0.0106224946041767430438
 [1000000]=0.0118081762350637931719
 [10000000]=0.0115210923270080024122
 [100000000]=0.0114690425146854717980
 not converge

(95.8706 -0.01=95.8606)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(95.8606) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(95.8606) \ln(2n)]}{(2n)^{0.5}} \right] \quad (90)$$

= 0.0141726314708569701042096332852576....

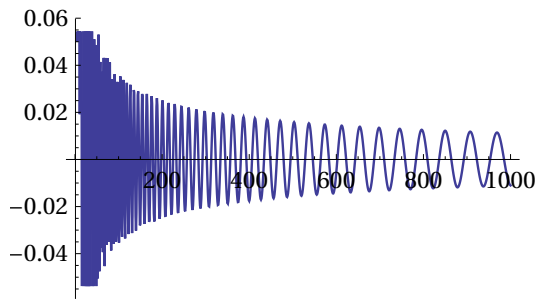


[10000]=0.0222087165335923750198
 [100000]=0.0249554363954456182029
 [1000000]=0.0253503637991626534776
 [10000000]=0.0252465303669947294107
 [100000000]=0.0251620072925927106000
 not converge

(95.8706 non-trivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(95.8706) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(95.8706) \ln(2n)]}{(2n)^{0.5}} \right] \quad (91)$$

= -0.011014033824321856717273464621484....

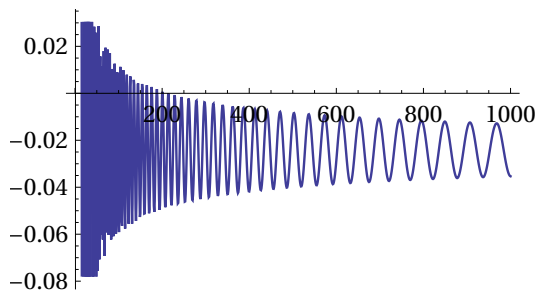


[10000]= -0.0026317155444329789170
 [100000]= 0.0000402283252831486376
 [1000000]= 0.0003377731160845019081
 [10000000]= 0.0001959498109393056735
 [100000000]= 0.0001062174084937451399
 converge

(95.8706 +0.01=95.8806)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(95.8806) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(95.8806) \ln(2n)]}{(2n)^{0.5}} \right] \quad (92)$$

= -0.0353349835789649803594929182725300....

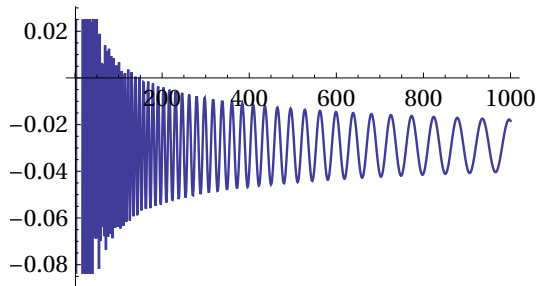


[10000]=-0.0266439074358246347218
 [100000]=-0.0240727000624901266157
 [1000000]=-0.0238785193788296559725
 [10000000]=-0.0240561535769304446486
 [100000000]=-0.0241487448061668240340
 not converge

(98.8312 -0.01=98.8212)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(98.8212) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(98.8212) \ln(2n)]}{(2n)^{0.5}} \right] \quad (93)$$

= -0.01836716410892171545340072825816205....

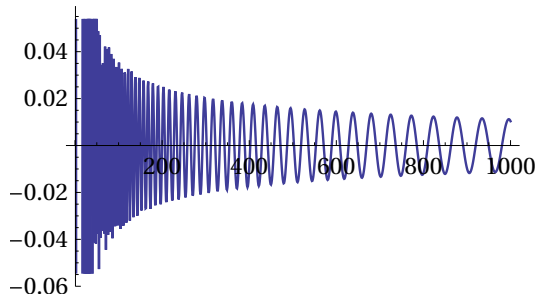


[10000]=-0.0292518955508751753170
 [100000]=-0.0301065407422408601312
 [1000000]=-0.0291306835944684996975
 [10000000]=-0.0289089284578080280008
 [100000000]=-0.0289757311462570422977
 not converge

(98.8312 non-trivial zero value. as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(98.8312) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(98.8312) \ln(2n)]}{(2n)^{0.5}} \right] \quad (94)$$

= 0.01035763665582629861002788662670953735774....

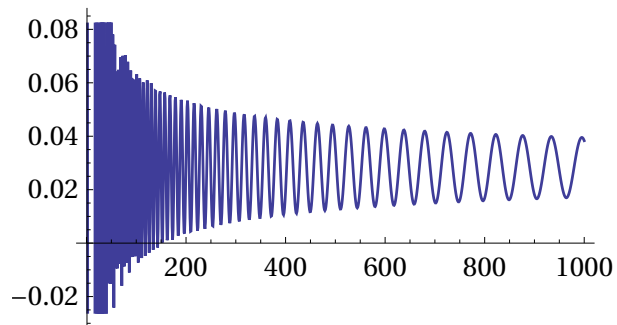


[10000]=-0.0005812758455654100289
 [100000]=-0.0011009283190770852157
 [1000000]=-0.0000636630925465695460
 [10000000]=0.0001183386232722523221
 [100000000]=0.0000372821209876205499
 converge

(98.8312 +0.01=98.8412)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(98.8412) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(98.8412) \ln(2n)]}{(2n)^{0.5}} \right] \quad (95)$$

= 0.038336463236695226503961208870407837....



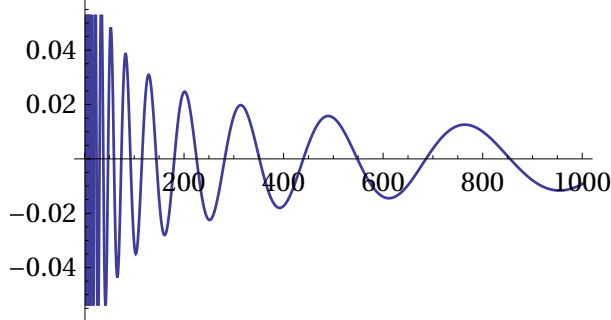
[10000]=0.0274089479801120014524
 [100000]=0.0272350581913820416480
 [1000000]=0.0283187887816494579529
 [10000000]=0.0284564818222056009622
 [100000000]=0.0283632866205242029078
 not converge

Chapter 2

(The axis is 0.5 -0.0001)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(14.1347) \ln(2n-1)]}{(2n-1)^{0.4999}} - \frac{\cos[(14.1347) \ln(2n)]}{(2n)^{0.4999}} \right] \quad (96)$$

= -0.009257840509601691345415572118652270020349....

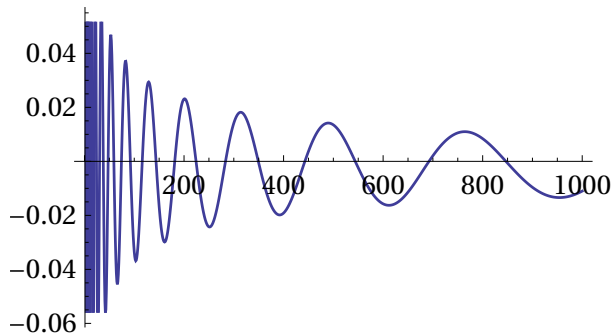


[10000] =0.0004507987473490796242
 [100000] =0.0008914259539826629910
 [1000000] =0.0000369560416503415042
 [10000000] =-0.0002376640949813201248
 not converge

(The axis is 0.5 -0.001)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(14.1347) \ln(2n-1)]}{(2n-1)^{0.499}} - \frac{\cos[(14.1347) \ln(2n)]}{(2n)^{0.499}} \right] \quad (97)$$

= -0.01101289662827007626840667504580326470803....

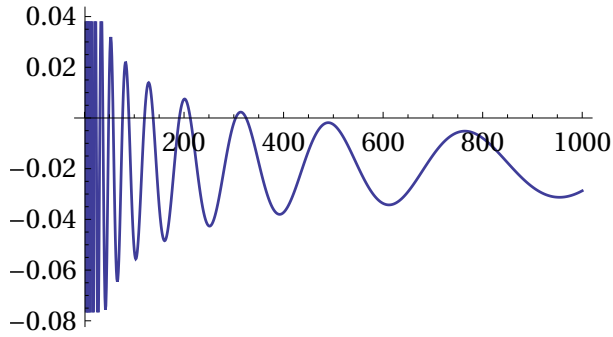


[10000] =-0.0012362724913637813257
 [100000] =-0.0007894351938749065867
 [1000000] =-0.0016528658873606642214
 [10000000] =-0.0019311939413460994797
 not converge

(The axis is 0.5 -0.01)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(14.1347) \ln(2n - 1)]}{(2n - 1)^{0.49}} - \frac{\cos[14.1347 \ln(2n)]}{(2n)^{0.49}} \right] \quad (98)$$

= -0.0287246146425618261....

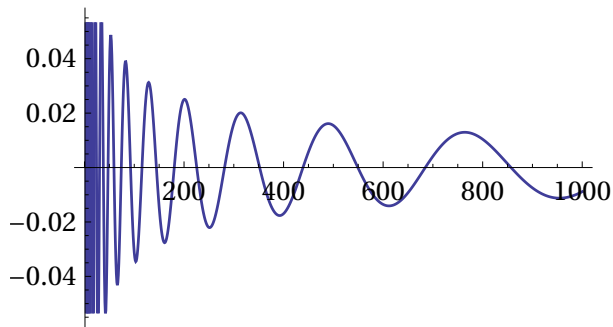


[10000]= -0.0182412463962976847953
 [100000]= -0.0177277053736920320315
 [1000000]= -0.0186860009565473737803
 [10000000]= -0.0190042870176894175549
 [100000000]= -0.0189917517130979707218
 not converge

(The axis is 0.5 as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(14.1347) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[14.1347 \ln(2n)]}{(2n)^{0.5}} \right] \quad (99)$$

-0.00906301367133582151....



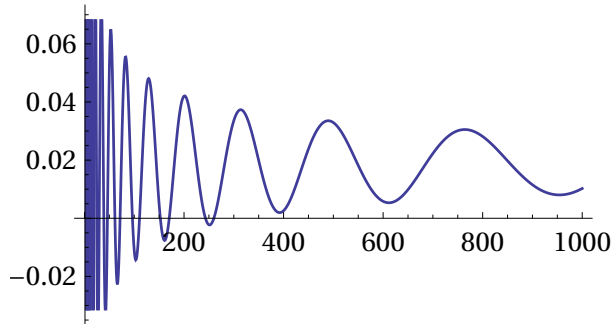
[10000]=0.0006381011115495365026
 [100000]=0.0010780432416684295090

[1000000]=0.0002245632899122298001
 [10000000]=-0.0000496479275200912434
 [100000000]=-0.0000382288508812898928
 converge

(The axis is 0.5 +0.01)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(14.1347) \ln(2n - 1)]}{(2n - 1)^{0.51}} - \frac{\cos[14.1347 \ln(2n)]}{(2n)^{0.51}} \right] \quad (100)$$

= 0.01024008264902787325....

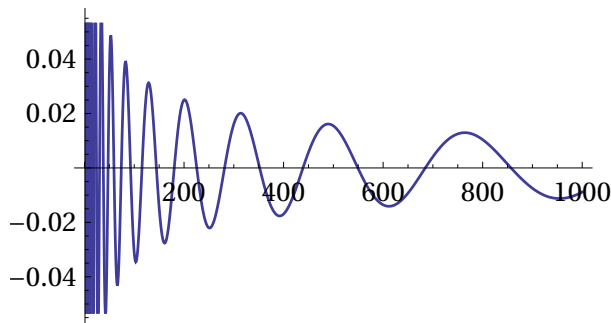


[10000]=0.0192176082247373404555
 [100000]=0.0195937840748259088641
 [1000000]=0.0188337913412248876555
 [10000000]=0.0185975339572469408611
 [100000000]=0.0186078662584906844024
 not converge

(The axis is 0.5 +0.0001)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(14.1347) \ln(2n - 1)]}{(2n - 1)^{0.5001}} - \frac{\cos[(14.1347) \ln(2n)]}{(2n)^{0.5001}} \right] \quad (101)$$

= -0.008868222680406964769889406332068608994503

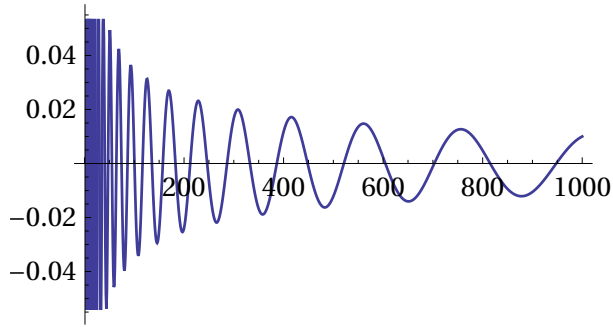


[10000] = 0.0008253734918036038232
 [100000] = 0.0012646315271827121996
 [1000000] = 0.0004121404043212865422
 [10000000] = 0.0001383374951391049966
 [100000000] = 0.0001497455169634955138
 not converge

(The axis is 0.5 -0.0001)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.4999}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.4999}} \right] \quad (102)$$

= 0.01000193209323910616719482024600681797053

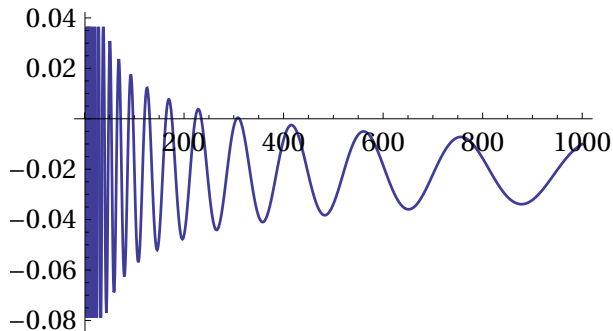


[10000] = -0.0025130531442483245580
 [100000] = -0.0007592596129060642015
 [1000000] = 0.0001734116036285227871
 [10000000] = -0.0001707549672368732893
 [100000000] = -0.0002018563265390039933
 not converge

(The axis is 0.5 -0.01)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.49}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.49}} \right] \quad (103)$$

= -0.010077623957692851438

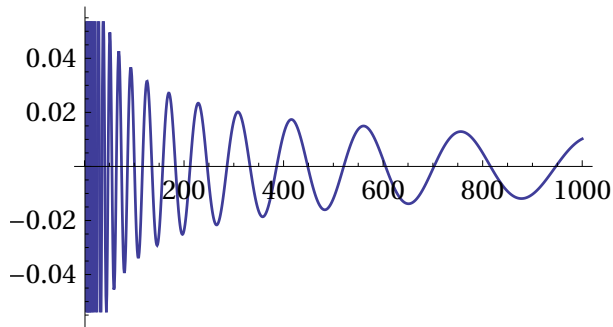


[10000]=-0.0236290071420571581862
 [100000]=-0.0217095847284566982605
 [1000000]=-0.0206482298290876220559
 [10000000]=-0.0210456267984390245351
 [100000000]=-0.0210832778695941719382
 not converge

(The axis is 0.5 as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.5}} \right] \quad (104)$$

= 0.010203050972979707

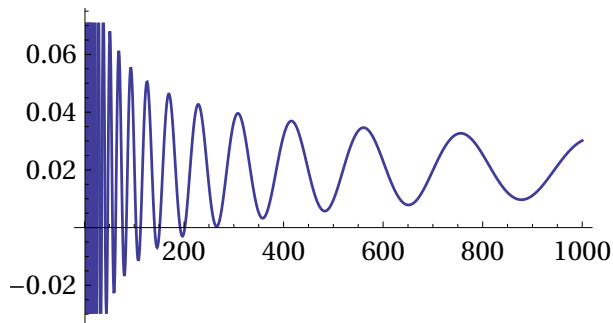


[10000]=-0.0023018856406172511289
 [100000]=-0.0005496921657573621087
 [1000000]=0.0003817627764431225329
 [10000000]=0.0000380957809653702473
 [100000000]=0.0000070544092957442871
 converge

(The axis is 0.5 +0.01)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n - 1)]}{(2n - 1)^{0.51}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.51}} \right] \quad (105)$$

= 0.0301437250660519783

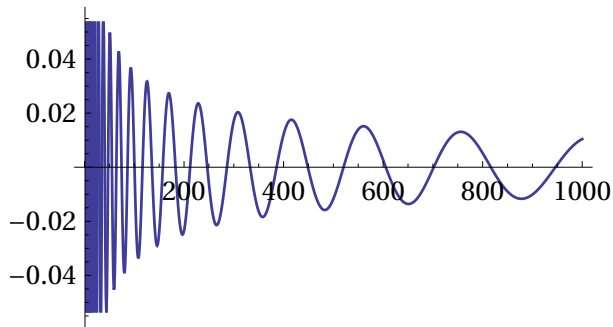


[10000]=0.0186034964827524601505
 [100000]=0.0202026487431074264212
 [1000000]=0.0210202028664549234183
 [10000000]=0.0207230001134234807780
 [100000000]=0.0206974093289953205155
 not converge

(The axis is 0.5 +0.0001)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.5001}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.5001}} \right] \quad (106)$$

= 0.01040413585093161542948171527344683833200

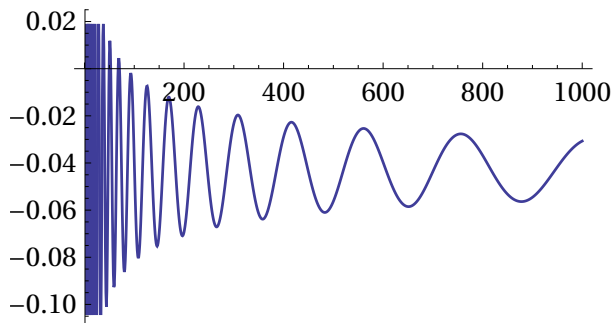


[10000]= -0.0020907603079233774354
 [100000]= -0.0003401654715591180544
 [1000000]= 0.0005900747938683002011
 [10000000]= 0.0002469066484824651792
 [100000000]= 0.0002159251488904244615
 not converge

(The axis is 0.5 -0.02)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.48}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.48}} \right] \quad (107)$$

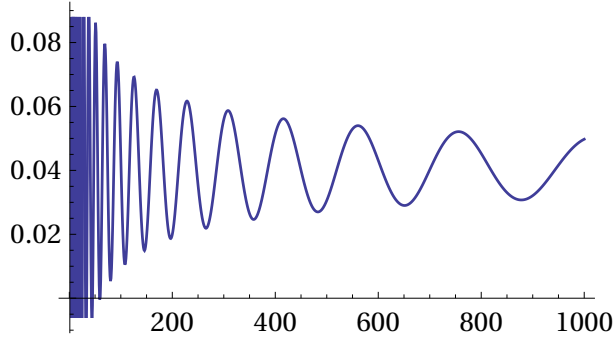
= -0.03070111267169493669615238336936340134803



(The axis is 0.5 +0.02)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.52}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.52}} \right] \quad (108)$$

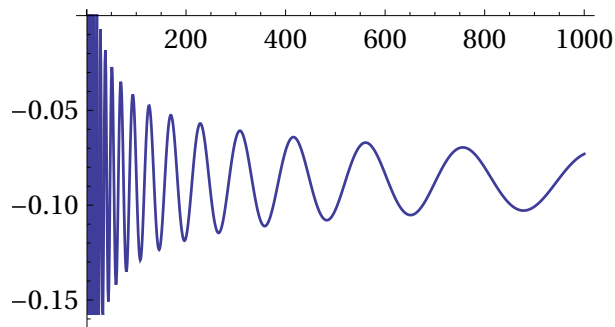
$$= 0.01040413585093161542948171527344683833200$$



(The axis is 0.5 -0.04)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.46}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.46}} \right] \quad (109)$$

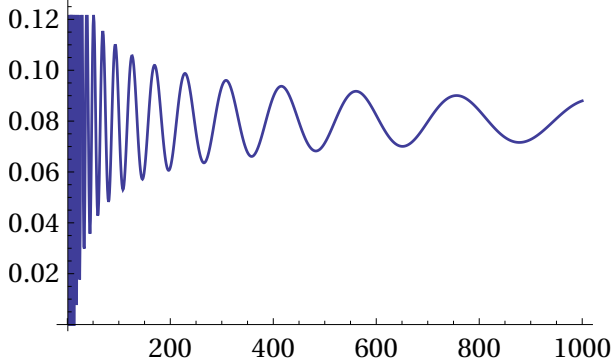
$$= -0.07298661059381196497204117045350103709776$$



(The axis is 0.5 +0.04)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.54}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.54}} \right] \quad (110)$$

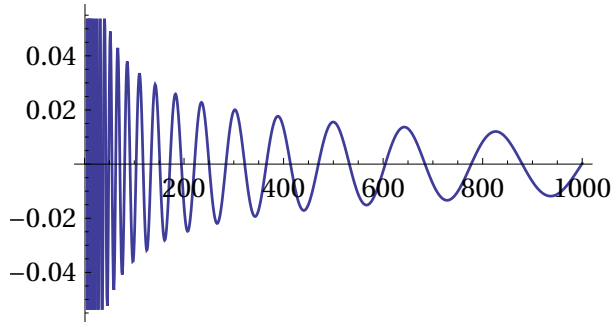
= 0.08795681187328022067573686113169838407802



(The axis is 0.5 -0.0001)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(25.0108) \ln(2n-1)]}{(2n-1)^{0.4999}} - \frac{\cos[(25.0108) \ln(2n)]}{(2n)^{0.4999}} \right] \quad (111)$$

= 0.0002340683951231753530213741769410219031263



[10000]= 0.0028566554290930883629

[100000]= 0.0006906044201284139818

[1000000]= -0.0002709625732176824389

[10000000]= -0.0003618649905174442603

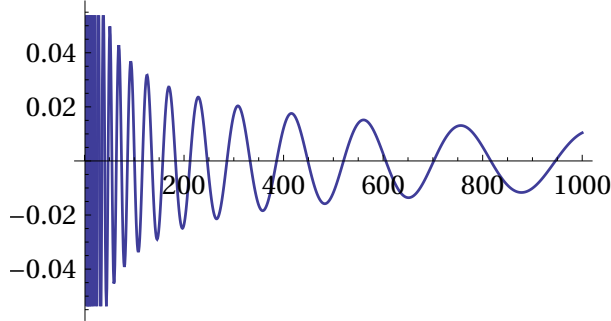
[100000000]= -0.0002947302460572199471

not converge

(The axis is 0.5 as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(25.0108) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(25.0108) \ln(2n)]}{(2n)^{0.5}} \right] \quad (112)$$

$$= 0.000416329417915032594395358125814297943316$$



$$[10000] = 0.0030362058419032560315$$

$$[100000] = 0.0008720793230033872714$$

$$[1000000] = -0.0000883131280091895720$$

$$[10000000] = -0.0001790612933318289318$$

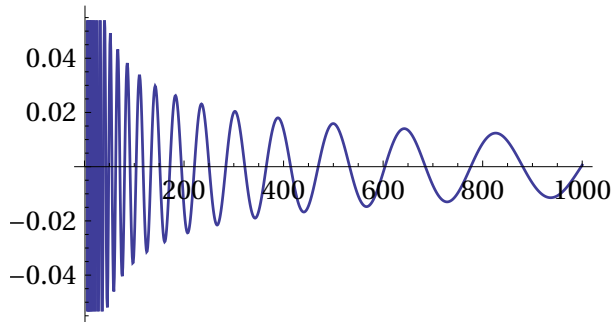
$$[100000000] = -0.0001120322912827072107$$

converge

(The axis is 0.5 +0.0001)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(25.0108) \ln(2n-1)]}{(2n-1)^{0.5001}} - \frac{\cos[(25.0108) \ln(2n)]}{(2n)^{0.5001}} \right] \quad (113)$$

$$= 0.0005985544783954206970746192803864414197669$$



$$[10000] = 0.0032157230626145682367$$

$$[100000] = 0.0010535193966828991421$$

$$[1000000] = 0.0000943000529583720780$$

$$[10000000] = 0.0000037058782494527016$$

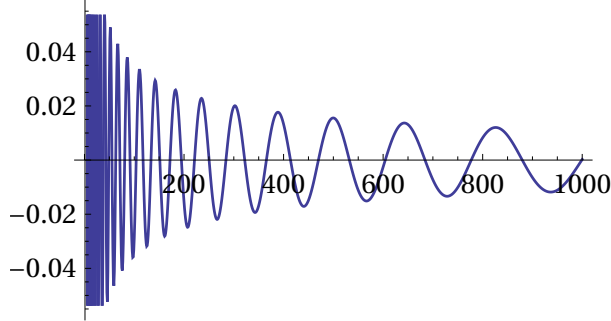
$$[100000000] = 0.0000706293020917810922$$

not converge

(The axis is 0.5 -0.0001)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(25.0108) \ln(2n-1)]}{(2n-1)^{0.4999}} - \frac{\cos[(25.0108) \ln(2n)]}{(2n)^{0.4999}} \right] \quad (114)$$

$$= 0.0002340683951231753530213741769410219031263$$

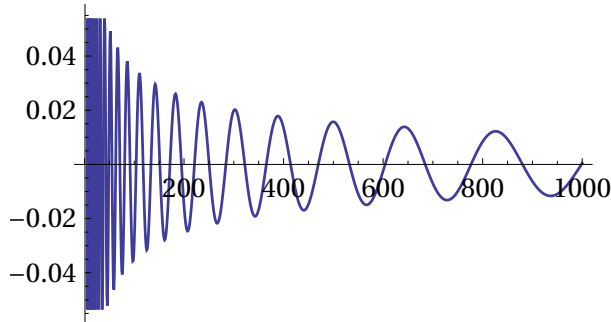


[10000]= 0.0028566554290930883629
 [100000]= 0.0006906044201284139818
 [1000000]= -0.0002709625732176824389
 [10000000]= -0.0003618649905174442603
 [100000000]= -0.0002947302460572199471
 not converge

(The axis is 0.5 as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(25.0108) \ln(2n-1)]}{(2n-1)^{0.5}} - \frac{\cos[(25.0108) \ln(2n)]}{(2n)^{0.5}} \right] \quad (115)$$

$$= 0.0005985544783954206970746192803864414197669$$

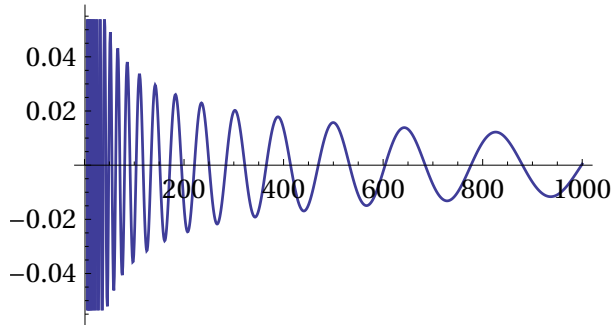


[10000]= 0.0030362058419032560315
 [100000]= 0.0008720793230033872714
 [1000000]= -0.0000883131280091895720
 [10000000]= -0.0001790612933318289318
 [100000000]= -0.0001120322912827072107
 converge

(The axis is 0.5 +0.0001)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(25.0108) \ln(2n - 1)]}{(2n - 1)^{0.5001}} - \frac{\cos[(25.0108) \ln(2n)]}{(2n)^{0.5001}} \right] \quad (116)$$

$$= 0.0005985544783954206970746192803864414197669$$

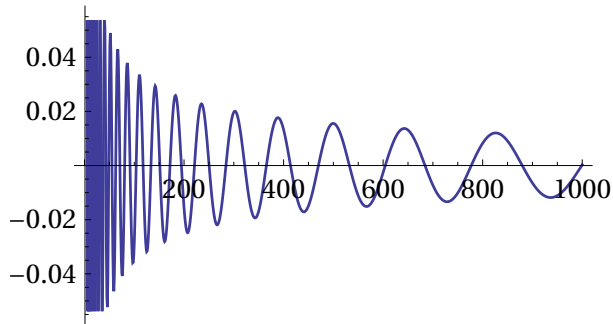


[10000]= 0.0032157230626145682367
 [100000]= 0.0010535193966828991421
 [1000000]= 0.0000943000529583720780
 [10000000]= 0.0000037058782494527016
 [100000000]=0.0000706293020917810922
 not converge

(The axis is 0.5 -0.0001)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(30.4249) \ln(2n - 1)]}{(2n - 1)^{0.4999}} - \frac{\cos[(30.4249) \ln(2n)]}{(2n)^{0.4999}} \right] \quad (117)$$

$$= -0.003621872781749893703241471240183001932850$$

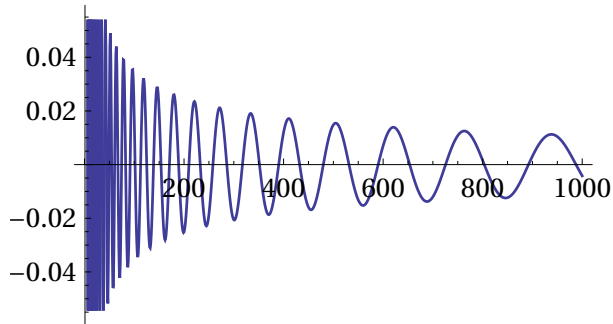


[10000]= -0.0036857273183505895667
 [100000]= -0.0011679318936974449148
 [1000000]= -0.0002732164013939200088
 [10000000]= -0.0001916048617219040962
 [100000000]=-0.0002507092585473904211
 not converge

(The axis is 0.5 +0.0001)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(30.4249) \ln(2n-1)]}{(2n-1)^{0.5001}} - \frac{\cos[(30.4249) \ln(2n)]}{(2n)^{0.5001}} \right] \quad (118)$$

$$= -0.004196378625761797127850868428917737781222$$

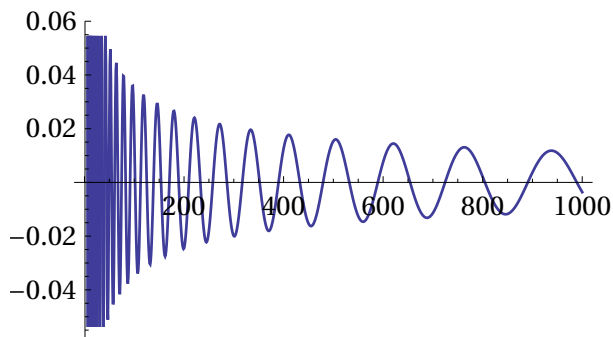


[10000]= -0.0031104335665254672846
 [100000]= -0.0005972140862021245314
 [1000000]= 0.0002953148853648278642
 [10000000]= 0.0003766474981249263716
 [100000000]=0.0003177261764005903698
 not converge

(The axis is 0.5 -0.0001)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(32.9351) \ln(2n-1)]}{(2n-1)^{0.4999}} - \frac{\cos[(32.9351) \ln(2n)]}{(2n)^{0.4999}} \right] \quad (119)$$

$$= -0.006520873872352604350683258279120869089259$$



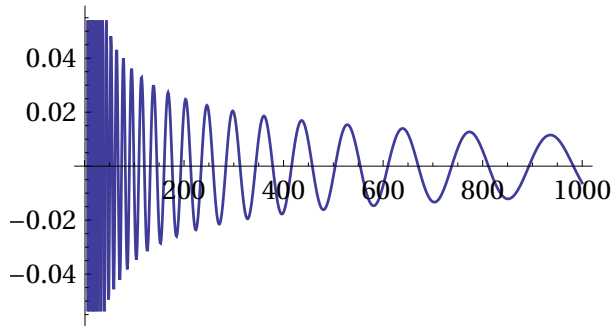
[10000]= -0.0033265870155339848958
 [100000]= -0.0014259997537920011002
 [1000000]= -0.0006499340047967802842

[10000000]= -0.0003952687549852392001
 [100000000]= -0.0003269916339072487417
 not converge

(The axis is 0.5 as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(32.9351) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(32.9351) \ln(2n)]}{(2n)^{0.5}} \right] \quad (120)$$

= -0.006211350232338428548135531520246292646547

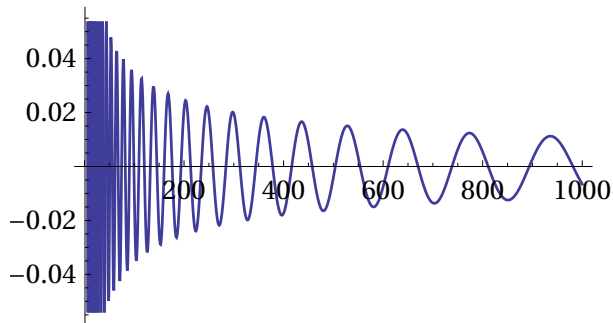


[10000]= -0.0030187974933814079245
 [100000]= -0.0011198358022496601640
 [1000000]= -0.0003446395140902848734
 [10000000]= -0.0000903248133043883523
 [100000000]= -0.0000221594074273025880
 converge

(The axis is 0.5 +0.0001)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(32.9351) \ln(2n - 1)]}{(2n - 1)^{0.5001}} - \frac{\cos[(32.9351) \ln(2n)]}{(2n)^{0.5001}} \right] \quad (121)$$

= -0.005901905538729304253398373095610640138367

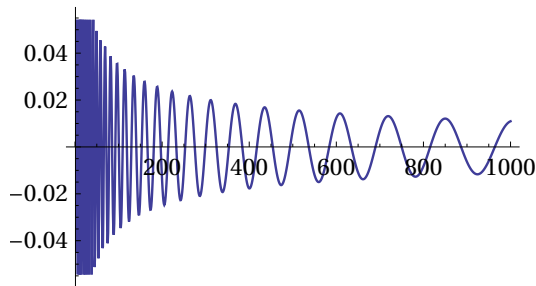


[10000]= -0.0027110862859639232522
 [100000]= -0.0008137488683290382187
 [1000000]= -0.0000394210923560222855
 [10000000]= 0.0002145435362777440636
 [100000000]= 0.0002825974089321377095
 not converge

(The axis is 0.5 -0.0001)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(37.5862) \ln(2n - 1)]}{(2n - 1)^{0.4999}} - \frac{\cos[(37.5862) \ln(2n)]}{(2n)^{0.4999}} \right] \quad (122)$$

= 0.01086045647842345848663450544439839131658....

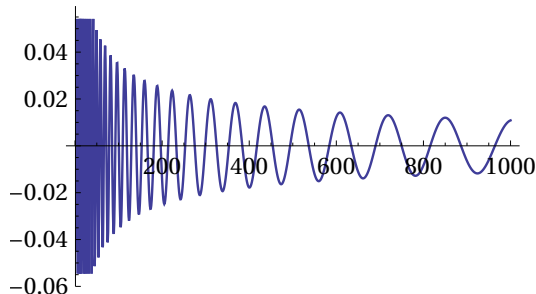


[10000]= -0.0002867678530919621984
 [100000]= -0.0012464273837236416586
 [1000000]= -0.0002241654742639324536
 [10000000]= -0.0000308032050931214237
 [100000000]= -0.0001146022572867225783
 not converge

(The axis is 0.5 as it is.)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(37.5862) \ln(2n - 1)]}{(2n - 1)^{0.5}} - \frac{\cos[(37.5862) \ln(2n)]}{(2n)^{0.5}} \right] \quad (123)$$

= 0.01094179539026480827799190174599114281438....

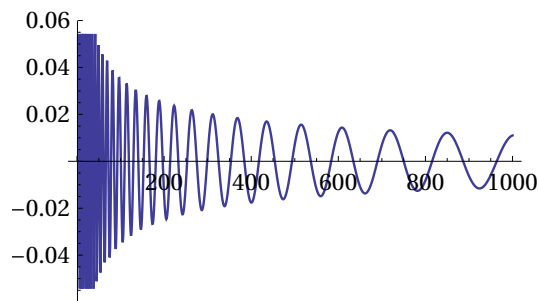


[10000]= -0.0001969237257829878525
 [100000]= -0.0011553773481789157869
 [1000000]= -0.0001343416061451328184
 [10000000]= 0.0000587167172489908842
 [100000000]= -0.0000249459169129748873
 converge

(The axis is 0.5 +0.0001)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(37.5862) \ln(2n - 1)]}{(2n - 1)^{0.5001}} - \frac{\cos[(37.5862) \ln(2n)]}{(2n)^{0.5001}} \right] \quad (124)$$

= 0.01102313386504823888442448029869892963767....



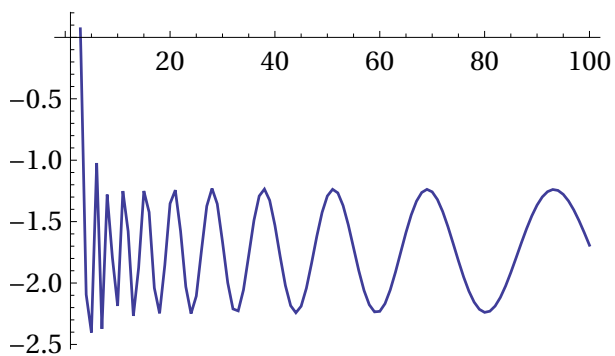
[10000]= -0.0001070865329218817518
 [100000]= -0.0010643357530222712949
 [1000000]= -0.0000445247128895299153
 [10000000]= 0.0001482301450447530726
 [100000000]=0.0000647037088475878962

Chapter 3

(The axis is 0.00001)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.00001}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.00001}} \right] \quad (125)$$

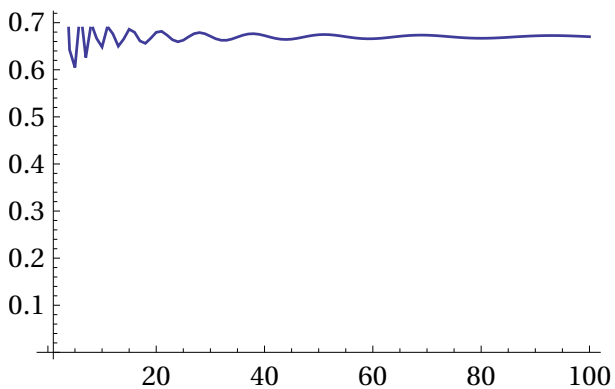
= -1.692375195790290774684627139614558154866....



(The axis is 0.99999)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.99999}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.99999}} \right] \quad (126)$$

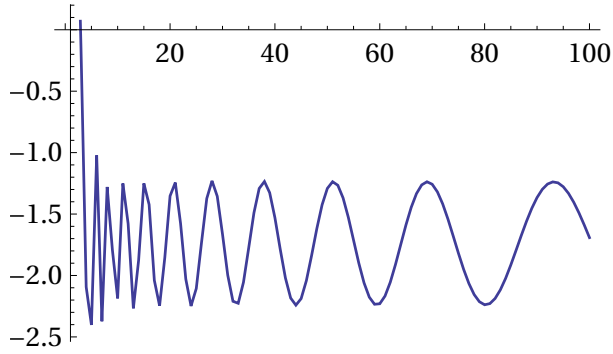
= 0.6702289830344975328514736163562128619393....



(The axis is 0.0001)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.0001}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.0001}} \right] \quad (127)$$

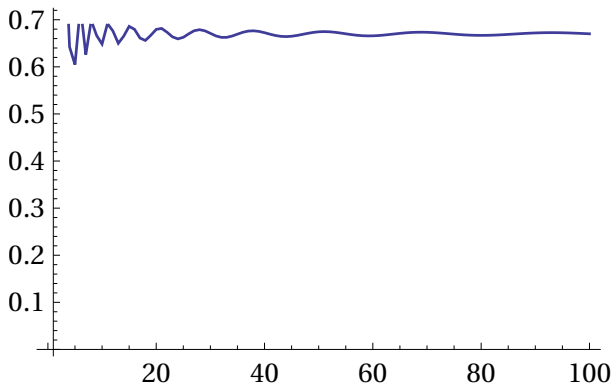
= -1.691914810408940984710921687899051853499....



(The axis is 0.9999)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.9999}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.9999}} \right] \quad (128)$$

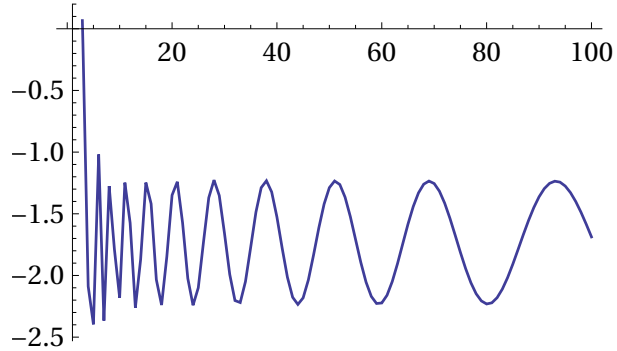
= 0.6701579473614340476047734004873606364368....



(The axis is 0.001)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.001}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.001}} \right] \quad (129)$$

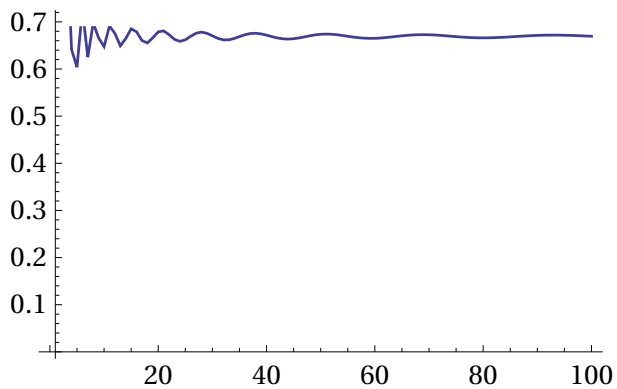
= -1.687314830139069704606318113596237362764....



(The axis is 0.999)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.999}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.999}} \right] \quad (130)$$

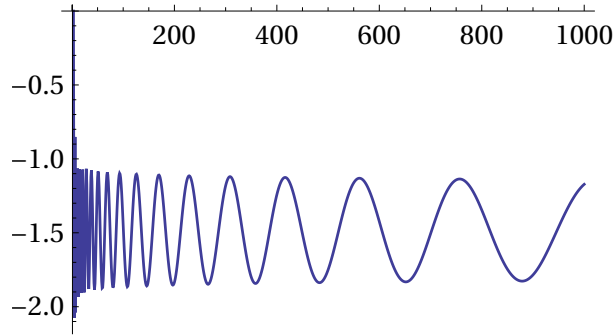
= 0.6694468942442123041861955261085612683792....



(The axis is 0.05)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.05}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.05}} \right] \quad (131)$$

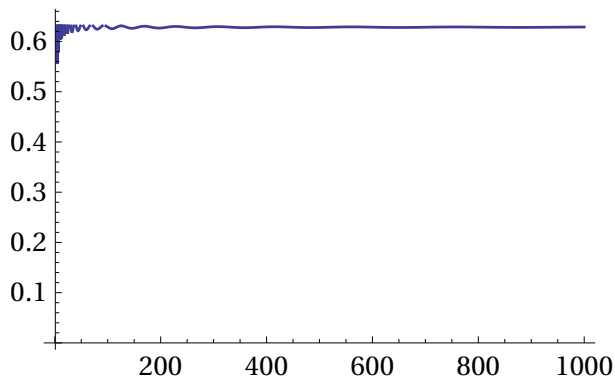
= -1.172026278004103809897515559526482605892....



(The axis is 0.95)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.95}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.95}} \right] \quad (132)$$

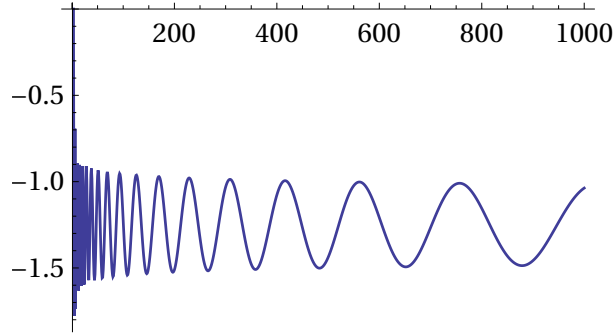
= 0.628793327503768552125482769229183595256....



(The axis is 0.1)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.1}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.1}} \right] \quad (133)$$

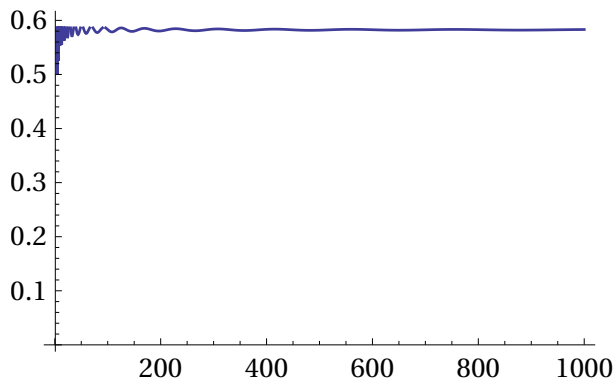
= -1.037181038243812266182221182644218150841....



(The axis is 0.9)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.9}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.9}} \right] \quad (134)$$

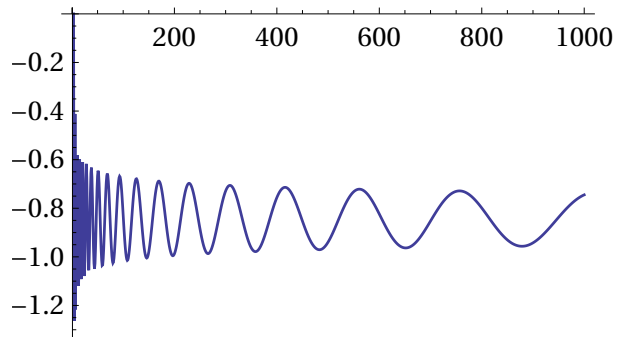
= 0.5830911596701825120483648848326651479726....



(The axis is 0.2)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.2}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.2}} \right] \quad (135)$$

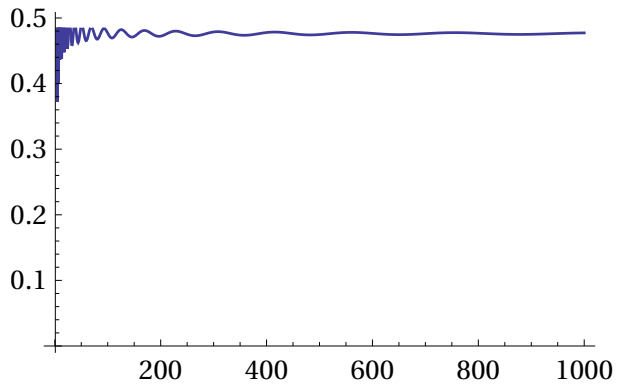
$$= -0.7447935509966950781141448637295280455100\dots$$



(The axis is 0.8)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.8}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.8}} \right] \quad (136)$$

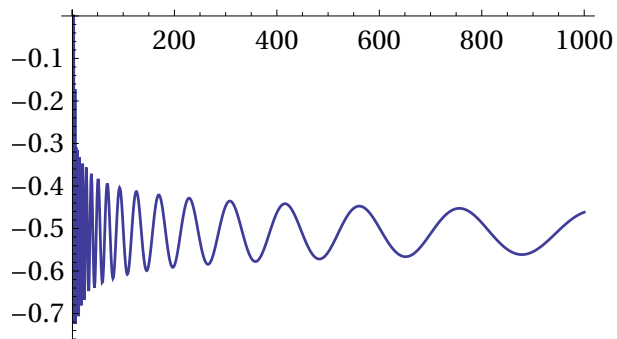
$$= 0.4772629985235775927819684410214800870668\dots$$



(The axis is 0.3)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.3}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.3}} \right] \quad (137)$$

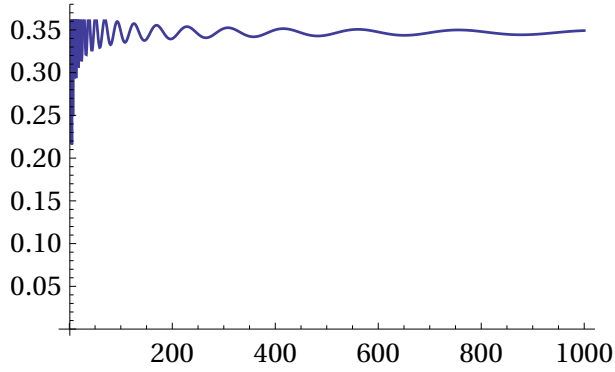
= -0.4616959596387926971677897774383840299575....



(The axis is 0.7)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.7}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.7}} \right] \quad (138)$$

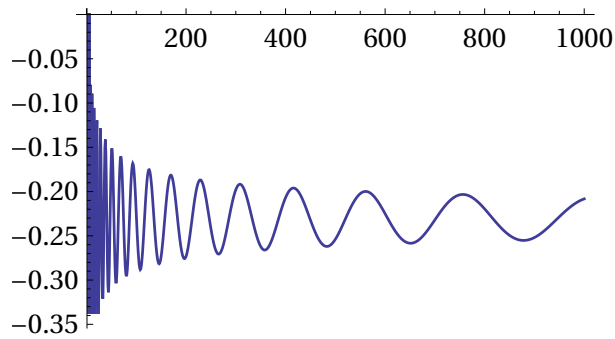
= 0.3491777768362168191173784663503557392773....



(The axis is 0.4)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.4}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.4}} \right] \quad (139)$$

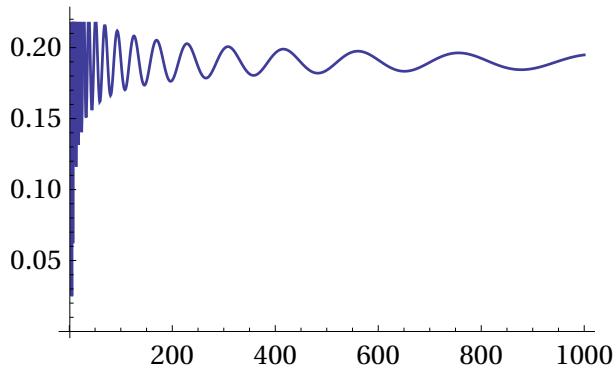
= -0.2082789088719372836582869506635596589817....



(The axis is 0.6)

$$\sum_{n=1}^{1000} \left[\frac{\cos[(21.022) \ln(2n-1)]}{(2n-1)^{0.6}} - \frac{\cos[(21.022) \ln(2n)]}{(2n)^{0.6}} \right] \quad (140)$$

= 0.194859060814332403077140728945857530200....



conclusion

I declare that I made the following formula.

if $c=1/2$, and x are non-trivial zero values.

$$\sum_{n=1}^{\infty} \left[\frac{\cos(x \ln(2n-1))}{(2n-1)^c} - \frac{\cos(x \ln(2n))}{(2n)^c} \right] = 0 \quad (141)$$

$$\sum_{n=1}^{\infty} \left[\frac{\sin(x \ln(2n-1))}{(2n-1)^c} - \frac{\sin(x \ln(2n))}{(2n)^c} \right] = 0 \quad (142)$$

References

- [1] B.Riemann.: Uber die Anzahl der Primzahlen unter einer gegebenen Grosse, Mon. Not. Berlin Akadpp.671-680 (1859)
- [2] John Derbyshire.: Prime Obsession: Bernhard Riemann and The Greatest Unsolved Problem in Mathematics, Joseph Henry Press(2003)
- [3] S.Kurokawa.: Riemann hypothesis, Japan Hyouron Press(2009)
- [4] Marcus du Sautoy.: The Music of The Primes, Zahar Press(2007)

key words

Riemann hypothesis, Series