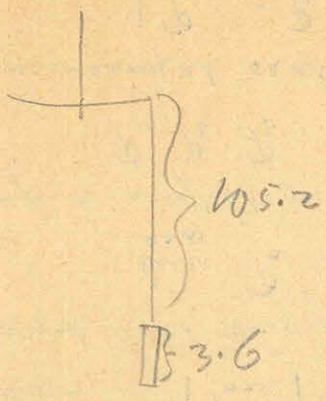
Ms 5106/6-9. Eötvös L. levelei gyűjteménye

Vegas

Las Vegas

Rèsuq



Mereq rezenssal

7.4 11.6
8.1 10.9
8.9 10.3
9.2 10.1
42.9
10.72

9.5
43.1
8.62

Eqsenuq: 1.05 + 8.62
= 9.67

Mereq mero einssal

10.2 13.6
10.8 13.1
11.2 12.7
39.4
13.13

43.9
10.98

Eqsenuq: 10.98 + 1.07
= 12.05

Mereuq: 25.25gr.

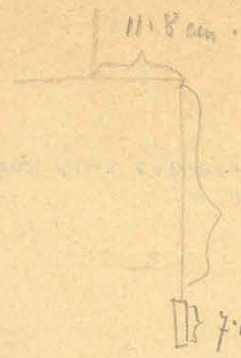
7.8 11.5
8.1 11.1
8.6
24.5 22.6
8.17 11.30

Mereuq 25.27gr.

Eqsenuq: 8.17 + 1.56 = 9.73

0.02 gramm - 2.32 onkspren
0.06 onkspren à 6 : 232 = 0.03

Rèsuq = 25.270gr.



Rèsuq Olanuq

Mereq olanuq i teràval

11.2 11.2
8.2 8.2
11.0 11.0
8.5 10.8
8.7 10.8
25.4 8.7 10.6
8.37 43.6
10.6 10.90

Eqsenuq: 8.37 + 1.26
= 9.63

Mereq Téra olanuq mero einssal

12.0
6.1
11.9
6.7
11.8
6.2
18.4 11.7
6.13 47.4
11.95

Mereuq: 25.90gr.

12.7 17.7
13.1 17.1
13.6 16.8
13.9 16.3
67.9
14.2 16.98
67.5
12.50

Eqsenuq: 12.50 + 2.24
14.74

Mereuq 25.85gr.

0.05gr. - 5.75 onkspren
0.04 64 : 57.5 = 0.1

Olanuq = 25.895 gr.

szorzat alatt a következő határértéket értjük:

$$\lim_{n=\infty} \prod_{\mu=0}^{n} \lambda_\mu = \prod_{\mu=0}^{\infty} \lambda_\mu$$

E téren megállapítás után az első lényegesebb kérdés az, ~~mikor~~ hogy ezen határérték mikor véges és meghatározott? Annak szükséges és elegendő feltétele, hogy bármely szám δ, minél meghatározhatóbb legyen egy pozitív ν szám oly módon, hogy

$$\left| 1 - \prod_{\mu=n}^{n+k} \lambda_\mu \right| < \delta \quad \ldots \quad (I$$

hacsak $n > \nu$, bármely pozitív egész szám is k. Az I) minden δ alatt elegendő tényező arról, hogy meghatározható egy pozitív H szám oly módon, hogy k minden pozitív egészszámú értékére

$$|P_{n+k}| < H$$

Innen az összetartási feltétel új alakban írható

$$\left| 1 - \frac{P_{n+k}}{P_n} \right| < \delta$$

ha $n > \nu$. Vagy

$$|P_{n+k} - P_n| < |P_n| \delta$$

és $|P_{n+k} - P_n| + P_n < |P_n| (1+\delta)$

de $|P_{n+k} - P_n| + |P_n| \geq |P_{n+k}|$

tehát annál inkább

$$|P_{n+k}| < |P_n| (1+\delta)$$

Ha most

$$H \geq P_n (1+\delta)$$

akkor minden $|P_n|$-nál következő $|P_{n+k}|$ ezen H felső határ alatt marad vagyis $|P_{n+k}| < H$

Most már könnyen kimutatható hogy

$$\lim_{n=\infty} P_n$$

véges és meghatározott, ezen hogy a

$$P_1 \; P_2 \; P_3 \ldots P_n \ldots$$

számsorozat szabályos, vagyis hogy k minden pos. egész értékére

$$|P_{n+k} - P_n| < \delta$$

ha $n > \nu$,

$$W_{n+1} + W_{n+2} + \ldots$$

$$P_{n+1} - P_n + P_{n+2} - P_{n+1} + \ldots$$

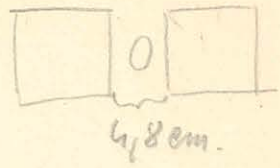
$$|P_{n+k} - P_n|$$

Február 13-án délelőtt Lépő vas cinnal

Gh.-Om. Uszony 240,2

Olvasztott olvatag (Ilnámi Koska)

10h. 45m. 212,9
45 212,9



Mami olvadva tovi.

1h.. 0m. 266,7
5m 266,7

Olvasztó tűzre

4h. 0m. 239,2

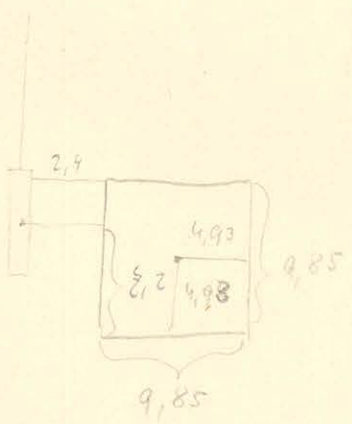
Kalatavol 170,0 Hajókorr 165 – 336

Koska alsó lapjának távolsága a felső nyílástól 116,2 cm.

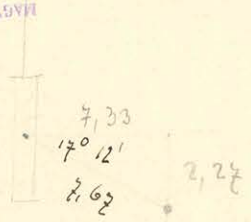
A lebegő súly alsó részének távolsága a felső nyílástól 112,5 cm.

A lemyadó csöbenlevő olvadt toma 7,1 cm.

Ilnámi olvadt Koska súlya: 10645 gr.



3,75
3,75
2,2



52,27 = 0,35560
42,33 = 0,86511
0,49049 -1

0,42120
1,42302

5,153
53,729
58,882

1,76998
0,88499

$2\int \frac{25,895 \cdot 10645}{58,882} 0,955 \cdot 11,8 = \tau \frac{54,1}{1700}$ $\tau = 0,221$

jan 11. Kiyeszarás

Atment 246 m. 4h. 41m. 79.2
39.2
49.4
fordul

4h. 42m 4,15 – 444.3 452.4
71.9
441.2
75.1
768.0
78.2
464.9
31.3
461.2
34.3
458.2
37.5
455.8
40.2
452.9
43.3
450.0
46.2
447.2
49.0
444.3
51.9
441.2
54.2
439.0
fordul

263 beyp bör $T = 9.834$

$D = 0.99394$

~~$a = 0.000629$~~

$a = 0.000\,6625$

4h. 46m. 17.2
27.5
37.2
47.4
57.1

atment 248. 5h. 20m. 51.1
1.0
10.9
fordul

295.2
201.0
294.8
201.4
294.2
202.0
293.2
202.6
293.1
203.1
292.6
203.2
292.0
204.2
291.3
204.8
290.9 96.1
fordul

5h. 23m. 42,08
4 15

5h. 26m. 16.5
26.3
36.1

4917
983
14,75
1967
34,42

5h. 23m 765
344
4208

41m 37,93
2460
– a 2497,9 = 56,5 / 452,4

e

Element 748 a

5 h.	51 m	45·5
		55·3
	52 m.	5·2

762·2
733·2
762·3
733·4
762·2
733·3
762·0
733·9
761·9
734·0
761·8
734·1
761·6
734·3
761·4
734·4
761·2
734·2
761·0
734·9
760·9

26·0

5h 55 – 14,8
20 42,08) 26,1

457 negativ $T = 9 \cdot 801$

$\vartheta = 0 \cdot 99366$

~~$\alpha = 0 \cdot 000\,6491$~~

$\alpha = 0 \cdot 000\,6331$

	55	49·1
		59·1
	56 m.	9·0

$e^{-\alpha 1892,7} = \frac{26,1}{86,5}$

31 = 32,7 c

$$\frac{\text{ﻫ.ﻝ}\quad \text{ﻫ١}\quad \text{٧٩.٢}\quad \text{ﻙ}}{\text{٤ﻝ.}\quad \text{٤٥.}\quad \text{٩.٥}}$$
$$\frac{\text{١ﻝ.}\quad \text{١٤}\quad \text{٣٩.٣}}{}$$
$$٣٥٥٥$$
$$\frac{٨٤٥}{٣٩.٣}$$
$$\frac{\text{٤٤٩.٣} : ٩.٨٣ = \text{٤٥٥.٢}}{٣٩٣٢}$$
$$\frac{٥٦٤٣}{٧٩١٥}$$
$$\frac{\text{٥٧٨٥}}{٧٩١٥}$$
$$\frac{٦٦٤٥}{٦٦٤٥٠}$$
$$\text{٧٧٩.٣} : ٩.٨٢ = ٧٥٦.١$$
$$\frac{٣٤٢٨}{٥٥١٣}$$
$$\frac{٧٩١٥}{٦٠٣٥}$$
$$\frac{٥٨٩٢}{١٣٨٥}$$
$$٧٧٩.٣ : ٩.٢٢ = ٧٥٨.٧$$
$$\frac{٣٩٥٨}{٥٦١٣}$$
$$\frac{٧٨٨٥}{٨٢٨٥}$$
$$\frac{٢٨٣٥}{٧٥٧٥}$$
$$\text{٧٧٩.٣} : ٧٥٢ = ٩.٨٥١$$
$$\frac{٧١١٣}{٣٦٦٣}$$
$$\frac{٣٥٥٥}{٧٥٥٥}$$

$$\frac{\text{ﻫ.ﻝ.}\quad \text{ﻫ.ﻫ}\quad \text{٧٥٢.٧}\quad \text{ﻝ}}{\text{٧٥.٥}\quad \text{٢٥.٥}}$$
$$\frac{\text{٧٥٢.٧} = \text{٢.٥٥٥٢}}{\text{٢١٥٥.١٠٧٧٢}}$$
$$\frac{\text{٧٧٢.٢٥٫٢٧٫٥} : \text{٧٧٩} = \text{٥.٩٩٢٢٣٢}}{\text{٥٥٧١}}$$
$$\frac{٤٣٥٥}{٧٥٧١}$$
$$\frac{٣٢٧٩}{٣١٧٣}$$
$$\frac{١٥٧٧}{٨٩٨}$$
$$\frac{١٦٦٥}{١٣٧٤}$$
$$\frac{٣١٨٥}{}$$
$$\text{ﻝ} = \text{٥.٥٥٢٨٥٣}$$
$$\text{٢٢ﻝ} = \text{٥.٧٧١٣٨}$$
$$\frac{٤٣٢٢٨}{٨٥٣٥٠٣}$$
$$\text{ﻫ} = \text{٥.٩٩١٢٢}$$
$$\frac{٨١٢٣٠٧}{}$$

$$\frac{\text{ﻫ.ﻝ.}\quad \text{٧٨.٧٥}}{\text{٧٢.٥}\quad \text{٩.٥}}$$
$$\frac{\text{٧٨.٣٥}}{}$$
$$\text{٢٤٣.٥} : \text{١٢.٩٢}$$
$$\frac{٢٤٣}{٢٥٥}$$
$$\frac{١٩٩}{٤٥}$$
$$\frac{٩.٢٢}{٩.٨٢}$$
$$\frac{٩.٨٣}{٩.٨٢}$$
$$\frac{٩.٢٢}{}$$

4h. 21m. 29·7
4h. 46m 52·1
5m. 23·4

327·4 : 33 = 9·92
297
304
297
70

4h. 41m. 29·7 K
3h. 24m. 36·1
43 6·4

2586·4 : 98 = 263·9
196
626
588
384
294
900

2586·4 : 985 = 262·6
1970
6164
5910
2540
1980
5600

2586·4 : 263 = 9·834
2368
2194
2104
900
789
1110

452·4 $\sqrt[255]{}$ = 96·1

452·4 = 2·655552
196·1 = 1·982882
1280
0·32220-1

254·32220 : 255 = 0·99236i
2295
2482
2295
1887
1785
922
765
1570
1530
400

$\sqrt{}$ = 0·002639
$\sqrt[3]{}$ = 0·421444-3
63828
0·28366-3
$\sqrt{}$ = 0·99283
29093-4

5h. 20m 51·1
24m. 36·1
3m. 45·0

225·8 : 23 = 9·82
207
180
161
190

291·3 86·5 93202 99898 995 29994 63208 43·4 242·9
204·8 86·1 93500
290·9

januar 16 Jürgen alle

3·8
3·2

0·35 × 3·4
105
140
1·190

3·8
0·37 × 3·4
111
148
1·258

4·0
0·4 × 3·4
13·6

4·1 × 3·4
136
1·394

2·8
2·8
5·4
0·54 × 1·25
700
875
0·9450

2·8 × 1·25
350
1400

0·56 × 1·25
1050
875
0·980

3·3
2·8
3·0

0·212
0·6 × 1·75
1·050

3·9
0·039 × 11
39
0·429

4·2
0·042 × 11
42
0·462

4·3
43
47

2·8
3·3
3·0
1·5
0·15 × 2·3
115
0·345

3·2
0·16 × 2·3
138
0·368

3·1
0·62 × 1·25
1050
350
1·088

3·5
3·0
3·3

1·
0·12 × 2·3
161
0·4

45 53·5
563
592
42

46 25·3
775
38·8
73·5

47m 82
114
150
395·1

47m 41·6
495
494
116·3

48 178
27·1
76·2
371·2

58·0
56·8
59·2
1302

49 746
793
33
352·9

50m 592
12
5·4
148·3

36·4
37·1
39·4
338·5

12·4
4·8
0·48 × 2·4
96
192
1·152

3·4
6·2
0·62 × 3·6
201
402
2,412

3·2
6·4
0·64 × 3·6
192
384
2304

3·8
3·6 × 3·6
228
456
1836

4
8,0 × 3·6
288

763·6

Fürjes árvíz januar 14

árvíznek 754 m. 6h. 1/m. 57.4
58 16.1
40.1

87.0
430.0
100.0
418.1
111.4
407.6

20m. 55.5
21m. 16.1
40.1

---

302 29m. 33.6
262 27.2
272 41.2
272 29m. 55.8
302 3.1

---

302 30m. 16.0
262 20.3
272 24.2

---

fürdel

327.0
198.9
323.9
201.9
321.0
204.2
318.2
207.2
315.8
209.2
313.2
217.0
311.4

---

fürdel

142 35m. 76.2 +10
282 32.2 +10

---

282 41.2 +10
242 53.5 +10

---

142 36m. 8.4 +10
262 14.2 +10

76z	6h.	48m.	37.6
76z			58.4
76z		49m.	19.5
			782.3

fiskal

Kinorakt

781.6
742.9
781.0
743.2
780.2
744.3
779.5
745.0
779.0
745.2
778.3
746.2
777.2
746.9
777.1
747.4

55m.	56.3
56m.	17.2
	38.0

$1_2 = 2$ antyrén

I. asztal sor. 1892 január 4. Verticalis asztal

delectus.

$41{\cdot}1\ \delta^{36} = 33{\cdot}9$

$\log 33{\cdot}9 = 1{\cdot}530200$
$\log 41{\cdot}1 = 1{\cdot}613842$
$0{\cdot}916358-1$

$35{\cdot}9^{916358} - 36{\cdot}36 = 0{\cdot}997625$

324
351
324
276
252
248
216
270
252
180

36 hagyjuk $\log \delta = 0{\cdot}99768$

$\delta = 0{\cdot}99466$

$\delta = e^{-a\tau}$

$\log \delta = 0{\cdot}997625-1$
$= -0{\cdot}002375$

$\log \delta = 0{\cdot}3664230-3$
$\log e = 0{\cdot}6227842-1$
$0{\cdot}2286388-3$

$\log T =$

230·9
271·8
309
19·95
70·5
250·4

fudelo pontok:

				δ
271·9				
230·8	41·1	6138	9990	0·998
271·8	41·0	6128	9989	0·995
231·0	40·8	6107	9953	990
271·4	40·4	6064	9978	995
231·2	40·2	6042	9979	995
271·2	40·0	6021	9984	997
231·3	39·9	6010	9984	997
271·1	39·8	5999	9956	990
231·4	39·4	5955	9978	995
270·9	39·2	5933	89	998
231·8	39·1	5922	89	998
270·8	39·0	5911	77	995
232·0	38·8	5888	55	990
270·4	38·4	5843	78	995
232·2	38·2	5821	87	997
270·2	38·0	5798	88	997
232·3	37·9	5786	89	998
270·1	37·8	5775	65	992
232·6	37·5	5740	67	993
269·9	37·3	5717	65	992
232·9	37·0	5682	76	995
269·7	36·8	5658	77	995
233·1	36·6	5635	76	995
269·5	36·4	5611	88	997
233·2	36·3	5599	64	992
269·2	36·0	5563	76	995
233·4	35·8	5539	73	994
269·0	35·6	5502	76	995
233·7	35·3	5478	87	997
268·9	35·2	5465	76	995
233·9	35·0	5441	86	997
268·8	34·9	5428	88	997
234·0	34·8	5416	62	991
268·6	34·6	5378	88	997
234·2	34·4	5366	62	991
268·3	34·1	5328	74	994
234·4	33·9	5302		

Tejat arrebalva 279·2

január 8 Fényképezés.

	elvesztem 250-et 2h. 20m.	21.3 s.
	200	32.2 s.
	250	43.3 s.
		77.3
		414.0
		79.2
		412.0
		81.8
		400.0
		84.0
		407.8
		86.1
		405.8
		88.2
		403.2
		90.3
		401.3
		92.3
		399.2
250	2h. 23m.	37.2
250		48.1
250		58.2
250	43m.	~~32~~ 2
250	43m.	49.0 s.

147 lemezből $T = 10.820$

$\delta = 0.99385$

$\alpha = 0.0005699$

	321.9
	170.8
	321.0
	171.2
	320.1
	172.6
	319.2
	173.4
	318.4
	174.1
	317.6
	175.0
	316.8
	175.8
	315.9
	176.2
	315.1
	177.4
47m.	14.2

3367

3069

1387

150

$h = 20^{m}$

3h. 6m. ~~Eq~~.

770 46·8
750 48·6
730 50·7

782·3
709·3
782·1
709·2
781·8
710·2
781·4
710·8
781·0
211·0
780·6
711·3
780·2
211·8

68·4

250 = 3h. 9m. 31·2

28 Beob. gibt $T = 10.8029$
$\vartheta = 0.99410$
$\alpha = 0.0005461$

25·6 29m. 44·8
24·6 47·0
23·6 48·8

263·8
278·3
263·5
278·6
263·2
278·8
263·0

34·2

246 3h. 31m. 17·3

39 Beob. gibt $T = 10.7903$
$\vartheta = 0.99415$
$\alpha = 0.0005336$

111·3
211·8
211·55
280·2
68·65
34·3
280·2
245·9

1·8
0·13
68

211·3
280·2
211·8

68·9 8382
68·4 83351 9964 993 2995 5382 34·6 245·9

3h. 6m. 49·9
9m. 30·5
2m. 42·0

2h. 47m. 14·0
3 9m. 31·2
22 12·2

1620 : 15 = 10·800
15
120
120

161·2 : 15 = 10·742
112
105
70
60
100

2h. 20m. 43·3
3h. 9m. 30·5
48 42·6

2880
42·2
2922·2 : 10·82 = 270·5
2164
5632
4912
5754
5800

2922·2 : 271 = 10·8015
271
2132
2168
400
271
1290

2927·6 : 271 = 10·8029
271
2176
2168
800
542
2580
2439

336·2 ∛ 269 = 6·84

∛336·2 = 2·52724
∛684 = 1·83506
0·30822-1

268·308,22 : 269 = 0·992428
2421
2620
2421
1998
1883
1152
1076
762
538
2240

∛336·2 ∛ 390 = 34·2
∛336·2 = 2·52724
834·2 = 1·53403
00629-1

389·006,829 : 39 = 0·992453
351
380
351
290
273
176
156
203
195
129

∛ϑ = 0·99410
∛ϑ = 0·002562
∛∛ϑ = 0·40858-3
63888
88080-3
1T = 1·03350
0·73230

2h. 20 43·3
3h. 31m. 13·1
1h. 10 29·8

3600
600
29·8
4229·8 : 10·8 = 391·2
3242
989
972
178
108
700

4229·8 : 391·2 = 10·2986
3912
31280
31336
27419
38610
33550
31336
2214

4229·8 : 392 = 10·2903
392
3098
2744
3540
3528
1200

∛∛ϑ = 0·002542
∛∛ϑ = 0·40603
63888
86825-3
∛T = 1·04401
∛x = 82824-4

2h. 20m. 43·3
23m. 37·2
2m. 53·9

175·9 : 16 = 10·99
16
159
144
150

43m. 49·0
47 14·2
3m. 25·2

205·2 : 19 = 10·80
19
152
152
49

2h. 20m. 43·3
47 14·2
26 30·9

1560
30·9
1590·9 : 10·9 = 145·9
109
500
436
649
545
1040

178·9 : 17 = 10·3
509

176·7 138·4 1411
315·1 132·7 1389
182·4

9988 995 2999 8415 69·4 246·1

43m. 49·20.
47 14·0
3m. 25·8

2048 : 19 = 10·79
19
148
133
150

2h. 20m. 43·4
47 14·0
26 30·6

1560
30·6
1590·6 : 10·8 = 147·3
108
510
432
786
756
300

1590·6 : 147 = 10·820
147
1206
1176
300
294
60

336·7 ∛ 145 = 132·2

∛336·7 = 2·52243
∛132·2 2·13896
0·611691-1

144·611691 : 145 = 0·997322
1305
1411
1305
1061
1015
466
435
319
290
290

∛2 = −0·00268
∛2628 = 0·42881-3
63888-1
0·29003-3
∛7 = 1.03423
55680-4

Ms 5106/6

vízszintes esztló (Guitarre alakú)
1891. augusztus 2. este. Első 3h 30m kör
fogva. felállítási megfigyelések:

100	6	16	36.8	
150		17	46.0	89.2
100		14	15.0	89.0
355		25	—	fok
250		31		
65		40.5		fok
240				

290 : 165 = 175
1250
950
725 179.4

175 : 290 = 0,603
100

1761
1790
9971
8062
8033
8195
8166

355
65 290
240 175

290 : 160 = 181
130 174
20

Kúra kúpének távolsága a csúcs
tükrétől: 29 9 cm.
Ska távolság a kúra kúpének 755.5

[illegible]

Eötvös nyomán a föld mutatós alakját feltéve találjuk

tömör Listing $a = 637{,}1\,\ldots\,000$ c.

$b = 6\,\ldots\,$ c.

Listing mint

$$a = 637{,}706{,}500 \text{ c}$$

$$b = -635{,}529{,}800 \text{ c.}$$

$$\alpha = \frac{a-b}{a} = \frac{1}{289{,}5}$$

$\varphi = 47\frac{1}{2}{}^0$. $\frac{1}{\rho_1} = 0{,}000\,000\,01570 \ \frac{1}{c}$ $\qquad \frac{1}{\rho_1} - \frac{1}{\rho_2} = \delta^{-12}$

$\frac{1}{\rho_2} = 0{,}000\,000\,01565 \ \frac{1}{c}$

Clairaut formulája

$$\frac{g_{90} - g_0}{g_0} = \frac{5}{2}\frac{a\omega^2}{g_0} - \alpha$$

$g_\varphi = g_0(2+$

$$g_\varphi = g_0\left(1 + c\sin^2\varphi\right) \qquad g_0 = 9{,}78{,}07$$

$$c = \frac{g_{90} - g_0}{g_0} \qquad 0{,}005\,66 \qquad 0{,}003\,46$$

$$g_\varphi = g_0\left(1 + \left(\underbrace{\frac{5}{2}\frac{a\omega^2}{g_0}}_{0{,}005\,20} - \frac{a-b}{a}\right)\sin^2\varphi\right)$$

ennyi valóban kifejti mivel $\int d\varphi = \xi$

$$\frac{dy}{d\xi} = \frac{1}{\rho}\frac{dy}{d\varphi} = \frac{g_0}{\rho} 2c \sin\varphi\cos\varphi$$

$$\alpha = \frac{g_0}{g} 2c \sin\varphi\cos\varphi \,l =$$

$$\alpha = l\,2\left(\frac{5}{2}a\frac{\omega^2}{g_0} - \frac{a-b}{a}\right)\sin\varphi\cos\varphi.$$

$\bar{\omega} = \frac{a-b}{a}$

$\varphi = \frac{a\omega^2}{g_0}$

$$\alpha = \frac{2l\sin\varphi\cos\varphi}{g}\left(\frac{5}{2}\omega^2 - \omega^2\left(\frac{a-b}{a}\cdot\frac{g_0}{a\omega^2} - \frac{1}{2}\right)\right)$$

Súlyközéppont $= \frac{1}{90} m \frac{a^2}{r^5}$ $1 m = 40' m \frac{a^3}{r^5}$

1 kéve $= \frac{1}{20} m \frac{ac}{r^5}$ $180' m \frac{ac}{r^5}$

~~kéve~~ ~~$m \frac{4}{3}\pi\varrho^3$~~

kerg $\sigma = 2{,}5$ tömeg $25\varrho^3$ $a = r$.

<u>tehát</u> súlyközéppont helyzete $= 200 \frac{\varrho^3}{r^3}$

a helytől annak 6 ívnyi távolában

<u>míg 1'</u>

$\varphi = 45^0$ $ac = r^2 \sin\varphi \cos\varphi = \frac{r^2}{2} \sin 2\varphi$.

gyök $\sigma = 1$ ϱ

$$\beta = 180'. 4. \frac{\varrho^3}{r^3}$$

$$\beta = 720'. \frac{\varrho^3}{r^3}$$

A potenciál

$$U = V + \frac{1}{2}\omega^2 R^2$$

Legyen ekkor $\Delta U = \Delta V + 2\omega^2$

vagyis $\Delta U = 2\omega^2$ $\qquad \omega = \frac{2\pi}{86164}$

$\frac{\partial U}{\partial x}$ x y sík az ekvipotenciális sík $\qquad \omega^2 = 0{,}000\,000\,005\,318$

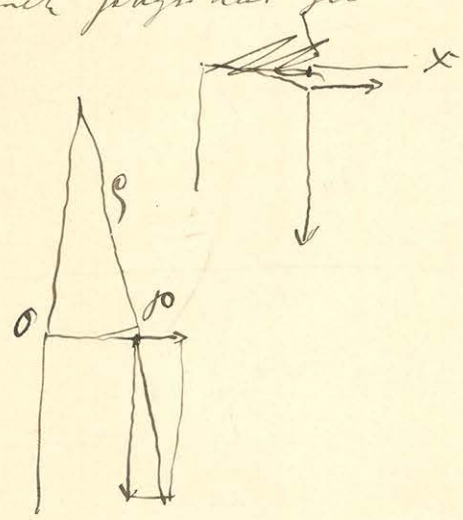
2 függőleges lépés.

az összes másodrendű differenciálok

$$\frac{\partial^2 U}{\partial x^2} \quad \frac{\partial^2 U}{\partial y^2} \quad \frac{\partial^2 U}{\partial z^2}$$

$$\frac{\partial U}{\partial x \partial y} \quad \frac{\partial U}{\partial y \partial z} \quad \frac{\partial U}{\partial z \partial x}$$

ezeknek fizikai jelentése. ξ és ξ egy adott vízszintes lépéspont



elmozdulásai

$$\frac{+\frac{\partial^2 U}{\partial x^2}\xi}{g} = -\frac{\xi}{\rho}$$

$$\frac{\partial^2 U}{\partial y^2}\eta = -\frac{\eta}{\rho'}$$

~~tudva~~

$$\frac{\partial^2 U}{\partial x^2} = -\frac{1}{\rho}g \qquad \frac{\partial^2 U}{\partial y^2} = -\frac{1}{\rho'}g$$

$$\frac{\partial^2 U}{\partial z^2} = \frac{dg}{dr} = \left(\frac{1}{\rho} + \frac{1}{\rho'}\right)g + 2\omega^2$$

Ha a vízszintes metszet a nyugvó vízzel képez a ξ tengellyel a $2x$ síkban x felé α szöget.

$$\alpha = \frac{1}{g}\frac{\partial^2 U}{\partial z \partial x}\xi$$

ugyan így ha β a vízszintes metszet a nyugvó vízzel képez a ξ tengellyel y felé

$$\beta = \frac{1}{g}\frac{\partial^2 U}{\partial z \partial y}\xi$$

!

Vagy mivel $\frac{\partial U}{\partial z} = g$ $\qquad \frac{\partial^2 U}{\partial z \partial x} = \frac{\partial g}{\partial x}$ $\qquad \frac{\partial^2 U}{\partial z \partial y} = \frac{\partial g}{\partial y}$

$\frac{d^2U}{dxdy}$ a legtöbbször alkalmas változtatás által nullá

tehető.

Mindezek közül csak a $\frac{d^2U}{dz^2}$ volt olyan, ami a rugalmasságra

a mikroszkopikus változás a szigorú értelemben csak nagy felületekben

volt tekintve, a görbület nyomás csak az elhajlásnál

voltak számbavehetők — mindezt az hogy megvizsgálják.

---

1) Lásd a csatolt mely az ábrán vízben vízszín —

vízszintes síkban fekvő hőmérséklet nagy — ábrán.

$$\left\{\begin{array}{l} \alpha_1 \\ \alpha_2 \\ \alpha_3 \\ \alpha_4 \end{array}\right. \qquad \sqrt{\left(\frac{\alpha_1^2 + \alpha_2^2 + \alpha_3^2 + \cdots}{n}\right)}$$

$$\left(\frac{\alpha_1 + \alpha_2 + \alpha_3 \cdots}{n}\right)^2$$

$$\frac{n(\alpha_1^2 + \alpha_2^2 + \alpha_3^2)}{\alpha_1 + \alpha_2 + \alpha_3 \cdots} = \frac{n}{2}$$

$\vartheta = 4°\,5'$

$\lg \operatorname{tg}\vartheta = 0.829683 - 1$

$\lg \operatorname{tg}^2\vartheta = 0.659366 - 1$

$\lg \sin\vartheta = 0.829683 - 1$

$\lg \sin\vartheta = 0.869631 - 1$

$\lg \sin^2\vartheta = 0.739262 - 1$

$\lg \frac{\beta^2}{a^2} = 0.999990 - 1$

$0.732252 - 1$

$\lg a = 8.804631$

$\lg \beta^2 = 16.606272$

$\lg \frac{a}{b^2} = 2.198359 - 10$

$\lg a = 6.804641$

$\lg \beta^2 = 3.606272$

$3.198369 - 10$

$\lg a = 3.804641$

$\lg b^2 = 0.606272$

$0.198369 - 10$

~~$\vartheta = 8°\,8'$~~

$\lg a = 8.804641$

$\lg b = 8.803136$

$\lg \left(\frac{b}{a}\right)^2 = 0.001505$

$\operatorname{ctg}^2\vartheta = 0.45642$

$\frac{a^2}{a^2}\sin^2\vartheta = 0.53984$

$\rho_1 = 0.99626$

$\lg \frac{a}{a} = 0.999849 - 1$

$\lg \left(\frac{a}{a}\right)^2 = 0.999699 - 1$

$\lg m$

$\lg \rho_1 = 0.998373 - 1$

$\lg \rho_1^3 = 0.995119 - 1$

$\lg \rho_1^{\frac{3}{2}} = 0.997559 - 1$

$\lg \frac{a}{b} = 0.198369 - 8$

$0.195928 - 8$

$\lg \rho_1^{\frac{3}{2}} = 0.997559 - 1$

$0.498369 - 4$

$\lg \frac{1}{\rho_1} = \quad 0.195928 - 4$

$\lg \rho_1^{\frac{1}{2}} = 0.999186 - 1$

$\lg a = 3.804641$

$0.194545 - 4 = \lg \frac{1}{\rho_2}$

$\frac{1}{\rho_1} = 0,000157\,01 \ \frac{1}{km.}$

$\frac{1}{\rho_2} = 0,000156\,51 \ \frac{1}{km.}$

$\frac{1}{\rho_1} = 0,000000005\,70 \ \frac{1}{cm.}$

$\frac{1}{\rho_2} = 0,000000005\,65 \ \frac{1}{cm.}$

g_9 ;

$\lg a^2 = 10.725375 - 10$

$\lg g_0^2 = 2.99037$

$0.715538 - 12$

$\lg a = 8.804664 - 6$

$0.540002 - 3$

$\lg 25 = 0.39794$

$0.937796 - 3$

0.008669

0.003460

$\beta' = 0.005209$

$\lg \beta' = 0.716505 - 3$

$\lg \operatorname{tg}\varphi = 9.73526 - 1$

$0.451991 - 3$

0.002831

$a - b = 2.206700$

$\lg a - b = 6.343374$

$\lg a = 8.804664$

$0.539710 - 3$

$g_4 = g_0 (1 - 0.002831) = 0,990$

$\lg g_0 = 2.99037$

$\lg a_1 = 0.00123$

2.99160

$g_5 = 980,85$

Vibrációs és pályamenti tehető.

Lehet hatás mint

Ebben a fogás momentum

Zich and
alkar. kar vá

$$= \frac{r_1}{2} g \frac{\sin 2\delta}{2} \left(\frac{1}{\rho_1} - \frac{1}{\rho_2}\right) \pm mgl \sin\delta\alpha - mgl\cos\delta\beta$$

$$2mgl(\sin\delta\alpha - \cos\delta\beta) = A$$

$$2mgl(\cos\delta\alpha + \sin\delta\beta) = B$$

$$\sqrt{A^2+B^2} = 2mgl\sqrt{\alpha^2+\beta^2}$$

$$= mlh\sqrt{\frac{\partial^2 V}{\partial x_1^2} + \frac{\partial^2 V}{\partial x_2^2}}$$

$$\varepsilon = \frac{2mlh}{T} \frac{\partial^2 V}{\partial x_1 \partial x_2} = \frac{2mlh}{T} \frac{dg}{ds}$$

Ahonnan tovább

$$g_\varphi = g_0(1 + 0{,}0052\sin^2\varphi)$$

Ismét $\varphi ds = \rho d\varphi$ legyen.

$$\frac{dg}{ds} = \frac{1}{\rho}\frac{dg}{d\varphi} = \frac{g_0 \cdot 0{,}0052\sin 2\varphi}{\rho}$$

$$\frac{dw}{dh} = \frac{0{,}0052\sin 2\varphi}{\rho} =$$

1 c. másod $\frac{dw}{dt} = 0{,}000\,000\,000\,008\,178 = 0{,}000\,00163''$

206265" = 1 $\frac{dg}{ds} = 0{,}000\,000\,008\,178$

Tehát 1 méteres vállon az súlyban 0,00016 "

$h = 100$ $h \cdot \frac{dg}{ds} = 0{,}000\,000\,818$

ha $l = 20$ $m = 30$ $f = \frac{1}{5}$ alkar.

$$\varepsilon = 6000 \cdot 0{,}000\,000\,818 = 0{,}004\,908 = \underline{17'}$$

Ezt most jól lehet venni. Egyik lehetne abból a
fiúból alakjából megkülönböztetni. —
Lássuk áll most a dolog a kísérlettel.

$$\varepsilon = \frac{n m l h}{t} \frac{\partial^2 V}{\partial x \partial z}.$$

$$\frac{\partial^2 V}{\partial z \partial x} = 3 \frac{k h}{r^5} c a.$$

ha $\frac{c a}{r^2} = \frac{1}{2}$ annyi.

$$\varepsilon = \frac{3 m l h}{2 t} f \frac{M}{r^2}$$

hogyan $M = \frac{4}{3} \pi \sigma \varrho^3$

$$\varepsilon = \frac{3 m l h}{2 t} f \cdot 4\sigma \frac{\varrho^3}{r^2}.$$

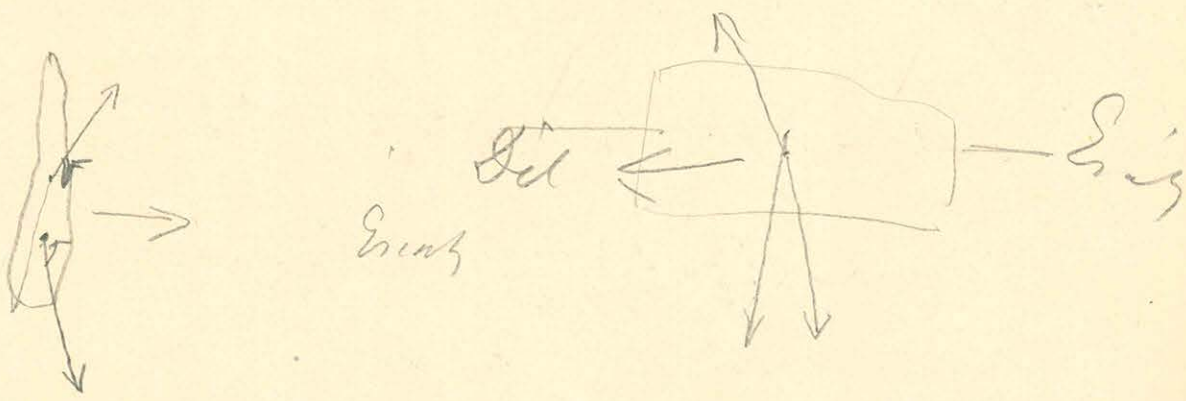
feltéve $\sigma = 1$

$$\varepsilon = \frac{6.60000 . 5}{30 m} \cdot \frac{2}{r^2} \frac{\varrho^3}{r^2}$$

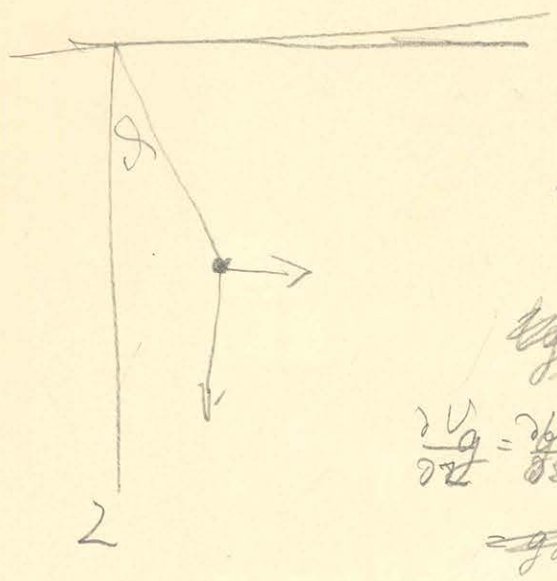
$$\frac{43,600,000}{30 m} = \frac{\varrho^3}{r^2} = 0,120 \frac{\varrho^3}{r^2} = 7^0 = 540'$$

Lássuk.

Vízben Ez erő bal Erek felé hajlik



Mozgások a függőleges síkban.



Lengésre is térünk

~~Egyszerű~~ +

$$\frac{\partial V}{\partial z} = \frac{\partial V}{\partial z_0} + \frac{\partial^2 V}{\partial z^2} l\cos\varphi + \frac{\partial^2 V}{\partial x} l\sin\varphi$$

~~$g_0 +$~~ $\partial^2 V$

$$\frac{\partial V}{\partial z} = \frac{\partial V}{\partial z_0} + \frac{\partial^2 V}{\partial z^2} l\cos\varphi + \frac{\partial^2 V}{\partial z \partial x} l\sin\varphi$$

$$\frac{\partial V}{\partial x} = \frac{\partial^2 V}{\partial x^2} l\sin\varphi + \frac{\partial V}{\partial x \partial z} l\cos\varphi$$

Lengési munka

$$-m\frac{\partial V}{\partial z} l\sin\varphi + m\frac{\partial V}{\partial x} l\cos\varphi$$

$$-ml\frac{\partial V}{\partial z}\sin\varphi - ml^2\frac{\partial^2 V}{\partial z^2}\sin\varphi\cos\varphi - ml^2\frac{\partial^2 V}{\partial z \partial x}\sin^2\varphi$$

$$+ ml^2\frac{\partial^2 V}{\partial x^2}\sin\varphi\cos\varphi + ml^2\frac{\partial^2 V}{\partial x \partial z}\cos^2\varphi$$

$$-mlg\sin\varphi - ml^2\frac{\partial^2 V}{\partial z^2}\frac{\sin 2\varphi}{2} + ml^2\frac{\partial^2 V}{\partial z \partial x}\cos 2\varphi + ml^2\frac{\partial^2 V}{\partial x^2}\frac{\sin 2\varphi}{2}$$

vagy is

$$-mlg\sin\varphi - ml^2\left(\frac{1}{\rho} + \frac{1}{\rho'}\right)g\frac{\sin 2\varphi}{2} - ml^2 g\frac{1}{\rho}\frac{\sin 2\varphi}{2} + ml^2\frac{\partial^2 V}{\partial z \partial x}\cos 2\varphi$$

$$= -mlg\sin\varphi - ml^2 g\left(\frac{2}{\rho} + \frac{1}{\rho'}\right)\frac{\sin 2\varphi}{2} + ml^2\frac{\partial^2 V}{\partial z \partial x}\cos 2\varphi$$

z ind mint előbb + az arány

$$= -mg\sigma\sin\varphi - Kg\left(\frac{2}{\rho} + \frac{1}{\rho'}\right)\frac{\sin 2\varphi}{2} + K\frac{\partial g}{\partial x}\cos 2\varphi$$

egyensúly esetén ha $\sigma = 0$ $\quad g\left(\frac{2}{\rho} + \frac{1}{\rho'}\right)\frac{\sin 2\varphi}{2} = \frac{\partial g}{\partial x}\cos 2\varphi$

$$\operatorname{tg} 2\varphi = \vartheta = \frac{\frac{\partial g}{\partial x}}{\frac{g}{2}} \cdot \frac{\rho\rho'}{2\rho' + \rho} = \frac{\frac{\partial g}{\partial z}}{\frac{g}{2}} \cdot \frac{\rho}{3} =$$

$$\varepsilon = \frac{\frac{\partial z}{\partial x}}{g}\frac{\varrho}{3} = \frac{dw}{dh}\frac{\varrho}{3}$$

Lin'd a hullam $\frac{dw}{dh}\varrho = 0{,}005209$

$\varepsilon = 0{,}0017336$ = körülbelül $6'$

irja ésratra:

mennyi elítés lenne $\frac{\partial z}{\partial x} = 0{,}000\,000\,008$

$\frac{214}{156}$
47^0

$g\left(\frac{2}{\varrho_1} + \frac{2}{\varrho}\right) = 0{,}000\,0047$. kapni $\frac{47}{243000} = C$.

0,000 00470

lehet

~~a kapja mozgás $x = -mg\sigma\sin\vartheta - \frac{C}{2}k\sin 2\vartheta$~~

~~vagy mozgás egyenlete~~

$\left(= -mg\sigma\sin\vartheta - Ck\cos 2\vartheta + A\right.$

$T^2 = \pi^2 k$

~~$-\frac{mg\sigma}{k}\cos\vartheta - C\sin 2\vartheta$~~

kapja mindig ha $\sigma = 0$

$= -\frac{C}{2}k\sin 2\vartheta$

Ha eltérés $-\sigma$ szögletes ϑ' akkor az egyenlet

$= -mg\sigma\sin\vartheta' - \frac{C}{2}k\sin 2\vartheta$

egyenlő $\sin\vartheta' = -\frac{k}{mg\sigma}\frac{C}{2}\sin 2\vartheta$

$\vartheta' = -\frac{T^2}{\pi^2}\frac{C}{2}\sin 2\vartheta$

ha $\vartheta = 45^0$ $\qquad \vartheta' = \frac{T^2}{\pi^2}\frac{C}{2} = T^2\frac{1}{4200000}$

ha $T = 160$ $\vartheta' = \frac{1}{420}$

$T = 90$ $\vartheta' = \frac{1}{4200}$

2 $\frac{a}{r} = \frac{a}{b}\frac{b}{r} = \sqrt{\frac{2}{5}} \cdot \frac{b}{r}$ $\frac{r}{b} = 0,31646$

$2\frac{b^2}{a^2} = 5$ $\frac{1}{2}\frac{a^2}{b^2} = \frac{1}{5}$ $\frac{a^2}{b^2} = \frac{2}{5}$ $\frac{a}{b} = \sqrt{\frac{2}{5}}$ $\frac{b}{r} =$

$\frac{a}{r} = \sqrt{\frac{1}{50}} \cdot 0,31646$

$\log \frac{r}{a}$ 0,8494850 / 0,4977587 −1 / 0,3472437 — r 2,2245

$\log \frac{a}{r}$ 0,6527563 −1 — 0,2

$\log \sqrt{\frac{5}{2}}$ 8494850 — 2,2077

$\log$ 5002188

$\log \frac{r}{a}$ 0,3498038

0,6501962 −1

$\frac{\xi}{a} = \frac{a}{b} = \sqrt{\frac{2}{5}}\frac{b}{2}$

9,44648
0,206
268128
1340640
0,1367528

$\alpha \cdot \frac{a}{r}$

$\frac{z}{a} = \frac{m}{a} + \frac{\xi}{a}$ $= \frac{m}{b} \cdot \sqrt{\frac{5}{2}} + \sqrt{\frac{2}{5}}$

$= 0,14487 \cdot \sqrt{50} + \sqrt{\frac{1}{50}}$ 0,1505140 −1

0,1609785 −1
0,8494850
0,0104635

1,02439
1,1428
1,16681

$$\sqrt{\frac{1+(\sqrt{2}-1)\frac{a}{r}}{1-\frac{2-\sqrt{2}}{3}\frac{a}{r}}}$$

1,4142

$$\frac{\sqrt{\left(1+(\sqrt{2}-1)\frac{a}{r}\right)\left(1+\frac{2\sqrt{2}}{3}\frac{a}{r}\right)}}{\sqrt{1+(\sqrt{2}-1)\frac{a}{r}+\frac{2\sqrt{2}}{3}\frac{a}{r}}}$$

2,8284
0,9428

0,5858
1986

$$z = 1 + c\frac{a}{r}$$

$$c = \frac{\left(\sqrt{2}-1+\frac{2\sqrt{2}}{3}\right)\sqrt{2}}{2}$$

0,4142
~~0,4428~~
~~1,5710~~

0,4142
1986
0,6128
0,306

$$z = 1 + \alpha\frac{a}{r} + \beta\frac{a^2}{r^2} + \gamma\frac{a^3}{r^3}$$

$$\alpha = 0,306$$

$$z - 1 + \alpha\frac{a}{r} = \xi$$

$$z' - 1 - \alpha\frac{a'}{r'} = \xi'$$

$$\xi = \beta\frac{a^2}{r^2} + \gamma\frac{a^3}{r^3} \quad / \frac{a'^3}{r'^3}$$

$$\xi' = \beta\frac{a'^2}{r'^2} + \gamma\frac{a'^3}{r'^3} \quad / \frac{a^3}{r^3}$$

$$\frac{\xi\frac{a'^3}{r'^3} - \xi'\frac{a^3}{r^3} = \dots}{\frac{a^2}{r^2}\frac{a'^3}{r'^3} - \frac{a'^2}{r'^2}\frac{a^3}{r^3}} = \beta$$

Rapallonius

$\frac{a}{r}$.

0,447
0,206
2682
1341 0
1067

1,1067
110
179
1,1656
0,02398
0,5

0,055
0,02
0,00110

0,0890
0,2
1786

16 | 0,055 | 0,0034
48
70

$\frac{1}{by}$

by | 0200 | 0,0031
40

0,0765
0034
31
1,0830

$$\frac{m}{a} = 1 + 0{,}206\,\frac{a}{r} + 0{,}055\,\frac{a^2}{r^2} + 0{,}203\,\frac{a^3}{r^3} - \frac{h}{a}$$

16 | 1,609 | 0,0380
128
10

$$\frac{\partial\left(\frac{m}{a}\right)}{\partial\frac{a}{r}} = 0{,}206 + 0{,}110\,\frac{a}{r} + 0{,}609\,\frac{a^2}{r^2} - \frac{\partial h}{\partial\frac{a}{r}}\,\frac{1}{a} = 0$$

$\frac{a}{r} = \frac{1}{4}$

0,206
0,0275
0280
0,2715

$\frac{h}{a} + 1{,}224 \cdot \frac{1}{r^2}$

$\frac{h}{a} \cdot 1{,}224 \cdot 16$

19,44
1,224
21,184

Maximum való hely.

$$0{,}206 + 0{,}110\,\frac{a}{r} + 0{,}609\,\frac{a^2}{r^2} = 1{,}224\,\frac{r^2}{a^2}\,\frac{h}{a}$$

21,18
0,007
148 26
63 54
2118
29 0166

$-1{,}224 \cdot \frac{r^2}{a^2}$

$\frac{a}{r} = \frac{1}{4}$ re $h = 0{,}2715$ $Z = 0{,}2902$

$\frac{a}{r} = \frac{1}{2{,}5}$ re $h = 0{,}3958$ $Z = 0{,}2963$

~~Paraf~~

206
314
544
0958

206
0814
0544
01164

2,5 | 0,110 | 105
50
25
150

$\frac{a}{r} = \frac{1}{2{,}6}$ $h = 0{,}2835$ $Z = 0{,}4008$

$\frac{a}{r} = \frac{1}{2{,}4}$ re $h = 0{,}3842$ Z 0,4069

3,5 | 11,2 | 0,609 | 0,0544
2,5
175
105
1125
560
490
448
420

11,25
1,224
4500
2000
2250
1125
14,90

0,0266
14,9
2394
1064
266
3,9634

$$\left\{ = 0{,}0\,\overline{7}\,7 \right.$$

$$\frac{R}{\alpha} = \sqrt{\frac{1 + 0{,}\overline{7}\,\overline{7}\,\overline{2}\,\frac{\alpha}{\pi}\,(?}{}} =$$

$$\sqrt{\frac{1 + 0{,}\overline{4}\,\overline{7}\,\overline{1}\,\overline{2}\,1 \cdot \frac{1}{\overline{7}}\,(1 + 0{,}\overline{2}\,\overline{0}\,\overline{6}\,\frac{1}{\overline{7}}) + \frac{\xi'}{\alpha_c}\left(1 - \frac{1}{\overline{1}\,\overline{5}\,\overline{7}}\right.}{1 + \frac{2 - \sqrt{\varepsilon}}{2}\,\frac{\alpha}{\pi}\,(1 + \varepsilon\,\frac{\alpha}{\pi})}}$$

$$0{,}1\,3\,6\,\overline{7}\,2\,\varepsilon\,\overline{6} - 2$$

$$\eta_{\frac{\xi'}{\alpha_c}} \quad \frac{0{,}2\,\overline{7}\,3\,\overline{4}\,\overline{1}\,2 - \overline{4}}{9\,\overline{1}\,\overline{5}\,\overline{2}\,\overline{0}\,\overline{4}\,8 - 1}$$

$$\cdot \quad \frac{}{0{,}1\,8\,8\,\overline{7}\,\overline{4}\,\overline{6}\,0 - \overline{4}}$$

$$\frac{\xi_c}{\alpha_c} = \quad 0{,}0\,0\,0\,\overline{1}\,\overline{5}\,\overline{0}\,\overline{4}\,\overline{4}\,\overline{5}$$

$$\frac{}{}$$

$$1\,\overline{5}\,\overline{0}\,\overline{5}\,\overline{1}\,\overline{5}\,\overline{0}$$

$$\overline{6}\,\overline{c}\,\overline{2}\,\overline{0}\,\overline{6}\,\overline{4}\,\overline{0}$$

$$\frac{0{,}\overline{0}\,\overline{7}\,\overline{4}\,\overline{0}\,\overline{2}\,\overline{5}\,\overline{0}}{0{,}2\,\overline{7}\,\overline{4}\,\overline{4}\,\overline{2}\,\overline{5}\,0 - 1}$$

$$0{,}1\,\overline{7}\,\overline{7}\,1\,\overline{6}$$

$$0{,}\overline{8}\,\overline{2}\,\overline{2}\,\overline{8}\,\overline{2}$$

$$\overline{7}\,\overline{0}\,\overline{7}\,\overline{6}\,\overline{5}\qquad \overline{4}\,\overline{1}\,\overline{4}\,\overline{2}\,\overline{0}$$

$$\frac{0{,}1\,\overline{6}\,3\,\overline{5}\,\overline{5}}{\overline{5}\,\overline{3}\,\overline{7}\,\overline{2}\,\overline{5}}$$

$$\overline{5}\,\overline{5}\,\overline{1}\,\overline{2}\,\overline{5}$$

$$3\,\overline{2}\,\overline{2}\,\overline{9}\,\overline{5}$$

$$1\,\overline{0}\,\overline{7}\,\overline{6}\,\overline{5}\,0$$

$$\frac{\overline{1}\,\overline{1}\,\overline{1}\,\overline{7}\,\overline{4}\,\overline{7}\,\overline{0}\,\overline{4}\,\overline{7}\,\overline{5}}{\overline{1}\,\overline{1}\,\overline{1}\,\overline{1}\,\overline{6}\,\overline{2}\,\overline{4}}$$

$$\frac{2}{\alpha} = \sqrt{\frac{1\,\overline{1}\,\overline{1}\,\overline{1}\,\overline{6}\,\overline{2}\,\overline{4}}{0{,}\overline{9}\,\overline{4}\,\overline{2}\,\overline{4}\,\overline{5}}}$$

$$0{,}\overline{0}\,\overline{4}\,\overline{5}\,\overline{9}\,\overline{4}\,\overline{8}\,\overline{5}$$

$$\overline{7}\,\overline{8}$$

$$\overline{7}\,\overline{6}$$

$$0{,}0\,\overline{4}\,\overline{9}\,\overline{5}\,\overline{7}\,\overline{9}$$

$$\overline{5}\,\overline{1}\,\overline{5}\,\overline{6}\,\overline{5}\qquad -1$$

$$\frac{0{,}0\,\overline{6}\,\overline{6}\,\overline{9}\,\overline{4}\,\overline{0}\,\overline{1}\,\overline{6}}{0{,}0\,\overline{3}\,\overline{4}\,\overline{2}\,\overline{0}\,\overline{8}}$$

$$1\,\overline{0}\,\overline{8}\,\overline{2}\,\overline{1}\,\overline{8}$$

$$\frac{}{}$$

$$0{,}\overline{0}\,\overline{6}\,\overline{6}\,\overline{6}\,\overline{8}$$

$$1{,}\overline{0}\,\overline{8}\,\overline{3}\,1\,\overline{8}$$

$$\frac{4{,}\overline{0}\,\overline{7}\,\overline{6}\,\overline{5}}{4{,}\overline{0}\,\overline{7}\,\overline{6}\,\overline{5}}$$

$$0{,}\overline{0}\,\overline{5}\,\overline{2}\,\overline{5}\,\overline{5}\,\overline{0}$$

$$0{,}\overline{9}\,\overline{7}\,\overline{4}\,\overline{1}\,\overline{5}$$

$$\frac{}{}$$

$$9\,\overline{7}\,\overline{2}\,\overline{0}\,\overline{5}\,\overline{7}\,\overline{2}\,\overline{5}\,\overline{2}\,\overline{2}$$

$$\overline{7}\,\overline{6}\,\overline{7}\,\overline{2}\,\overline{4}\,\overline{4}\,\overline{2}\,\overline{0}\,\overline{4}\,\overline{1}\,\overline{8}$$

$$\overline{9}\,\overline{5}\,\overline{2}\,\overline{8}\,\overline{3}\,\overline{1}\,\overline{2}\qquad -\overline{2}$$

$$\frac{}{9\,\overline{7}\,\overline{2}\,\overline{0}\,\overline{5}\,\overline{7}\,\overline{3}\,\overline{2}\,\overline{5}\,\overline{2}\,\overline{2}}$$

$$0{,}\overline{0}\,\overline{5}\,\overline{2}\,\overline{5}\,\overline{5}\,\overline{0}$$

$$0{,}\overline{9}\,\overline{7}\,\overline{4}\,\overline{1}\,\overline{5}$$

$$\frac{}{}$$

$$\overline{0}\,\overline{4}\,\overline{6}\qquad\qquad \overline{4}\,\overline{1}\,\overline{4}\,\overline{2}\,\overline{0}$$

$$\overline{4}\,\overline{0}\,\overline{7}\,\overline{6}\,\overline{5}$$

$$0{,}\overline{1}\,\overline{6}\,\overline{3}\,\overline{5}\,\overline{5}$$

$$\overline{5}\,\overline{3}\,\overline{7}\,\overline{2}\,\overline{5}$$

$$\overline{5}\,\overline{5}\,\overline{1}\,\overline{2}\,\overline{5}$$

$$3\,\overline{2}\,\overline{2}\,\overline{9}\,\overline{5}$$

$$1\,\overline{0}\,\overline{7}\,\overline{6}\,\overline{5}\,0$$

$$\frac{\overline{1}\,\overline{1}\,\overline{1}\,\overline{7}\,\overline{4}\,\overline{7}\,\overline{0}\,\overline{4}\,\overline{7}\,\overline{5}}{\overline{1}\,\overline{1}\,\overline{1}\,\overline{1}\,\overline{6}\,\overline{2}\,\overline{4}}$$

$$\overline{0}\,\overline{4}\,\overline{6}$$

$$\overline{4}\,\overline{0}\,\overline{7}\,\overline{6}\,\overline{5}$$

$$0{,}\overline{0}\,\overline{9}\,\overline{4}\,\overline{1}\,\overline{5}$$

$$\overline{5}\,\overline{3}\,\overline{7}\,\overline{2}\,\overline{5}$$

$$\overline{5}\,\overline{5}\,\overline{1}\,\overline{2}\,\overline{5}$$

$$3\,\overline{2}\,\overline{2}\,\overline{9}\,\overline{5}$$

$$1\,\overline{0}\,\overline{7}\,\overline{6}\,\overline{5}\,0$$

$$\frac{\overline{1}\,\overline{1}\,\overline{1}\,\overline{7}\,\overline{4}\,\overline{7}\,\overline{0}\,\overline{4}\,\overline{7}\,\overline{5}}{\overline{1}\,\overline{1}\,\overline{1}\,\overline{1}\,\overline{6}\,\overline{2}\,\overline{4}}$$

$$\overline{0}\,\overline{4}\,\overline{6}$$

$$\overline{4}\,\overline{0}\,\overline{7}\,\overline{6}\,\overline{5}$$

$$0{,}\overline{0}\,\overline{9}\,\overline{4}\,\overline{1}\,\overline{5}$$

$$\overline{5}\,\overline{3}\,\overline{7}\,\overline{2}\,\overline{5}$$

$$\overline{5}\,\overline{5}\,\overline{1}\,\overline{2}\,\overline{5}$$

$$3\,\overline{2}\,\overline{2}\,\overline{9}\,\overline{5}$$

$$1\,\overline{0}\,\overline{7}\,\overline{6}\,\overline{5}\,0$$

$$\frac{\overline{1}\,\overline{1}\,\overline{1}\,\overline{7}\,\overline{4}\,\overline{7}\,\overline{0}\,\overline{4}\,\overline{7}\,\overline{5}}{\overline{1}\,\overline{1}\,\overline{1}\,\overline{1}\,\overline{6}\,\overline{2}\,\overline{4}}$$

$$\frac{\pi}{\varepsilon}=2{,}1 \qquad 0{,}6225\frac{\pi}{\varepsilon}$$

$$\frac{\pi}{\delta}=\varepsilon \qquad \frac{\pi}{6}=\varepsilon$$

$$\frac{\pi}{6}=\varepsilon \qquad \frac{\pi}{6}=\varepsilon^{9\alpha}$$

$$\frac{\pi}{6}=\varepsilon \qquad 0{,}15\pi 5^{-}=\varepsilon^{9\alpha}$$

$$\text{Arg}\ 0{,}15\pi 5^{-}=3\alpha\cdot 0{,}\gamma\gamma\gamma\gamma$$

$$\alpha=$$

Capillanta

$\log \xi = 0,4632956 - 2$

$\log \xi' = 0,8247765 - 3$

$\log a = 0,6501962 - 1$

$\log a' = 0,3979400 - 1$

$\xi a'^3$

$0,4632956 - 2$
$0,1938200 - 2$
$0,6571156 - 4$

$0,00045\,4063$

$\xi' a^3$

$0,8247765 - 3$
$0,9505886 - 2$
$0,7753651 - 4$

$0,0005\,9463$
$4\,5406$
$1421\,00$

$a^2 a'^3$

$0,3003924 - 1$
$0,1938200 - 2$
$0,4942124 - 3$

$0,00312042$

$a'^2 a^3$

$0,7958800 - 2$
$0,9505886 - 2$
$0,7564686 - 3$

$0,00\,570780$
312042
258738

$\beta = \dfrac{0,000142100}{0,00258738}$

$0,1525441 - 5$
$0,4128601 - 3$
$0,3397340 - 2$

$\log \beta = 0,3397340 - 2$
$\log a^2 = 3003924 - 1$
$\log \beta a^2 = 0,0401264 - 2$

$\beta a^2 = 0,0109680$

$255 \mid 1420 \mid 0,0055$
1255
1250

$0,02906$
$0,01097$
$0,01809$

$0,2574586 - 2$
$9505886 - 2$
$0,3068500 - 1$

$0,202697$

$\frac{1}{4}$ σ

$20,2 \frac{1}{20}$
$0,0101$

Kedves, aranyos szép Kis Lorándom
milyen könnyelegni tudtál!

Hűs Gyönyörűség
J. Szép.

1,102
0061
0075
1,1156

0,0061

27 | 0,203 | 0,0075
189
140

1,102
0,3673
0,4142
7346
14692
3673
14692
0,152135566

14142
0,5858
0,3673
0,58585
29384
18365
29384
18365
0,215168334

5 25
100 10

0,07172
0,92928

0,002652

0,0626948
0,9681466 −1
0,0945482

0,0472741

1414 | 0,33333 | 0,236
2828
5053
4242
8110
8484

1,236
0,00265
6180
7416
2472
0,0031754 0

1115 0

$(\sqrt{2}-1)\frac{a}{r}\left(1+c\frac{a}{r}\right)$

$\beta = 100$

$\frac{r}{b} = 0{,}21646$

$\frac{a}{r} = \sqrt{\frac{2}{\beta}}\ \frac{b}{r}$

ϑ

$\frac{3}{8}\vartheta^2$

$\frac{1}{4}\vartheta^2$

$\frac{3}{2}\cdot\frac{1}{5}$

$c = \frac{1}{3}$

1,4142
5
0,9142
0,305

$\log\sqrt{\frac{\beta}{2}} = 0{,}8494850$

$\log\frac{r}{b} = 0{,}5003188 - 1$

$\log\frac{r}{a} = 0{,}3498038$

$\log 3 = 477121$

0,8269251
0,1730749 − 1

1,41421

$c = 0{,}305$

1,1489
15
60

1,14896

$\frac{1}{6}\times 1 +$

$\frac{1}{4}\left(1+\frac{1}{6}\right.$

$\frac{1}{10}$

$\log 1{,}14896 = 0{,}0600099$

$\log\sqrt{2}-1 \quad = 0{,}6172206 - 1$

0,6772305 − 1
3498038

0,3274267 − 1

2822
427
2059

$\frac{z}{a} = \sqrt{1+\frac{2\sqrt{2}-1}{3}\left(\frac{a}{r}+\frac{1}{2}\frac{a^2}{r^2}\right)}$

$(\sqrt{2}-1)\frac{a}{r}\left(1+c\frac{a}{r}\right) = 0{,}21017$

$\frac{2-\sqrt{2}}{3}\ \frac{a}{r}\left(1+c\frac{a}{r}\right) = 0{,}10029$

$\frac{\vartheta^2}{a^2}\left(1-\frac{a}{r\sqrt{2}}\right) = 0{,}01368$

0,3277267 − 1
1505150

0,4782417 − 1

0,00088
0,10029

$\frac{z}{a} = \sqrt{\frac{1+0{,}21017+0{,}01368}{1-0{,}10029}}$

$= \sqrt{\frac{1{,}22685}{0{,}89971}}$

7728
772
7915

$\log\frac{r}{a} = 0{,}3498038$
1505150

0,5003188

0,4397812 − 1

0,31607
0,68393
1,36786
0,01368

0,1505150 − 1
0,141421

1,088279
35-41025 − 1

0,1346890

$\log\frac{z}{a} = 0{,}0673445$

$\frac{z}{a} = 1{,}167729$ Jabb

$\log\left(\frac{m}{b}\cdot\sqrt{\frac{\beta}{2}} + \sqrt{\frac{2}{\beta}}\right)$

$\frac{m}{b} = 0{,}14487$

$\log\frac{m}{b} = 0{,}1609785 - 1$

$\log\sqrt{\frac{\beta}{2}} = 0{,}8494850$

0,0104635

1,0244
0,14142

Jabl = 1,1658

$\frac{m}{r}$ 0,48 $\frac{r}{m}$ = .

[illegible] $\frac{m}{r}$ / $\frac{m}{r}$

48 / 96 20
40

46 / 92

47 2,12766
60
138
94
360
329
310
282
280

$\frac{22}{56}$ 0,4

$\frac{m}{r}$ = 0,48 p = 82,94 $\frac{m}{b}$ = 0,15802 $\frac{m}{a} = \frac{m}{b}\sqrt{\frac{p}{2}}$

15802

176
10,56

176 $\frac{b}{a} = \sqrt{\frac{p}{2}}$ 4147 = 1,6177340
0,1987121 − 1
~~0,8164461~~
80 ~~8~~ 8 ~~6~~ 670
1,0075791

176 $\frac{94}{200}$

704
1584
165,44
83

[illegible] $\frac{m}{r}$ = 0,47 $\frac{m}{a}$ = 1,0176

71,55 $\frac{m}{r}$ = 0,48 $\frac{m}{a}$ = 1,0118

48 / 0,20833
9
400
384
160
144
160

45 225
~~22~~5.200

1125
900
10125
51

35,78
1,5536400

16865
51
lg 0,16916 = 0,2282977 − 1
0,7768202
0,0051179

10118

4,8 10118

2,1 / 30,6 / 0,1457
96
84
120
105
156
7

125
219
1801

44 / 55 / 125
110
88
220

93 // 203 / 219
186
170
93
870

170 / 1166 / 7
119

11
170 106
106

Kapillarität!

$$z^2 - \zeta^2 = 2a^2 \sin^2\frac{\delta}{2} + a^2 \int \frac{dz}{u} \sin\delta$$

$$\int dz \cdot \frac{\sin\delta}{u} = z\frac{\sin\delta}{u} - \int z\, d\frac{\sin\delta}{u} = z\frac{\sin\delta}{u} - \frac{z}{a^2}\int z\,dz + \int \frac{z\,d\rho}{\rho^2}$$

$$\frac{1}{\rho} = \frac{z}{a^2}$$

$$d\frac{\sin\delta}{u} = \frac{z\,dz}{a^2} - \frac{1}{\rho^2}d\rho \qquad \frac{z^2}{a^2}\frac{d\rho}{\rho}$$

$$z\frac{\sin\delta}{u} - \frac{z^2-\rho^2}{a^2}$$

$$z^2 - \zeta^2 = 2a^2 \sin^2\frac{\delta}{2} +$$

$$z^2 - \zeta^2 = 2a^2 \sin^2\frac{\delta}{2} + a^2\, z - \zeta \frac{\sin\delta}{u}$$

$$z - \zeta = \frac{2a^2 \sin^2\frac{\delta}{2}}{z+\zeta} + \frac{a^2}{z+\zeta}\, z - \zeta \frac{\sin\delta}{u}$$

$$\frac{z+\zeta}{2}\cdot u = \frac{a^2}{2}\sin\delta + \frac{a^2}{2}\int \frac{dz}{u}\cos\delta \qquad \frac{a^2}{\zeta} \qquad \frac{\zeta}{a^2} = \frac{1}{r}$$

$$z - \zeta = b\sin^2\frac{\delta}{2} + \frac{b}{2}(z-\zeta)\frac{\sin\delta}{u} \qquad \frac{1}{b}$$

$$z + \zeta = \frac{a^2\sin\delta}{u} + \frac{1}{u}\int \frac{dz}{u}$$

$$z - \zeta = 2b\sin^2\frac{\delta}{2} \qquad m$$

$$tg\,\delta = 2b\sin\frac{\delta}{2}\cos\frac{\delta}{2}\frac{d\delta}{du} \qquad m\left(1 - \frac{b}{2}\frac{\sin\delta}{u}\right) = b\sin^2\frac{\delta}{2}$$

$$tg\,\delta = b\sin\delta\frac{d\delta}{du}$$

$$\frac{1}{\cos\delta} = b\frac{d\delta}{du} \qquad b\,d\delta\cos\delta = du$$

$$u =$$

$$tg\,\delta = \frac{b}{2}\sin\delta\frac{d\delta}{du} + \frac{b}{2}tg\,\delta\frac{\sin\delta}{u} + \frac{b}{2}m\frac{\sin\delta}{u^2} + \frac{b}{2}m\frac{\cos\delta}{u}\frac{d\delta}{du}$$

$$\frac{2}{b} = \cos\delta\frac{d\delta}{du} + \frac{\sin\delta}{u} - m\frac{\cos\delta}{u^2} + \frac{m}{tg\,\delta}\frac{\cos\delta}{u}\frac{d\delta}{du}$$

Rayleigh-féle

$$\frac{2}{b}u\,du = d\delta\cos\delta$$

$$\frac{2}{b}u\,du - d\delta + tg\,\delta \qquad \frac{2}{b} = \frac{d\delta}{du} + \frac{tg\,\delta}{u}$$

$\beta = 98$

Kapillarität

$$\frac{h'}{h} = e^{\alpha(r'-r)}$$

h in mm

$\beta = 2$ m $\quad h = 1 \quad$ für $r = 0{,}8782$

für $\beta = 98$ m $\quad h' = \frac{1}{7} \quad$ für $r' = 2{,}230$ mm

~~$0{,}9343 \cdot \log \quad \log \frac{1}{7}$~~

$\log \frac{1}{7} = \alpha \cdot 1{,}412 \; 1{,}2$

$0{,}613$

$$\frac{h}{a} = c\, e^{-\frac{4}{3}\frac{r}{a}}$$

$h \quad \frac{r}{a} = 2{,}5 \quad \frac{h}{a} = 0{,}1$

$\log c = \log \frac{h}{a} + \frac{4}{3}\frac{r}{a} \log e$

$= -1 +$

$\log c = 0{,}448$

$c = 2{,}805$

$\log \frac{c}{2{,}805} = 0{,}44800000$

$$\frac{h}{a} = 2{,}805\, e^{-\frac{4}{3}\frac{r}{a}}$$

$\log \frac{h}{a} = 0{,}44800000$

$\frac{r}{a} = 4{,}14$

$\frac{h}{a} = 0{,}0114$

$\frac{r}{a} = 2{,}188$

$\frac{h}{a} = 0{,}1513$

$\frac{r}{a} = 9{,}9$

$\frac{h}{a}$ Rest $\frac{h}{a} = 0{,}000004506$

$\frac{h}{a} = 0{,}000004504$

$\frac{r}{a} = 5{,}1$

$\frac{h}{a} = 0{,}0032$ / Rest $\frac{h}{a} = 0{,}0034$

$\frac{h}{a} = c\, e^{\alpha \frac{r}{a}}$ $\frac{r}{a}$ - Capillaritas

$\frac{h}{h'} = e^{\alpha\left(\frac{r}{a} - \frac{r'}{a}\right)}$

$\frac{4,14}{2,23}$
$1,91$

$\frac{0,0114}{0,1429} = e^{\alpha\, 4,14 - 2,23} = e^{\alpha\, 1,91}$

$1,91\,\alpha = \frac{\log \frac{0,0114}{0,1429}}{\log e}$

$8,05-6\,9049-8$
$1\,5\,5\,0\,2\,2 - 1$
$0,9018727 - 2$

$\alpha = \frac{1,0981273}{0,4343 \cdot 1,91}$

$\frac{a}{b} = \frac{\frac{r}{a}}{\frac{r}{b}} = 1$

$\frac{b^2}{a^2} = \frac{\beta}{2}$

$\frac{a^2}{b^2} = \frac{2}{\beta}$

$1,0406419$
9182212
$0,1218187$

$0,2810224$
$6277898 - 1$
$0,9188212 - 1$

$\alpha = -1,324$

$1,224$
$2,23$
3672
2648
2648
2952

$-1,224 \cdot 2,23$

$0,1429 = c\, e$

$\log c = \log 0,1429 + 1,224 \cdot 2,23 \cdot \log e$

$2,952$
$0,4343$
8856
11808
8856
11808
$0,2820536$
$0,1550222$
$0,4370758$

$2\frac{b}{a} = 2$

$\frac{b}{a} = 1$

$\frac{r}{a}\frac{b}{a} = \frac{r}{b}$

$\log c = 0,437$

$2,731^{-1,224\frac{r}{a}}$

$\frac{b}{a} = 2,725\, e$

$\beta = 2$ Ebből $\frac{b}{a} = 1$ $\frac{r}{a} = 0,81822$
2732

$1,224$
$0,818$
10592
1224
592
1002232

$1,083$
$0,4343$
3249
4332
3249
4332
$0,4703469$

$4270851-8$
4702469
$-0,9074325-1$
$0,0925675-1$

$\beta = 2$

$\int z^2 dm$ holzke. $\int$ $(\xi + \frac{m}{2})^2$

$\xi m + \frac{m^2}{2}$

$$z^2 - \xi^2 = 2a^2 \sin^2\frac{\delta}{2} + \frac{1}{u}\int m^2 du + \frac{2}{u}\xi \int m\, du + \frac{\xi^2}{u}\int (ds - du)$$

$$z^2 - \xi^2 = 2a^2 \sin^2\frac{\delta}{2} - \frac{\sqrt{2}}{u} a'^3\left(1 - \cos\frac{\delta}{2}\right) + \frac{2\sqrt{2}}{3u} a'^3\left(1 - \cos^3\frac{\delta}{2}\right)$$

$$+ \frac{a'^2}{u}\xi \sin\delta + \frac{a^2}{u}\sqrt{2}a'\left(1 - \cos\frac{\delta}{2}\right) \qquad \frac{m}{2\sin^2\frac{\delta}{2}}$$

$\frac{\xi m^2}{u} \frac{\sin\delta}{2\sin^2\frac{\delta}{2}}$ $\sin\frac{\delta}{2}\cos\frac{\delta}{2}$

$$a'\sqrt{2}\sin\frac{\delta}{2} = z - \xi \qquad a' = \frac{m}{\sqrt{2}\sin\frac{\delta}{2}}$$

$= m$ $\qquad \frac{m^3}{2\sqrt{2}\sin^3\frac{\delta}{2}}$

$$m^2 + mh = 2a^2\sin^2\frac{\delta}{2} - \frac{m^3}{2u}\frac{1-\cos\frac{\delta}{2}}{\sin^3\frac{\delta}{2}} + \frac{m^3}{2u}\frac{1-\cos^3\frac{\delta}{2}}{\sin^3\frac{\delta}{2}}$$

$$+ \xi\frac{m^2}{u}\frac{1}{\operatorname{tg}\frac{\delta}{2}} + \frac{a^2}{u} m \frac{1-\cos\frac{\delta}{2}}{\sin\frac{\delta}{2}}$$

$\frac{\sin\delta}{2}$ $\frac{\sin\frac{\delta}{2}}{\cos\frac{\delta}{2}}$

Kapillarität

$\frac{du}{\cos\delta}$

$a^2 d(u\sin\delta) =$

$\sin\delta\, du$

$\sin\delta\, d(u\sin\delta) = \sin\delta\, u\, du$

$\frac{a^2}{2} d(u\sin\delta) = u\, du$

$\sin\delta\, dz = \frac{1}{2} d(u\sin\delta) + ds$

$\frac{1}{2} z\, du = \frac{a^2}{2} d(a\sin\delta) + \frac{a^2}{2} ds$ $\qquad \left(\frac{m^2}{2} - \frac{z^2}{2}\right)\pi$

$$\operatorname{tg}\delta = \frac{d(u\sin\delta)}{d(u\cos\delta)} + \frac{du}{u\cos\delta}$$

$$\sin\delta \operatorname{tg}\delta + u\cos\delta\, d\delta - \operatorname{tg}\delta = \cos\delta\, du + u\sin\delta\, d\delta$$

$$\frac{du\sin^2\delta}{\cos\delta} + u\sin\delta\, d\delta =$$

$$du\left(\cos\delta - \frac{\sin^2\delta}{\cos\delta}\right) = 2u\sin\delta\, d\delta \qquad \frac{1}{2}\frac{du}{u} = \frac{\sin\delta\, d\delta}{\cos^2\delta - \sin^2\delta}$$

$$\frac{m}{a} = 1 + 0{,}306\,\frac{a}{r}$$

$$\frac{m}{r} = \frac{a}{r} + 0{,}306\,\frac{a^2}{r^2}$$

$$\frac{m}{r} = \frac{a}{r}\left(1 + \right.$$

$$\frac{m}{a} = \frac{m}{a}\left(\frac{m}{a} + 0{,}306\right.$$

$$\left(\frac{m}{a}\right)^2 = \frac{m}{a} + 0{,}306\,\frac{m}{r}$$

0,02906

y $\left(\frac{m^2}{a}\right) - \frac{m}{a} =$

Kapillárisok.

$$\frac{m}{a} = \frac{1}{2} + \sqrt{\frac{1}{4} + 0{,}306\,\frac{m}{r}}$$

$$\frac{m}{a} = \frac{1}{2} + \frac{1}{2}\left(1 + 0{,}612\,\frac{m}{r}\right)$$

$$\frac{m'}{a} = 1 + 0{,}306\,\frac{m}{r}$$

$$\frac{m}{a} = 1 + 0{,}306\,\frac{m}{r} + \alpha\,\frac{m^2}{r^2} + \beta\,\frac{m^3}{r^3} + \gamma\,\frac{m^4}{r^4}$$

$\frac{m}{r} = 0{,}47$ $\quad \frac{m}{a} = 1{,}0176$

$\frac{m}{r} = 0{,}3545$ $\quad \frac{m}{a} = 1{,}0635$

$\frac{m}{r} = 0{,}2674$ $\quad \frac{m}{a} = 1{,}0695$

$\frac{m}{a}\left(1 + 0{,}306\,\frac{m}{r}\right)$ $\quad \frac{m}{a} - 1 = 0{,}306\,\frac{m}{r} = \alpha$ $\quad \frac{m^2}{r^2} = x$ $\quad \frac{m}{r^3} = y$ $\quad \frac{m^4}{r^4} = z$

$$\begin{cases} a = \alpha x + \beta y + \gamma z \\ a' = \alpha x' + \beta y' + \gamma z' \\ a'' = \alpha x'' + \beta y'' + \gamma z'' \end{cases}$$

$az' = \alpha xz' + \beta yz' + \gamma zz'$

$a'z = \alpha x'z + \beta y'z + \gamma zz'$

negatív.

$az' - a'z = -0{,}00015970$

$a'z'' - a''z' = -0{,}00011935 = -0{,}00003\,1688$

$az' - a'z = \alpha x(z' - z) + \beta y$

$$\begin{cases} az' - a'z = \alpha(xz' - x'z) + \beta(yz' - y'z) \\ a'z'' - a''z' = \alpha(x'z'' - z'x'') + \beta(y'z'' - z'y'') \end{cases}$$

$-xz' - x'z = -0{,}0019659$

$-yz' - y'z = -0{,}00037540$

$x'z'' - z'x'' = -0{,}00033757$

$-y'z'' - z'y'' = -0{,}0000\,4823$

0,00868

$a = 0{,}02906$ $\quad a' = 1{,}0130$ $\quad a'' = 0{,}0197$

$x = (0{,}44688)^2$ $\quad x' = \left(\frac{1}{3}\right)^2 \frac{1}{9}$ $\quad x'' = \left(\frac{1}{4}\right)^2 \frac{1}{16}$

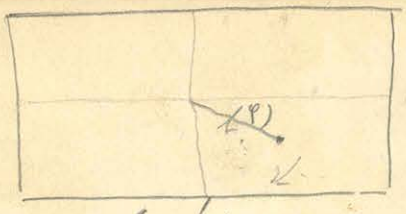
$y = x^{\frac{3}{2}}$ $\quad y' = (x')^{\frac{3}{2}} \frac{1}{27}$ $\quad y'' = \left(\frac{1}{4}\right)^{\frac{3}{2}} \frac{1}{64}$

$z = x^2$ $\quad z' = (x')^2 \frac{1}{81}$ $\quad z'' = \left(\frac{1}{4}\right)^2 \frac{1}{256}$

$\log x = 0{,}3003924 - 1$

$\log y = 0{,}9505886 - 2$

$\log z = 0{,}6007848 - 2$



$$-2\int_0^{\varphi} l\cos\varphi \Big\{ (b+l\sin\varphi)\left[\int_c^{b+l\sin\varphi} a-l\cos\varphi + \int_c^{b+l\sin\varphi} a+l\cos\varphi\right] - (b-l\sin\varphi)\left[\int_c^{b-l\sin\varphi} a-l\cos\varphi + \int_c^{b-l\sin\varphi} a+l\cos\varphi\right] +$$

$$+(a-l\cos\varphi)\left[\int\!\!\int_c^{b+l\sin\varphi} a-l\cos\varphi - \int\!\!\int_c^{b-l\sin\varphi} a-l\cos\varphi\right] + (a+l\cos\varphi)\left[\int\!\!\int_c^{b+l\sin\varphi} a+l\cos\varphi - \int\!\!\int_c^{b-l\sin\varphi} a+l\cos\varphi\right] +$$

$$+ C\left[\int\!\!\int\!\!\int_c^{b+l\sin\varphi} a-l\cos\varphi - \int\!\!\int\!\!\int_c^{b-l\sin\varphi} a-l\cos\varphi + \int\!\!\int\!\!\int_c^{b+l\sin\varphi} a+l\cos\varphi - \int\!\!\int\!\!\int_c^{b-l\sin\varphi} a+l\cos\varphi\right] \Big\}$$

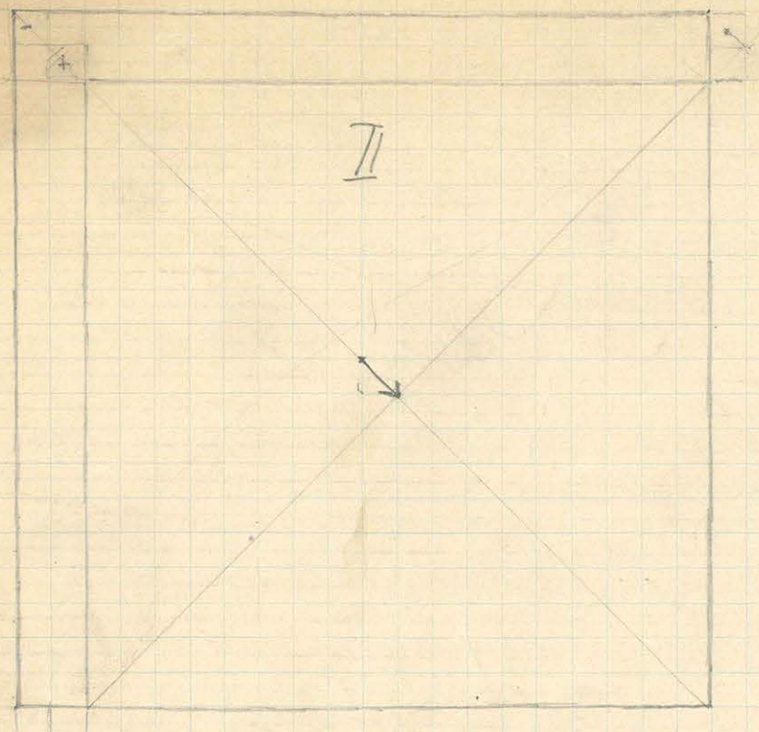
$$+2\int_0^{\varphi} l\sin\varphi \Big\{ (a+l\cos\varphi)\left[\int_c^{a+l\cos\varphi} b+l\sin\varphi + \int_c^{a+l\cos\varphi} b-l\sin\varphi\right] - (a-l\cos\varphi)\left[\int_c^{a-l\cos\varphi} b+l\sin\varphi + \int_c^{a-l\cos\varphi} b-l\sin\varphi\right] +$$

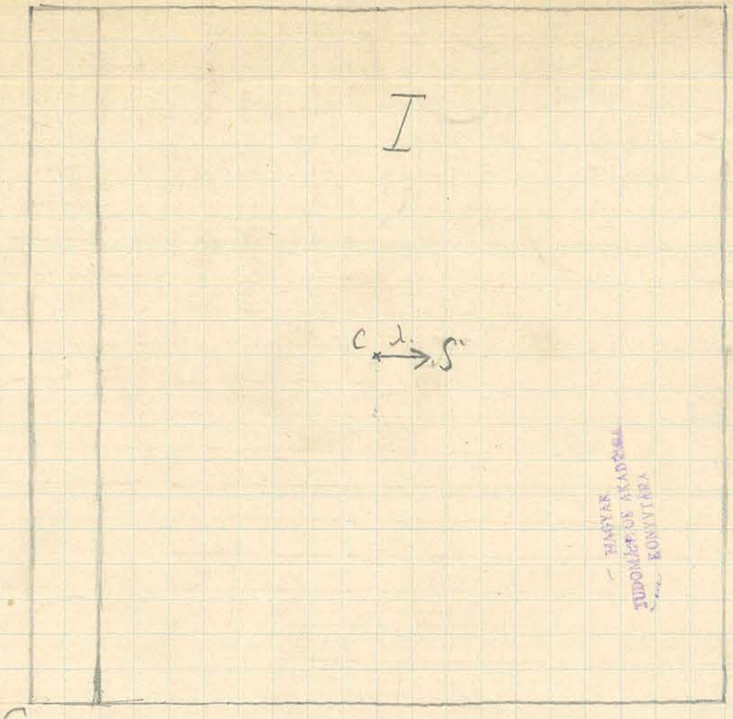
$$+(b-l\sin\varphi)\left[\int\!\!\int_c^{a+l\cos\varphi} b-l\sin\varphi - \int\!\!\int_c^{a-l\cos\varphi} b-l\sin\varphi\right] + (b+l\sin\varphi)\left[\int\!\!\int_c^{a+l\cos\varphi} b+l\sin\varphi - \int\!\!\int_c^{a-l\cos\varphi} b+l\sin\varphi\right] +$$

$$+ C\left[\int\!\!\int\!\!\int_c^{a+l\cos\varphi} b-l\sin\varphi - \int\!\!\int\!\!\int_c^{a-l\cos\varphi} b-l\sin\varphi + \int\!\!\int\!\!\int_c^{a+l\cos\varphi} b+l\sin\varphi - \int\!\!\int\!\!\int_c^{a-l\cos\varphi} b+l\sin\varphi\right] \Big\}$$

$$\int_z^x - \int_z^x - \int_z^{x'} = \frac{1}{2}\log\frac{x^2+y^2}{x'^2+y^2} + \log\frac{z+\sqrt{x'^2+y^2+z^2}}{z+\sqrt{x^2+y^2+z^2}}$$

$$\int_z^x - \int_z^{x'} = \frac{1}{2}\log\frac{x^2+z^2}{x'^2+z^2} + \log\frac{y+\sqrt{x'^2+y^2+z^2}}{y+\sqrt{x^2+y^2+z^2}}$$

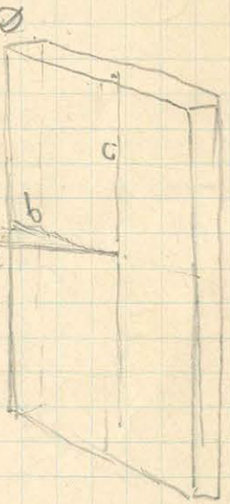




q keresztmetszeti σ sűrűségű felület adott c magasságú origóra vonatkozó r távolsága

$$P = 2\pi\sigma q \frac{c}{r\sqrt{r^2+c^2}}$$

$$\frac{\partial P}{\partial r} = -2\pi\sigma q \frac{c(2r^2+c^2)}{r^2(r^2+c^2)^{\frac{3}{2}}}$$



Véges paralelepipedon D, $2b \times 2c$ méretű keresztmetszetű a normális távolságban $= Q$

$$Q = 4\pi\sigma D\Big|_0^a - 4\pi\sigma \frac{D^3}{24} \frac{abc}{(a^2S^2+b^2c^2)S}\left\{3 - \frac{a^2}{S^2} - 2\frac{(S^2+a^2)^2}{(a^2S^2+b^2c^2)}\right\} \qquad S^2 = a^2+b^2+c^2$$

N

C tól S_{ij} nyújtott mint. I ennek A_I II ennek A_{II}

$$Q_1 = 4\pi\sigma 2\lambda\Big|_0^a - 4\pi\sigma \frac{8\lambda^3}{24} N \qquad A_1 = \int_0^\lambda Q_1 d\lambda = -4\pi\sigma\lambda^2\Big|_0^a + 4\pi\sigma \frac{\lambda^4}{12} N$$

II ennt ömes erő elmozdulásának irányában $R = -\sqrt{2}\cdot 4\pi\sigma\left[\lambda\sqrt{2}\Big|_0^b - \frac{\lambda^3\sqrt{2}}{12}N\right] + 4\pi\sigma\lambda^3 \frac{c(4b^2+c^2)}{2b^2(2b^2+c^2)^{\frac{1}{2}}} + 4\pi\sigma\lambda^3 \frac{c}{2b^2\sqrt{2b^2+c^2}}$

$$A_{II} = -4\pi\sigma\lambda^2\Big|_0^a + 4\pi\sigma\frac{\lambda^4}{4}\left[\frac{2}{3}N + \frac{c(4b^2+c^2)}{2b^2(2b^2+c^2)^{\frac{1}{2}}} + \frac{c}{2b^2\sqrt{2b^2+c^2}}\right]$$

$a = b = 1$

$$A_{II} - A_I = V_{II} - V_I = \int_0^{\frac{\pi}{4}} F\,ds = \int_0^{\frac{\pi}{4}} \alpha_4 \sin 4\varphi\, d\varphi = \frac{\alpha_4}{2} 4 f \sigma \lambda^2$$

$$\alpha_4 = -\frac{1}{12}\lambda^2 \frac{c}{(S^2+c^2)S}\left\{3 - \frac{1}{S^2} - 2\frac{(1+S^2)^2}{S^2+c^2}\right\} + \frac{1}{8}\lambda^2 \frac{c}{\sqrt{2+c^2}} \frac{2+c^2}{2+c^2} \qquad S^2 = 2+c^2$$

Most $c = 2$ mc. $\alpha_4 = 0{,}1664746\,\lambda^2$

Ms 5106/1

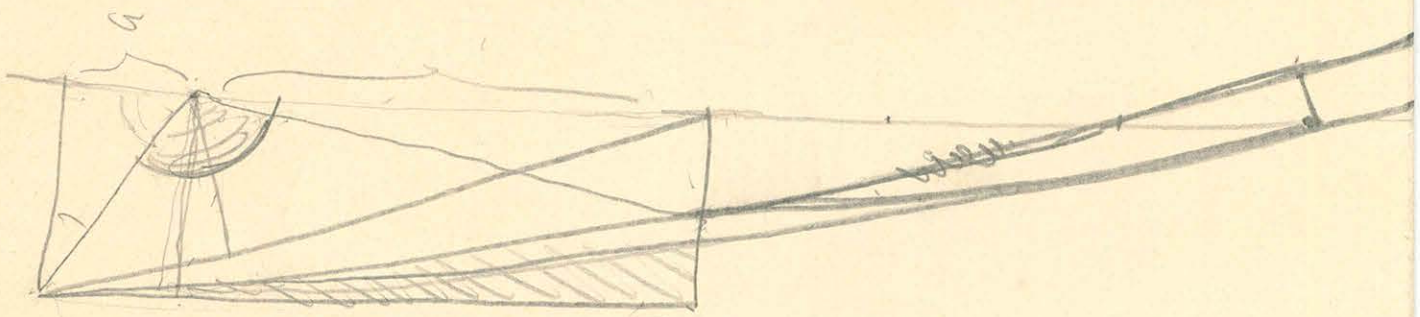
$$\pi - \operatorname{arc}\operatorname{tg}\frac{z}{l-x} - \varphi \ldots$$

$$\pi - \operatorname{arc}\operatorname{tg}\frac{z}{l-x} - \frac{\pi}{2}$$

$$\frac{\pi}{2}$$

$$\operatorname{arc}\operatorname{th}\frac{(l-x)}{z} + \operatorname{arc}\operatorname{th}\frac{x}{l}$$

$$180 - \operatorname{arc}\operatorname{tg}\frac{z}{l-x} - \operatorname{arc}\operatorname{tg}\frac{z}{x}$$



$$\operatorname{arc}\operatorname{tg}\frac{z}{l-x} + \operatorname{arc}\operatorname{tg}\frac{1}{x}$$

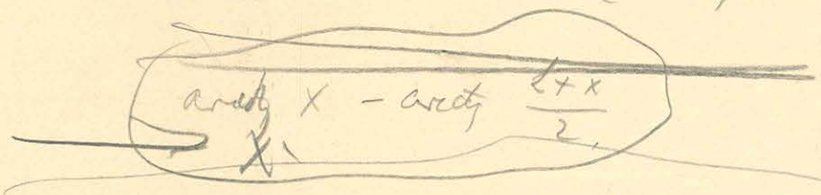
$$\operatorname{arc}\frac{l-x}{2} + \frac{\pi}{2} \operatorname{arc}\operatorname{tg}$$

$$\frac{\frac{1}{x} - \frac{2}{l+x}}{1 + \frac{2}{x(l+x)}}$$

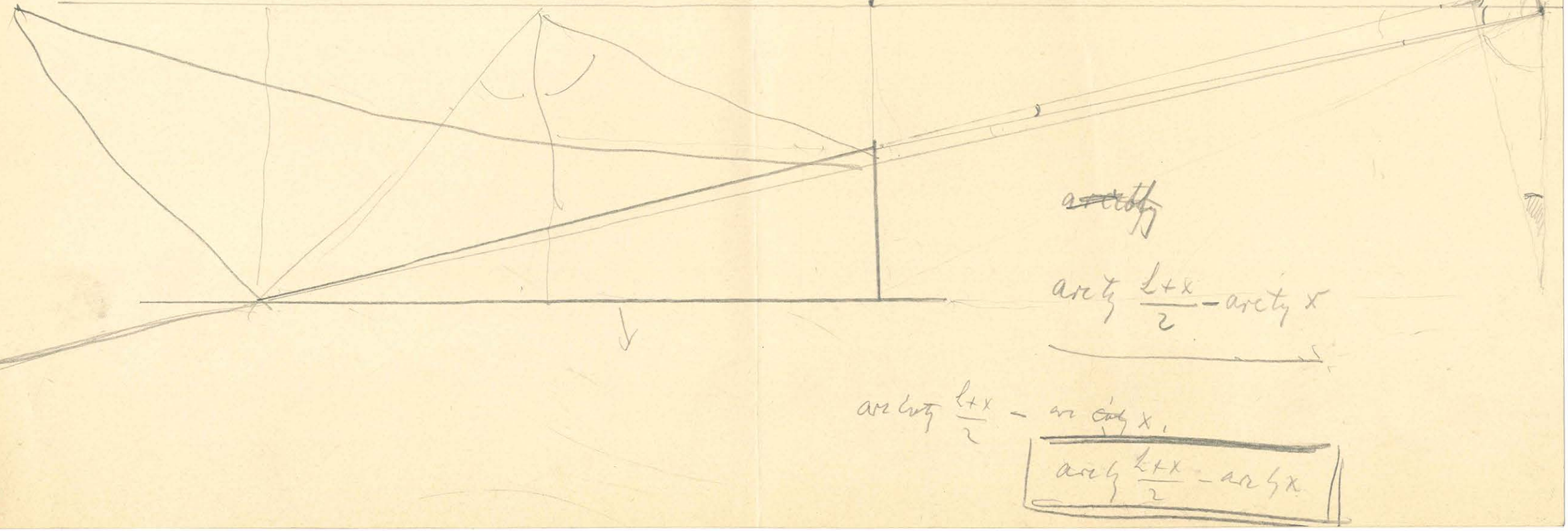
$$\frac{l+x-2x}{2+(l+x)x} \qquad \frac{(l-x)}{2+lx+x^2}$$

$$\frac{\pi}{2} - \operatorname{arctg}\frac{2}{l}$$

$$\operatorname{arctg}\frac{1}{x} - \operatorname{arctg}\frac{2}{(l+x)}$$



$$\operatorname{arctg} x - \operatorname{arctg}\frac{l+x}{2}$$



$$\operatorname{arctg}\frac{l+x}{2} - \operatorname{arctg} x$$

$$\operatorname{arctg}\frac{l+x}{2} - \operatorname{arctg} x.$$

$$\operatorname{arctg}\frac{l+x}{2} - \operatorname{arctg} x$$

$C=1$	$x=$	c^2+x^2	c^2-2x^2	$\ln c^2+x^2$	$\frac{5}{2}\ln(c^2+x^2)$ $=\ln r^5$	$x=0\ \frac{\partial^2 u}{\partial x\,\partial z}=0$ $=\frac{3xc}{r^5}$	$x=0\ \frac{\partial^2 u}{\partial x^2}=1$ $=\frac{c^2-2x^2}{r^5}\cdot\Delta x$
	0,1	1,01	0,98	0,0043214	0,0108035	0,29263	+0,92417
	0,2	1,04	0,92	0,0170333	0,0425832	0,54396	+0,82407
	0,3	1,09	0,82	0,0374265	0,0935662	0,72557	+0,66107
	0,4	1,16	0,68	0,0644580	0,1611450	0,82801	+0,46921
	0,5	1,25	0,50	0,0969100	0,2422750	0,85865	+0,28622
	0,6	1,36	0,28	0,1335389	0,3338472	0,83450	+0,12981
	0,7	1,49	0,02	0,1738663	0,4329658	0,77492	+0,00738
	0,8	1,64	−0,28	0,2148438	0,5371095	0,69679	−0,08729
	0,9	1,81	−0,62	0,2576786	0,6441965	0,61258	−0,14067
	1,0	2,0	−1,00	0,3010300	0,7525750	0,51826	−0,17678
	1,1	2,21	−1,42	0,3443923	0,8609807	0,45450	−0,19557
	1,2	2,44	−1,88	0,3873898	0,9684742	0,38711	−0,20216
	1,3	2,69	−2,38	0,4297523	1,0743808	0,32861	−0,20054
	1,4	2,96	−2,92	0,4712917	1,1782292	0,27863	−0,19371
	1,5	3,25	−3,50	0,5118834	1,2794085	0,23649	−0,18393
	1,6	3,56	−4,12	0,5514500	1,3786250	0,20073	−0,17230
	1,7	3,89	−4,78	0,5899496	1,4748740	0,17088	−0,16016
	1,8	4,24	−5,48	0,6273659	1,5684147	0,14588	−0,14804
	1,9	4,61	−6,22	0,6637009	1,6592522	0,12492	−0,13631
	2,0	5,00	−7,00	0,6989700	1,7474250	0,10733	−0,12522

$\frac{1}{2}$ 2

MS 106/18

1894

Régi mesék

1894.	1	4	7	10	1	4	7	10	
Febr. 7					+ 20	-12	+ 36	+ 64	+11,7
8	- 22	- 28	0	+ 15	+ 32	+ 25	+ 70	+ 95	+ 23,0
9	+ 20	- 16	+ 15	- 18	+ 68	+ 18	+ 120	+ 105	+ 40,2
10	+ 35	- 20	+ 18	0	+ 18	- 50	+ 18	+ 40	- 39,0
11	- 66	- 66	- 48	- 90	- 50	+ 200	+ 310	+ 300	+ 216,0
12	+ 218	+ 196	+ 180	+ 150	+ 174	+ 152	+ 256	+ 258	+ 191,3
13	+ 170	+ 140	+ 183	+ 180	+ 12	- 20	+ 74	+ 90	+ 21,8
14	+ 30	0	+ 8	- 20	+ 8	+ 10	+ 120	+ 132	+ 39,3
15	+ 26	+ 12	+ 22	- 8	+ 22	+ 8	+ 122	+ 140	+ 49,3
16	+ 40	+ 18	+ 28	+ 16	+ 39	+ 40	+ 156	+ 144	+ 68,9
17	+ 50	+ 26	+ 56	+ 40	+ 50	+ 62	+ 195	+ 182	+ 90,6
18	+ 72	+ 70	+ 72	+ 22	+ 90	+ 80	+ 214	+ 196	+ 122,1
19	+ 128	+ 94	+ 105	+ 70					
März 1					+ 44	0	+ 160	+ 182	92,5
2	+ 118	+ 86	+ 90	+ 60	+ 140	+ 96	+ 196	+ 230	144,6
3	+ 162	+ 122	+ 126	+ 85	+ 40	- 145	+ 65	+ 110	13,1
4	+ 35	0	0	0	0	- 56	+ 74	+ 90	+ 6,0
5	0	- 20	- 15	- 25		- 10	+ 100	+ 98	+ 28,8
6	+ 36	+ 10	+ 12	- 16	0	- 70	+ 105	+ 144	+ 34,1
7	+ 50	+ 18	+ 10	0	+ 16	- 40	+ 104	+ 80	+ 36,8
8	+ 72	+ 20	+ 40	+ 8	+ 10	- 42	+ 104	+ 120	+ 30,0
9	+ 24	0	+ 16	- 12	+ 30		+ 128	+ 136	+ 60,0
10	+ 40	+ 22	+ 34	0	0	- 80	+ 64	+ 94	+ 14,5
11	+ 46	+ 8	+ 8	- 24					
12					+ 24	0	+ 70	+ 112	+ 28,9
13	+ 20	+ 22	+ 20	- 8	+ 24	- 50	+ 22	+ 54	- 21,1
14	- 30	- 44	- 36	- 50	- 16	- 40	+ 76	+ 114	+ 18,0
15	+ 14	0	+ 10	- 18	- 22	- 30			
16						+ 10	+ 70	+ 100	+ 35,7
17	+ 10	0	+ 14	+ 46	+ 30	- 10	+ 112	+ 112	+ 31,5
18	+ 18	0	+ 10	+ 10	+ 120	+ 84	+ 164	+ 170	+ 100,5
19	+ 96	+ 60	+ 60	+ 54					

$$V = a_0 + a_1\frac{\partial V}{\partial x} + a_2\frac{\partial V}{\partial y} + a_3\frac{\partial V}{\partial z} + a_{11}\frac{\partial^2 V}{\partial x^2} + a_{12}\frac{\partial^2 V}{\partial x \partial y} + a_{13}\frac{\partial^2 V}{\partial x \partial z} +$$

$$V = a_0 + a_1 x + a_2 y + a_3 z + a_{11}x^2 + a_{12}xy + a_{13}xz + a_{22}y^2 + a_{23}yz + a_{33}z^2$$

$$\frac{\partial x_c}{\partial x} = \alpha\frac{\partial^3 u_c}{\partial x^3} + \beta\frac{\partial^3 u_c}{\partial x \partial y^2} + \gamma\frac{\partial^3 u_c}{\partial x \partial z^2} + \left(\frac{\partial x_c}{\partial x}\right)_1$$

$$\frac{\partial x_c}{\partial y} = \alpha\frac{\partial^3 u_c}{\partial x^2 \partial y} + \beta\frac{\partial^3 u_c}{\partial y^3} + \gamma\frac{\partial^3 u_c}{\partial y \partial z^2}$$

$$\frac{\partial y_c}{\partial x} = \alpha\frac{\partial^3 u_c}{\partial x^2 \partial y} + \beta\frac{\partial^3 u_c}{\partial x \partial y^2} + \gamma\frac{\partial^3 u_c}{\partial x \partial z^2}$$

$$\frac{\partial y_c}{\partial y} = \alpha\frac{\partial^3 u_c}{\partial x \partial y^2} + \beta\frac{\partial^3 u_c}{\partial y^3} + \gamma\frac{\partial^3 u_c}{\partial y \partial z^2}$$

$$\frac{\partial y_c}{\partial z} = \alpha\frac{\partial^3 u_c}{\partial x^2 \partial z} + \beta\frac{\partial^3 u_c}{\partial y^2 \partial z} + \gamma\frac{\partial^3 u_c}{\partial z^3}$$

$$\frac{\partial z_c}{\partial x} = \alpha\frac{\partial^3 u_c}{\partial x^2 \partial z} + \beta\frac{\partial^3 u_c}{\partial x \partial y \partial z} + \gamma\frac{\partial^3 u_c}{\partial y^2 \partial z}$$

$$\frac{\partial z_c}{\partial y} = \alpha\frac{\partial^3 u_c}{\partial x \partial y \partial z} + \beta\frac{\partial^3 u_c}{\partial y^2 \partial z} + \gamma\frac{\partial^3 u_c}{\partial z^3}$$

$$\frac{\partial}{\partial x}(\quad) = -6a_{111} + 2a_{122} + 2\frac{\partial}{\partial y}\left(\frac{\partial^2 u_c}{\partial x \partial y}\right)$$

$$-6a_{111} = \frac{\partial}{\partial x}(\quad) - 2\frac{\partial}{\partial y}\left(\frac{\partial^2 u_c}{\partial x \partial y}\right)$$

$$\frac{\partial x_c'}{\partial x} \qquad \frac{\partial x_{c+1}}{\partial x}$$

$$6\frac{\partial^2 u_c}{\partial x^2} = \frac{\partial}{\partial x}\left(\frac{\partial^2 u_c}{\partial y^2} - \frac{\partial^2 u_c}{\partial x^2}\right)$$

$$U = a_0 + a_1 x + a_2 y + a_3 z$$
$$+ a_{11}x^2 + a_{22}y^2 + a_{33}z^2 + a_{12}xy + a_{23}yz + a_{31}zx$$
$$+ a_{111}x^3 + a_{222}y^3 + a_{333}z^3 + a_{122}xy^2 + a_{133}xz^2 + a_{233}yz^2 + a_{211}yx^2 + a_{311}zx^2 + a_{322}zy^2 + a_{123}xyz$$

$$\frac{\partial U}{\partial x} = a_1 + 2a_{11}x + a_{12}y + a_{31}z + 3a_{111}x^2 + a_{122}y^2 + a_{133}z^2 + 2a_{211}xy + 2a_{311}xz + a_{123}yz$$

$$\frac{\partial U}{\partial y} = a_2 + 2a_{22}y + a_{12}x + a_{23}z + 3a_{222}y^2 + a_{211}x^2 + a_{233}z^2 + 2a_{122}xy + 2a_{322}yz + a_{123}xz$$

$$\frac{\partial U}{\partial z} = a_3 + 2a_{33}z + a_{31}x + a_{23}y + 3a_{333}z^2 + a_{311}x^2 + a_{322}y^2 + 2a_{133}xz + 2a_{233}yz + a_{123}xy$$

$$\frac{\partial^2 U}{\partial x \partial z} = + a_{31} + 2a_{133}z + 2a_{311}x + a_{123}y$$

$$\frac{\partial^2 U}{\partial y \partial z} = + a_{23} + 2a_{233}z + 2a_{322}y + a_{123}x$$

$$\frac{\partial^2 U}{\partial x \partial y} = + a_{12} + 2a_{122}y + 2a_{211}x + a_{123}z$$

$$\frac{\partial^2 U}{\partial x^2} = + 2a_{11} + 6a_{111}x + 2a_{211}y + 2a_{311}z$$

$$\frac{\partial^2 U}{\partial y^2} = + 2a_{22} + 6a_{222}y + 2a_{122}x + 2a_{322}z$$

$$\frac{\partial^2 U}{\partial y^2} - \frac{\partial^2 U}{\partial x^2} = 2(a_{22} - a_{11}) + (6a_{222} - 2a_{211})y - (6a_{111} - 2a_{122})x + 2(a_{322} - a_{311})z$$

$$\frac{\partial^2 U}{\partial x^2} + \frac{\partial^2 U}{\partial y^2} = 2(a_{11} + a_{22}) + (6a_{222} + 2a_{211})y + (6a_{111} + 2a_{122})x + 2(a_{322} + a_{311})z$$

$$\frac{\partial^2 U}{\partial z^2} = + 2a_{33} + 6a_{333}z + 2a_{133}x + 2a_{233}y$$

$$\frac{\partial^2 U}{\partial x^2} + \frac{\partial^2 U}{\partial y^2} = 2(a_{11} + a_{22}) + 6a_{222} + 2a_{211})y + 6(a_{111} + 2a_{122})x$$

$$\text{és} \quad \frac{\partial^2 U}{\partial z^2} = 2a_{33} + 2a_{233}y + 2a_{133}x$$

$$\begin{cases} -a_{33} = a_{11} + a_{22} \\ -a_{133} = 3a_{111} + a_{122} \\ -a_{233} = 3a_{222} + a_{211} \\ -a_{333} = \frac{1}{3}a_{322} + \frac{1}{3}a_{311} \end{cases}$$

$z = 0$ ra.

$$\frac{\partial u}{\partial x \partial z} = a_{31} + 2a_{311}x + a_{123}y \quad 1)$$

$$\frac{\partial u}{\partial y \partial z} = a_{23} + 2a_{322}y + a_{123}x \quad 2)$$

$$\frac{\partial^2 u}{\partial x \partial y} = a_{12} + 2a_{122}y + a_{211}x \quad 3)$$

$$\frac{\partial^2 u}{\partial y^2} - \frac{\partial^2 u}{\partial x^2} = 2(a_{22} - a_{11}) + (6a_{222} - 2a_{211})y - (6a_{111} - 2a_{122})x \quad 4)$$

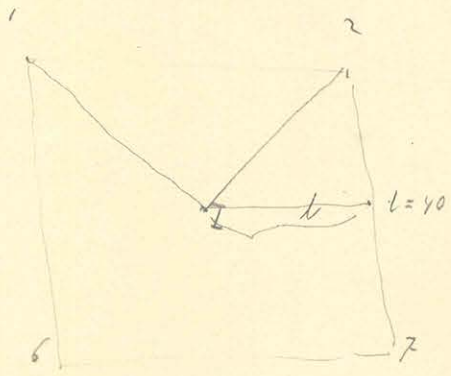
adva van a_0

$a_1\ a_2\ a_3\ a_{33}$

$2(a_{22} - a_{11})$ és így $a_{11} + a_{22} = a_{33}$ a_{33}, a_{11}, a_{22}

$6a_{222} + 2a_{211}$ adj a_{222}

$6a_{111} - 2a_{122}$ adj a_{111}



1, 2, I állomásról Coordinata kiegyenl. I

II egyenl.

1áll.	$+41,74.10^{-9} = a_{31} + 80a_{311} - 40a_{123}$	$a_{31} = +39,57.10^{-9}$
2áll	$+36,59\ 10^{-9} = a_{31} + 80a_{311} + 40a_{123}$	$a_{311} = -0,0047.10^{-9}$
Iáll.	$+39,54.10^{-9} = a_{31}$	$a_{123} = -0,0644.10^{-9}$

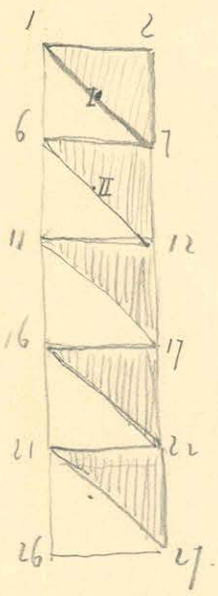
2 egyenl.

1áll	$-59,45.10^{-9} = a_{23} - 80a_{322} + 40a_{123}$	$a_{23} = -63,65.10^{-9}$
2áll	$-70,17..10^{-9} = a_{23} + 80a_{322} + 40a_{123}$	$a_{322} = -0,0670.10^{-9}$
Iáll.	$-63,65.10^{-9} = a_{23}$	$a_{123} = -0,0265.10^{-9}$
	$-64,12$	

U harmadfokú alakjára számítás.

I feltétel $U = a_0 \quad \frac{\partial U}{\partial x} = a_1 = \xi \quad \frac{\partial U}{\partial \eta} = a_2 = \eta \quad \frac{\partial U}{\partial z} = a_3 = g_0$

$$\frac{\partial^2 U}{\partial z^2} = 2a_{33} = C$$



Megoldás: 1,2,7 kerületpont I.

1 egyenlet:

$$41{,}74 \cdot 10^{-9} = a_{31} + 80 a_{311} - 40 a_{123}$$
$$36{,}59 \cdot 10^{-9} = a_{31} + 80 a_{311} + 40 a_{123}$$
$$39{,}70 \cdot 10^{-9} = a_{31} - 80 a_{311} + 40 a_{123}$$

$a_{31} = +40{,}72 \cdot 10^{-9}$

$a_{311} = -0{,}0194 \cdot 10^{-9}$

$a_{123} = -0{,}0644 \cdot 10^{-9}$

2 egyenlet.

$$-59{,}45 \cdot 10^{-9} = a_{23} - 80 a_{322} + 40 a_{123}$$
$$-70{,}17 \cdot 10^{-9} = a_{23} + 80 a_{322} + 40 a_{123}$$
$$-65{,}90 \cdot 10^{-9} = a_{23} + 80 a_{322} - 40 a_{123}$$

$a_{23} = -62{,}68 \cdot 10^{-9}$

$a_{322} = -0{,}0670 \cdot 10^{-9}$

$a_{123} = -0{,}0534 \cdot 10^{-9}$

3 egyenlet

$$+9{,}84 = a_{12} - 80 a_{122} + 40 a_{211}$$
$$+32{,}05 = a_{12} + 80 a_{122} + 40 a_{211}$$
$$+10{,}79 = a_{12} + 80 a_{122} - 40 a_{211}$$

$a_{12} = +10{,}32 \cdot 10^{-9}$

$a_{122} = +0{,}1388 \cdot 10^{-9}$

$a_{211} = +0{,}2658 \cdot 10^{-9}$

4 egyenlet.

$$+187{,}82 = 2(a_{22} - a_{11}) - 80(6a_{222} - 2a_{211}) - (6a_{111} - 2a_{122}) 40$$
$$+110{,}45 = 2(a_{22} - a_{11}) + 40(6a_{222} - 2a_{211}) - (6a_{111} - 2a_{122}) 40$$
$$+84{,}64 = 2(a_{22} - a_{11}) + 40(6a_{222} - 2a_{211}) + (6a_{111} - 2a_{122}) 40$$

$2(a_{22} - a_{11}) = +133{,}23 \cdot 10^{-9}$

$6a_{222} - 2a_{211} = -0{,}8921 \cdot 10^{-9}$

$6a_{111} - 2a_{122} = -0{,}3226 \cdot 10^{-9}$

$$\begin{cases} -\frac{c}{2} = a_{11} + a_{22} \\ +66{,}62 = a_{22} - a_{11} \end{cases}$$

$a_{11} = -\frac{c}{4} - 33{,}31 \cdot 10^{-9}$

$a_{22} = -\frac{c}{4} + 33{,}31 \cdot 10^{-9}$

$a_{33} = +\frac{c}{2}$

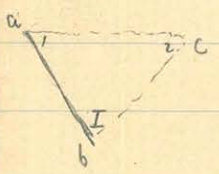
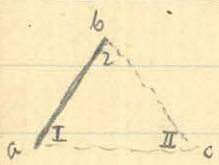
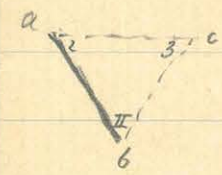
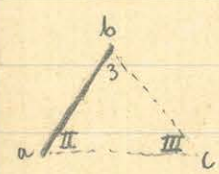
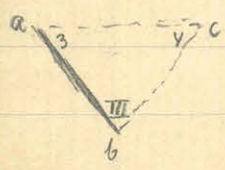
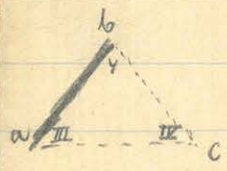
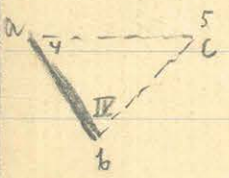
$a_{222} = -0{,}0601 \cdot 10^{-9}$

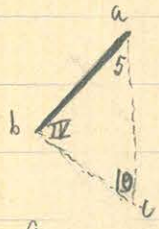
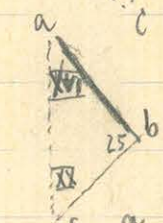
$a_{111} = -0{,}0075 \cdot 10^{-9}$

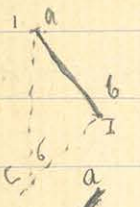
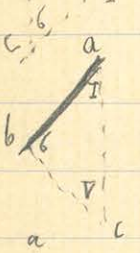
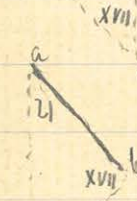
$a_{133} = -0{,}1163 \cdot 10^{-9}$

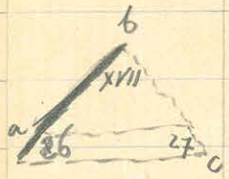
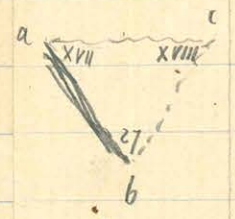
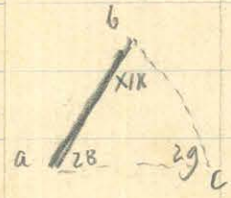
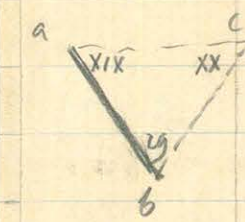
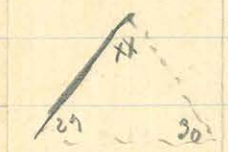
$a_{233} = -0{,}0855 \cdot 10^{-9}$

$a_{333} = +0{,}0288 \cdot 10^{-9}$

	B_c+B_a	A_b+A_c	$\frac{1}{2}(B_c+B_a)$	$\frac{1}{4}(A_b+A_c)$	ξ_{bc}	η_{bc}
		+301,49		+75,37	$\xi_{I,I} = K$	$\eta_{I,I} = +75,37 l - K$
	+41,89	+230,12	+20,95	+57,53	$\xi_{I,2} = +20,95 l - K$	$\eta_{I2} = +78,48 l - K$
	+30,53	+191,02	+15,27	+47,75	$\xi_{2I} = -5,68 l + K$	$\eta_{2II} = +53,43 l - K$
	+45,43	+144,52	+22,72	+36,13	$\xi_{II3} = +28,40 l - K$	$\eta_{II3} = +64,53 l - K$
	+18,12	+133,09	+9,06	+33,27	$\xi_{3III} = -19,34 l + K$	$\eta_{3III} = +52,61 l - K$
	+9,66	+133,60	+4,83	+33,40	$\xi_{III,4} = +24,17 l - K$	$\eta_{III,4} = +57,57 l - K$
	-11,17	+155,25	-5,58	+38,81	$\xi_{4IV} = -29,75 l + K$	$\eta_{4IV} = +68,56 l - K$
	-49,87	+189,28	-24,94	+47,32	$\xi_{IV,5} = +4,81 l - K$	$\eta_{IV5} = +52,13 l - K$
					$\xi_{1,5} = +23,56 l$	$\eta_{1,5} = +502,68 - 8K$

	$B_c + B_a$	$A_b + A_c$	$\frac{1}{2}(B_c + B_a)$	$\frac{1}{4}(A_b + A_c)$	ξ_{bc}	η_{bc}
					$\xi_{5\,IV} = -4,87l + K$	$\eta_{5\,IV} = -52,13l + K$
	−56,75	+209,72	−28,38	+52,43	$\xi_{IV,10} = -28,08l + K$	$\eta_{IV,10} = +80,50l - K$
	−15,04	+213,93	−7,55	+53,48	$\xi_{10\,VIII} = -19,47l + K$	$\eta_{10,VIII} = -72,95l + K$
	−10,94	+204,05	−5,47	+51,01	$\xi_{VIII,15} = -27,41l + K$	$\eta_{VIII,15} = +78,42l - K$
	+4,92	+209,55	+2,46	+52,39	$\xi_{15\,XII} = -28,49 + K$	$\eta_{15,XII} = -80,88l + K$
	+8,13	+227,00	+4,07	+56,75	$\xi_{XII\,20} = -20,06l + K$	$\eta_{XII,20} = +76,81l - K$
	+18,97	+241,32	+9,49	+60,33	$\xi_{20\,XVI} = -25,97l + K$	$\eta_{20\,XVI} = -86,30l + K$
	+28,08	+266,45	+14,04	+66,61	$\xi_{XVI,25} = -5,65l + K$	$\eta_{XVI,25} = +72,26l - K$
	+41,83	+302,01	+20,92	+75,50	$\xi_{25\,XX} = -17,68l + K$	$\eta_{25\,XX} = -93,18l + K$
	+43,82	+341,48	+21,91	+85,37	$\xi_{XX,30} = +14,10 + K$	$\eta_{XX\,30} = +71,27 - K$
					$\xi_{5,30} = -163,52 + 10K$	$\eta_{5,30} = -6,18$

		B_c+B_a	A_b+A_c	$\frac{1}{2}(B_c+B_a)$	$\frac{1}{4}(A_b+A_c)$	ξ_{bc}	η_{bc}
$+k$						$\xi_{I,I} = k$	$\eta_{I,I} = +75,37\,l - k$
		$+7,41$	$+225,41$	$+3,71$	$+56,35$	$\xi_{I,6} = -22,73 + k$	$\eta_{I,6} = -79,08\,l + k$
$-k$		$+20,30$	$+182,08$	$+10,15$	$+45,52$	$\xi_{6,V} = -23,41 + k$	$\eta_{6,V} = +68,93 - k$
$+k$		$+0,06$	$+134,19$	$+0,03$	$+33,55$	$\xi_{V,11} = -35,41 + k$	$\eta_{V,11} = -68,96 + k$
$-k$		$+14,61$	$+123,57$	$+7,31$	$+30,87$ ~~$+40,89$~~	$\xi_{11,IX} = -30,76$ ~~$-20,76$~~ $+ k$	$\eta_{11,IX} = +61,65 - k$
$+k$		$+19,42$	$+138,74$	$+9,71$	$+34,69$ ~~$+44,69$~~	$\xi_{IX,16} = -36,67$ ~~$-26,67$~~ $+ k$	$\eta_{IX,16} = -71,36 + k$
$-k$		$+22,88$	$+163,01$	$+11,44$	$+40,75$	$\xi_{16,XIII} = -19,17 + k$	$\eta_{16\,XIII} = +59,92 - k$
$+k$		$+31,53$	$+227,54$	$+15,77$	$+56,89$	$\xi_{XIII,21} = -18,80 + k$	$\eta_{XIII\,21} = -75,69 + k$
$-k$		$+10,01$	$+281,26$	$+5,01$	$+70,32$	$\xi_{21,XVII} = -0,29 + k$	$\eta_{21,XVII} = +70,61 - k$
$+k$		$+11,33$	$+356,06$	$+5,67$	$+89,02$	$\xi_{XVII,26} = +12,74 + k$	$\eta_{XVII\,26} = -76,28 + k$
$-k$							
						~~$-154,50 + 10\,k$~~ $-174,50 + 10\,k$ $= \xi_{1,26}$	$\eta_{1,26} = -34,89$

	(B_c+B_a)	(A_b+A_c)	$\frac{1}{2}(B_c+B_a)$	$\frac{1}{4}(A_b+A_c)$	ξ_{bc}	η_{bc}
					$\xi_{26\,XVII} = -12{,}74 - k$	$\eta_{26\,XVII} = +76{,}28 - k$
	−27,03	+256,99	−13,52	+64,25	$\xi_{XVII\,27} = -0{,}78 + k$	$\eta_{XVII\,27} = +65{,}03 - k$
	−2,99	+199,94	−1,50	+49,99	$\xi_{27\,XVIII} = -0{,}72 - k$	$\eta_{27\,XVIII} = +49{,}27 - k$
	−6,95	+149,55	−3,48	+37,39	$\xi_{XVIII\,28} = -2{,}76 + k$	$\eta_{XVIII\,28} = +40{,}15 - k$
	+24,23	+163,09	+12,12	+40,77	$\xi_{28\,XIX} = +14{,}88 - k$	$\eta_{28\,XIX} = +55{,}65 - k$
	+58,59	+240,52	+29,30	+60,13	$\xi_{XIX\,29} = +14{,}42 + k$	$\eta_{XIX\,29} = +45{,}71 - k$
	+52,77	+289,80	+26,39	+72,45	$\xi_{29\,XX} = +11{,}97 - k$	$\eta_{29\,XX} = +84{,}42 - k$
	+65,97	+341,48	+32,99	+85,37	$\xi_{XX\,30} = +21{,}02 + k$	$\eta_{XX\,30} = +64{,}35 - k$
					$\xi_{26,30} = +45{,}29$	$\eta_{26,30} = +480{,}86 - 8k$

$$-\alpha\left(\frac{1}{\rho_1}+\frac{1}{\rho_2}\right)\delta n\,\delta t - z\sigma_y\,\delta n\,\delta t + \frac{\partial\alpha}{\partial\vartheta}\delta n\,\delta t = 0$$ Ez hiperbola

$$-\alpha\left(\frac{1}{\rho_1}+\frac{1}{\rho_2}\right) = z\sigma_y - \frac{\partial\alpha}{\partial\vartheta}$$ ebből

$$\frac{1}{\rho_1}+\frac{1}{\rho_2} = -z\frac{\sigma_y}{\alpha} + \frac{1}{\alpha}\cdot\frac{\partial\alpha}{\partial\vartheta}$$

$\alpha'' - \alpha'$

$\frac{\partial\alpha}{\partial\vartheta}\delta n\,\delta t$.

$$\frac{1}{\rho_1}+\frac{1}{\rho_2} = -\frac{\sigma_y}{\alpha}z + \frac{1}{\alpha}\frac{\partial\alpha}{\partial\vartheta}$$

$$-\frac{\sigma_y}{\alpha} = \frac{2}{a^2}$$

$$a^2 = -\frac{2\alpha}{\sigma_y}$$

$$\frac{1}{\alpha}\frac{\partial\alpha}{\partial\vartheta} = B$$

$$\frac{1}{\rho_1}+\frac{1}{\rho_2} = \frac{2z}{a^2} + B$$

$$u = 1+\left(\frac{dz}{dx}\right)^2 \qquad \frac{du}{u^{\frac{3}{2}}} = \frac{2z\,dz}{a^2} + B\,dz$$

$$\frac{du}{2u^{\frac{3}{2}}} \qquad -\cos\varphi = \frac{z^2}{a^2} + Bz + C$$

ha $z=0$ $\varphi=0$ $\quad C=-1$

$$1-\cos\varphi = \frac{z^2}{a^2} + Bz \qquad -\cos\varphi = \frac{z^2}{a^2} + Bz - 1$$

$$2a^2\sin^2\frac{\varphi}{2} = z^2 + Ba^2z$$

$$\frac{dz}{dx} = \operatorname{tg}\varphi = \frac{\sqrt{1-\cos^2\varphi}}{\cos\varphi}$$ Abból

$$z = -\frac{Ba^2}{2} \pm \sqrt{\frac{B^2a^4}{4} + 2a^2\sin^2\frac{\varphi}{2}}$$

a gyök negatív mert az első z mert akkor jól ha z negatív
akkor jól ha z pozitív

$$\frac{dz}{dx} = \operatorname{tg}\varphi \qquad \pm\frac{1}{2}\frac{1}{\sqrt{\frac{B^2a^4}{4}+2a^2\sin^2\frac{\varphi}{2}}}\,2a^2\sin\frac{\varphi}{2}\cos\frac{\varphi}{2}\,\frac{d\varphi}{dx} = \operatorname{tg}\varphi$$

$$\pm\frac{1}{2}\frac{a^2}{\sqrt{\frac{B^2a^4}{4}+2a^2\sin^2\frac{\varphi}{2}}}\,\frac{d\varphi}{dx} = \frac{1}{\cos\varphi}$$

$$dx = \pm\frac{1}{2}\frac{a^2\cos\varphi\,d\varphi}{\sqrt{\frac{B^2a^4}{4}+2a^2\sin^2\frac{\varphi}{2}}}$$ Integrálva

1

$$dx = \frac{\mp 1}{2} \frac{a^2 \cos\varphi}{\sqrt{\frac{B^2a^4}{4} + 2a^2 \sin^2\frac{\varphi}{2}}}\, d\varphi$$

$E(\varphi)$ = Mindigfajú

$F(\varphi)$ elsőfajú

k Modulus

ha $B = 0$ akkor.

$$dx = \pm\frac{1}{2}\frac{a}{\sqrt{2}} \frac{\cos\varphi}{\sin\frac{\varphi}{2}}\, d\varphi \qquad \cos\varphi = \cos^2\frac{\varphi}{2} - \sin^2\frac{\varphi}{2}$$

$$= 1 - 2\sin^2\frac{\varphi}{2}$$

$$dx = \pm\frac{1}{2}\frac{a}{\sqrt{2}}\left[\frac{d\varphi}{\sin\frac{\varphi}{2}} - 2\sin\frac{\varphi}{2}\, d\varphi\right]$$

$$x = \pm\frac{1}{2}\frac{a}{\sqrt{2}}\left[\int\frac{d\varphi}{\sin\frac{\varphi}{2}} - 2\int\sin\frac{\varphi}{2}\, d\varphi\right]$$

$$\int\frac{dx}{\sin x} = \log \operatorname{tg}\frac{x}{2} \qquad \frac{\varphi}{2} = x \qquad d\varphi = 2dx$$

$$\int\frac{d\varphi}{\sin\frac{\varphi}{2}} = 2\log\operatorname{tg}\frac{x}{2} = 2\log\operatorname{tg}\frac{\varphi}{4}$$

$$\int\sin\frac{\varphi}{2}\, d\varphi = -2\cos\frac{\varphi}{2}$$

$$x = \pm\frac{1}{2}\frac{a}{\sqrt{2}}\left[2\log\operatorname{tg}\frac{\varphi}{4} + 4\cos\frac{\varphi}{2}\right]$$

$$x = \pm\frac{1}{2}a\sqrt{2}\left[\log\operatorname{tg}\frac{\varphi}{4} + 2\cos\frac{\varphi}{2}\right.$$

$$x = \pm\, a\sqrt{2}\left[\frac{1}{2}\log\operatorname{tg}\frac{\varphi}{4} + \cos\frac{\varphi}{2}\right)$$

$$dx = \pm\frac{1}{2}\frac{a^2\cos\varphi}{\sqrt{\frac{B^2a^4}{4} + 2a^2\sin^2\frac{\varphi}{2}}}\, d\varphi$$

Ennyes
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$$dx = \pm\frac{1}{2}\frac{a^2}{\frac{Ba^2}{2}}\frac{\cos\varphi}{\sqrt{1 + \frac{2a^2}{\frac{B^2a^4}{4}}\sin^2\frac{\varphi}{2}}} = \pm\frac{1}{B}\frac{\cos\varphi}{\sqrt{1 + \frac{8}{B^2a^2}\sin^2\frac{\varphi}{2}}}\, d\varphi$$

$$\frac{\varphi}{2} = \psi \qquad d\varphi = 2d\psi$$

$$dx = \pm\frac{2}{B}\frac{\cos 2\psi}{\sqrt{1 + m\sin^2\psi}}\, d\psi \qquad m = \frac{8}{B^2a^2}$$

$$\psi = \frac{\pi}{2} - \vartheta$$

$$dx = \pm\frac{2}{B}\frac{+\cos 2\vartheta}{\sqrt{1 + m\cdot\cos^2\vartheta}}\, d\vartheta = \pm\frac{2}{B}\frac{\cos 2\vartheta}{\sqrt{1 + m - m\sin^2\vartheta}}$$

$$dx = \pm\frac{2}{B\sqrt{1+m}}\frac{\cos 2\vartheta}{\sqrt{1 - \frac{m}{1+m}\sin^2\vartheta}} \qquad \frac{m}{1+m} = k^2$$

$$dx = \pm\frac{2}{B\sqrt{1+m}}\left[\frac{d\vartheta}{\sqrt{1 - k^2\sin^2\vartheta}}\, d\vartheta - 2\frac{\sin^2\vartheta}{\sqrt{1 - k^2\sin^2\vartheta}}\, d\vartheta\right]$$

$$x - x' = \frac{2}{\beta\sqrt{1+m}} \left\{ \int_0^{\vartheta'} \frac{d\vartheta}{\sqrt{1-k^2\sin^2\vartheta}} d\vartheta - \int_0^{\vartheta} \frac{d\vartheta'}{\sqrt{1-k^2\sin^2\vartheta}} d\vartheta \right.$$

$$\left. - 2\int_0^{\vartheta'} \frac{\sin^2\vartheta}{\sqrt{1-k^2\sin^2\vartheta}} d\vartheta + 2\int_0^{\vartheta} \frac{\sin^2\vartheta}{\sqrt{1-k^2\sin^2\vartheta}} d\vartheta \right\}$$

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$$x - x' = \frac{2}{\beta\sqrt{1+m}} \left\{ F(\vartheta') - F(\vartheta) - 2\frac{F(\vartheta') - E(\vartheta')}{k^2} + 2\frac{F(\vartheta) - E(\vartheta)}{k^2} \right\}$$

$$\frac{m}{1+m} = k^2$$

$$\frac{1}{m} + 1 = \frac{1}{k^2} \qquad \frac{1}{m} = \frac{1}{k^2} - 1 = \frac{1-k^2}{k^2}$$

$$m = \frac{k^2}{1-k^2}$$

$$1 + m = \frac{1}{1-k^2} \qquad \sqrt{1+m} = \frac{1}{\sqrt{1-k^2}}$$

$x - x' = 2$

$$\beta = \frac{\sqrt{8}}{a\sqrt{m}} = \frac{\sqrt{8}}{ak}\sqrt{1-k^2} \qquad a^2k^2\beta^2 = 8(1-k^2) = 8 - 8k^2$$

$$\frac{1}{\beta} = \frac{ak}{\sqrt{8}}\frac{1}{\sqrt{1-k^2}} \qquad \frac{1}{\sqrt{1+m}} = \sqrt{1-k^2} \qquad a^2k^2\beta^2 + 8k^2 = 8$$

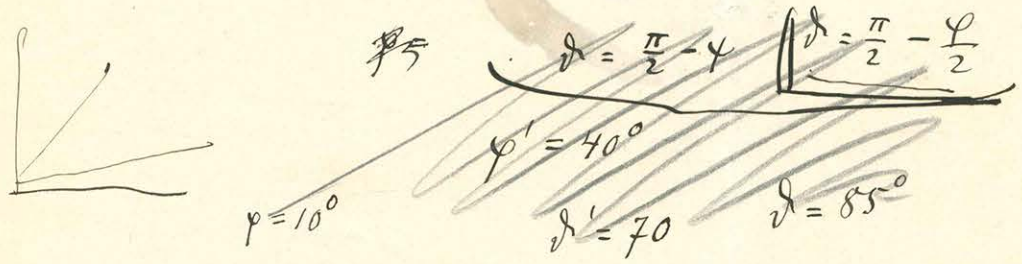
$$k^2(8 + a^2\beta^2) = 8$$

$$k = \sqrt{\frac{8}{8+a^2\beta^2}}$$

$$x - x' = \frac{a}{\sqrt{2}} k \left\{ F(\vartheta') - F(\vartheta) \right.$$

$$x - x' = \frac{a}{\sqrt{2}} \left\{ k F(\vartheta') - k F(\vartheta) \right.$$

$$\frac{(x-x')\sqrt{2}}{a} = k F(\vartheta') - k F(\vartheta) - \frac{2}{k}\left(F(\vartheta') - E(\vartheta')\right) - \left(F(\vartheta) - E(\vartheta)\right)$$

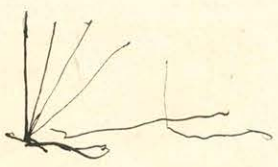


1 esetben $\varphi = 40°$ $\varphi' = 20°$ 1 egységnyi alapra $a = 2{,}441$

$\vartheta' = 70°$ és $\vartheta = 80°$

Példánál

$$x - x' = \frac{195}{500} = 0{,}39 \qquad \frac{(x-x')\sqrt{2}}{a} = 0{,}2259$$



$\vartheta = \frac{\pi}{2} - \frac{\varphi}{2}$

jelül

$$x_i - x_0 = -\frac{2}{\beta\sqrt{1+m}}\left\{\int_{\varphi_0}^{\varphi}\frac{d\varphi}{\sqrt{1-k^2\sin^2\varphi}} - 2\int_{\varphi_0}^{\varphi}\frac{\sin^2\varphi\,d\varphi}{\sqrt{1-k^2\sin^2\varphi}}\right\} \qquad \varphi = \frac{\pi}{2} - \frac{i}{2} \qquad k^2 = \frac{m}{1+m} \qquad m = \frac{8}{\beta^2 a^2}$$

$F(\varphi)$

$$\beta = \frac{1}{\alpha}\frac{d\alpha}{dD}$$

alul jelül balról

$$x_i - x_0 = +\frac{2}{\beta\sqrt{1+m}}\left\{\int_0^{\varphi}\frac{d\varphi}{\sqrt{}} - 2\int_0^{\varphi}\frac{\sin^2\varphi\,d\varphi}{\sqrt{1-k^2\sin^2\varphi}}\right\} \qquad \varphi = \frac{\pi}{2} - \frac{i}{2}$$

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ha $m > 1$

alul $\qquad dx = +\frac{2}{\beta}\left\{\frac{d\varphi}{\sqrt{1-m\sin^2\varphi}} - 2\frac{\sin^2\varphi\,d\varphi}{\sqrt{1-m\sin^2\varphi}}\right\} \qquad m = \frac{8}{\beta^2 a^2}$

ha 2 nyílás alul. jobbról

jobbról

$$x_i - x_0 = \frac{2}{\beta\sqrt{m}}\left\{\int_{\psi_0}^{\psi_i}\frac{d\psi}{\sqrt{1-\frac{1}{m}\sin^2\psi}} - \frac{2}{m}\int_{\psi_0}^{\psi_i}\frac{\sin^2\psi\,d\psi}{\sqrt{1-\frac{1}{m}\sin^2\psi}}\right\}$$

$\sin\varphi = \frac{1}{\sqrt{m}}\sin\psi \qquad \varphi = \frac{i}{2}$

$\sin\varphi = m\sin\psi$

$i = 0 \quad \varphi = 0 \quad \psi = 0$

$$x_i - x_0 = \frac{2}{\beta\sqrt{m}}\int_0^{\psi_i}\frac{d\psi}{\sqrt{}} - \frac{2}{m}\int_0^{\psi_i}$$

$$= -\frac{2}{\beta\sqrt{m}}\left\{F_{\psi_i} - \frac{m^2}{k^4} - 2F_{\psi_i} + 2\mathcal{E}_{\psi_i}\right\}$$

$$= -\frac{2}{\beta\sqrt{m}}\quad 2\mathcal{E}_{\psi_i} - F_{\psi_i}$$

$\frac{1}{\rho} = \frac{\alpha^2}{a^2}$

$z = a\sqrt{2}\sin\frac{\vartheta}{2}$

$\frac{1}{\rho} = \frac{2\sqrt{2}\sin\frac{\vartheta}{2}}{a}$

$\sin\psi = -k\sin\frac{i}{2}$

$\sin\psi = k\sin\frac{i}{2}$

2,786 $\quad \frac{m}{m+1} = k^2$

1,787 $\quad m = k^2 + mk^2$

$\frac{1}{1+m} = 1-k^2$

$\frac{m}{1+m} = \frac{3}{4}$

$m = \frac{3}{4} + \frac{3}{4}m \qquad m = 3 \qquad \frac{8}{3}$

$\frac{1}{4} \qquad 0,73 \qquad 5,96$

$4,38$

$0,54$

$3,24$

$m = \frac{k^2}{1-k^2}$

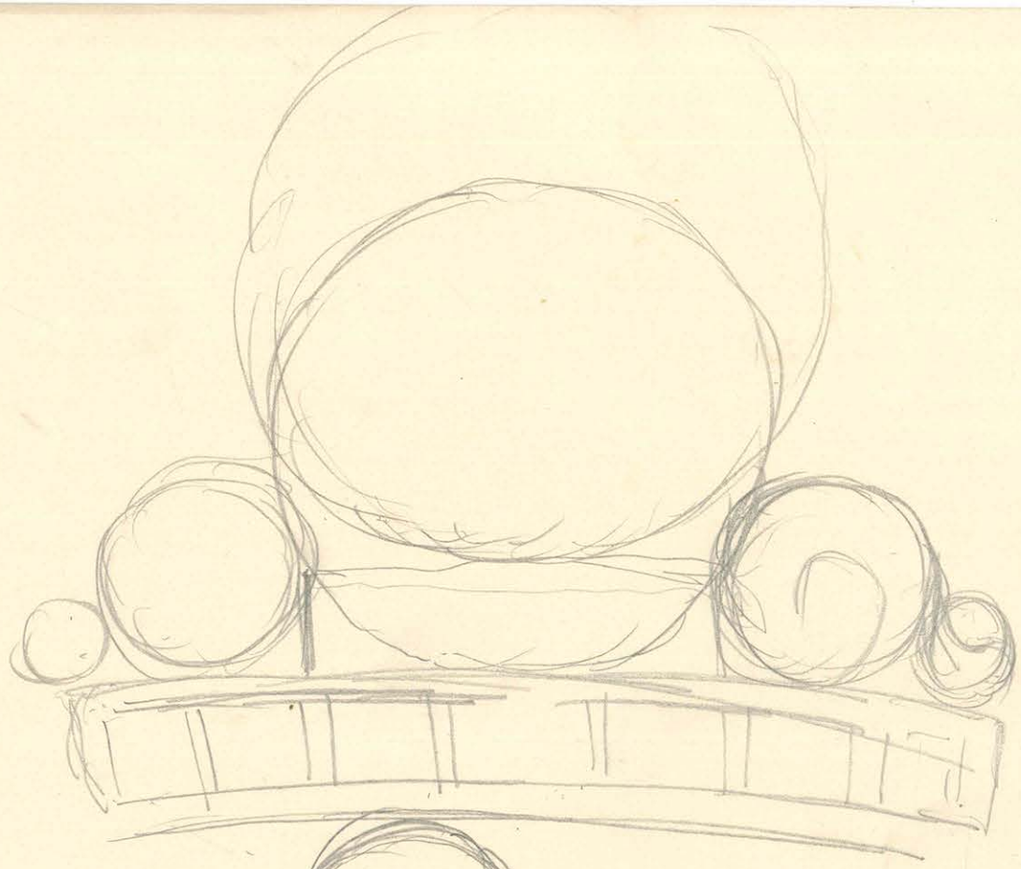
$324 / 860 / 286 \,|\, 714, / 572 \,|\, 2,5$

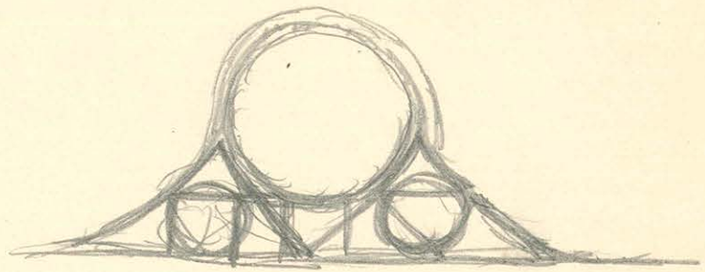
678

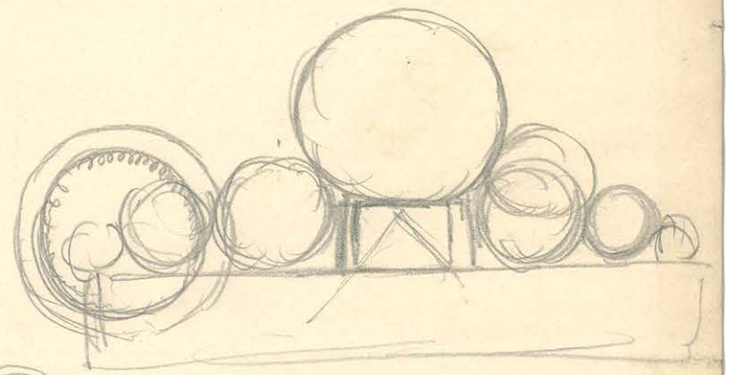
1320

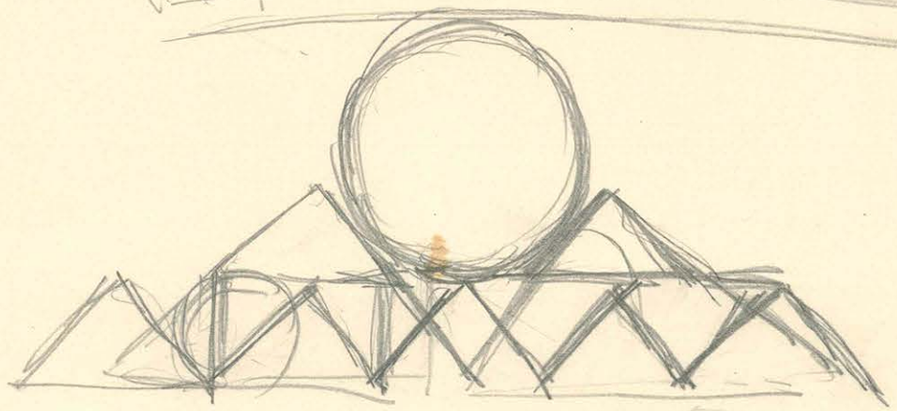
1420

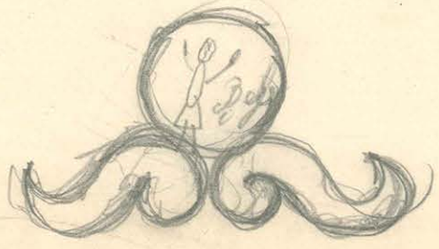
1430











$$\int \frac{d\varphi}{\sqrt{1-\kappa^2\sin^2\varphi}} \qquad \int d\varphi \sin^2\varphi \Big/ \sqrt{1-\kappa^2\sin^2\varphi}$$

$\kappa > 1$.

$\kappa^2\sin^2\varphi = \varepsilon^2\sin^2\psi$.

$\kappa^2\sin^2\varphi < 1$.

$\sin\varphi_0$.

$$\begin{cases} \sin\varphi_0 \cdot \sin\psi = \sin\varphi \\ \kappa^2\sin^2\varphi_0\sin^2\psi = \sin^2\varphi\,\kappa^2 \end{cases}$$

$\kappa = \dfrac{1}{\sin\varphi_m}$

$\kappa\sin\varphi = \sin\psi$

$\kappa\cos\varphi\,d\varphi = \cos\psi\,d\psi$

$d\varphi = \dfrac{1}{\kappa}\,\dfrac{1}{\cos\varphi}\cdot\cos\psi\,d\psi$

$\dfrac{1}{\kappa} = \varepsilon$

$\int \frac{}{} \left(\sqrt{1-\kappa^2\sin^2\varphi}\right)$

$= \kappa\sqrt{\left(\frac{1}{\kappa^2} - \sin^2\varphi\right)}$

$\sin^2\varphi = \varepsilon^2\sin^2\varphi \cdot \frac{1}{\kappa^2}$

$\kappa^2\sin\psi$

$$\int \frac{d\varphi}{\sqrt{1-\kappa^2\sin^2\varphi}} \qquad \int \frac{d\varphi\sin^2\varphi}{\sqrt{1-\kappa^2\sin^2\varphi}}$$

Új változó ψ:

$\sin\psi = \kappa\sin\varphi$; $\sin\varphi = \frac{1}{\kappa}\sin\psi$

$\sqrt{1-\kappa^2\sin^2\varphi} = \sqrt{1-\sin^2\psi}$

$\sqrt{1-\kappa^2\sin^2\varphi} = \cos\psi$.

$\cos\varphi = \dfrac{\sqrt{\kappa^2-\sin^2\psi}}{\kappa}$

$\cos\varphi = \sqrt{1-\frac{1}{\kappa^2}\sin^2\psi}$

$d\varphi = \dfrac{1}{\kappa}\cdot\dfrac{\cos\psi}{\sqrt{1-\frac{1}{\kappa^2}\sin^2\psi}}\,d\psi$

$\cos\varphi\,d\varphi = \frac{1}{\kappa}\cos\psi\,d\psi$

$d\varphi = \frac{1}{\kappa}\dfrac{\cos\psi}{\cos\varphi}\,d\psi$

$$\int_0^{\varphi} \frac{d\varphi}{\sqrt{1-\kappa^2\sin^2\varphi}} = \frac{1}{\kappa}\int_0^{\psi} \frac{d\psi}{\sqrt{1-\frac{1}{\kappa^2}\sin^2\psi}}$$

$$\int_0^{\varphi} \frac{d\varphi\sin^2\varphi}{\sqrt{1-\kappa^2\sin^2\varphi}} = \frac{1}{\kappa^3}\int_0^{\psi} \frac{d\psi\sin^2\psi}{\sqrt{1-\frac{1}{\kappa^2}\sin^2\psi}}$$

$\frac{1}{\kappa^2} = \varepsilon^2$

0,066533

0,00066533 : 6 = 0,00011089

0,171132
0,225900
0,054768

547680 : 11089 = 493
≠20
109120
43190
110.

0,099981 : 6 = 0,019993
493

79972
17993
59979

7,877242

0,078772
0,766044

19 = 0,844816

1)

$$x_{y0} - x_0 = \frac{2}{\alpha\beta\sqrt{1+m}} \left\{ F_{\frac{\pi}{2}} - F_{\frac{\pi}{4}} - \frac{2}{k^2} \left(\left(F_{\frac{\pi}{2}} - F_{\frac{\pi}{4}} \right) - \left(E_{\frac{\pi}{2}} - E_{\frac{\pi}{4}} \right) \right) \right\}$$

$$\beta = \frac{1}{\alpha} \frac{dx}{d\vartheta} \qquad m = \frac{8}{\beta^2 a^2} \qquad k^2 = \frac{m}{m+1} \qquad B = \frac{2\sqrt{2}}{a\sqrt{m}}$$

ahol $k' = \frac{1}{m}$ ha $m > 1$

2)

$$x_i - x_0 = -\frac{2}{\alpha\sqrt{m}} \left\{ F_{\varphi_i} - 2 \left\{ F_{\varphi_i} - E_{\varphi_i} \right\} \right\} = \text{[illegible]} - \frac{2}{\alpha\sqrt{m}} \left(2 E_{\varphi_i} - F_{\varphi_i} \right)$$

$$\sin\psi = m \sin\varphi \qquad \varphi = \frac{i}{2}$$

3) ha $m < 1$ akkor $k^2 = m$ és

$$\varphi = \frac{i}{2}$$

$$x_i - x_0 = -\frac{2}{\beta} \left\{ \int F_{\varphi_i} - \frac{2}{m} \left(F_{\frac{i}{2}} - E_{\frac{i}{2}} \right) \right.$$

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1) $\quad x_{y0} - x_0 = \frac{a\sqrt{m}}{\sqrt{2}\sqrt{1+m}} \{ \quad \}$ | 2) $\quad x_i - x_0 = -\frac{a}{\sqrt{2}} \{ \quad \}$

$m > 1 \qquad \frac{x_{y0} - x_0}{a} = \frac{x_i - x_0}{a}$

$k^2 = \frac{m}{m+1} \qquad \frac{x_{y0} - x_0}{a} = \frac{1}{\sqrt{2}} \{ \quad \} \; k'^2 = \frac{1}{m} \qquad \sin\psi = m \sin\varphi .$

$m < 1$

3) $\quad y_{y0} - x_0 = x_i - x_0 = -\frac{a\sqrt{m}}{\sqrt{2}} \left\{ F_{\varphi_i} - \frac{2}{m} \left(F_{\frac{i}{2}} - E_{\frac{i}{2}} \right) \right\} \qquad k'^2 = m$

$$\frac{y_{y0} - x_0}{a} = -\frac{\sqrt{m}}{\sqrt{2}} \left\{ F_{\varphi_i} - \frac{2}{m} \left(F_{\frac{i}{2}} - E_{\frac{i}{2}} \right) \right\} \qquad k'^2 = m .$$

$$x_{10} - x_0 = \frac{2}{b\sqrt{1+m}} \left\{ F\frac{\pi}{2} - F\frac{\pi}{4} - \frac{2}{k^2}\left(\left(F\frac{\pi}{2} - F\frac{\pi}{4}\right) - \left(E\frac{\pi}{2} - E\frac{\pi}{4}\right)\right)\right\}$$

$$-\frac{1}{k}\left\{ F\frac{\pi}{2} - F\frac{\pi}{4} - \frac{2}{k^2}\left(\left(F\frac{\pi}{2} - F\frac{\pi}{4}\right) - \left(E\frac{\pi}{2} - E\frac{\pi}{4}\right)\right)\right\} = 2E\left(\frac{1}{m}\psi_i\right) - F\left(\frac{1}{m}\psi_i\right)$$

$$k = \sqrt{\frac{m}{1+m}} \qquad m = \frac{8}{b^2 k^2} \qquad d\beta = \frac{1}{2}\frac{d\alpha}{d\beta}$$

$$\sin\psi = m \sin\frac{\varepsilon}{2}$$

$\sin\varepsilon = 60°$

$k = 0{,}866 \qquad k^2 = 0{,}75 \qquad m = 3$

$\frac{1}{m} = \frac{1}{3} \qquad \sqrt{\frac{1}{m}} = 0{,}577 = \sin\varepsilon \qquad \varepsilon = 35°$

$F_k\frac{\pi}{2} = 2{,}1565 \qquad E_k\frac{\pi}{2} = 1{,}2111$

$F_k\frac{\pi}{4} = 0{,}85 \qquad E_k\frac{\pi}{4} = 0{,}73$

$F' - F = 1{,}30$

$0{,}50$
$0{,}78$

$0{,}8$
$0{,}866 \;|\; 0{,}8300 \;|\; 0{,}96$
$-2{,}13$
$1{,}30$
$-0{,}83$

$0{,}96 \quad \frac{2{,}19}{1{,}30}$

$\frac{1}{2} = 18°20'$

$i = 36°20'$

$+0{,}96 = 2E\frac{1}{m}\psi_i - F\frac{1}{m}\psi_i$

$\psi_i = 70° \quad \beta = 2{,}28 - 1{,}30 + 0{,}97$

$\psi_i = 60° \quad \beta = 1{,}98 - 1{,}10 = 0{,}88$

$\psi_i = 80° \quad \beta = 2{,}58 - 1{,}54 = 1{,}04$

Když $\psi_i = 70° \quad \sin\psi_i = 0{,}94$

$\sin\frac{i}{2} = 0{,}313$

$$\frac{d\cos\vartheta}{du} + \frac{\sin\vartheta}{u} = \frac{2z}{a^2}$$

$$\frac{d\vartheta}{du} + \frac{\vartheta}{u} = \frac{2z}{a^2}$$

$$\frac{d\vartheta}{\vartheta}\cdot\frac{du}{\vartheta} \qquad \frac{d\vartheta}{\vartheta} + \frac{du}{u} = \frac{2z}{a^2}\frac{du}{\vartheta}$$

$$\frac{d\frac{1}{\rho}}{du} + \frac{d\vartheta}{u}\frac{d\vartheta}{du}\frac{\sin\vartheta}{u^2} = \frac{2}{a^2}$$

$$\frac{dz}{du} = \vartheta$$

$$dz = \frac{dz}{\vartheta}du \qquad \frac{d\cos\vartheta}{du}$$

$$= \frac{2z\,dz}{a^2\vartheta^2}$$

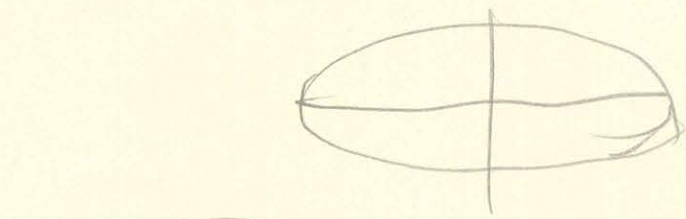
$$\log u = \int \frac{2z\,dz}{a^2\vartheta^2} \qquad \frac{2}{a^2}\log u$$

$$\frac{dz}{du}$$

$$\frac{d\frac{1}{\rho}}{du} + \frac{d\vartheta}{du}\frac{1}{u} - \frac{\vartheta}{u^2} = \frac{2}{a^2}\vartheta$$

$$\frac{1}{\rho} + \frac{\vartheta}{\frac{1}{\rho}} \neq \frac{2z}{a^2}$$

$$\left(\frac{2}{u^2}\log\vartheta + \frac{\sin\vartheta}{u^2}\right)$$



$$\frac{\sin\vartheta\,du^2}{u - d\cos\vartheta}$$

$$\left(\frac{du}{u}\right)\frac{\sin\vartheta}{d(\sin\vartheta)}$$

$$\frac{d\frac{1}{\rho}}{du} + \frac{\cos\vartheta}{u}\frac{d\vartheta}{du} - \frac{\sin\vartheta}{u^2} = \frac{2}{a^2}\operatorname{tg}\vartheta$$

$$d\frac{\frac{1}{\rho}}{du} + \frac{1}{u}\frac{1}{\rho} = \frac{2}{a^2}\operatorname{tg}\vartheta + \frac{\sin\vartheta}{u^2}$$

$$\frac{du}{\frac{1}{\rho}} \qquad \frac{d\frac{1}{\rho}}{\frac{1}{\rho}} + \frac{du}{u} = \frac{2}{a^2}\operatorname{tg}\vartheta\frac{du}{\frac{1}{\rho}} + \frac{\sin\vartheta}{u^2}\frac{du}{\frac{1}{\rho}}$$

$$d\left(\log\frac{u}{\rho}\right) = \left(\frac{du}{u}\right)^2\frac{\sin\vartheta}{d(\sin\vartheta)} + \frac{2}{a^2}\frac{(du)^2\sin\vartheta}{\cos^2\vartheta\,d\vartheta}$$

Jelint jattrirt

$$x_{30} - x_0 = + \frac{2}{B\sqrt{1+m}} \left\{ \int_{-\frac{\pi}{2}}^{0} \frac{d\varphi}{\sqrt{1-k^2\sin^2\varphi}} - 2\int_{-\frac{\pi}{2}}^{0} \frac{\sin^2\varphi\, d\varphi}{\sqrt{1-k^2\sin^2\varphi}} \right\}$$

$$= + \frac{2}{B\sqrt{1+m}} \left\{ \int_{0}^{\frac{\pi}{2}} \frac{d\varphi}{\sqrt{1-k^2\sin^2\varphi}} - 2\int_{0}^{\frac{\pi}{2}} \frac{\sin^2\varphi\, d\varphi}{\sqrt{1-k^2\sin^2\varphi}} \right\}$$

$$\left\{ F\left(\tfrac{\pi}{2}\right) - 2\,\frac{F\left(\tfrac{\pi}{2}\right) - E\left(\tfrac{\pi}{2}\right)}{k^2} \right\}$$

$k = 0{,}87 \qquad \varepsilon = 60$

$k^2 = 0{,}75$

$2{,}1565 - 2\,\frac{2{,}1565 - 1{,}2111}{0{,}75}$

$2{,}1565 - 1{,}2111$

$0{,}9454$

$1{,}89$

$7{,}56$

$2{,}52$

$2{,}16$

$0{,}36$

$0{,}3333$

k^2

$k($

$0{,}4444 \quad -0{,}2222$

$\frac{62}{3} \quad \frac{8}{9}$

592

$+ 0{,}3181$

$0{,}274$

$0{,}87$

191^2

219^2

208

$\sin\frac{\varphi}{2} A = \frac{k}{2}\{\ \}$

$\frac{\sqrt{1}}{k^2}$

$0{,}148 \qquad 592 - 0{,}3181$

$2{,}1565$

$2{,}588$

$0{,}432$

$2{,}1565$

$1{,}2111$

$0{,}9454$

$7{,}7632$

form.

$$x_{30} - x_0 = \frac{2}{B\sqrt{1+m}} \left\{ \int_{-\frac{\pi}{2}}^{-\frac{\pi}{4}} - 2\int \right.$$

$$= -\frac{2}{B\sqrt{\ }} \left\{ \int_{-\frac{\pi}{4}}^{-\frac{\pi}{2}} \cdots \right\} = -\frac{2}{B\sqrt{1+m}} \left\{ \int_{0}^{-\frac{\pi}{2}} - \int_{0}^{-\frac{\pi}{4}} \right.$$

$\frac{2\sqrt{m}}{B\sqrt{1+m}}$

$k=1$

$\frac{B\sqrt{m}}{\sqrt{1+m}}$

$$x_{30} - x_0 = \frac{2}{B\sqrt{1+m}} \left\{ F\left(\tfrac{\pi}{2}\right) - F\left(\tfrac{\pi}{4}\right) - \frac{2}{k^2}\left(\left(F\tfrac{\pi}{2} - F\tfrac{\pi}{4}\right) - \left(E\tfrac{\pi}{2} - E\tfrac{\pi}{4}\right) \right) \right\}$$

$1{,}31 \cdot$

$F_{\frac{\pi}{2}} = 2{,}1662$

$F_{\frac{\pi}{4}} = 0{,}865$

$1{,}301$

$E_{\frac{\pi}{2}} = 1{,}24$

$E_{\frac{\pi}{4}} = 0{,}792$

$0{,}449$

$\frac{1}{3} = \sqrt{\frac{1}{9}}$

$0{,}88 \quad 1{,}66 \quad 0{,}83$

$1{,}5$

$2{,}15$
$1{,}31$
$1{,}84$

$1{,}64$

$6{,}46$
$2{,}15$

$\frac{1{,}31}{4\,9}$
$0{,}82$

$$\frac{1}{K}\{\quad\}$$

$$x_{y_0} - x_0 = \frac{aK}{r_2}\{\quad\}$$

$$\frac{x_{y_0} - x_0}{a} = \frac{K}{r_2}\{\quad\} \qquad 0{,}96.$$

$$= \frac{K^2}{r_2}\cdot\frac{1}{K}\{\quad\}$$

2,88 / 0,72

141 / 7,20 / 0,510

1,50

3,0

2,78 0,695

~~0,79~~

1,41 / 0,695 / 0,493

5,64

1,3 1,0

1,2 6,5

x 10

$$\frac{y_p}{m+1} = m$$

$$y_p = m$$

$$3y_p = m$$

$$3y_p + 3y_p = m + m$$

$$3y_p = m$$

ε	$k=\sin\varepsilon$	$\log k$	$\frac{F_{70}-F_{80}}{\mathfrak{F}_{70}-\mathfrak{F}_{80}}$	$\log(F_{70}-F_{80})$	$\mathfrak{E}_{70}-\mathfrak{E}_{80}$	$\{F_{70}-F_{80}-(\mathfrak{E}_{70}-\mathfrak{E}_{80})\}$	$\log\{\ \}$	$\int_{80}^{70}\mathfrak{E}$	
0	0,0000	$-\infty$	−0,1746	0,2420442−1	−0,1746	0	$-\infty$	0	
10	0,1736	0,2396702−1	−0,1770	0,2479733−1	−0,1721	−0,0049	0,6901961−3	0,0257	0,0257
20	0,3420	0,5340517−1	−0,1849	0,2669364−1	−0,1648	−0,0201	0,3031961−2	0,0543	0,0286
30	0,5000	0,6989700−1	−0,1993	0,2995072−1	−0,1529	−0,0464	0,6665180−2	~~0,0965~~ 0,0860	~~0,0453~~ 0,0317
40	0,6428	0,8080675−1	−0,2225	0,3473300−1	−0,1369	−0,0856	0,9324738−2	0,1233	~~0,0780~~ 0,0373
50	0,7660	0,8842540−1	−0,2592	0,4136350−1	−0,1176	−0,1416	0,1510633−1	0,1711	0,0478
60	0,8660	0,9375306−1	−0,3181	0,5025637−1	−0,0959	−0,2222	0,2467441−1	0,2378	0,0665
70	0,9397	0,9729858−1	−0,4160	0,6190933−1	~~−0,0635~~ −0,0735	~~−0,3525~~ −0,3425	~~0,5471591−1~~ 0,5381307−1	~~0,3773~~ 0,3439	0,1063 ~~0,1800~~ 1463
80	0,9848	0,9933515−1	−0,5735	0,7585334−1	−0,0540	−0,5795	0,7155856−1	~~0,7674~~ 0,4902	1210
90	1,0000	0,0000000	−0,7008	0,8455941−1	−0,0448	−0,6560	0,8169038−1	0,6112	

lengés-idő = 14·0 mp (2 telepslengés tartamából számítva)

18,9			11,5		
	18,3			11,4	
18,5			11,3		
	18,2			11,3	
18,3			11,2		
	17,8			11,1	... 8m. 13·5 sec
18,0			11,1		
	17,5			10,9	
17,6			10,9		
	17,3			10,7	
17,4			10,7		
	17,0			10,6	
17,2			10,6		
	16,7			10,5	
16,8			10,5		
	16,5			10,4	4m. 37 sec
16,5			10,3		
	16,3			10,3	
16,3			10,2		
	16,0			10,2	
16,0			10,0		
	15,7			10,0	
15,7			9,8		
	15,5			9,8	
15,5			9,7		
	15,3			9,7	7m. 50,5 sec
15,5					
	15,1				
15,1					
	14,8	.... 58m. 56·5 sec			
14,8					
	14,6				
14,6					
	14,4				
14,4					
	14,2				
14,2					
	14,0				
14,0					
	13,7	4m 39·0 sec			
13,7					
	13,5				
13,5					
	13,3				
13,3					
	13,2				
13,2					
	13,0				
13,0					
	12,8	.... 3m 35·5 sec			
12,7					
	12,5				
12,5					
	12,4				
12,4					
	12,3				
12,2					
	12,1				
12,1					
	11,9				
11,8		4m 38·0 sec			
	11,7				
11,7					
	11,6				

0,42

5,9184

5,2679

88 hang $\frac{1}{2}$ = 44 $\frac{37,2}{14,4}$

$\frac{x}{44}$

0,6510 | 0,0074

0,16

1250

372

$\frac{x}{44}$

0,0074 | 140000 | 1892

74

660

592

6680

666

140

gh 1 28 Trianon Nyon 28

Bahnhof 30 m 222 lang

Parmis 31 225,7 15,1 15,1

rund ~~269,1~~ gh 34 m 200

267,4 36 m –

269,2 37 m 20

gh 10 m ~~268,8~~ all

[illegible] 2½ [illegible] [illegible] [illegible]

t = 22° 3.

Bahnhof	gh	30	222,0	lang	58 m	217,2
		38 m	219,7	gh	3 m	217,15
		42 –	218,0		8 m	217,10
		48 –	217,2		18 m	217,15
1 h. Ohm	217,4 (t=22°3)	50	217,2		32 m	217,25
			222,7		11 m	215,0
Parmis	gh	41	221,7		21 m	214,85
					31 m	215,0
		46	219,1			
		51 m	218,2		1 h 10.	212,9
		56 m	216,4		t = 18,	
	10 h	1 m	215,9			
		6 m	215,4		19,5	20,8 18,9

31,1

15,7
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12,2
12,1
12,0
12,0
12,9

~~5~~ 14 m 33
16 ~~20 5~~
1 ~~46 5~~

16, 49,5
18 28.0
1 38 5

21 4.0
22 42.0
1 38.0

23 31
25 8
1 07

98,5 ÷ 20 = 4,925
98 = 4,90
= 4,925

Lengesiolo 4.9 mp.

Ms 5106/10-11. Ἐπιστολαὶ πρὸς διαφόρους

Schubert vs

Ms 5106/10

Okt. 10 ar vízi I ivben határált vas

ül nyelvvel lehálítva mutat 9-10°

ar erősebb mennyiségben hosszabb időben. 8 m lemerülés) 491

erősebb a lámpánál - annak megfelelő hellel korrekció) 545

vízzel tekintve.

10 óra 45 m.

h	c
50) 603	114) 561
197) 564	175) 611
133	36

h	c
47) 609	114) 558
188	172) 610
126) 562	32

hosszabb lehajlítva mutat 48 fokot

a mennyiség 36 m-ben elmarad. Hosszabb expozícióban

h	c
161	173
25) 636	247) 574
199) 576	138) 641

h	c
157) 634	176) 572
23	248
198) 575	134) 636

hosszabb merőlegesben vízzel mutat kisebb nem eltérést.

h	c
80	110
200) 630	185) 575
128) 572	59) 624

h	c
70) 621	112) 573
199	185
122) 577	60) 625

Glycerin fajsúlya = 1,26

a vízzel egy mint a I ivben

11 óra 40 m

h	e
180	100) 498
114) 566	98
115) 499	153) 555

h	e
175) 565	110) 488
110	98
109) 499	142) 544

Higanygőz lehűlés

3 óra 45 m

h	c
140) 546	98) 485
94	83
108) 486	118) 535

h	c
137) 545	94) 490
92	84
103) 489	117) 533

Kövön vizes [illegible] fillrálk ombor oldat
ott 10 d.u. Yakor. ö gyalok ivy mint az I ivon fajsuly 1,078

h.	e.	h.	e.	h.
10	96	13	97 541	14 604
155) 605	170) 544	...) 1056	138) [illegible]	160) [illegible]
110) 545	243) 603	107	247) [illegible] bőg	109) 551

Ugyanez Oktober 11 d.e. 9 ó. 15 m.

h	e	h	e
167) 571	72) 574	160) 578	73) 511
96	86) 574	82) 578	84
84) 512	150) 564	80) 502	143) 559

folytatva

h.	e.	h.	e.
152	70	158	71
85) 567	83) 573	88) 570	82) 511
78) 507	142) 559	76) 512	142) 560

~~d.e.~~ Ombor oldat é ió 2 órakor fajsulya = 1,085.
d.e. 9 ora 5-ö percskor – ugyan körül emelve

h.	e.	h.	e.
~~187~~ 2	9	160	0
~~64) 623~~	56) 547	56) 604	49) 549
~~20) 544~~	142) 586	17) 539	135) 586
150			
48) 602			
18) 530			

az előbbi d.e. 10 óra 5-ö perckor

h.	e	h	e
63) 553	220) 520	60) 552	223) 515
10 } 514	240) 568	8) 514	208) 567
246	58	244	55

inventált Ombor oldat. Délelőtt 11 óra 15 m Vízülőcsőben d.u.
fajsulya = 1,085.

h.	e.	h.	e.
75	243	71	245
23) 552	4) 511	22) 549	250) 505
16) 507	65) 561	13) 509	65) 565

12 óra 10 perckor

h	e	h	e
57) 543	236) 507	57) 547	237) 504
14	243	16	241
10) 504	47) 554	7) 503	47) 556

Az előbbi délutánon 4 óra 15 kor.

h	e	l	e
32) 533	232) 495	31	234
249	227	246) 535	225) 491
6 ~~493~~	18) 541	2) 494	20) 545

Az előbbi Oct. 12-iken délben 12 órakor.

h.	e.	h.	e
248	222	248	~~210~~
225) 523	205) 483	222) 526	~~230~~) 1
245) 480	226) 521	241) 487	~~227~~)
			220
			205) 485
			228) 520

~~12 óra 20 p.~~

Invertált tömény epekarolvat. fajonkya = Körülcsatolva

h.	e.	h.	e.
224	68	196	70) 525
117) 607	100) 532	106) 590	93
80) 537	185) 585	76) 530	167) 574

nyjamat 1 óra 1 óra 15

h.	e	h	e.
91	39	85) 541	38) 496
48) 543	36) 497	44	34
50) 498	80) 544	48) 496	78) 544

Az előbbi délután 3 óra 35 m.

h.	e.	h.	e.
33	27	37	24
18) 575	3) 476	14) 523	245) 471
39) 479	95) 522	38) 476	24) 529

Ugyanaz olvadt ~~vaj~~ vaj sózással. Fajonkya = Körülcsatolva d. u. 3 ó. 50 p.

h.	e	h.	e
224	200	206) 656	198) 593
55) 669	42) 592	50	41
224) 581	183) 641	224) 576	184) 643

4 ó. 50 p.

106	166	99	163
4) 602	230) 564	246) 603	225) 562
194) 560	227) 618	189) 557	82) 667

Kövön vége ~~kitört~~ fillrált [illegible]

d. u. 7 ó. Nem lehetett éjfélig, mert a ércek görtek voltak, a mennyiség-mérés elmarad

h.	e.	h.	e
182) 550	70) 525	138) 560	65) 570
92	95) 525	78) 560	75) 570
73) 519	150) 555	53) 525	105) 530

ismét gör be adtak.

Okt. 13. d. e. 9 ó. 45 p.

h.	e.	h.	e.
59) 520	35	46	33) 479
30	18) 483	25) 521	12) 479
44) 486	45) 527	45) 480	44) 532

d. e. 10 ó. 20 p. Tömény szappanoldat (alkohol) felöntve és körülcsatolva. Fajsúlya =

h.	e	h.	e
79	182	73) 463	181) 419
113) 466	105) 423	110	100) 419
201) 462	69) 464	199) 411	68) 468

Ugyanez. 10 ó. 55 p.

h.	e.	h.	e.
74) 467	178	70	179) 471
107	98) 420	111) 459	100) 471
197) 410	69) 471	199) 412	70) 470.

Ugyanez 3 ó. 40 p. a gép kikapcsolva és csatolva a kőről. a kő nem lemosva vas felhelyezve.

h.	e.	h.	e
134	243	135	244
178) 456	168) 425	178) 457	169 425
5) 423	127) 459	7) 421	126) 457

4 ó. 50 p-k. +)

h.	e	h.	e
167) 456	26) 423	173	22) 427.
211) 480	199	210) 463	199
31) 430	162) 463	30) 430	163) 464

+) a kő vége 20 c.k. Közepén görbe — lukacsok nincsenek benne.

Optimum $\frac{\partial u}{\partial x} = 0 \quad \frac{\partial u}{\partial y} = 0$

Számítsa IV táblázat: $\left(\frac{\partial^2 u}{\partial y^2} - \frac{\partial^2 u}{\partial x^2}\right)$ és $\frac{\partial^2 u}{\partial x \partial y}$ értéke. III táblázat.

	$\frac{\partial^2 u}{\partial x^2} = -\frac{1}{2}\frac{\partial^2 u}{\partial z^2} + \frac{1}{2}\left(\frac{\partial^2 u}{\partial x^2} - \frac{\partial^2 u}{\partial y^2}\right)$	$\frac{\partial^2 u}{\partial y^2} = -\frac{1}{2}\frac{\partial^2 u}{\partial z^2} + \frac{1}{2}\left(\frac{\partial^2 u}{\partial y^2} - \frac{\partial^2 u}{\partial x^2}\right)$	$\frac{\partial^2 u}{\partial x \partial y}$ négy szomszédból körülírt II-es táblázat.
I	$-\frac{c}{2} - 60{,}34$	$-\frac{c}{2} + 60{,}34$	$+12{,}56$
II	$-\frac{c}{2} - 39{,}07$	$-\frac{c}{2} + 43{,}55$	$+16{,}23$
III	$-\frac{c}{2} - 34{,}40$	$-\frac{c}{2} + 36{,}00$	$+4{,}24$
IV	$-\frac{c}{2} - 36{,}70$	$-\frac{c}{2} + 54{,}20$	$-15{,}47$
V	$-\frac{c}{2} - 31{,}38$	$-\frac{c}{2} + 47{,}12$	$+5{,}04$
VI	$-\frac{c}{2} - 28{,}80$	$-\frac{c}{2} + 43{,}98$	$+9{,}58$
VII	$-\frac{c}{2} - 31{,}25$	$-\frac{c}{2} + 45{,}07$	$+4{,}90$
VIII	$-\frac{c}{2} - 34{,}73$	$-\frac{c}{2} + 63{,}39$	$-2{,}39$
IX	$-\frac{c}{2} - 27{,}53$	$-\frac{c}{2} + 40{,}31$	$+9{,}34$
X	$-\frac{c}{2} - 26{,}59$	$-\frac{c}{2} + 44{,}39$	$+9{,}68$
XI	$-\frac{c}{2} - 28{,}71$	$-\frac{c}{2} + 51{,}27$	$+8{,}67$
XII	$-\frac{c}{2} - 36{,}43$	$-\frac{c}{2} + 66{,}51$	$+5{,}51$
XIII	$-\frac{c}{2} - 47{,}57$	$-\frac{c}{2} + 48{,}59$	$+10{,}91$
XIV	$-\frac{c}{2} - 42{,}26$	$-\frac{c}{2} + 41{,}44$	$+8{,}72$
XV	$-\frac{c}{2} - 42{,}63$	$-\frac{c}{2} + 49{,}89$	$+13{,}17$
XVI	$-\frac{c}{2} - 52{,}58$	$-\frac{c}{2} + 69{,}18$	$+15{,}08$
XVII	$-\frac{c}{2} - 80{,}67$	$-\frac{c}{2} + 59{,}75$	$-2{,}25$
XVIII	$-\frac{c}{2} - 56{,}76$	$-\frac{c}{2} + 33{,}36$	$+2{,}00$
XIX	$-\frac{c}{2} - 60{,}57$	$-\frac{c}{2} + 40{,}31$	$+22{,}80$
XX	$-\frac{c}{2} - 78{,}73$	$-\frac{c}{2} + 70{,}65$	$+26{,}67$
	$-10c - 877{,}80$	$-10c + 1009{,}30$	$+165{,}59$

$\left(10^2 \frac{\partial^2 u}{\partial x^2}\right)_{körül}$ és $\left(10^2 \frac{\partial^2 u}{\partial y^2}\right)_{körül}$ valamint $\left(10^2 \frac{\partial^2 u}{\partial x \partial y}\right)_{körül}$ alapján számítsa ki $\left(\frac{\partial u}{\partial x}\right)_K \left(\frac{\partial u}{\partial y}\right)_K$ D)

	$\left(\frac{\partial u}{\partial x}\right)_{Kör}$	$\left(\frac{\partial u}{\partial y}\right)_{Kör}$
I	$-100{,}20\Delta - c\Delta$	$-59{,}14\Delta + \frac{3}{4}c\Delta$
II	$-91{,}92\Delta - c\Delta$	$-8{,}67\Delta + \frac{1}{4}c\Delta$
III	$-83{,}64\Delta - c\Delta$	$+41{,}79\Delta - \frac{1}{4}c\Delta$
IV	$-75{,}36\Delta - c\Delta$	$+92{,}26\Delta - \frac{3}{4}c\Delta$
V	$-56{,}31\Delta - \frac{1}{2}c\Delta$	$-67{,}42\Delta + \frac{3}{4}c\Delta$
VI	$-48{,}03\Delta - \frac{1}{2}c\Delta$	$-16{,}95\Delta + \frac{1}{4}c\Delta$
VII	$-39{,}75\Delta - \frac{1}{2}c\Delta$	$+33{,}51\Delta - \frac{1}{4}c\Delta$
VIII	$-36{,}47\Delta - \frac{1}{2}c\Delta$	$+83{,}98\Delta - \frac{3}{4}c\Delta$
IX	$-12{,}42\Delta$	$-75{,}70\Delta + \frac{3}{4}c\Delta$
X	$-4{,}14\Delta$	$-25{,}23\Delta + \frac{1}{4}c\Delta$
XI	$+4{,}14\Delta$	$+25{,}23\Delta - \frac{1}{4}c\Delta$
XII	$+12{,}42\Delta$	$+75{,}70\Delta - \frac{3}{4}c\Delta$
XIII	$+31{,}47\Delta + \frac{1}{2}c\Delta$	$-83{,}98\Delta + \frac{3}{4}c\Delta$
XIV	$+39{,}75\Delta + \frac{1}{2}c\Delta$	$-33{,}49\Delta + \frac{1}{4}c\Delta$
XV	$+48{,}03\Delta + \frac{1}{2}c\Delta$	$+16{,}95\Delta - \frac{1}{4}c\Delta$
XVI	$+56{,}31\Delta + \frac{1}{2}c\Delta$	$+67{,}42\Delta - \frac{3}{4}c\Delta$
XVII	$+75{,}06\Delta + c\Delta$	$-92{,}26\Delta + \frac{3}{4}c\Delta$
XVIII	$+83{,}64\Delta + c\Delta$	$-41{,}79\Delta + \frac{1}{4}c\Delta$
XIX	$+91{,}92\Delta + c\Delta$	$+8{,}67\Delta - \frac{1}{4}c\Delta$
XX	$+100{,}20\Delta + c\Delta$	$+59{,}14\Delta - \frac{3}{4}c\Delta$

$\left(10^2 \frac{\partial^2 u}{\partial z^2}\right)_{körül} = \left(10^2 \frac{\partial^2 u}{\partial x^2} + 10^2 \frac{\partial^2 u}{\partial y^2}\right)_{körül} = c - 6{,}575 = c_0$

$c = c_k + 6{,}575$

$\left(10^2 \frac{\partial^2 u}{\partial x^2}\right)_{kör} = -43{,}89 - \frac{c}{2}$

$\left(10^2 \frac{\partial^2 u}{\partial y^2}\right)_{kör} = +50{,}465 - \frac{c}{2}$

$\left(10^2 \frac{\partial^2 u}{\partial x \partial y}\right)_{kör} = +8{,}28$

Függvénytáblázat IV tábla

	$10^2\frac{\partial^2 U}{\partial z^2}$	$10^2\frac{\partial^2 U}{\partial x^2}$	$10^2\frac{\partial^2 U}{\partial y^2}$	
	7, 8, 9, 12, 13, 14 17, 18, 19, 22, 23, 24 sz. a négy szomszédos hálópont $\left(\frac{\partial U}{\partial z}\right)'$ - $\frac{\partial^2 U}{\partial z^2}$ = =( )' - ( ) - 2P számításával	$= -\frac{1}{2}\frac{\partial^2 U}{\partial z^2} - \frac{1}{2}(\ )$	$-\frac{1}{2}\frac{\partial^2 U}{\partial z^2} + \frac{1}{2}(\ )$	
1	$c - 6{,}49$	$-\frac{c}{2} - 87{,}66$	$-\frac{c}{2} + 94{,}16$	II - I
2	$c + 8{,}62$	$-\frac{c}{2} - 59{,}54$	$-\frac{c}{2} + 50{,}92$	III - II
3	$c + 7{,}73$	$-\frac{c}{2} - 35{,}85$	$-\frac{c}{2} + 28{,}11$	IV - III
4	$c - 0{,}86$	$-\frac{c}{2} - 31{,}80$	$-\frac{c}{2} + 32{,}66$	VIII -
5	$c + 19{,}61$ *	$-\frac{c}{2} - 59{,}06$	$-\frac{c}{2} + 39{,}44$	XII -
6	$c - 14{,}91$	$-\frac{c}{2} - 45{,}41$	$-\frac{c}{2} + 60{,}33$	XVI -
7	$c - 8{,}85$	$-\frac{c}{2} - 37{,}89$	$-\frac{c}{2} + 46{,}75$	XV -
8	$c - 8{,}77$	$-\frac{c}{2} - 31{,}33$	$-\frac{c}{2} + 40{,}11$	XIV -
9	$c - 15{,}39$	$-\frac{c}{2} - 33{,}16$	$-\frac{c}{2} + 48{,}56$	XIII -
10	$c - 26{,}45$	$-\frac{c}{2} - 46{,}24$	$-\frac{c}{2} + 72{,}70$	IX -
11	$c - 17{,}11$	$-\frac{c}{2} - 20{,}37$	$-\frac{c}{2} + 37{,}49$	V -
12	$c - 15{,}37$	$-\frac{c}{2} - 25{,}17$	$-\frac{c}{2} + 40{,}55$	
13	$c - 17{,}33$	$-\frac{c}{2} - 25{,}99$	$-\frac{c}{2} + 43{,}33$	
14	$c - 23{,}77$	$-\frac{c}{2} - 39{,}51$	$-\frac{c}{2} + 53{,}29$	
15	$c - 34{,}22$	$-\frac{c}{2} - 37{,}42$	$-\frac{c}{2} + 71{,}64$	X -
16	$c - 9{,}17$	$-\frac{c}{2} - 31{,}92$	$-\frac{c}{2} + 41{,}10$	VI -
17	$c - 7{,}67$	$-\frac{c}{2} - 33{,}44$	$-\frac{c}{2} + 41{,}12$	II -
18	$c - 11{,}67$	$-\frac{c}{2} - 31{,}34$	$-\frac{c}{2} + 43{,}02$	
19	$c - 19{,}12$	$-\frac{c}{2} - 37{,}14$	$-\frac{c}{2} + 56{,}26$	
20	$c - 33{,}08$	$-\frac{c}{2} - 46{,}71$	$-\frac{c}{2} + 79{,}79$	XI -
21	$c - 0{,}72$	$-\frac{c}{2} - 68{,}42$	$-\frac{c}{2} + 69{,}14$	VIII -
22	$c + 11{,}05$	$-\frac{c}{2} - 55{,}26$	$-\frac{c}{2} + 44{,}20$	IV -
23	$c + 9{,}32$	$-\frac{c}{2} - 48{,}08$	$-\frac{c}{2} + 38{,}76$	
24	$c + 1{,}12$	$-\frac{c}{2} - 58{,}29$	$-\frac{c}{2} + 57{,}17$	
25	$c - 11{,}88$	$-\frac{c}{2} - 69{,}88$	$-\frac{c}{2} + 81{,}76$	VI -
26	$c - 3{,}81$	$-\frac{c}{2} - 104{,}27$	$-\frac{c}{2} + 108{,}09$	VII -
27	$c + 32{,}37$	$-\frac{c}{2} - 72{,}32$	$-\frac{c}{2} + 39{,}96$	VIII -
28	$c + 25{,}97$	$-\frac{c}{2} - 43{,}94$	$-\frac{c}{2} + 17{,}96$	
29	$c + 32{,}63$	$-\frac{c}{2} - 85{,}98$	$-\frac{c}{2} + 53{,}34$	X -
30	$c - 5{,}00$	$-\frac{c}{2} - 93{,}05$	$-\frac{c}{2} + 98{,}05$	XI -
				XII -

III Lábléc.

$10^9 \frac{\partial^2 U}{\partial z^2}$ kiszámítása III Tábla eltérésével.

	$( )' - ( )$	P	$\left(\frac{\partial^2 U}{\partial z^2}\right)' - \left(\frac{\partial^2 U}{\partial z^2}\right) = ( )' - ( ) - 2P$	$\left(\frac{\partial^2 U}{\partial z^2}\right)$		$\frac{\partial^2 U}{\partial z^2}$
II – I	+38,05	+21,26	−4,47	I	0	c
III – II	+12,23	+4,68	+2,87	II	c − 4,47	c − 4,47
IV – III	−20,51	−2,31	−15,89	III	c − 1,60	c − 1,60
VIII – IV	+7,22	+9,19	−11,16	IV	c − 17,49	c − 17,49
XII – VIII	+4,82	+3,12	−1,42	VIII	c − 28,65	c − 28,65
XVI – XII	+18,87	+2,67	+13,47	XII	c − 30,07	c − 30,07
XV – XVI	+29,24	+9,95	+9,34	XVI	c − 16,60	c − 16,60
XIV – XV	+8,71	+0,27	+8,17	XV	c − 8,43	c − 7,26
XIII – XIV	−12,35	−5,21	−1,93	XIV	c − 0,26	c + 0,91
IX – XIII	−28,31	−8,28	−11,75	XIII	c − 2,19	c − 1,02
V – IX	+10,65	+6,81	−2,97	IX	c − 13,94	c − 12,77
I – V	+42,18	+13,22	+15,74	V	c −	c − 15,74
			+49,59	I		c
			−49,59			

I ordinátás!!

	$( )' - ( )$	P	$( )' - ( ) - 2P$			$( ) - ( ) - 2P$ kiegyenlítve	
X – XIV	−12,82	+2,60	−18,02	XIV	c + 0,91	−18,92	XIV c + 0,91
VI – X	+1,79	+0,22	+1,35	X	c − 17,11	+0,45	X c − 18,01
II – VI	+9,85	−2,09	+14,03	VI	c − 15,76	+13,13	VI c − 17,56
			−2,64	II	c − 1,73	−5,24	II c − 4,47
		Direkt	−5,28				

	$( )' - ( )$	P	$( )' - ( ) - 2P$			kiegyenlítve	
XI – XV	−12,54	−0,11	−12,32	XV	c − 7,26	−14,37	XV c − 7,26
VIII – XI	−3,66	−6,74	+9,82	XI	c − 19,58	+7,77	XI c − 21,63
IV – VIII	−5,92	−10,11	+14,30	VIII	c − 9,76	+12,25	VII c − 13,86
			+11,80	III	c + 4,54	+5,65	III c − 1,61
		Direkt	+5,66				

$V = -\frac{17,76+12,71}{2} = -15,17$

$VII = -\frac{13,86+13,78}{2} = -13,82$

$X = -\frac{18,01+17,57}{2} = -17,79$

$XI = -\frac{23,46+21,63}{2} = -22,55$

	$( )' - ( )$	P	$( )' - ( ) - 2P$			kiegyenlítve	
VI – V	+5,72	+1,49	+2,74	V	c − 15,74	+3,30	V c − 15,74
VII – VI	−3,54	−0,82	−1,90	VI	c − 13,00	−1,34	VI c − 12,44
VIII – VII	−21,87	−3,19	−15,43	VII	c − 14,90	−14,87	VII c − 13,78
			−14,59	VIII	c − 30,33	−12,91	VIII c − 28,65
		Direkt	−12,91				
X – IX	−3,14	+0,65	−4,44	IX	c − 12,77	−4,80	IX c − 12,77
XI – X	−8,99	−1,73	−5,53	X	c − 17,21	−5,89	X c − 17,57
XII – XI	−22,97	−8,36	+6,25	XI	c − 22,74	−6,61	XI c − 23,46
			−16,22	XII	c − 28,99	17,30	XII c − 30,07
		Direkt	17,20				

	$()' - ()$	P	$()' - ()$ $-2P$		
XVII − XIII	+44,26	+11,16	+21,94	XVII	c + 20,92
XVIII − XIV	+ 6,32	−8,08	+22,48	XVIII	c + 23,39
XIX − XV	+ 8,37	+9,57	+27,51	XIX	c + 20,25
XX − XVI	+27,63	+1,48	+24,67	XX	c + 8,07

Ezen vételen sorozatot még csak a szokásos alakjára akarjuk hozni. Evégből bevezetjük a q mennyiséget az

$$q = e^{\frac{\omega'}{\omega}\pi i}$$

egyenlet alapján. Ebből $\operatorname{sn}\alpha x$-t szorzatok által a következő alakban írjuk

$$\operatorname{sn}\operatorname{am} x = \frac{2\omega}{\pi} \sin\frac{\pi x}{2\omega} \prod_{\nu=1}^{\infty} \frac{\sin^2\frac{\nu\omega'\pi}{\omega} - \sin^2\frac{\pi x}{2\omega}}{\sin^2\frac{(2\nu-1)\omega'\pi}{2\omega} - \sin^2\frac{\pi x}{2\omega}}$$

Ha a vételen sorozatban a trigonometrikus függvényeket lyébek az exponenciális függvényekkel vezetjük be, akkor az a q mennyiséggel igen egyszerűen fejezhető ki: Ha ezt tesszük, akkor

$$\sin\frac{\nu\omega'\pi}{\omega} = \frac{e^{\frac{\nu\omega'\pi i}{\omega}} - e^{-\frac{\nu\omega'\pi i}{\omega}}}{2i} = \frac{q^\nu - q^{-\nu}}{2i}$$

és $\sin^2\frac{\nu\omega'\pi}{\omega} = \frac{q^{2\nu} + q^{-2\nu} - 2}{-4}$

továbbá

~~$\sin^2\frac{\pi x}{2\omega} = \frac{e^{+2\frac{\pi x}{2\omega}i} - 2 + e^{-2\frac{\pi x}{2\omega}i}}{-4}$~~

és hasonló módon

$$\sin^2\frac{(2\nu-1)\omega'\pi}{2\omega} = \frac{q^{2\nu-1} + q^{-2\nu+1} - 2}{-4}$$

Továbbá ha $\sin\frac{\pi x}{2\omega}$ helyébe $\cos\frac{\pi x}{\omega}$-t vezetünk be, ezzel

$$\sin^2\frac{\pi x}{2\omega} = \frac{1 - \cos\frac{\pi x}{\omega}}{2}$$

akkor

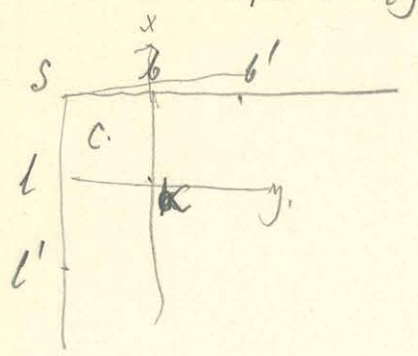
$$\sin^2\frac{\nu\omega'\pi}{\omega} - \sin^2\frac{\pi x}{2\omega} = \frac{q^{2\nu} + q^{-2\nu} - 2 + 2 - 2\cos\frac{\pi x}{\omega}}{-4}$$

$$= \frac{q^{-2\nu} - 2\cos\frac{\pi x}{\omega} + q^{2\nu}}{-4}$$

és hasonló módon

$$\sin^2\frac{(2\nu-1)\omega'\pi}{2\omega} - \sin^2\frac{\pi x}{2\omega} = \text{———————}$$

$$n = a_1 x + a_2 y + a_{11} x^2 + a_{22} y^2 + a_{12} xy$$



$l' = k - a_1 - a_2 + a_{11} + a_{22} + a_{12}$

$l = k \quad - a_2 \quad + a_{22}$

$s = k + a_1 - a_2 + a_{11} + a_{22} - a_{12}$

$b = k + a_1 \quad + a_{11}$

$b' = k + a_1 + a_2 + a_{11} + a_{22} + a_{12}$

$c = \frac{1}{2}$

$x = +\frac{1}{2} \quad y = -\frac{1}{2}$

$$c = \frac{a_1}{2} - \frac{a_2}{2} + \frac{a_{11}}{4} + \frac{a_{22}}{4} - \frac{a_{12}}{4}$$

$b = K + a_1 + a_{11}$

$l' - l = -a_1 + a_{11} + a_{12}$

$K - a_2 + a_{11} + a_{22} - l = a_{11}$

$-k - a_1 + a_2 - a_{11} - a_{22}$

$+k + a_1 \quad + a_{11} + a_{12}$

$k + a_1 - a_2 + a_{11} + a_{22}$

$l' - l = \quad k + a_1 + a_{11} + a_{22} - b = a_{22}$

$l' + b' = 2k + 2a_{11} + 2a_{22} + 2a_{12}$

$s - (l + b) = -k - a_{12}$

$b' - b = a_2 + a_{22} + a_{12}$

$l \quad = k - a_2 + a_{22}$

$(b' - b) + l = k + 2a_{22} + (l + b) - k - s$

$(b' + s) - 2b = 2a_{12}$

$a_2 = (k - l) + a_{22}$

$a_2 = k - l + a_{22}$

$= k - l - b + \frac{b' + s}{2}$

$a_1 = b - k - a_{11}$

$a_1 = b - k + l - \frac{l' + s}{2}$

$a_{12} = (l + b) - k - s$

$a_{11} = \frac{l' + b}{2} - l$

$a_{22} = \frac{b' + s}{2} - b$

$a_1 = (b + l) - k - \frac{l' + s}{2}$

$a_2 = k - (l + b) + \frac{(b' + s)}{2}$

$k + a_1 - a_2 + a_{11} + a_{22}$

$+ \frac{1}{2}(2k + 2a_1 + a$

$+ \frac{1}{2}(2k + 2a_1 + 2a_{11} + 2a_{22})$

$b + (l' - l) = k + 2a_{11} + a_{12}$

$k + (l' - l) - k - (l + b) + k + s = 2a_{11}$

$l' - 2l + s = 2a_{11}$

$l' = 54,23$

$l = 99,22$

$s = 170,68$

$b = 180,54$

$b' = 58,14$

$k = 79,26$

$a_{12} = 202,77 - 249,94 = -47,17$

$a_{11} = 112,46 - 99,22 = +13,23$

$a_{22} = 119,41 - 103,54 = +15,87$

$a_1 = +123,51 - 112,46 = +11,05$

$a_2 = -123,51 + 114,41 = -9,10$

$+2,05 \quad -8,23$

$+16,65 \quad +11,79$

$+18,70 \quad -19,02$

$c = -8,123 + 2,05 + \frac{1}{4}66,60 - \frac{1}{4}47,17$

$c = 79,26 + 5,53 + 4,55 + \frac{1}{4}29,10 + \frac{1}{4}\cdot 47,17$

$79,26$

$5,53$

$4,55$

$7,28$

$11,79$

$108,41$

$$-\left(\frac{1}{2}\cdot\frac{20+17}{20}+\frac{1}{2}\frac{20+15}{40}+\frac{1}{2}\frac{15+4}{40}+\frac{1}{2}\frac{4+1}{4}+0\right)+\frac{1}{2}\frac{2+14}{40}$$

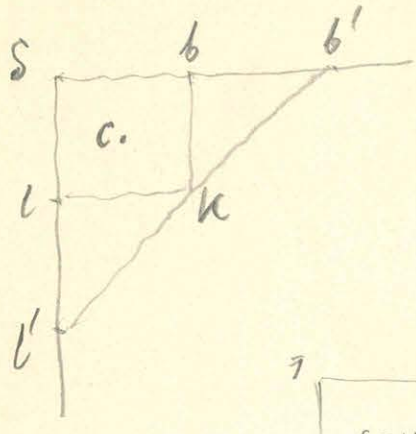
$$-\frac{37}{80}-\frac{25}{80}-\frac{19}{80}-\frac{5}{80}+\frac{16}{80}$$

$$\frac{80}{80}\cdot\frac{1}{4}=20$$

$$\boxed{-40}$$

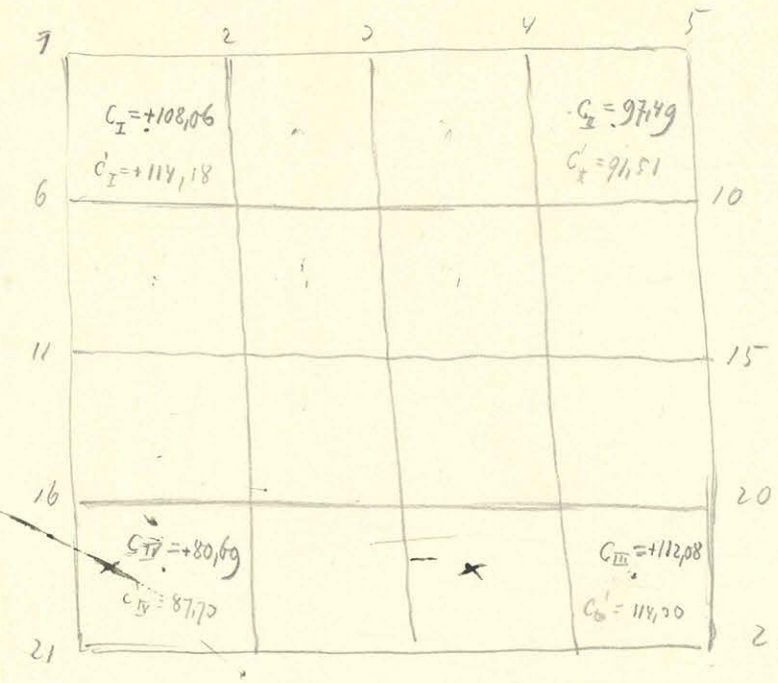
$$\frac{22+8,4}{4}+\frac{8,4+4}{4}+\frac{4+2}{4}+\frac{6,5}{4}+\frac{2,5}{4}$$

Quadratisches Wallopsches Schema



$$C = \frac{S+b+l+k}{4} - \frac{1}{8}\left\{2s + (b'+l') - 2(b+l)\right\}$$

$$C' = \frac{S+b+l+k}{4}$$



$\frac{\partial^2 u}{\partial x^2}$ $\frac{\partial^2 u}{\partial y^2}$

$$\left(\frac{\partial^2 u}{\partial x^2}\right)_{II} - \left(\frac{\partial^2 u}{\partial x^2}\right)_{I} = +10,57 + 20,24$$

$$\left(\frac{\partial^2 u}{\partial x^2}\right)_{III} - \left(\frac{\partial^2 u}{\partial x^2}\right)_{II} = +14,59 - 71,56$$

$$\left(\frac{\partial^2 u}{\partial x^2}\right)_{IV} - \left(\frac{\partial^2 u}{\partial x^2}\right)_{III} = -31,39 + 17,72$$

$$\left(\frac{\partial^2 u}{\partial x^2}\right)_{I} - \left(\frac{\partial^2 u}{\partial x^2}\right)_{IV} = +27,37 - 32,06$$

$+10,57 \doteq 42,64$ $+10,57 - 40$

$+14,59 - 30,08$ $+14,59 - 20$

$+31,39 - 6,32$ $31,39 - 5$

$+27,37 + 23,38$ $+27,37 - 20$

$83,92 - 95$

84 100

c'el.

$+22,67 - 40$ -17

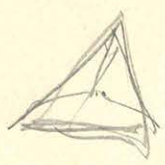
$+22,79 - 20$ -7

$+26,57 - 5$ $+25$

$+21,33 - 20$ 0

$93,36 - 95$

$\frac{K}{\tau} = \frac{mkl}{\tau}$.



7,816
60 2

25,40
56,6
15258
15258
12715
1439,308
2878676

641/909/1,4181
641
2680
2564
1160
641
5190
5128
620

22625 / 2878676 / 1,27
22625
61610
45256
163600

+4,7	-1,66	+4,7	-1,66	+4,7	-1,66
-19,77		+10,25	-19,77	10,25	-19,77
-66,26		+22,75	-26,26	22,75	26,26
-18,65		+21,00	-18,65	21,00	18,65
-26,75		+34,00	-26,75	34,00	26,75
-26,63		+60,88	-61,26	60,88	61,26
		+58,67	-62,93	58,67	62,93
		+55,52	-61,45	55,52	61,45
		+26,75	-31,33	26,75	31,33
			-0,26	314,62	0,26
			-7,00		7,00
					-327,42

+5,71 −10,03
+0,45
=+15,03

+5,71	-20,06	-4,70	+1,66
+0,90	-18,61	-26,75	+19,77
16,47	28,68	-61,26	+26,26
19,94	60,58	-62,93	+18,65
30,44	30,02	-61,45	+0,26
58,67	1,36	-31,33	+7,00
27,76	7,15	-10,25	+34,00
	166,46	-22,75	+60,88
		-21,00	+58,67
		-0,26	+55,52
			+26,75
159,89		312,52	+219,52

~~$a = 14,925$ $b = 44,80$ $c = 29,25$ $l = 12,986$~~

~~$a^2 = 222,76$ $b^2 = 2007,04$ $c^2 = 855,56$ $l^2 =$~~

~~$\lg a = 1,173914$ $\lg b = 1,651278$ $\lg c = 1,466126$~~

~~$\lg a^2 = 2,347828$ $\lg b^2 = 3,302556$ $\lg c^2 = 2,932252$~~

~~$\lg l^2 = 2,226950$~~

~~$a - l = 1,939$ $a + l = 27,911$~~

~~$\lg (a-l) = 0,287578$ $\lg (a+l) = 1,445775$~~

~~$\lg (a-l)^2 = 0,575156$ $\lg (a+l)^2 = 2,891550$~~

~~$(a-l)^2 = 3,75973$ $(a+l)^2 = 779,022$~~

~~$s^2 = 2866,26$ $s'^2 = 3641,62$~~

~~$\lg s^2 = 3,457331$ $\lg s'^2 = 3,561294$~~

~~$\lg s = 1,728666$ $\lg s' = 1,780647$~~

~~$a = b = 14,925$ $c = 29,25$ $l = 12,986$~~

$a = b = 14,925$ $c = 29,25$ $l = 12,986.$

$(a-l)^2 = 3,75972$ $(a+l)^2 = 779,022$ $b^2 = 222,76.$

$(a-l)^2 + b^2 = 226,5197$

$(a+l)^2 + b^2 = 1001,782$

$s^2 = 1082,0797.$

$s'^2 = 1857,342$

$$\begin{array}{r} 1,425716 \\ 248140 \\ \hline 1,077576 \end{array}$$

$$\begin{array}{r} 3,024259 \\ \lg s = 1,517129 \\ 2,255107 \\ \hline 3,872236 \\ 0,127764-4 \end{array}$$

$$\begin{array}{r} 0,000134204 \\ 000023162 \\ \hline 0,000157366 \end{array}$$

$$\begin{array}{r} 3,268891 \\ \lg s' \; 1,634445 \\ 3,000772 \\ \hline 4,635217 \\ \hline 0,364783-5 \end{array}$$

$$\begin{array}{r} 0,032450 \\ 1,113475 \\ \hline 0,918975-2 \end{array}$$

$$\begin{array}{r} 0,196911-4 \\ 1,466126 \\ 1,173914 \\ \hline 0,836951-2 \end{array}$$

$$\begin{array}{r} 0,0686992 \\ \cancel{829804} \\ \hline \cancel{0,898804} \\ \hline 0,0829805 \\ \hline 0,1516797 \end{array}$$

$$\begin{array}{r} 3,75972 \\ 222,76 \\ \hline 226,5197 \\ 855,56 \\ \hline 1082,0797 \end{array}$$

$$\begin{array}{r} 779,022 \\ 222,76 \\ \hline 1001,782 \\ 855,56 \\ \hline 1857,342 \end{array}$$

$$\begin{array}{r} 2265197 \\ 85556 \\ \hline \end{array}$$

a b c.

1,651278
a^2 3,302556

~~2000704~~

a^2 = 2007,04

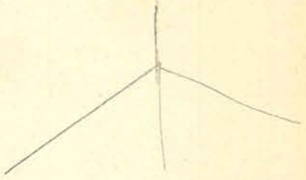
1,173914
2,347828

b^2 = 222,755

1,466126
2,932252

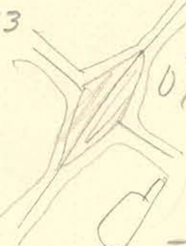
C^2 = 855,564

994838
11636
000242
1,006716

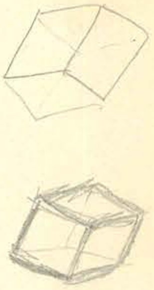


lg 9^2 = 3,489205
1,744653

0,157080
16581
5
0,173666



0,404848
0,0783178
0,326530



16003
1763
1584

1,651278
1,466126
3,117404
2,918567
0,198837

1,173914
1,744653
2,918567

57° ~~52~~' 40' ~~49~~ 50"
9° 57' 1"

222,76
855,56
1078,32

1,173914
1,466126
2,640040
3,395931
0,244109 −1

1,744853
1,651278
3,395931

47° 43' 49"

0,820305
012508
238
0,833051

3085,26 + 445,52
687279 + 1717150

2,347828
3,489205
5,837133

2,932252
3,302556
6,234808

687279
1717150
2404429

0,457767
0,334765
0,123002

3530,88
2404429
0,00146850
0,00111224
0,00035626

45
15
30
450
45
225
180
20250

3,547883
6,381010
0,16 ~~8893~~ 6873 −3

2,347828
2,932252
5,280060

3,302556
3,489205
6,791861

3085,26
4014,08
7099,44

6192430 +
190572
6383002

1/100

1/400

~~7000~~
6200

1/900

3,851226
6,805026
0,046200 −3

55,546
44,80
100,346

0,551767 −4
1,651278
1,173914
1,466126
0,843085
1,744653
0,098432
0,2544
0,12544
1,00352

1,744653
2,001526
3,746179

14,925
55,546
70,471

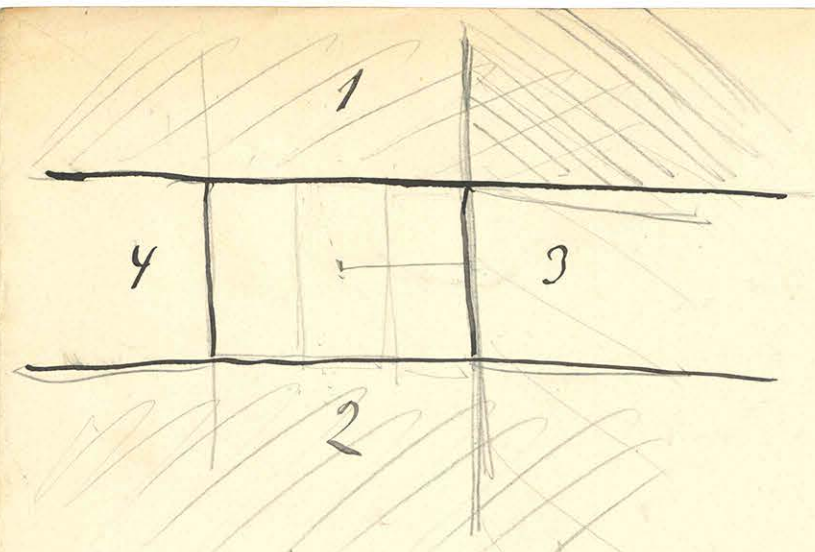
2,640040
3,032748
0,607292 −1

1,173914
1,466126
2,640040
3,746179
0,893861 =

1,651278
1,466126
3,117404
3,592663
3,524741 −1
0117404
3,456768
0,660643 −1

1,848010
1,744653
3,592663

2007,04
855,56
2862,60



Integrum I ex 4 oc.

a 1^2 mnożja.

$$= 24 \int \frac{(b^2-a^2)\,dm}{(a^2+b^2+c^2)^{\frac{5}{2}}}$$

$$= 4 I_2 \int \frac{a^2\,dm}{(a^2+b^2+c^2)^{\frac{5}{2}}} + 12 \int \frac{b^2\,dm}{(a^2+b^2+c^2)^{\frac{5}{2}}} - 4 I_2 \int \frac{b^2\,dm}{(a^2+b^2+c^2)^{\frac{5}{2}}} + 12 \int \frac{a^2\,dm}{(a^2+b^2+c^2)^{\frac{5}{2}}}$$

$$\int_0^{+c} \int_0^{b} \int_a^{\infty} \frac{a^2\,da\,db\,dc}{(a^2+b^2+c^2)^{\frac{5}{2}}} = \int_0^{+c} \int_0^{b} \left| \frac{a^3}{3(b^2+c^2)(a^2+b^2+c^2)^{\frac{3}{2}}} \right|_a^{\infty} db\,dc$$

$$= \int_0^{+c} \int_0^{b} \frac{db\,dc}{3(b^2+c^2)} - \int_0^{+c} \int_0^{b} \frac{a^3\,db\,dc}{3(b^2+c^2)(a^2+b^2+c^2)^{\frac{3}{2}}}$$

$$\int_0^{+c} \int_0^{b} \frac{db\,dc}{3(b^2+c^2)} - \int_0^{+c} \int_0^{b} \frac{b^3\,db\,dc}{3(b^2+c^2)(a^2+b^2+c^2)^{3/2}}$$

$$b^2 \left| \left(\frac{2a^3}{3(b^2+c^2)^2} + \frac{a}{b^2+c^2} \cdot \right) \frac{1}{(a^2+b^2+c^2)^{3/2}} \right|_a^{\infty}$$

$$\frac{a^2}{3(b^2+c^2)^2} -$$

$\alpha_0 + \alpha_1 (\beta^2+c^2) +$

lg 1,117475
2,226950

2,226950
1,502618
1,172914
1,466126

lg 5. 6,369608

2,347828
3,371520

6,719358

$b^2 s^2 = 520,4250$

1090160
520425

$b^2 s^2 + (a-1)^2 c^2 = 1,610.585$

lg $b s^2$(   ) =

3,105226
2,932252

6,037488

6,206826
1,685765

7,892591

6,369608
7,892591

0,477017 −2
0,778151

lg k = 0,698866 −3
0,726252

0,425118 −2

222,76
2352,50

257516

3,410804
6,821608
6,206983

0,614625

5,22948
0,09469 0,0266145

5,32417
4,11474

2,347828
3,271520

0,976298 −2

3,645184
2,347828

5,993012

2,226950
1,761823
1,172914
1,466126

lg S_p. 6,628813
9,285183

lg k = 0,343630 −3

3,523646
2,932252

6,455898

$(a+1)^2 c^2 = 2,856920$
984038

$(a+1)^2 c^2 + b'^2 s'^2 = 3,840958$

lg(   ) = 6,584440
1,822592

8,407032
0,778151

9285183

222,76
4417,57

4640,33

3,666549
7,333098
6,584440

0,748658

5,60607
11,21214
8,21214
0,05042

8,26256

0,917115
0,343630 −3

0,260745 −2

2,347828
3,645184

0,702644 −2

$$0,8\,\overline{5}\,5\,5\,6 \qquad 0,8\,\overline{7}\,\overline{5}\,\overline{4}\,\overline{4}\,\overline{8}\,\overline{5}\,-1$$

$$\underline{9\,2\,7\,1\,\overline{4}\,\overline{4}} \qquad 0,9\,\overline{5}\,7\,5\,0\,0$$

$$0,1\,7\,6\,6\,2\,9 \qquad \overline{5\,\overline{5}\,\overline{5}\,7\,1}$$

$$\overline{0,0\,2\,2\,1\,9}$$

$$8\,d_4 + 16\,d_8 = \overline{-}0,1\,7\,9\,9\,2\,\cancel{4\,8}$$

$$d_4 + 2\,d_8 = \overline{-}0,0\,2\,1\,7\,4\,9$$

$$2\,d_8 = -0,0\,2\,1\,7\,4\,9 + 0,\overline{0}\,2\,2\,1\,9$$

$$\underline{\overline{2\,1\,7}\,\overline{5}}$$

$$0,0\,0\,0\,\overline{4}\,4$$

$$0,0\,0\,0\,2\,2$$

$$\overline{\qquad\qquad}$$

$$4\,d_2 + 12\,d_6 = 9,3\,\overline{4}\,\overline{4}\,3\,9\,8 \qquad 3,\overline{2}\,\overline{7}\,\overline{4}\,2\,\overline{5}\,8$$

$$d_2 + 3\,d_6 = 0,\cancel{8}\,\cancel{3}\,\cancel{6}\,0\,9\,\overline{9}\,\overline{5} \qquad 0,\cancel{8}\,\cancel{4}\,\overline{3}\,\cancel{5}\,\cancel{9}\,\overline{9}\,\overline{5}$$

$$\cancel{8\,7\,6\,6} \qquad \overline{8\,\overline{4}\,7\,\overline{5}\,2}$$

$$\overline{0,0\,0\,\overline{3}\,\overline{4}\,\overline{4}\,\overline{5}\,4\,0\,0\,0\,9\,3\,\overline{4}}$$

$$d_2 - d_6 = 0,\overline{8}\,\overline{4}\,7\,\overline{5}\,2 \qquad \overline{\qquad\qquad}$$

$$4\,d_6 = -0,0\,1\,1\,\overline{4}\,2 \qquad d_6 = -0,0\,0\,2\,8\,\overline{7}\,\overline{4}$$

$$\underline{4 \;/\; 3\,9\,2\,/\; 9\,8\,0}$$

$$\underline{\overline{3}\,\overline{2}}$$

$$1,\overline{6}\,\overline{7}\,\overline{0}\,2\,0$$

$$\underline{1\,\overline{7}\,\overline{7}\,\overline{4}\,2\,0}$$

$$\underline{9\,\overline{5}\,\overline{7}\,\overline{4}\,\overline{0}}$$

$$0,\overline{8}\,\overline{4}\,\overline{3}\,\overline{6}\,0$$

$$\underline{3\,9\,2}$$

$$0,\overline{8}\,\overline{4}\,\overline{7}\,\overline{5}\,\overline{2} + d_6 \qquad 0,\overline{8}\,\overline{4}\,\overline{7}\,\overline{5}\,\overline{2}$$

$$\underline{9\,8}$$

$$\underline{0,\overline{8}\,\overline{4}\,\overline{7}\,\overline{5}\,\overline{4}}$$

$$2\,d_2 + 4\,d_4 + 6\,d_6 = 1,\overline{6}\,\overline{6}\,\overline{6}\,2\,0\,\overline{2}$$

$$d_2 + 2\,d_4 + 3\,d_6 = 0,\overline{8}\,\overline{6}\,\overline{6}\,\overline{6}\,\overline{2} \qquad 0,\overline{8}\,\overline{4}\,\overline{7}\,\overline{5}\,\overline{4}$$

$$\underline{2\,\overline{9}\,\overline{4}\,\overline{0}} \qquad \overline{8\,\overline{6}\,\overline{3}\,\overline{0}\,\overline{4}}$$

$$0,\overline{8}\,\overline{0}\,\overline{5}\,\overline{6}\,\overline{4}\,\overline{2} \qquad \underline{0,0\,\overline{4}\,\overline{5}\,\overline{5}\,\overline{0}}$$

$$0,0\,\overline{2}\,\overline{1}\,\overline{7}\,\overline{5}$$

$$8\,/\,\overline{8}\,\overline{1}\,\overline{7}\,\overline{3}\,\overline{9}\,\overline{9}\,\overline{2}\,/\,\overline{2}\,\overline{1}\,\overline{7}\,\overline{5}$$

$$\overline{\overline{7}\,\overline{5}_2}$$

$$S^2 = 9 \qquad S = 3.$$

$$\frac{1 \cdot 2 \cdot 2}{6(9+16)^3}\left[-3 + 2\,\frac{100}{9+16} + \frac{1}{9}\right]$$

$$\frac{2}{9.25}\left[+3 + \frac{1}{9}\right] \qquad S^{1/2} = 21$$

$$\frac{8}{6\,(21+64)\sqrt{21}}\left[-3 + 2\,\frac{48\gamma}{21+6\gamma} + \frac{1}{21}\right]$$

$$\frac{\gamma}{2S\sqrt{21}} \qquad \frac{968}{85}$$

$$\frac{92}{87.25} \qquad \frac{968.}{8700}$$

$$\frac{1}{3(5^2)} - \frac{1}{\sqrt{21(12}}$$

$$\frac{1}{\sqrt{}}$$

MAGYAR TUDOMÁNYOS AKADÉMIA KÖNYVTÁRA

$$\frac{n-\frac{1}{n}}{\frac{1}{n}\sqrt{n^2+1 \dots}}$$

$$\frac{\left(\frac{1}{6}-1\right)\frac{1}{6}}{\sqrt{1+\left(\frac{1}{6}-1\right)^2+\frac{1}{6^2}}} = \frac{\frac{1}{6}-1}{\frac{1}{6}\sqrt{6^2+(1-6)^2+1}} \qquad \frac{1-6}{6\sqrt{}}$$

$$\frac{\frac{1}{6}}{\left(\frac{1}{6}+1\right)} \qquad \frac{1}{6}$$

$$\frac{1}{26}\sqrt{}$$

1,529366
0,743250
2,272616
403055
1,869561
706455
2,576016

1,119770
225511
0,894259
1788518
2577026

1,013198
1,168992
2,182190
0,762542
−2,944732
1,238277
1,706455

0,584160
~~428454~~
~~325663~~
1,338277 + 1,238277

0,584160
428454
225663

1,529366
0,248625
248625
2,026616
~~706455~~
~~1,221~~433

2,026616
403055
1,623561

1,529366
743250
2,272616
403055
1,869561
1,706455
1,576016

1,226094
172351
1,053743
2,107486

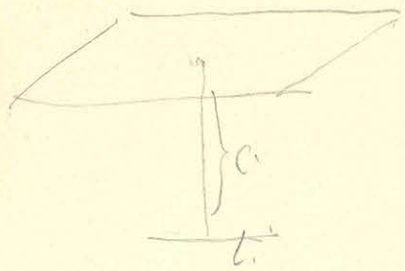
1,168992
1,257437
2,426429
0,767292
3,193721
1,123087
2,070634
2,146080
4,216714

longitudinalis

1,854588
0,306624
0,306624
2,467836
321756
[illegible] 2,146080

0,614175
336280
172592
1,123087

Horizontális lemez hatása Nov 25 98



Longitudinális eltolás

$$-\int \sigma 4\gamma b^2\varphi \cdot \frac{\partial \overline{III}_c^{a\,b}}{\partial b} + 4\int \sigma \gamma l^2 \varphi \left(\overline{III}_c^{a\,b+l} - \overline{III}_c^{a\,b-l}\right)$$

transzverzális eltolás

$$-\int \sigma 4\gamma l^2\varphi \frac{\partial \overline{III}_c^{a\,b}}{\partial a} + 4\int \sigma \gamma l^2\varphi \left(\overline{III}_c^{a+l\,b} - \overline{III}_c^{a-l\,b}\right)$$

hajlás

$$-2\int \sigma 4\gamma l^2\varphi \left(\frac{\partial \overline{III}_c^{a\,b+l}}{\partial b} + \frac{\partial \overline{III}_c^{a\,b+l}}{\partial b}\right) + 2\int \sigma \gamma l^2\varphi \left(\overline{III}_c^{a+l\,b} - \overline{III}_c^{a-l\,b}\right)$$

hajlás

$$-2\int \sigma \gamma l^2\varphi \left(\frac{\partial \overline{III}_c^{a\,b+l}}{\partial a} + \frac{\partial \overline{III}_c^{a\,b-l}}{\partial a}\right) + 2\int \sigma \gamma l^2\varphi \left(\overline{III}_c^{a+l\,b} - \overline{III}_c^{a-l\,b}\right)$$

$$\ln\sqrt{x^2+z^2} - \ln\left(y+\sqrt{x^2+y^2+z^2}\right) + C$$

$$\frac{x}{x^2+z^2} - \frac{x}{\sqrt{x^2+y^2+z^2}\left(y+\sqrt{x^2+y^2+z^2}\right)}$$

$$\frac{x}{x^2+z^2} - \frac{x}{s(y+s)}$$

$$\frac{x}{(z^2+x^2)s}\cdot\frac{(b+s)s}{s(s+y)}\cdot\frac{s^2+y^2-x^2-z^2+s+by}{(z^2+x^2)(b+s)s}$$

$$\frac{3}{13}\left(\frac{2}{\sqrt{17}}\right.$$

$$\frac{1}{l}\log\left(1+2\frac{a}{a^2+c^2}l\right)\qquad \frac{\frac{b}{s}+1-\frac{al}{s^2}}{\frac{b}{s}+1+\frac{al}{s^2}}\qquad \frac{b+s-\frac{al}{s}}{b+s+\frac{al}{s}}$$

$$\frac{1}{l}\log\left(1+2\frac{a}{a^2+c^2}l\right)\left(1-2\frac{al}{s(s+b)}\right)$$

$$\frac{1}{l}\log\left(1+2\left(\frac{a}{a^2+c^2}-\frac{a}{s(s+b)}\right)l\right)$$

$$2\frac{a}{c}\qquad 2a\left(\frac{1}{a^2+c^2}+\frac{1}{s(s+b)}\right)$$

$$-\frac{4ba}{b^2+c^2\sqrt{a^2+b^2+c^2}}\qquad \frac{s^2+bs-a^2-c^2}{(a^2+c^2)s(s+b)}=\frac{b(s+b)}{}$$

$$-\frac{4ab}{(b^2+c^2)\sqrt{a^2+b^2+c^2}}+\frac{4ab}{(a^2+c^2)\sqrt{a^2+b^2+c^2}}\qquad \frac{2ab}{(a^2+c^2)s}.$$

$$\frac{1}{5}\left(\frac{4}{\sqrt{21}}+\frac{2}{3}\right)$$

$$\log\frac{\sqrt{20}}{\sqrt{8}}\,\frac{1+\sqrt{3}}{1+\sqrt{21}}$$

0,477121
572064
0,904057 −1
902090
0,807147
1,812913
0,994234 −2
0,098810

0,602060
0,661110
0,940950 −1
0,872870
666667
1,539537
− 0,307907

0,650515
602060
1,252575
1,198080
0,054195

0,904057 −1

0,451545
0,746825
1,198380
0,732959 −2
602784
0,096175 −1
307907
124769
183118

$\frac{1}{5}-\frac{1}{10}$

$\frac{8}{65}$

$\frac{3}{\frac{4}{3}\cdot\frac{1}{5}}$

661110

$\sqrt{21}$ = ~~4,58413~~
= 4,58258

$\frac{3}{18}\left(\frac{2}{\sqrt{22}}\right.$

0,477121
671212
1,148333
0,851667-2

-0,0710669

$\lg \frac{\sqrt{13}}{3} \frac{3+\sqrt{18}}{3+\sqrt{22}}$

671212 $\sqrt{18}=4,24300$
627637 $\sqrt{22}=4,69042$

0,556972
0,859918
1,416890
477121
0,939769
885950
0,053819

0,730936-2
637784
0,093152-1

0,123923
71067
0,052856

2,5 6,25 15,25

-0,0896736

$\frac{3}{15,25}\left(\frac{2}{\sqrt{19,25}}\right.$

0,778751
1,183270
0,594881-1
0,642216
0,952665-2

$\lg \frac{\sqrt{10,25}}{\sqrt{2,5}} \frac{3+\sqrt{15,25}}{3+\sqrt{19,25}}$

591625 $\sqrt{15,25}=3,90512$
642215 $\sqrt{19,25}=4,38748$

0,505362
0,839171
1,344533
0,397940
0,946593
866496
0,078097

0,179825
89674
0,090151

1,013198
1,168992
2,182190
0,762542
-2,944732

892634-2
637784
0,254850-1

-0,806110

1,529366
0,371625
371625
2,272616
0806110
1,466506

$3,84\sqrt{5,84.1,44+1} =$

$2,2 \quad 4,+2$

$3,84\sqrt{9,4096}$

$22,9011$

$0,584221$
$0,486786$

$1,071117$
$1,359856$

$0,711261$

$1,071117$
$0,342425$

$0,728694$
$0,17434$

$0,711260$

$27^{\circ}13'9''$

471239
3781
44

475064

584
144

2236
2236
584

$8,4096$

$10,4096$
$20819\,2$
$20819\,2$

2290112

9725716

Dirò subito che, malgrado la mancanza assoluta di ogni dimostrazione teorica, la regola data mi sembra, per quanto ho potuto verificare finora, esatta [illegible]

2,870884 — 2,880282
5,774768 — 5,760564
0,258202-6 — 0,239436-6

0,000018128 — 1080031
17355 — 768
00768 — 10035

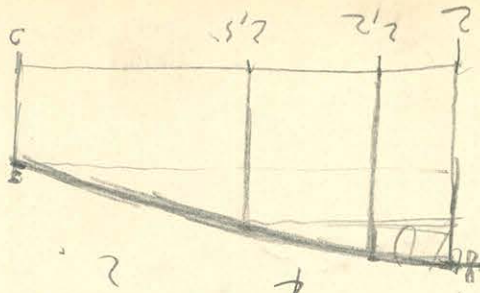
0,127579 — 0,001117-6
1,049567 — 2,177546
2177546 — 0,823971-9
994310
0,818281-8

0 000 000 00

499150

[illegible]

[illegible]



$$\Lambda_2 - \Lambda_2 + \Lambda_{10}$$

$$\alpha_2 + 3\,\alpha_6 + 5^{-}\alpha_{10} = 0.84^{9}5^{-}99^{8}$$

$$\alpha_6 = 0.0^{x}0^{x}9^{x}9^{x}5^{-}$$

$$\alpha_2 = -0.8^{x}4^{x}6^{x}3^{x}2^{x}$$

$$\alpha_{10} = +0.0^{x}0^{x}2^{x}0$$

$$-3^{x}4.3^{x}4^{x} = 0.^{x}45^{-}$$

$$0.1^{x}7^{x}6^{x}e^{x}9^{x}1^{-1}, -0.0^{x}0^{x}e^{x}9^{x}9^{x}4^{x}5^{-}$$

$$0.8^{x}4^{x}9^{x}0 \qquad 0.8^{x}4^{x}9^{x}$$

$$0.8^{x}4^{x}6^{x}4^{x}9^{x}7 \qquad 8^{x}4^{x}7^{x}5^{-}2$$

$$0.8^{x}4^{x}6^{x}7^{x}7^{6} \qquad 8^{x}4^{x}6^{x}2^{x}$$

$$8^{x}4^{x}6^{x}3^{x}2^{x} \qquad y^{3}.9^{x}$$

$$y_2.9^{x}_{0.0001^{x}6^{x}5^{-}}$$

$$8^{x}4^{x}6^{x}2^{x} \qquad 0.9^{x}8^{x}2^{x}7^{5^{-}}$$

$$0.9^{x}8^{x}2^{x}7^{5^{-}} \qquad 0.6^{x}2^{x}5^{x}7^{x}4$$

$$0.9^{x}2^{x}7^{x}5^{x}3^{x}9^{-1}$$

$$8^{x}4^{x}6^{x}2^{x}$$

$$y_2.9^{x}_{0.0001^{x}6^{x}5^{-}}$$

$$0.9^{x}2^{x}7^{x}5^{x}3^{x}9^{-1}$$

$$0.6^{x}2^{x}5^{x}7^{x}4$$

$$0.9^{x}8^{x}2^{x}7^{5^{-}}$$

$$y_2.2^{x}y_1^{x}8^{x}$$

$$y_2.2^{x}y_1^{x}2^{x}$$

$$0.6^{x}7^{x}6$$

$$0.8^{x}0^{x}1^{x}5^{x}7^{3}-1$$

$$9.6^{x}y_2.9^{x}0^{x}7^{-x}$$

$$2^{x}.5^{x}5^{x}1^{x}8^{x}7$$

$$3.1^{x}6^{x}1^{x}5^{-}6^{x}9$$

$$0.8^{x}4^{x}9^{x}0$$

$$8^{x}4^{x}6^{x}y$$

$$2.1^{x}3^{x}5^{x}2^{x}2$$

$$0.2^{x}8^{x}2^{x}1^{x}0^{x}9$$

$$2.2^{x}5^{x}6^{x}8^{x}1^{2}$$

$$2^{x}4^{x}9^{x}5^{x}2^{x}8$$

$$8^{x}4^{x}7^{x}5$$

$$1^{x}4^{x}5^{-}$$

$$2^{x}1^{x}6$$

$$8^{x}7^{x}9^{o}$$

$$1^{x}6^{x}5^{x}$$

$$2^{x}3^{x}6$$

$$3^{x}1^{x}6^{x}4^{x}0$$

$$0.^{x}03^{x}1^{x}6^{x}4^{x}4^{o}$$

$$5.$$

$$2^{x}1^{x}3^{x}5^{x}2^{x}2$$

$$0^{x}1^{x}2^{x}1^{x}6^{x}4^{x}$$

$$0.^{x}03^{x}1^{x}6^{x}4^{x}$$

$$9^{x}0^{x}0^{x}0$$

$$2^{x}1^{x}3^{x}5^{-}6^{x}$$

$$3^{x}1^{x}6^{x}$$

$$1^{x}6^{x}6^{x}6^{x}6^{x}.$$

$$2^{x}1^{x}6$$

$$1^{x}4^{x}5^{o}.$$

$$0.^{x}0^{x}0^{x}0^{x}5^{x}4^{-}$$

$$0.^{x}9^{x}0^{x}0^{x}2^{x}7^{o}$$

$$1^{x}8^{x}4^{x}6^{x}5^{x}2^{x}8$$

$$0.^{x}8^{x}4^{x}6^{x}2^{x}7^{x}4$$

$$0.^{x}8^{x}4^{x}6^{x}3^{x}2^{x}8$$

$$0.^{x}0^{x}0^{x}0^{x}4^{x}6$$

$$9^{x}2^{x}.^{x}4^{x}1^{x}2^{x}9^{x}$$

$$9^{x}2^{x}.^{x}4^{x}1^{x}2^{x}$$

$$y^{x}2^{x}.^{x}2^{x}4^{x}$$

$$y^{x}2^{x}.^{x}2^{x}1^{x}8^{x}$$

$$0.^{x}6^{x}2^{x}5^{x}7^{x}4$$

$$0.^{x}9^{x}8^{x}2^{x}7^{5^{-}}$$

$$0.^{x}9^{x}2^{x}7^{x}5^{x}3^{x}9^{-1}$$

$$8^{x}4^{x}6^{x}2^{x}$$

$$y_2.9^{x}_{0.0001^{x}6^{x}5^{-}}$$

$$8^{x}4^{x}6^{x}2^{x}$$

$$9^{x}8^{x}4^{x}1^{x}3^{x}5^{-}0$$

$$0.^{x}0^{x}0^{x}1^{x}9^{x}1^{8}$$

$$0.^{x}0^{x}0^{x}2^{x}6^{x}8$$

$$8^{x}4^{x}6^{x}2^{x}$$

$$y^{x}9$$

$$8^{x}4^{x}6^{x}2^{x}7^{x}6$$

$$9^{x}8^{x}4^{x}6^{x}4^{x}9^{x}7$$

$$8^{x}4^{x}7^{x}5^{-}2$$

$$1^{x}4^{x}5^{-}$$

$$2^{x}1^{x}6$$

$$8^{x}7^{x}9^{o}$$

$$1^{x}6^{x}5^{x}$$

$$2^{x}3^{x}6$$

$$3^{x}1^{x}6^{x}4^{x}0$$

$$0.^{x}8^{x}4^{x}9^{x}0$$

$$8^{x}4^{x}6^{x}y$$

$$2^{x}1^{x}3^{x}5^{x}2^{x}2$$

$$5.\ 0.^{x}03^{x}1^{x}6^{x}4^{x}4^{o}$$

$$0^{x}1^{x}2^{x}1^{x}6^{x}4^{x}$$

$$0.^{x}03^{x}1^{x}6^{x}4^{x}$$

$$9^{x}0^{x}0^{x}0$$

$$2^{x}1^{x}3^{x}5^{-}6^{x}$$

$$3^{x}1^{x}6^{x}$$

$$\Lambda_2 \quad \alpha_{4}$$

$$-1^{x}4^{x}5^{-}0.^{x}7^{2}$$

$$1^{x}1^{x}0^{x}9^{x}2$$

$$9^{x}4^{x}1^{x}3^{x}y$$

$$1^{x}6^{x}6^{x}6^{x}6^{x}.$$

$$0.^{x}0^{x}0^{x}0^{x}5^{x}4^{-}$$

$$0.^{x}9^{x}0^{x}0^{x}2^{x}7^{o}$$

$$1^{x}8^{x}4^{x}6^{x}5^{x}2^{x}8$$

$$0.^{x}8^{x}4^{x}6^{x}2^{x}7^{x}4$$

$$0.^{x}8^{x}4^{x}6^{x}3^{x}2^{x}8$$

$$0.^{x}0^{x}0^{x}0^{x}4^{x}6$$

$$9^{x}2^{x}.^{x}4^{x}1^{x}2^{x}9^{x}$$

$$9^{x}2^{x}.^{x}4^{x}1^{x}2^{x}$$

$$y^{x}2^{x}.^{x}2^{x}4^{x}$$

$$y^{x}2^{x}.^{x}2^{x}1^{x}8^{x}$$

$$0.^{x}6^{x}2^{x}5^{x}7^{x}4$$

$$0.^{x}9^{x}8^{x}2^{x}7^{5^{-}}$$

$$0.^{x}9^{x}2^{x}7^{x}5^{x}3^{x}9^{-1}$$

$$8^{x}4^{x}6^{x}2^{x}$$

$$y_2.9^{x}_{0.0001^{x}6^{x}5^{-}}$$

$$8^{x}4^{x}6^{x}2^{x}$$

$$9^{x}8^{x}4^{x}1^{x}3^{x}5^{-}0$$

$$0.^{x}0^{x}0^{x}1^{x}9^{x}1^{8}$$

$$0.^{x}0^{x}0^{x}2^{x}6^{x}8$$

$$8^{x}4^{x}6^{x}2^{x}$$

$$y^{x}9$$

$$8^{x}4^{x}6^{x}2^{x}7^{x}6$$

$$9^{x}8^{x}4^{x}6^{x}4^{x}9^{x}7$$

$$8^{x}4^{x}7^{x}5^{-}2$$

$$1^{x}4^{x}5^{-}$$

$$2^{x}1^{x}6$$

$$8^{x}7^{x}9^{o}$$

$$1^{x}6^{x}5^{x}$$

$$2^{x}3^{x}6$$

$$3^{x}1^{x}6^{x}4^{x}0$$

$$0.^{x}8^{x}4^{x}9^{x}0$$

$$8^{x}4^{x}6^{x}y$$

$$2^{x}1^{x}3^{x}5^{x}2^{x}2$$

$$5.\ 0.^{x}03^{x}1^{x}6^{x}4^{x}4^{o}$$

$$0^{x}1^{x}2^{x}1^{x}6^{x}4^{x}$$

$$0.^{x}03^{x}1^{x}6^{x}4^{x}$$

$$9^{x}0^{x}0^{x}0$$

$$2^{x}1^{x}3^{x}5^{-}6^{x}$$

$$3^{x}1^{x}6^{x}$$

$$1^{x}6^{x}6^{x}6^{x}6^{x}.$$

$$0.^{x}0^{x}0^{x}0^{x}5^{x}4^{-}$$

$$0.^{x}9^{x}0^{x}0^{x}2^{x}7^{o}$$

$$1^{x}8^{x}4^{x}6^{x}5^{x}2^{x}8$$

$$0.^{x}8^{x}4^{x}6^{x}2^{x}7^{x}4$$

$$0.^{x}8^{x}4^{x}6^{x}3^{x}2^{x}8$$

$$0.^{x}0^{x}0^{x}0^{x}4^{x}6$$

$$9^{x}2^{x}.^{x}4^{x}1^{x}2^{x}9^{x}$$

$$9^{x}2^{x}.^{x}4^{x}1^{x}2^{x}$$

$$y^{x}2^{x}.^{x}2^{x}4^{x}$$

$$y^{x}2^{x}.^{x}2^{x}1^{x}8^{x}$$

$$0.^{x}6^{x}2^{x}5^{x}7^{x}4$$

$$0.^{x}9^{x}8^{x}2^{x}7^{5^{-}}$$

$$0.^{x}9^{x}2^{x}7^{x}5^{x}3^{x}9^{-1}$$

$$8^{x}4^{x}6^{x}2^{x}$$

$$y_2.9^{x}_{0.0001^{x}6^{x}5^{-}}$$

$$8^{x}4^{x}6^{x}2^{x}$$

$$9^{x}8^{x}4^{x}1^{x}3^{x}5^{-}0$$

$$0.^{x}0^{x}0^{x}1^{x}9^{x}1^{8}$$

$$0.^{x}0^{x}0^{x}2^{x}6^{x}8$$

$$8^{x}4^{x}6^{x}2^{x}$$

$$y^{x}9$$

$$8^{x}4^{x}6^{x}2^{x}7^{x}6$$

$$9^{x}8^{x}4^{x}6^{x}4^{x}9^{x}7$$

$$8^{x}4^{x}7^{x}5^{-}2$$

$$1^{x}4^{x}5^{-}$$

$$2^{x}1^{x}6$$

$$8^{x}7^{x}9^{o}$$

$$1^{x}6^{x}5^{x}$$

$$2^{x}3^{x}6$$

$$3^{x}1^{x}6^{x}4^{x}0$$

$\alpha_{10} = +~~0~~0,0000247~~9~~91$

$0,0005736$

$\alpha_6 = +~~0,00168905~~$

$~~0,0~~0,8184 6368$

$\alpha_2 = ~~0,8486405~~$

~~0,846496~~

$+24\,\alpha_6 + 120\,\alpha_{10} = 0,043512$

$26,6666\,\alpha_6 + 124,8\,\alpha_{10} = 0,046040$

[illegible]

$(24 . 124,8 - 120 . 26,3333)\,\alpha_{10} = 24 . 0,046040 - 26,3333 . 0,043512$

1,380211
2,096215
3,476426

2995,200

1,420506
2,079181
3,499687

3160,000
2995200
164,800

0,380211
0,663135 −2
0,043346

0,1104960

1,420506
0,638609 −2
0,059115 −1

0,1145816
1104960
0,0040856

0,611256 −3
2,216957
0,394235 −5
394299
24

$\alpha_6 + 5\,\alpha_{10} = 0,001813000$
2479
0,00178821

$\alpha_{10} = 0,0003$

24791

0,043512 / 0,0018130
24
195
192
31
24
72
74

846368
573
0,846941
248
0,846693

0,00181300
12395
0,00168905

181300
12395
5
573

843599
17
12 40
846561

8486405

0,8435995
0,0039871
0001239
0,8486405

846

846128
363
5
0,846496

1813
24
7252
3626
43512

845599

18130
0,00012394
0,0005736

~~846128~~

0,846128
000191
0000495
0,846368
574
~~0,846942~~
~~248~~

0,846128
191
49
0,846068

843600
1722
1239
846562

846128
191
12
846331

0,845794
248
0,846042

0,0010000
0661110
0,6399201

23° 24' 41"

$A_2 + A_4 + A_6 + A_8 + A_{10} + \dots$

$-A_2 - \frac{1}{3}A_6 - \frac{1}{5}A_{10}$

0,401426
9890
199
0,411515

$-\alpha_2 - 27\alpha_6 - 12.5\alpha_{10}$

6,400704
0,800088

0,1000618
0,7650756 −1
1,168262

0,0675009
362216
0,429755

0,7468005
0,5541196
0,192639

0,2847744−1
362216
0,646960−1

0,8780996
0,4120574
0,406342

0,6088922−1
362216
0,971108−1

0,6435002
0,4600647
0,6435002
0,8694488
0,5250201
0,8230000
3,968430

~~980~~

0,000253
42
295

846956
295
0,866561

1,6094008
1,3862944
1,6094008
2,6900020
1,7742772
1,8712760
10,940738
3,968430
6,972308
27,889232

846956

0,7869772
0,3269772
0,460000

0,6627758−1
362216
0,029974
1,05919

0,8526700
0,0504422
0,802258

0,9042014−1
362216
0,266530
1,84727

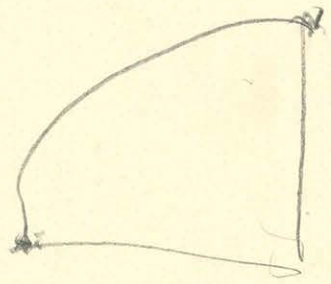
1,258022
1,251072
0,156384
1,258022
3,923500

3,17757
3,69454
3,17757
10,04968
3,923500
6,12618
24,50472

27,889232
24,50472
3,384512
0,84613

0,846956

$$\begin{cases} d_2 + 3\,d_6 + 5\,d_{10} = -\,0{,}8473 \\ -d_2 - 7\,d_6 - 125\,d_{10} = +\,0{,}8 \\ -d_2 - \frac{d_6}{3} - \frac{1}{5}\,d_{10} = +\,0{,}8 \end{cases}$$



$$\frac{1}{4}\,d_2 + 12\,d_6 + 20\,d_{10} = -\,3{,}37$$

$$\frac{9}{8}\begin{cases} -\frac{8}{3}\,d_2 - \frac{216}{3}\,d_6 - \frac{1000}{3}\,d_{10} = +\,2{,}1 \\ -d_2 - \frac{d_6}{3} - \frac{1}{5}\,d_{10} \equiv 0{,}8 \end{cases}$$

$$-100\,d_2 - \frac{100}{3}\,d_6 - 20\,d_{10} = 8{,}$$

$$-96\,d_2 - \frac{64}{3}\,d_6 = 8{,}$$

$$-992\,d_2 - 1950{,}6\,d_6 = 42$$

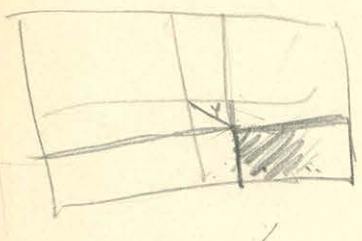
$$-8\,d_2 - 216\,d_6 - 1000\,d_{10} = 9$$

$$-5000\,d_2 - \frac{5000}{3}\,d_6 - 1000\,d_{10} = 4250{,}$$

$$\operatorname{arc\,tg}\frac{(B-\ln\varphi)\cdot C}{(A-\ln\varphi)\sqrt{(A-\ln\varphi)^2+(B-\ln\varphi)^2+C^2}}$$

X

$$\frac{1}{}\left(\frac{-\ln\varphi}{N}-\frac{S}{N^2}\left(-\cos\varphi\sqrt{\quad}+(A-\ln\varphi)\frac{1}{\sqrt{\quad}}\right)\right.$$



$$-8d_4 - 16\,d_6 = 0{,}1792992$$

$$d_4 + 2d_6 = -0{,}0218499$$

$$\begin{cases} d_2 + 3\,d_6 + 5\,d_{10} = 0{,}8435299 \\ d_2 - d_6 + d_{10} = 0{,}8975720 \\ d_2 + \frac{1}{3}d_6 + \frac{1}{5}d_{10} = 0{,}8961628 \end{cases}$$

$$-\gamma d_6 - \gamma d_{10} = 0{,}0039220 \qquad d_{10} = 0{,}0000040$$

$$d_6 + d_{10} = -0{,}0009820 \qquad d_6 = -0{,}0010220$$

$$-\tfrac{4}{5}d_6 + \tfrac{4}{5}d_{10} = 0{,}0019292 \qquad d_2 = 0{,}8976960$$

$$-4d_6 + \tfrac{12}{5}d_{10} = 0{,}0049176 \qquad d_4 = 0{,}0221228$$

$$d_8 = +0{,}0001871$$

$$\left(\tfrac{12}{5}+\gamma\right)d_{10} = 0{,}0000256 \qquad d_{10} = 0{,}0000040.$$

$$\tfrac{32}{5}\quad 32\,d_{10} = 0{,}0001280$$

0,720766	0,923418-2	1,138069	0,923418-2	0,720766	0,464522	1,138069	0,464522
0,921104-2	0,139249	0,572976-2	0,147804	0,605740-1	0,817014-1	0,300882-1	0,882050-1
0,641870-1	0,072667-1	0,711045-1	0,081252-1	0,326506	0,281536	0,438951	0,346872

4,34125

846128

41,8 / 6 / 41 / 1 / 1 / 5 / 4 / 21,9

41 / 1 / 9 / 62 / 15 / 3 / 26 / 1 / 2

$$\gamma =$$

$$U_{45^\circ} - U_0 = \int_0^{45^\circ} \sum \sin 2\varphi \, d\varphi = -\frac{A_2}{2} - \frac{A_4}{2}$$

$$U_\varphi - U_0 = -\frac{1}{2} A_2 \cos 2\varphi - A_4 \frac{1}{4} \cos 4\varphi - A_6 \frac{1}{6} \cos 6\varphi - A_8 \frac{1}{8} \cos 8\varphi - A_{10} \frac{1}{10} \cos 10\varphi$$

$$+\frac{1}{2} A_2 + \frac{1}{4} A_4 + \frac{1}{6} A_6 + \frac{1}{8} A_8 + \frac{1}{10} A_{10}$$

$$+\frac{\alpha_2}{2} - \frac{\alpha_4}{4} + \frac{\alpha_6}{6} - \frac{\alpha_8}{8} + \frac{\alpha_{10}}{10}.$$

$$0 - \frac{\alpha_4}{4} + 0 + \frac{\alpha_8}{8} + 0.$$

0,412003

$a = 3 \quad b = 2 \quad c = 2 \quad l = 1$ $\qquad \sqrt{21} = 4{,}58258$

$\Big|^{1}_{2}\,2 = \operatorname{at}\frac{4}{3} = 0{,}927304$

$\Big|^{1}_{2}\,4 = \operatorname{at}\frac{8}{\sqrt{21}} = 1{,}050601$

$\Big|^{4}_{2}\,1 = \operatorname{at}\frac{1}{2\sqrt{21}} = 0{,}108681$

$\Big|^{2}_{2}\,1 = \frac{1}{3} = 0{,}321751$

$II^{4}_{1\,2} - II^{2}_{1\,2} = \frac{1}{2}\log\frac{17}{5} + \log\frac{2+3}{2+\sqrt{21}}$

$III^{4}_{1\,2} - III^{2}_{1\,2} = \frac{1}{2}\log\frac{20}{8} + \log\frac{1+3}{1+\sqrt{21}}$

$= 0{,}336901$

$= 0{,}124817$

0,602060
477121
0,124939
53° 7' 46"
0,925025
2036
223
0,927304

0,903090
0,661110
0,241980
60° 11' 42"
1,047198
3200
203
1,050601

0,698970 -1
0,661110
0,037860 -1
6° 13' 37"
0,104720
3782
179
0,108681

~~0,698970~~ -1
477121
0,522879 -1
18° 26' 6"
0,314159
7563
29
0,321751

1,230449
698970
0,531479
0,265740

1,301030
903090
0,397940
0,198970

−1,977905
−0,643502
2,621407
1,021259
1,600148

0,698970
0,818396
0,880574 -1
265740
0,146314
362216
508530
0,165286 -1
362216
0,527502 -1

0,602060
0,746835
0,855225 -1
198970
0,054195
~~362216~~

0,434724
336901
249634
1021259

+ 1,190568

0,733959 -2
362216
0,096275 -1

16
196
56
64
25 6
64
8
512
36
6
216

$l\cos\varphi = \sqrt{l^2 - y^2}$ $\qquad l - \frac{1}{2}\frac{y^2}{l}$

0,602060
477121
0,124939

53° 7′ 48″

0,925025
2036
232
0,927293

0,522879 − 1

18° 26′ 6″

0,314159
7563
29
0,321751

$\alpha_4 = 0,188157$

$\alpha_8 = -0,016025$

0,752604
128200
624404

$\sqrt{5} = 2,23607$

0,698970
0,349485

0,698970

0,349485

0,626963
698970
0,927993 − 1
349485
0,277478
~~362216~~
0,639694

0,443229 − 1
362216
0,805445

0,150515

0,510018
602060
0,907958 − 1
150515
0,058473

$(a-1)^2 + b^2 + c^2$

766955 − 2
362216
0,129171 − 1

$S_1^2 = 5$ $S_2^2 = 9$

α_6 0,650515 − 1

$\alpha_4 + 8\alpha_8 = \frac{3}{32}$ 0,6395719

$= \frac{1,918557}{32}$

$= 0,0599551$
128200
188155

1,557807
2,283301
0,274506 − 1

0,188151

$\frac{1}{2} + \frac{1}{6}$

15 / 150 / 0,066
100

$\frac{4}{3}\left[\frac{1}{\sqrt{5}} - \frac{1}{3.5}\right] = 0,507392$

0,447213
66667
0,380546

0,126848

0,282976
1,505150
0,777826 − 2

0,795467 − 1
1,806180
1,601647

399620
3,83712
36,1249

$\frac{4}{6.3(9+16)}\left[-3 + \frac{200}{25} + \frac{1}{9}\right] =$

0,009545
2,352183
0,657362 − 2

$\frac{16}{1800}\left(5,111111\right)$

~~8/900~~/112
100
20

$\frac{4 \cdot 5,111111}{450}$

$\frac{2}{225}$ 5

$\frac{10,222222}{225}$

$\alpha_4 + 2\alpha_8 = 0,156101$

188157
156101
0,032056

$\alpha_8 =$

0,016028

$$\alpha_2 + 3\alpha_6 + 5\alpha_{10} = 0,8435995$$

$$-\alpha_2 + \alpha_6 - \alpha_{10} = 0,84752$$

$$4\alpha_6 + 4\alpha_{10} = 0,00392$$

$$\alpha_6 + \alpha_{10} = \alpha = 0,000980$$

$$-8\alpha_2 - 216\alpha_6 - 1000\alpha_{10} = 6,400704$$

$$8\alpha_2 - 8\alpha_6 + 8\alpha_{10} = 6,780160$$

$$-224\alpha_6 - 992\alpha_{10} = -0,379456$$

$$+224\alpha_6 + 224\alpha_{10} = 0,21952$$

$$-768\alpha_{10} = -0,159936$$

$$\alpha d = c T \sqrt{\tau} \qquad \frac{T-t}{T}$$

$$a(1+d\sqrt{\tau}) = n^2 - 1$$

$$c\sqrt{T}\sqrt{T-t} \qquad T \frac{n^2-1}{v} \qquad \frac{d}{1+d\sqrt{\tau}} = c T \sqrt{\tau}$$

$$\frac{T}{v} n^2 - 1 \qquad \frac{d}{1+d\sqrt{\tau}}$$

$$n^2 - 1 = \frac{a}{1+d\sqrt{\tau}}$$

$$T \frac{1}{v} \frac{\partial}{\partial \tau}(n^2-1) + T \frac{n^2-1}{v^2} \frac{\partial v}{\partial \tau}$$

$$T \frac{\frac{\partial}{\partial \tau}(n^2-1)}{n^2-1} - \frac{\frac{\partial v}{\partial \tau}}{v} = c.$$

$$\frac{\frac{\partial d}{\partial T}}{1+d\sqrt{\tau}} - \frac{d}{(1+d\sqrt{\tau})^2} \frac{1}{2\sqrt{\tau}} \frac{\partial \tau}{\partial T} = c\sqrt{\tau} + T \frac{1}{2\sqrt{\tau}} \frac{\partial \tau}{\partial T}$$

$$\frac{n^2}{n'^2} = \frac{\mu \varepsilon}{\mu' \varepsilon'} \qquad \frac{n^2}{n'^2} = \frac{T}{T'} \qquad \frac{n}{n'} = \frac{T}{T'}$$

$$v^2 = \frac{a+bt}{c+dt} \qquad v^2 = \frac{a}{c}\left(\frac{1+\frac{b}{a}p}{1+\frac{d}{c}p}\right)$$

$$n^2 = \frac{1+ap}{1+\beta p} \qquad = \frac{T}{\frac{dv}{dT}} \frac{\frac{dv}{dT} + a\frac{T}{v}}{1+\beta p}$$

$$= \frac{T \frac{dv}{dT} + a}{\frac{1}{3} + \beta p}$$

$$n^2 = \frac{1+at}{1+bt}. \qquad \frac{dn}{dx} = \frac{a}{1+bt} - n^2 \frac{b}{1+bt} \frac{dt}{dx}.$$

$$\frac{a - n^2 \frac{dt}{dx}}{1+bt} = 2n \frac{dn}{dx}$$

$$a - n^2 t = 2n \frac{dn}{dx}$$

$$a - bn^2 = 2nc \frac{dn}{dx}.$$

$$a + b$$

$$\alpha_2\frac{1}{r_2}+\alpha_4+\frac{1}{r_2}\alpha_6-\frac{1}{r_2}\alpha_{10}\qquad \frac{1}{1+\left(\frac{2ab+ax}{h+bx}\right)^2}\qquad \frac{ha}{(h+bx)^2}$$

$$\frac{ha}{(h+bx)^2+(2ab+ax)^2}$$

$-0,8469\,5-6$
$\quad 2\,8\,3$
$-0,8490\,39$
$\quad 7\,7\,2$
$-0,8482\,67$

$0,9285\,33-1$
$\quad 1\,5\,0\,5\,1\,5$
$0,7780\,18-1$

$-\,5\,9\,9\,8\,1\,6$
$\quad 2\,3\,6\,1\,0$
$0,5\,7\,6\,2\,0\,6$
$5\,7\,5\,7.$

$\frac{b-l\sin\varphi}{a-l\cos\varphi}$.

$\frac{a-l\cos\varphi}{b+l\sin\varphi}$

$\frac{b+l\cos\varphi}{b+l\sin\varphi}$.

$$\frac{\frac{-2a}{b+l\sin\varphi}}{1-\frac{a^2-l^2\cos^2\varphi}{2a(b+l\sin\varphi)}}\qquad \frac{ha}{(h+bx)^2}$$

$$\frac{(b+l\sin\varphi)^2-a^2+l^2\cos^2\varphi}{}\qquad -2\frac{hab}{(h+bx)^3}$$

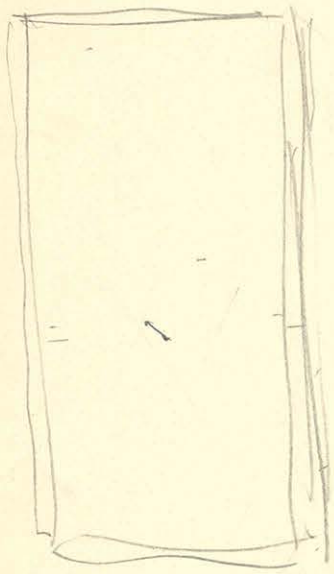
$$\frac{2a(b+l\sin\varphi)}{b^2-a^2+l^2+2bl\sin\varphi}.$$

$$\frac{2ab+2al\sin\varphi}{b^2-a^2+l^2+2bl\sin\varphi}.$$

$$\frac{2ab+ax}{h+bx}$$

$$\frac{a}{h+bx}-\frac{abx}{(h+bx)^2}$$

$$\frac{2a+abx-abx}{(h+bx)^2}$$



0,861524 - 4
0,817252
0,582840 - 1
0,761626 - 4.

+ 0,0005776

0,0002203

5756
5760
4

~~9219~~

0,965615 -
0,362216 -4
0,327831 -3
578
213
365

98162
01684

9172
72952

0,18540 -1
0,207956 -4

0,1770 21 -2

0,0104288
0,0000532
0,0104820

9,0F6420
F6328
7?

16279247
7?
16,799 6

0,18540 -1
0,207956 -4

0,1770 21 -2

0,0104288
0,0000532
0,0104820

9,0F6420
F6328
7?

16279247
7?
16,799 6

15
16 4 = -0,000019
16
1176
191
16/3056 / 203
56

$\frac{18}{8}$ 2,25

0,0521183
839455 − 1 238629
0,191638

1,554688
0,298286
0,575670
2,428624
689072
1,739552

7265-6
14498
0,0058218

0,2894149
0,0269065
0,3627507
6890721

1,6228309
5822
1,628309
149
58
1.629.

Hiperbola arc length
1,628309.

54.
108
42 149
126.

$\frac{8}{6y}$

$\frac{10}{y=6}$

$\lambda = 1$

$\lambda_{n+1} = \left(1,678829 - 0,021938 - \frac{1}{2}\right)$
$0,000023 \quad -0,000383$
2
$1,678829$
$2,315$
$1,6565394$
42

$\frac{8}{6y}$

$\frac{10}{y=6}$

$$\frac{U_1}{U_2} = 4\left(\frac{U_1}{U_2}\right)^2$$

$$\int_1^2 = 0{,}321751$$

$$\int_2^1 = 0{,}927295$$

$$\int_1^2 = 0{,}321751$$

$$\begin{array}{r} 1{,}287004 \\ 0{,}463647 \\ \hline -\ 1{,}750651 \end{array}$$

$$\ln\frac{5}{2} = 1{,}609438$$

$$\ln\frac{4}{2} = 0{,}693147.$$

$$\ln\frac{5}{1} = 1{,}609438$$

$$\begin{array}{r} 3{,}218876 \\ 1{,}386294 \\ \hline 4\,605170 \\ 1\,750651 \\ \hline 4,\ 2{,}854519 = \frac{U}{4\pi l^2} \end{array}$$

$$U = 4\pi l^2.$$

$$\int_2^2 = \operatorname{ar}\operatorname{th}\frac{1}{3} = 0{,}321751$$

$$\int_2^1 = \operatorname{ar}\operatorname{th}\frac{4}{5} = 0{,}927295$$

$$\int_1^2 = \operatorname{ar}\operatorname{th}\frac{1}{5} = 0{,}321751$$

$$\int_2^4 = \frac{1}{2\sqrt{21}} = 0{,}108681$$

$$\int_4^2 = \frac{8}{\sqrt{21}} = 1{,}05-0601$$

$$\int_1^4 = \frac{2}{\sqrt{21}} = 0{,}411515$$

$\alpha=2 \quad \beta=1 \quad \gamma=2 \quad \rho=5$

$\alpha=4 \quad \beta=1 \quad \gamma=2 \quad \rho=\sqrt{21}$

$$\ln\frac{\rho+\alpha}{\rho-\alpha} = \ln\frac{5}{1} = 1{,}609438$$

$$\ln\frac{\rho+\beta}{\rho-\beta} = \ln\frac{4}{2} = 0{,}693147$$

$$\ln\frac{\rho+\gamma}{\rho-\gamma} = \ln\frac{5}{1} = 1{,}609438$$

$$\ln\frac{\rho+\alpha}{\rho-\alpha} = \frac{\sqrt{21}+4}{\sqrt{21}-4} = 2{,}609002$$

$$\ln\frac{\rho+\beta}{\rho-\beta} = \frac{\sqrt{21}+1}{\sqrt{21}-1} = 0{,}442568$$

$$\ln\frac{\rho+\gamma}{\rho-\gamma} = \frac{\sqrt{21}+2}{\sqrt{21}+2} = 0{,}925638$$

$$\sqrt{21} = 4{,}5825-8$$

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a $\rho^2=17$. $\quad \alpha=2 \quad \beta=3 \quad \gamma=2$

$$\int_{28}^{24} = \operatorname{ar}\operatorname{th}\frac{3}{\sqrt{17}} = 0{,}629011$$

$$\int_2^3 = \operatorname{ar}\operatorname{th}\frac{4}{3\sqrt{17}} = 0{,}212768$$

$$\int_3^2 = \operatorname{ar}\operatorname{th}\frac{3}{\sqrt{17}} = 0{,}629011$$

$$\beta\gamma \ln\frac{\sqrt{17}+2}{\sqrt{17}-2} = 1{,}057919$$

$$\operatorname{ar}\ln\frac{\sqrt{17}+3}{\sqrt{17}-3} = 1{,}847227$$

$$\alpha\beta\ln\frac{\sqrt{17}+2}{\sqrt{17}-2} = 1{,}057919$$

$$\sqrt{17} = 4{,}12311$$

λ=0,8.

log $\sqrt{5+(3+\lambda)^2}$ = 0,644348 $\sqrt{5+(3+\lambda)^2}$ =   1,210586

log $\sqrt{5+(2-\lambda)^2}$ = 0,496497 $\sqrt{5+(2-\lambda)^2}$ =   0,115278

~~log $\sqrt{5+(1+\lambda)^2}$ = 0,457963 $\sqrt{5+(1+\lambda)^2}$ =~~

~~log $\sqrt{5+(1-\lambda)^2}$ = 0,301030 $\sqrt{5+(1-\lambda)^2}$ =~~

log $\sqrt{13+(1+\lambda)^2}$

log $\sqrt{13+(1-\lambda)^2}$

$\frac{3}{0,8}+1$

08/38+1 3,75

13033

8/38/4,75

1944   314

1624 . 361

0,9572656
1,0451071
0,775704
$-$ 2,778077
1,144095
1,633982

$\frac{10}{8}+1$
18

log 2,75 = 0,439333
0,450363 −1
0,889696

0,074846 −1
0,676694.
0,751540 −1

2,25

8/30/3,75

~~0,751540~~

0,564339
0,331054
0,248702
1,144095

$\frac{20}{8}$

0,352183
0,839455 −1
0,191638

0,574031
0,900602 −2
0,474633 −1

0,0369065
2894149
0,3263219
0,3627507
6890726

1,554668
0,298286
0,575670
2,428624
689073
1,739551
1,633982
0373533

0,001020
2040
0,012240

112

104
96

765
116/0
4595
16
12240
1

256/800
168
320

31

0,002992

~~64/2444~~

700060
636540
0,043817

$$\lambda = 0{,}8$$

0,080062
241086
160724
184

0,08883

0,948560 −2
362216
0,310776 −1

0,072829
152916
226745

0,204559
11

0,098470
0,999204
562216
0,555520
0,226776

$\lambda = 1$

$1 = \operatorname{arc\,tg}\frac{4}{3} = 0{,}927293$

$2) = \operatorname{arc\,tg}\frac{8}{\sqrt{21}} = 1{,}050601$

$3)\ \operatorname{arc\,tg}\frac{1}{2\sqrt{21}} = 0{,}108681$

$4)\ \operatorname{arc\,tg} = \frac{1}{3} = 0{,}321751$

$5)\ \operatorname{arc\,tg} = 0 \quad = 0$

$6\ \operatorname{arc\,tg}\frac{4}{3\sqrt{17}} = 0{,}312768$

$7) = \operatorname{arc\,tg}\frac{3}{\sqrt{17}} = 0{,}629011$ –

$8) = \operatorname{arc\,tg}\infty = 1{,}570796$

$\sqrt{21} = 4{,}58258$

$\sqrt{13} = 3{,}60556$

$\sqrt{17} = 4{,}12311$

1,322219
~~1,61119~~
0,661110

1,230449
0,615225

II $9) = \frac{\sqrt{17}}{\sqrt{5}}\ \frac{5}{6{,}58258} = 0{,}336901$

$10 = \frac{\sqrt{13}}{3}\ \frac{5{,}60556}{6{,}12311} = 0{,}095553$

$11 = \frac{\sqrt{20}}{\sqrt{8}}\ \frac{4}{5{,}58258} = 0{,}124784$

$12 = \frac{\sqrt{8}}{2} \cdot \frac{6{,}60556}{7{,}12311} =$ ~~1,96335~~ 0,271141

$(1{,}5)^2 + 2^2 = 2{,}25^2$

0,602060
0,477121
0,124939
53° 7′ 48″

0,925025
2036
232
0,927293

0,903090
0,661110
0,241980
60° 11′ 42″

1,047198
3200
203
1,050601

0,000000
0,661110
0,338890 –1
0,301030
0,037860 –1
6° 13′ 37″

0,104720
3782
179
0,108681

0,000000
~~0,661110~~
0,477121
0,522879 –1
18° 26′ 6″

0,314159
7563
29
0,321751

0,602060
0,615225
0,986835 –1
0,477121
0,509714 –1
17° 55′ 13″

0,296706
15999
63
0,312768

0,477121
0,615225
0,861896 –1
36° 2′ 23″

0,628319
581
111
0,629011

0,113943
0,556972

698970

0,903090

9)

0,615225
0,349485
0,964710
0,818396
0,146314

0,

0,165286 –1
0,637784 –1
0,527502 –1

0,336901

10

0,556972
0,748619
1,305591
0,786972
0,518619
477121
0,041498

0,618027 –2
0,637784 –1
0,980243 –2

0,095553

11

1,301030
0,650515
0,602060
1,252575
0,746836
0,505739
451545
0,054194

0,733951 –2
0,637784 –1
0,096167 –1

0,124784

0,150515
0,819910
0,970425
0,852670
0,117755

~~0,930781~~ –1
0,637784 –1
0,292997

1,96335

$\frac{1}{3}$	$0{,}333333$	$0{,}333333$	$0{,}333333$	$0{,}333333$
$\frac{2}{3}$	$0{,}666667$	$0{,}666667$	$0{,}666667$	$0{,}666667$
$\frac{1}{4}$	$0{,}250000$	$0{,}250000$	$0{,}250000$	$0{,}250000$
$\frac{3}{4}$	$0{,}750000$	$0{,}750000$	$0{,}750000$	$0{,}750000$
$\frac{1}{5}$	$0{,}200000$	$0{,}200000$	$0{,}200000$	$0{,}200000$
$\frac{2}{5}$	$0{,}400000$	$0{,}400000$	$0{,}400000$	$0{,}400000$
$\frac{3}{5}$	$0{,}600000$	$0{,}600000$	$0{,}600000$	$0{,}600000$
$\frac{4}{5}$	$0{,}800000$	$0{,}800000$	$0{,}800000$	$0{,}800000$
$\frac{1}{6}$	$0{,}166667$	$0{,}166667$	$0{,}166667$	$0{,}166667$
$\frac{5}{6}$	$0{,}833333$	$0{,}833333$	$0{,}833333$	$0{,}833333$
$\frac{1}{7}$	$0{,}142857$	$0{,}142857$	$0{,}142857$	$0{,}142857$
$\frac{2}{7}$	$0{,}285714$	$0{,}285714$	$0{,}285714$	$0{,}285714$
$\frac{3}{7}$	$0{,}428571$	$0{,}428571$	$0{,}428571$	$0{,}428571$
$\frac{4}{7}$	$0{,}571429$	$0{,}571429$	$0{,}571429$	$0{,}571429$
$\frac{5}{7}$	$0{,}714286$	$0{,}714286$	$0{,}714286$	$0{,}714286$
$\frac{6}{7}$	$0{,}857143$	$0{,}857143$	$0{,}857143$	$0{,}857143$
$\frac{1}{8}$	$0{,}125000$	$0{,}125000$	$0{,}125000$	$0{,}125000$
$\frac{3}{8}$	$0{,}375000$	$0{,}375000$	$0{,}375000$	$0{,}375000$
$\frac{5}{8}$	$0{,}625000$	$0{,}625000$	$0{,}625000$	$0{,}625000$
$\frac{7}{8}$	$0{,}875000$	$0{,}875000$	$0{,}875000$	$0{,}875000$
$\frac{1}{9}$	$0{,}111111$	$0{,}111111$	$0{,}111111$	$0{,}111111$
$\frac{2}{9}$	$0{,}222222$	$0{,}222222$	$0{,}222222$	$0{,}222222$
$\frac{4}{9}$	$0{,}444444$	$0{,}444444$	$0{,}444444$	$0{,}444444$
$\frac{5}{9}$	$0{,}555556$	$0{,}555556$	$0{,}555556$	$0{,}555556$
$\frac{7}{9}$	$0{,}777778$	$0{,}777778$	$0{,}777778$	$0{,}777778$
$\frac{8}{9}$	$0{,}888889$	$0{,}888889$	$0{,}888889$	$0{,}888889$
$\frac{1}{10}$	$0{,}100000$	$0{,}100000$	$0{,}100000$	$0{,}100000$
$\frac{3}{10}$	$0{,}300000$	$0{,}300000$	$0{,}300000$	$0{,}300000$
$\frac{7}{10}$	$0{,}700000$	$0{,}700000$	$0{,}700000$	$0{,}700000$
$\frac{9}{10}$	$0{,}900000$	$0{,}900000$	$0{,}900000$	$0{,}900000$
$\frac{1}{11}$	$0{,}090909$	$0{,}090909$	$0{,}090909$	$0{,}090909$
$\frac{2}{11}$	$0{,}181818$	$0{,}181818$	$0{,}181818$	$0{,}181818$
$\frac{3}{11}$	$0{,}272727$	$0{,}272727$	$0{,}272727$	$0{,}272727$
$\frac{4}{11}$	$0{,}363636$	$0{,}363636$	$0{,}363636$	$0{,}363636$
$\frac{5}{11}$	$0{,}454545$	$0{,}454545$	$0{,}454545$	$0{,}454545$
$\frac{6}{11}$	$0{,}545455$	$0{,}545455$	$0{,}545455$	$0{,}545455$
$\frac{7}{11}$	$0{,}636364$	$0{,}636364$	$0{,}636364$	$0{,}636364$
$\frac{8}{11}$	$0{,}727273$	$0{,}727273$	$0{,}727273$	$0{,}727273$
$\frac{9}{11}$	$0{,}818182$	$0{,}818182$	$0{,}818182$	$0{,}818182$
$\frac{10}{11}$	$0{,}909091$	$0{,}909091$	$0{,}909091$	$0{,}909091$
$\frac{1}{12}$	$0{,}083333$	$0{,}083333$	$0{,}083333$	$0{,}083333$
$\frac{5}{12}$	$0{,}416667$	$0{,}416667$	$0{,}416667$	$0{,}416667$
$\frac{7}{12}$	$0{,}583333$	$0{,}583333$	$0{,}583333$	$0{,}583333$
$\frac{11}{12}$	$0{,}916667$	$0{,}916667$	$0{,}916667$	$0{,}916667$

$\frac{1}{13}$	$0{,}076923$	$0{,}076923$	$0{,}076923$	$0{,}076923$
$\frac{2}{13}$	$0{,}153846$	$0{,}153846$	$0{,}153846$	$0{,}153846$
$\frac{3}{13}$	$0{,}230769$	$0{,}230769$	$0{,}230769$	$0{,}230769$
$\frac{4}{13}$	$0{,}307692$	$0{,}307692$	$0{,}307692$	$0{,}307692$
$\frac{5}{13}$	$0{,}384615$	$0{,}384615$	$0{,}384615$	$0{,}384615$
$\frac{6}{13}$	$0{,}461538$	$0{,}461538$	$0{,}461538$	$0{,}461538$
$\frac{7}{13}$	$0{,}538462$	$0{,}538462$	$0{,}538462$	$0{,}538462$
$\frac{8}{13}$	$0{,}615385$	$0{,}615385$	$0{,}615385$	$0{,}615385$
$\frac{9}{13}$	$0{,}692308$	$0{,}692308$	$0{,}692308$	$0{,}692308$
$\frac{10}{13}$	$0{,}769231$	$0{,}769231$	$0{,}769231$	$0{,}769231$
$\frac{11}{13}$	$0{,}846154$	$0{,}846154$	$0{,}846154$	$0{,}846154$
$\frac{12}{13}$	$0{,}923077$	$0{,}923077$	$0{,}923077$	$0{,}923077$
$\frac{1}{14}$	$0{,}071429$	$0{,}071429$	$0{,}071429$	$0{,}071429$
$\frac{3}{14}$	$0{,}214286$	$0{,}214286$	$0{,}214286$	$0{,}214286$
$\frac{5}{14}$	$0{,}357143$	$0{,}357143$	$0{,}357143$	$0{,}357143$
$\frac{9}{14}$	$0{,}642857$	$0{,}642857$	$0{,}642857$	$0{,}642857$
$\frac{11}{14}$	$0{,}785714$	$0{,}785714$	$0{,}785714$	$0{,}785714$
$\frac{13}{14}$	$0{,}928571$	$0{,}928571$	$0{,}928571$	$0{,}928571$
$\frac{1}{15}$	$0{,}066667$	$0{,}066667$	$0{,}066667$	$0{,}066667$
$\frac{2}{15}$	$0{,}133333$	$0{,}133333$	$0{,}133333$	$0{,}133333$
$\frac{4}{15}$	$0{,}266667$	$0{,}266667$	$0{,}266667$	$0{,}266667$
$\frac{7}{15}$	$0{,}466667$	$0{,}466667$	$0{,}466667$	$0{,}466667$
$\frac{8}{15}$	$0{,}533333$	$0{,}533333$	$0{,}533333$	$0{,}533333$
$\frac{11}{15}$	$0{,}733333$	$0{,}733333$	$0{,}733333$	$0{,}733333$
$\frac{13}{15}$	$0{,}866667$	$0{,}866667$	$0{,}866667$	$0{,}866667$
$\frac{14}{15}$	$0{,}933333$	$0{,}933333$	$0{,}933333$	$0{,}933333$
$\frac{1}{16}$	$0{,}062500$	$0{,}062500$	$0{,}062500$	$0{,}062500$
$\frac{3}{16}$	$0{,}187500$	$0{,}187500$	$0{,}187500$	$0{,}187500$
$\frac{5}{16}$	$0{,}312500$	$0{,}312500$	$0{,}312500$	$0{,}312500$
$\frac{7}{16}$	$0{,}437500$	$0{,}437500$	$0{,}437500$	$0{,}437500$
$\frac{9}{16}$	$0{,}562500$	$0{,}562500$	$0{,}562500$	$0{,}562500$
$\frac{11}{16}$	$0{,}687500$	$0{,}687500$	$0{,}687500$	$0{,}687500$
$\frac{13}{16}$	$0{,}812500$	$0{,}812500$	$0{,}812500$	$0{,}812500$
$\frac{15}{16}$	$0{,}937500$	$0{,}937500$	$0{,}937500$	$0{,}937500$
$\frac{1}{17}$	$0{,}058824$	$0{,}058824$	$0{,}058824$	$0{,}058824$
$\frac{2}{17}$	$0{,}117647$	$0{,}117647$	$0{,}117647$	$0{,}117647$
$\frac{3}{17}$	$0{,}176471$	$0{,}176471$	$0{,}176471$	$0{,}176471$
$\frac{4}{17}$	$0{,}235294$	$0{,}235294$	$0{,}235294$	$0{,}235294$
$\frac{5}{17}$	$0{,}294118$	$0{,}294118$	$0{,}294118$	$0{,}294118$
$\frac{6}{17}$	$0{,}352941$	$0{,}352941$	$0{,}352941$	$0{,}352941$
$\frac{7}{17}$	$0{,}411765$	$0{,}411765$	$0{,}411765$	$0{,}411765$
$\frac{8}{17}$	$0{,}470588$	$0{,}470588$	$0{,}470588$	$0{,}470588$
$\frac{9}{17}$	$0{,}529412$	$0{,}529412$	$0{,}529412$	$0{,}529412$
$\frac{10}{17}$	$0{,}588235$	$0{,}588235$	$0{,}588235$	$0{,}588235$
$\frac{11}{17}$	$0{,}647059$	$0{,}647059$	$0{,}647059$	$0{,}647059$
$\frac{12}{17}$	$0{,}705882$	$0{,}705882$	$0{,}705882$	$0{,}705882$
$\frac{13}{17}$	$0{,}764706$	$0{,}764706$	$0{,}764706$	$0{,}764706$
$\frac{14}{17}$	$0{,}823529$	$0{,}823529$	$0{,}823529$	$0{,}823529$
$\frac{15}{17}$	$0{,}882353$	$0{,}882353$	$0{,}882353$	$0{,}882353$
$\frac{16}{17}$	$0{,}941176$	$0{,}941176$	$0{,}941176$	$0{,}941176$

$\frac{1}{18}$	$0{,}055556$	$0{,}055556$	$0{,}055556$	$0{,}055556$
$\frac{5}{18}$	$0{,}277778$	$0{,}277778$	$0{,}277778$	$0{,}277778$	$0{,}277778$
$\frac{7}{18}$	$0{,}388889$	$0{,}388889$	$0{,}388889$	$0{,}388889$	$0{,}388889$
$\frac{11}{18}$	$0{,}611111$	$0{,}611111$	$0{,}611111$	$0{,}611111$	$0{,}611111$
$\frac{13}{18}$	$0{,}722222$	$0{,}722222$	$0{,}722222$	$0{,}722222$	$0{,}722222$
$\frac{17}{18}$	$0{,}944444$	$0{,}944444$	$0{,}944444$	$0{,}944444$	$0{,}944444$
$\frac{1}{19}$	$0{,}052632$	$0{,}052632$	$0{,}052632$	$0{,}052632$	$0{,}052632$
$\frac{2}{19}$	$0{,}105263$	$0{,}105263$	$0{,}105263$	$0{,}105263$	$0{,}105263$
$\frac{3}{19}$	$0{,}157895$	$0{,}157895$	$0{,}157895$	$0{,}157895$	$0{,}157895$
$\frac{4}{19}$	$0{,}210526$	$0{,}210526$	$0{,}210526$	$0{,}210526$	$0{,}210526$
$\frac{5}{19}$	$0{,}263158$	$0{,}263158$	$0{,}263158$	$0{,}263158$	$0{,}263158$
$\frac{6}{19}$	$0{,}315789$	$0{,}315789$	$0{,}315789$	$0{,}315789$	$0{,}315789$
$\frac{7}{19}$	$0{,}368421$	$0{,}368421$	$0{,}368421$	$0{,}368421$	$0{,}368421$
$\frac{8}{19}$	$0{,}421053$	$0{,}421053$	$0{,}421053$	$0{,}421053$	$0{,}421053$
$\frac{9}{19}$	$0{,}473684$	$0{,}473684$	$0{,}473684$	$0{,}473684$	$0{,}473684$
$\frac{10}{19}$	$0{,}526316$	$0{,}526316$	$0{,}526316$	$0{,}526316$	$0{,}526316$
$\frac{11}{19}$	$0{,}578947$	$0{,}578947$	$0{,}578947$	$0{,}578947$	$0{,}578947$
$\frac{12}{19}$	$0{,}631579$	$0{,}631579$	$0{,}631579$	$0{,}631579$	$0{,}631579$
$\frac{13}{19}$	$0{,}684211$	$0{,}684211$	$0{,}684211$	$0{,}684211$	$0{,}684211$
$\frac{14}{19}$	$0{,}736842$	$0{,}736842$	$0{,}736842$	$0{,}736842$	$0{,}736842$
$\frac{15}{19}$	$0{,}789474$	$0{,}789474$	$0{,}789474$	$0{,}789474$	$0{,}789474$
$\frac{16}{19}$	$0{,}842105$	$0{,}842105$	$0{,}842105$	$0{,}842105$	$0{,}842105$
$\frac{17}{19}$	$0{,}894737$	$0{,}894737$	$0{,}894737$	$0{,}894737$	$0{,}894737$
$\frac{18}{19}$	$0{,}947368$	$0{,}947368$	$0{,}947368$	$0{,}947368$	$0{,}947368$
$\frac{1}{20}$	$0{,}050000$	$0{,}050000$	$0{,}050000$	$0{,}050000$	$0{,}050000$
$\frac{3}{20}$	$0{,}150000$	$0{,}150000$	$0{,}150000$	$0{,}150000$	$0{,}150000$
$\frac{7}{20}$	$0{,}350000$	$0{,}350000$	$0{,}350000$	$0{,}350000$	$0{,}350000$
$\frac{9}{20}$	$0{,}450000$	$0{,}450000$	$0{,}450000$	$0{,}450000$	$0{,}450000$
$\frac{11}{20}$	$0{,}550000$	$0{,}550000$	$0{,}550000$	$0{,}550000$	$0{,}550000$
$\frac{13}{20}$	$0{,}650000$	$0{,}650000$	$0{,}650000$	$0{,}650000$	$0{,}650000$
$\frac{17}{20}$	$0{,}850000$	$0{,}850000$	$0{,}850000$	$0{,}850000$	$0{,}850000$
$\frac{19}{20}$	$0{,}950000$	$0{,}950000$	$0{,}950000$	$0{,}950000$	$0{,}950000$

$\sqrt{1} = \sqrt[4]{\frac{9}{3}} = 0{,}927249$

$\sqrt{2} = \sqrt[4]{\frac{1}{3}} = 0{,}321751$

$\sqrt{3} \sqrt[4]{\frac{2}{6}} = 0{,}681797$

$\sqrt{4} \sqrt[4]{\frac{6}{144}} = 1{,}073198$

$\sqrt{5} = \sqrt[4]{\frac{2}{144}} = 0{,}176322$

$\sqrt{6} = \sqrt[4]{\frac{2}{144}} = 0{,}176322$

$\sqrt{7} = \sqrt[4]{\frac{2}{144}} = 0{,}176322$

$\sqrt{8} = \sqrt[4]{\frac{2}{144}} = 0{,}176322$

$\sqrt{9} = \sqrt[4]{\frac{2}{144}} = 0{,}176322$

$\sqrt{10} = \sqrt[4]{\frac{\sqrt{10}}{2}} \quad \frac{2+\sqrt{6}}{2+\sqrt{14}} \quad \frac{4{,}449949}{5{,}176168}$

$\sqrt{11} = \sqrt[4]{\frac{\sqrt{8}}{2}} \quad \frac{2+\sqrt{8}}{2+\sqrt{12}} \quad \frac{4{,}828492}{5{,}196411}$

$\sqrt{12} = \sqrt[4]{\frac{\sqrt{13}}{\sqrt{5}}} \quad \frac{1+\sqrt{6}}{1+\sqrt{14}} \quad \frac{3{,}449949}{4{,}176168}$

$\sqrt{13} = \sqrt[4]{\frac{\sqrt{8}}{2}} \quad \frac{2+\sqrt{8}}{2+\sqrt{12}} \quad \frac{4{,}828492}{5{,}196411}$

$\sqrt{14} = \sqrt[4]{\frac{\sqrt{5}}{\sqrt{3}}} \quad \frac{1+\sqrt{5}}{1+\sqrt{13}} \quad \frac{3{,}236068}{4{,}140541}$

$\sqrt{15} = \sqrt[4]{\frac{\sqrt{15}}{2}} \quad \frac{1+\sqrt{15}}{1+\sqrt{17}} \quad \frac{3{,}872983}{4{,}156434}$

$\sqrt{16} = \sqrt[4]{\frac{\sqrt{17}}{\sqrt{15}}} \quad \frac{1+\sqrt{17}}{1+\sqrt{19}} \quad \frac{4{,}123106}{4{,}172076}$

$\sqrt{17} = \sqrt[4]{\frac{\sqrt{17}}{\sqrt{15}}} \quad \frac{1+\sqrt{17}}{1+\sqrt{19}} \quad \frac{4{,}123106}{4{,}172076}$

$\sqrt{18} = \sqrt[4]{\frac{\sqrt{17}}{\sqrt{15}}} \quad \frac{1+\sqrt{17}}{1+\sqrt{19}} \quad \frac{4{,}123106}{4{,}172076}$

$\sqrt{19} = \sqrt[4]{\frac{\sqrt{17}}{\sqrt{15}}} \quad \frac{1+\sqrt{17}}{1+\sqrt{19}} \quad \frac{4{,}123106}{4{,}172076}$

$\sqrt{20} = \sqrt[4]{\frac{\sqrt{17}}{\sqrt{15}}} \quad \frac{1+\sqrt{17}}{1+\sqrt{19}} \quad \frac{4{,}123106}{4{,}172076}$

1) = ar 2 = 1,107150

2 = ar 0 = 0

3 = ar 2 = 1,107150

4 = ar 2 = 1,107150

5 = 0 = 0

6 = 0 = 0^2

7 = 0 = 0

8 = 0 = 0

9 = 1 ~~0,785398~~ ar 1 / 1 = 45° 0

10 = lg 1 = 0

11 lg 1 = 0

12 = 0

13 = lg $\sqrt{2}$ = 0,346573

~~0,791~~ ~~0,791181~~ 0,301030

63° 26' 6"

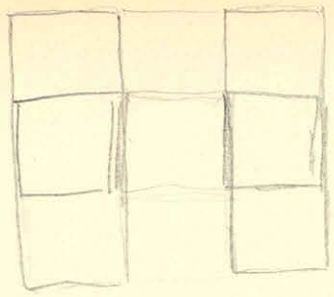
1,099557
75-63
30
1,107150

0,150515
0,177579 -1
65784 -1
0,539795 -1

-D10715
2,254300

1,578796
693146
2,272942

$\frac{a(1+\frac{2}{a^2})}{a}$ $\frac{2+a(1+\frac{2}{a^2})}{2+a(1+\frac{2}{a^2})}$



$0{,}6989{,}20$ $0{,}5\overline{2}5\overline{7}{,}\overline{2}\overline{2}$ $0{,}1739{,}3$ $576°\,8'\,44''$	$0{,}8\overline{4}5\overline{7}6{,}0$ $0{,}\overline{5}\overline{2}5\overline{7}{,}\overline{2}\overline{2}$ $0{,}1739{,}3$ $576°\,8'\,44''$	$0{,}8\overline{4}5\overline{7}6{,}0$ $0{,}\overline{5}\overline{2}5\overline{7}{,}\overline{2}\overline{2}$ $0{,}1739{,}3$ $576°\,8'\,44''$	$0{,}8\overline{4}5\overline{7}6{,}0$ $0{,}\overline{5}\overline{2}5\overline{7}{,}\overline{2}\overline{2}$ $0{,}1739{,}3$ $576°\,8'\,44''$
$0{,}\overline{5}6\overline{1}10\,\overline{8}$ $0{,}\overline{5}6\overline{1}10\,8$ $0{,}\overline{3}\overline{8}\overline{8}\overline{4}\overline{2}-1$ $0{,}\overline{4}\overline{7}\overline{7}1\,\overline{2}1$ $0{,}\overline{1}9\overline{6}1\overline{7}\overline{7}1-2$ $3°\,18'\,\overline{5}6''$	$0{,}\overline{5}6\overline{1}10\,\overline{8}$ $0{,}\overline{5}\overline{4}\overline{9}\overline{1}\overline{6}\overline{3}\overline{5}-$ $0{,}\overline{4}\overline{0}\overline{8}\overline{3}\overline{6}\overline{5}-1$ $19°\,21'\,48''$ $0{,}\overline{2}\overline{4}\overline{4}\overline{6}\overline{8}\overline{8}$	$0{,}\overline{5}\overline{2}\overline{5}\overline{7}\overline{2}\,2$ $0{,}\overline{4}\overline{9}\overline{2}\overline{6}\overline{2}\overline{6}$ $0{,}\overline{7}\overline{5}\overline{1}\overline{2}\overline{8}\overline{5}$ $0{,}\overline{7}\overline{9}\overline{3}\overline{7}\overline{9}1$ $0{,}\overline{7}\overline{7}1\overline{2}\overline{2}9$ $0{,}\overline{0}\overline{2}\overline{2}\overline{5}\overline{6}\overline{2}$	$0{,}\overline{5}6\overline{1}10\,\overline{8}$ $0{,}\overline{5}\overline{4}\overline{9}\overline{1}\overline{6}\overline{3}\overline{5}-$ $0{,}\overline{4}\overline{0}\overline{8}\overline{3}\overline{6}\overline{5}-1$ $19°\,21'\,48''$ $0{,}\overline{2}\overline{4}\overline{4}\overline{6}\overline{8}\overline{8}$
$0{,}\overline{0}\overline{8}\overline{7}\overline{2}\overline{6}\overline{7}$ $3\overline{7}\overline{8}\overline{4}$ $2\overline{7}\overline{2}$ $0{,}\overline{0}\overline{9}1320$	$0{,}\overline{2}\overline{4}\overline{4}\overline{6}\overline{8}\overline{8}$	$0{,}\overline{2}\overline{4}\overline{4}\overline{6}\overline{8}\overline{8}$	$0{,}\overline{2}\overline{4}\overline{4}\overline{6}\overline{8}\overline{8}$
$0{,}\overline{5}6\overline{1}10\,\overline{8}$ $0{,}\overline{5}\overline{4}\overline{9}\overline{1}\overline{6}\overline{3}\overline{5}-$ $0{,}\overline{4}\overline{0}\overline{8}\overline{3}\overline{6}\overline{5}-1$ $19°\,21'\,48''$ $0{,}\overline{2}\overline{4}\overline{4}\overline{6}\overline{8}\overline{8}$	$0{,}\overline{5}6\overline{1}10\,\overline{8}$ $0{,}\overline{5}\overline{4}\overline{9}\overline{1}\overline{6}\overline{3}\overline{5}-$ $0{,}\overline{4}\overline{0}\overline{8}\overline{3}\overline{6}\overline{5}-1$ $19°\,21'\,48''$ $0{,}\overline{2}\overline{4}\overline{4}\overline{6}\overline{8}\overline{8}$	$0{,}\overline{5}\overline{2}\overline{5}\overline{7}\overline{2}\,2$ $0{,}\overline{4}\overline{9}\overline{2}\overline{6}\overline{2}\overline{6}$ $0{,}\overline{7}\overline{5}\overline{1}\overline{2}\overline{8}\overline{5}$ $0{,}\overline{7}\overline{9}\overline{3}\overline{7}\overline{9}1$ $0{,}\overline{7}\overline{7}1\overline{2}\overline{2}9$ $0{,}\overline{0}\overline{2}\overline{2}\overline{5}\overline{6}\overline{2}$	$0{,}\overline{5}6\overline{1}10\,\overline{8}$ $0{,}\overline{5}\overline{4}\overline{9}\overline{1}\overline{6}\overline{3}\overline{5}-$ $0{,}\overline{4}\overline{0}\overline{8}\overline{3}\overline{6}\overline{5}-1$ $19°\,21'\,48''$ $0{,}\overline{2}\overline{4}\overline{4}\overline{6}\overline{8}\overline{8}$
$0{,}\overline{0}\overline{7}\overline{9}1\overline{8}-1$ $0{,}\overline{5}\overline{6}\overline{1}10\,\overline{8}$ $0{,}\overline{5}1\overline{8}073$ $19°\,14'\,48''$ $0{,}\overline{3}1\overline{4}\overline{1}\overline{5}\overline{6}$ $\overline{4}\overline{0}\overline{7}2$ $\overline{2}13$ $0{,}\overline{3}1\overline{8}\overline{4}\overline{4}1$	$0{,}\overline{4}\overline{6}\overline{2}\overline{6}\overline{3}\overline{0}$ $0{,}\overline{5}\overline{9}\overline{1}\overline{6}\overline{3}\overline{5}-$ $0{,}\overline{4}\overline{0}\overline{8}\overline{3}\overline{6}\overline{5}-1$ $45°\,41'\,15''$ $0{,}\overline{0}\overline{1}0\overline{4}\overline{2}\overline{5}-$ $0{,}\overline{7}\overline{8}\overline{5}\overline{3}\overline{5}\overline{8}$ $0{,}\overline{7}\overline{9}\overline{7}\overline{3}\overline{9}\overline{7}$ 73 $\overline{9}\overline{2}\overline{6}$	$0{,}\overline{2}\overline{4}\overline{4}\overline{6}\overline{8}\overline{8}$ $0{,}\overline{2}\overline{4}\overline{4}\overline{6}\overline{8}\overline{8}$ $0{,}\overline{2}\overline{4}\overline{4}\overline{6}\overline{8}\overline{8}$ $0{,}\overline{2}\overline{4}\overline{4}\overline{6}\overline{8}\overline{8}$ $0{,}\overline{2}\overline{4}\overline{4}\overline{6}\overline{8}\overline{8}$ $0{,}\overline{2}\overline{4}\overline{4}\overline{6}\overline{8}\overline{8}$ $0{,}\overline{2}\overline{4}\overline{4}\overline{6}\overline{8}\overline{8}$ $0{,}\overline{2}\overline{4}\overline{4}\overline{6}\overline{8}\overline{8}$	$0{,}\overline{0}\overline{7}\overline{9}1\overline{8}-1$ $0{,}\overline{5}\overline{6}\overline{1}10\,\overline{8}$ $0{,}\overline{5}1\overline{8}073$ $19°\,14'\,48''$ $0{,}\overline{3}1\overline{4}\overline{1}\overline{5}\overline{6}$ $\overline{4}\overline{0}\overline{7}2$ $\overline{2}13$ $0{,}\overline{3}1\overline{8}\overline{4}\overline{4}1$
$0{,}\overline{3}\overline{9}\overline{7}\overline{7}\overline{9}\overline{4}\overline{0}$ $0{,}\overline{3}1\overline{4}1\overline{9}\overline{5}-$ $0{,}\overline{0}\overline{8}\overline{3}\overline{7}\overline{4}\overline{5}-$ $0{,}\overline{8}\overline{2}\overline{2}1\overline{7}\overline{3}$ $0{,}\overline{9}\overline{0}\overline{5}\overline{7}\overline{9}\overline{1}\overline{8}$ $0{,}\overline{8}\overline{3}\overline{5}\overline{9}\overline{1}\overline{7}\overline{2}$ $0{,}\overline{0}\overline{0}\overline{6}\overline{7}\overline{4}\overline{6}$ $0{,}\overline{8}\overline{2}\overline{4}\overline{4}\overline{2}\overline{5}-2$ $\overline{6}\overline{3}\overline{7}\overline{7}\overline{8}\overline{4}$ $0{,}\overline{1}\overline{8}\overline{6}\overline{6}\overline{4}\overline{1}-1$	$0{,}\overline{6}\overline{0}\overline{5}\overline{7}\overline{4}\overline{2}$ $0{,}\overline{5}\overline{0}\overline{5}\overline{7}\overline{6}\overline{2}\overline{6}$ $0{,}\overline{1}\overline{0}\overline{0}\overline{0}\overline{6}\overline{5}-$ $0{,}\overline{6}\overline{3}\overline{8}\overline{4}\overline{9}\overline{9}$ $0{,}\overline{1}\overline{7}\overline{3}\overline{2}\overline{9}\overline{6}\overline{4}$ $0{,}\overline{1}\overline{2}\overline{1}\overline{2}\overline{8}\overline{4}\overline{2}$ $0{,}\overline{0}\overline{2}\overline{6}\overline{8}\overline{7}\overline{2}$ $0{,}\overline{4}\overline{2}\overline{4}\overline{4}\overline{2}\overline{5}-2$ $\overline{6}\overline{3}\overline{7}\overline{7}\overline{8}\overline{4}$ $0{,}\overline{7}\overline{9}\overline{1}\overline{5}\overline{9}\overline{7}-2$	$0{,}\overline{2}\overline{5}\overline{5}\overline{7}\overline{7}\overline{2}$ $\overline{4}\overline{9}\overline{3}\overline{0}\overline{2}\overline{1}$ $0{,}\overline{5}\overline{0}\overline{1}\overline{6}\overline{5}\overline{6}$ $0{,}\overline{7}\overline{9}\overline{3}\overline{7}\overline{9}1$ $0{,}\overline{7}\overline{7}1\overline{2}\overline{2}9$ $0{,}\overline{0}\overline{2}\overline{2}\overline{5}\overline{6}\overline{2}$ $0{,}\overline{1}\overline{3}\overline{5}\overline{7}\overline{7}\overline{3}\overline{8}-2$ $\overline{6}\overline{3}\overline{7}\overline{7}\overline{8}\overline{4}$ $\overline{4}\overline{7}\overline{1}\overline{5}\overline{5}\overline{9}\overline{4}-2$	$0{,}\overline{5}\overline{6}\overline{1}\overline{1}\overline{0}\overline{8}$ $\overline{4}\overline{0}\overline{0}\overline{1}\overline{6}\overline{9}$ $0{,}\overline{1}\overline{9}\overline{0}\overline{9}\overline{3}\overline{9}$ $6{,}\overline{1}\overline{2}\overline{8}\overline{6}\overline{8}\overline{2}$ $0{,}\overline{1}\overline{8}\overline{9}\overline{1}\overline{0}\overline{9}$ $0{,}\overline{0}\overline{7}\overline{0}\overline{5}\overline{7}\overline{2}$ $0{,}\overline{8}\overline{9}\overline{6}\overline{2}\overline{6}$ $0{,}\overline{8}\overline{4}\overline{4}\overline{9}\overline{4}\overline{4}-2$ $\overline{6}\overline{3}\overline{7}\overline{7}\overline{8}\overline{4}$ $0{,}\overline{2}\overline{1}\overline{0}\overline{5}\overline{1}\overline{0}-1$

$$1)\quad = \sqrt[5]{\frac{\overline{11{,}25}}{}} = 0{,}\overline{9}\overline{7}\overline{9}\overline{9}\overline{2}\overline{4}$$

$$2)\quad = \sqrt[2]{\frac{\overline{7}}{\overline{17{,}25}}} = 1{,}\overline{0}\overline{3}\overline{5}\overline{2}\overline{9}\overline{5}$$

$$3)\quad = \sqrt[2]{\frac{\overline{7}}{\overline{3}\cdot\overline{17{,}25}}} = 0{,}\overline{1}\overline{3}\overline{6}\overline{7}\overline{2}\overline{2}$$

$$4)\quad = \sqrt[3]{\frac{\overline{1}}{\overline{3}\overline{1}\overline{3}{,}25}} = 0{,}\overline{0}\overline{9}\overline{1}\overline{3}\overline{2}\overline{0}$$

$$5)\quad = \sqrt[4]{\frac{\overline{1}}{\overline{15{,}25}}} = 0{,}\overline{2}\overline{5}\overline{0}\overline{6}\overline{8}\overline{8}$$

$$6)\quad = \sqrt[4]{\frac{\overline{4}}{\overline{15{,}25}}} = 0{,}\overline{1}\overline{9}\overline{1}\overline{2}\overline{9}\overline{2}$$

$$7)\quad = \sqrt[12]{\frac{\overline{12}}{\overline{13{,}25}}} = \overline{1{,}2}\overline{7}\overline{6}\overline{2}\overline{8}1$$

$$8)\quad = \sqrt[12]{\frac{\overline{12}}{\overline{13{,}25}}} = \overline{1{,}2}\overline{7}\overline{6}\overline{2}\overline{8}1$$

$$9 = 4\eta\,\frac{\sqrt{13{,}25}}{\sqrt{7{,}25}}\cdot\frac{5{,}3\overline{5}\overline{7}11}{6{,}1\overline{5}3\overline{2}\overline{2}} = 0{,}\overline{1}\overline{6}\overline{2}\overline{3}\overline{7}\overline{2}$$

$$10 = 4\eta\,\frac{\sqrt{11{,}25}}{\sqrt{9{,}25}}\cdot\frac{5{,}\overline{6}\overline{9}\overline{0}\overline{0}\overline{2}}{5{,}\overline{1}\overline{9}\overline{0}\overline{5}\overline{7}\overline{3}} = 0{,}\overline{9}\overline{0}\overline{5}\overline{1}\overline{9}\overline{5}\overline{7}1$$

$$11 = 4\eta\,\frac{\sqrt{16{,}25}}{\sqrt{10{,}25}}\cdot\frac{4{,}\overline{3}\overline{5}\overline{7}11}{5{,}\overline{1}\overline{5}\overline{7}\overline{3}\overline{9}\overline{2}} = 0{,}\overline{0}\overline{6}\overline{1}\overline{8}\overline{8}\overline{2}\overline{2}$$

$$12 = 4\eta\,\frac{\sqrt{6{,}25}}{\sqrt{4{,}25}}\cdot\frac{6{,}\overline{6}\overline{9}\overline{0}\overline{0}\overline{2}}{6{,}\overline{1}\overline{9}\overline{0}\overline{5}\overline{7}\overline{3}} = 0{,}\overline{1}\overline{5}\overline{7}\overline{5}\overline{6}\overline{8}\overline{8}$$

$n = 3$

$1 = \operatorname{arctg} \frac{9}{\sqrt{19}}$

$2 = \operatorname{arctg} \frac{1}{\sqrt{19}}$

$3 = \operatorname{arctg} \frac{6}{\sqrt{14}}$

$4 = \operatorname{arctg} \frac{12}{\sqrt{26}}$

$5 = \operatorname{arctg} \frac{3}{4\sqrt{26}}$

$6 = \operatorname{arctg} \frac{3}{2\sqrt{14}}$

$7 = 0$

$8 = \operatorname{arctg} \frac{2}{\sqrt{22}}$

$9 = \operatorname{arctg} \frac{9}{2\sqrt{22}}$

$10 = \log \frac{\sqrt{17}}{\sqrt{5}} \frac{3+\sqrt{14}}{3+\sqrt{26}}$

$11 = \log \frac{\sqrt{13}}{3} \frac{3+3\sqrt{2}}{3+\sqrt{22}}$

$12 = \log \frac{\sqrt{25}}{\sqrt{13}} \frac{1+\sqrt{14}}{1+\sqrt{26}}$

$13 = \log \frac{\sqrt{13}}{3} \frac{3+3\sqrt{2}}{3+\sqrt{22}}$

$$\begin{array}{r} 0,184098 \\ 0,965615-1 \\ \hline 0,149713 \end{array}$$

$$\begin{array}{r} 0,652846-1 \\ 582840-1 \\ \hline 0,235686-1 \end{array}$$

$$\begin{array}{r} 85 \\ 7 \\ \hline 595 \end{array}$$

$$\begin{array}{r} 1,41160 \\ 0,17206 \\ \hline 1,23954 \end{array}$$

$$\begin{array}{r} 239 \\ 62 \\ \hline 478 \\ 1434 \\ \hline 147 \end{array}$$

$$0{,}04477 \qquad 0{,}0447726 - 1$$

$$84475720$$
$$18405-9$$
$$\overline{1{,}031629}$$
$$0{,}031629$$

$$0{,}5700088 - 2$$
$$36222162$$
$$\overline{0{,}8622301 - 2}$$

$$0{,}0728429$$

$$10 = \sin\frac{1}{\sqrt{5}} = 0{,}4477263$$

$$21 = \cos\frac{1}{\sqrt{5}} = 39°13'53''$$

$$\overline{2 = 0 = 6 \ldots}$$

$$4 = \frac{2}{\sqrt{6}} = 0{,}6847177$$

$$5 = \frac{1}{2\sqrt{6}} = 0{,}2013572$$

$$6 = \frac{\pi}{2} =$$

$$7 = 0 =$$

$$8 = \frac{2}{\sqrt{6}} = 0{,}6847177$$

$$9 = \frac{1}{2\sqrt{6}} = 0{,}2013572$$

$$\overline{0{,}6847177} \qquad 0{,}2013572$$

$$0{,}1919286 \qquad 15°09'36$$
$$9308$$
$$63$$

$$11 = \sin\sqrt{5}\,\frac{1+\sqrt{2}}{1+\sqrt{6}} \qquad \sqrt{6} = 2{,}4494$$

$$12 = \sin\sqrt{5}\,\frac{1+\sqrt{2}}{1+\sqrt{6}} \qquad \sqrt{2} = 1{,}4142$$

$$10 = \sin\sqrt{5}\,\frac{1+\sqrt{2}}{1+\sqrt{6}} = 0{,}4477863$$

$$0{,}3945482 \qquad 0{,}2884213 - 1$$
$$0{,}1732256 \qquad 0{,}6537736 - 1$$
$$0{,}5277548 \qquad 0{,}1947504$$

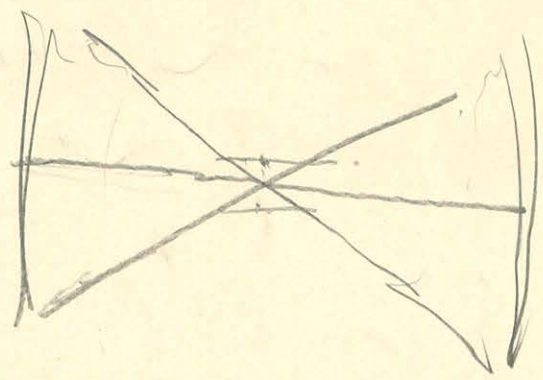
$$-10{,}6847177 \quad \overline{0{,}4477263} \qquad 0{,}6847177$$
$$\overline{0{,}6943725}$$

$$\overline{0{,}0477263}$$

3,2

$$\frac{4 \cdot 9{,}24\sqrt{11{,}24 \cdot 4{,}84 + 16}}{2{,}2(5{,}2 + 2{,}2)}$$

$$\frac{26{,}96\sqrt{70{,}4011}}{2{,}2(86{,}4011)}$$



1,567722
92791
2491523
5051350
1198637
92522
0,049851
48° 1' 52"
83758
4654
252
84264

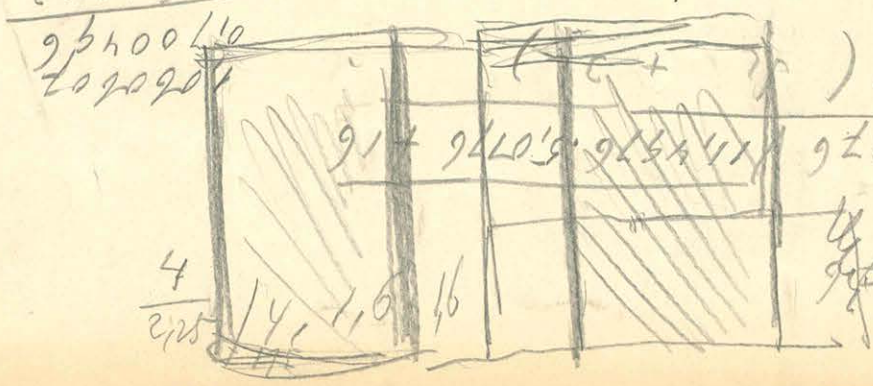
1,050766
0,684845
1,735611
54,4015
847582
92791
1567,26
0,000500
129461
9946211
0,02176
2150216
9580716
0,1578
1,572728
9287511
122.828,028
$\frac{9{,}22 \cdot 82{,}028}{}$

1,57722
92791
149,1523
5051,350
1198,637
9265,22
0,049851
48° 1' 52"
83758
4654
252
84264

$$\frac{4 \cdot 9{,}24\sqrt{11{,}24 \cdot 4{,}84 + 16}}{9{,}22(5{,}2 + 3{,}2)}$$

$$\frac{4 \cdot 9{,}268\sqrt{11{,}268 \cdot 4{,}928 + 16}}{9{,}22(4{,}2 + 3{,}2)}$$

3,2 109,934
$\frac{9{,}22 \cdot 82{,}028}{}$
37,4736 $\sqrt{72{,}028}$
0,652706
1,78840
56,028



3,2 109,934
$\frac{9{,}22 \cdot 82{,}028}{}$
37,4736 $\sqrt{73{,}028}$
0,652706
1,78840
56,028

$$\frac{4 \cdot 9{,}268\sqrt{11{,}268 \cdot 4{,}928 + 16}}{9{,}22(4{,}2 + 3{,}2)}$$

$$\frac{37{,}99074\sqrt{73{,}028}}{3{,}24 \cdot 82{,}028}$$

1,57567
93705
2,51378
0,15405
2,00283
1,57275
0,10058

8,7775
4545
223
8429,36
48° 17' 42"
8577,8
8428,51
1,82794
1,82794
0,00050
12946
9946211
0,02176
2150216
9580716
0,1578
1,57275
9287511
122.828,028
$\frac{9{,}22 \cdot 82{,}028}{}$

1,57567
93705
2,51378
0,15405
2,00283
1,57275
0,10058

$$\frac{4 \cdot 9{,}268\sqrt{11{,}268 \cdot 4{,}928 + 16}}{9{,}22(4{,}2 + 3{,}2)}$$

$$\frac{37{,}99074\sqrt{73{,}028}}{3{,}24 \cdot 82{,}028}$$

$\alpha_8 = -0,0059920$

$\alpha_{12} = +0,0002674$

$\alpha_4 = +0,166699$

$\alpha_{16} = +0,0001466$

$\frac{\alpha_8}{2} = -0,0029960$ 0,0083094 1,240008

$\alpha_4 + \frac{1}{5}\alpha_{12} = 0,166788$ 89

$\alpha_4 + 3\alpha_{12} = 0,167501$

$\frac{8}{5}\alpha_{12} = 0,000713$ 0,002109

256 4096

$16\alpha_8 + 22\alpha_{16} = -0,091198$ 59920

$\alpha_8 + 2\alpha_{16} = 0 - 0,005\,99587$ 0,0002921

1,6 1,96

1 0,166699 802 584

0,168085 11984

0,156101 624404

2,4

10,668726 0,462067 0,598016

11,728819 3,06904

8,659718

1,46

5,959175962774 6011426 6060083 6108733 4865 4866 4865

$\frac{1}{2}$ 432611 2- 3 4

MAGYAR TUDOMÁNYOS AKADÉMIA KÖNYVTÁRA

$S_1^2 = 5$ $\qquad$ $S_2^2 = 9$

$$\delta_1 = +2\left(\frac{1}{\sqrt{5}} - \frac{1}{3.5}\right) = 0{,}7610928$$

$$\delta_2 = 0$$

$$\delta_3 = \frac{1}{6}\frac{4}{(9+16)3}\left(-3 + 2\,\frac{100}{25} + \frac{1}{9}\right) = 0{,}0454290$$

75

0,44721356
0666667
0,3805469
0,7610928

5,1111111
20,4444444
450

0,8322442
0000091
3459

1,8925478
·927958
0,9652520

+ 0,1040672

− 0,1040672
4826260
7610928
4543321
1,1932191

− 0,4826260
7610928
4543321
1,2891519
1040672
1,1850847
2081344
1,0932191

$$\frac{a_4}{4} + \frac{a_4}{4} + \frac{a_{12}}{12}$$

$$8a_4 + 24\,a_{12} = 1{,}246516$$

$$a_4 + 3\,a_{12} = 0{,}1683145$$

$$a_4 - a_{12} = 0{,}1659970$$

$$4\,a_{12} = 0{,}0023175$$

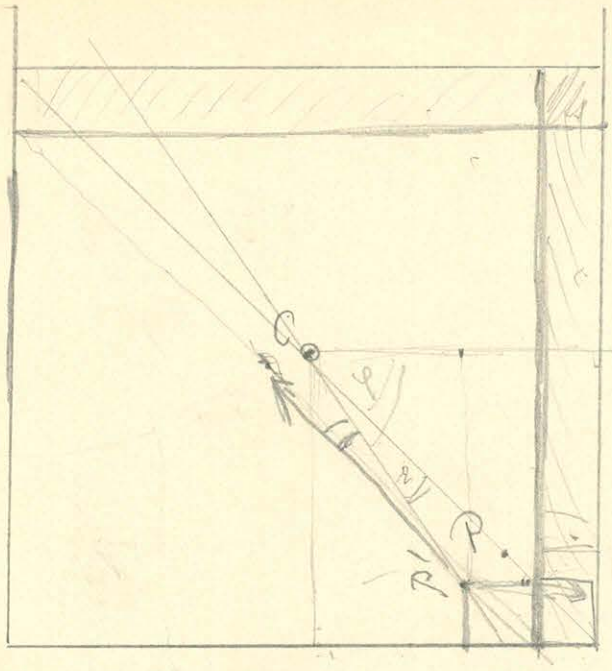
$$a_{12} = 0{,}0005793\tfrac{8}{4}$$

$$a_4 = 0{,}1665764$$

$$a_8 = -0{,}0061068\tfrac{75}{}$$

0,6622364
5,8861168
1,4492914

0,6663600
695256
0,6732856
0485554
624403600
624403600



$$l\cos(45+\varepsilon) + l(1-\sin(45+\varepsilon)) + x = l$$

$$\frac{2R}{l}\varepsilon - \varepsilon\frac{l}{R} + l\left(1-\frac{1}{\sqrt{2}}\varepsilon-\frac{1}{\sqrt{2}}\right) + x = l$$

$$x = \frac{2}{\sqrt{2}}\varepsilon$$

Q=10. Longitudinalis

$$\delta_1 = 2{,}635046\left[\frac{i}{4{,}727101\cdot 15{,}402025} - \frac{i}{6{,}444028\cdot 34{,}582025}\right] = 0{,}024367825$$

72,806928 — 222,84754

0,01373496
0,00448737
0,00924759

$$\delta_2 = \frac{1}{6}\,\frac{3.795\cdot 2{,}635046}{\left[22{,}345492 + 14{,}402025\cdot C^2\right]4{,}727101}\left[-3 + 2\,\frac{545{,}01200}{[N]} + \frac{i}{22{,}345492}\right] = 0{,}017156718$$

122,345492 = N

548,33949
3470,03694
10,000000
0,002881837

4,45469963
5,90939826
0440518
5,95344444

$$\delta_3 = \frac{1}{6}\,\frac{5.795\cdot 2{,}635046}{\left[41{,}525492 + 33{,}582025C^2\right]6{,}444028}\left[-3 + 2\,\frac{1808{,}4175}{[N]} + \frac{i}{41{,}525492}\right] = 0{,}014651048$$

233,17568
41,52549
274,70117 = N

1770,1820
10621,0920
15,2700091
0,001437713 9

6,58321 75
10,16643 50
0240816
10,19051 66

$\delta_1+\delta_2+\delta_3 =$ 0,024367 8
171567
146510
0,056175 5

+ 0,3495645
1,0421962
1,3917607
− 0561755
+ 1,3355852 φ^3

2,3006818
216295
2,0843923

Translation:

$$\delta_1 = \frac{4{,}795 \cdot 2{,}635046}{12{,}635046}\left(\frac{1}{5{,}471324 \cdot 22{,}992025} - \frac{1}{5{,}825418 \cdot 26{,}992025}\right) =$$

$125{,}79705$

$0{,}00794931\,20$

63597117

$0{,}00158996003$

$157{,}23983$

$\delta_1 = 0{,}02008473$

$\delta_2 = 0$

$\delta_3 = 0{,}00509509$

$0{,}02517818\,2$

$$\delta_3 = \frac{1}{3}\frac{4{,}795 \cdot 2{,}635046}{\left[22{,}992025 \cdot 33{,}925492 + 4 \cdot 6{,}943467\right] 5{,}825418}\left\{-3 + 2\frac{56{,}927517^2}{N} + \frac{22{,}992025}{33{,}925492}\right\} =$$

$22{,}992025$
$33{,}925492$
$56{,}927517$

$N = 808{,}01955$

$780{,}24568$
$27{,}77387$

$$\frac{12{,}63}{4707{,}0516} = 0{,}00268428\,02$$

$\delta_{2_{III}} = 0{,}00089876\,07$

$\delta_2 =$

$3240{,}742191$

$0{,}35915855$
$1{,}10510\,73$
$0{,}02517\,82$
$1{,}48944\,40$

$4{,}01072\,25$
$-5{,}02144\,50$
$\quad 67752\,15$
$5{,}16989\,65$

$1{,}48944\,40\,\varphi^3$.

$0{,}82589\,70$
$1{,}57079\,60$
$2{,}39669\,33$
$\quad 1864787$
$2{,}21021\,46$

Integ $\quad H_1 = +4/5\ 2{,}09730870\varphi + 4/5\ 1{,}33558524\varphi^3$

Integ $\quad H_2 = +4/5\ 2{,}15495\,10\varphi - 4/5\ 1{,}48944\,40\,\varphi^3$

$P' - P = 0{,}05756\,40 = 8\alpha_4 + 16\alpha_8$

$Q' - Q = 0{,}15385\,88 = \frac{64}{3}\alpha_4 + \frac{512}{3}\alpha_8$

$0{,}00719\,55 = \alpha_4 + 2\alpha_8$

$0{,}00721\,21 = \alpha_4 + 8\alpha_8$

$-(P' + P) = -4{,}25233\,80 = 4\alpha_2 + 12\alpha_6$

$-(Q' + Q) = -3{,}82502\,92 = \frac{8}{3}\alpha_2 + 72\alpha_6$

$-1{,}06308\,45 = \alpha_2 + 3\alpha_6$

$-1{,}05978\,60 = \alpha_2 + 27\alpha_6$

$F = -4/5\{1{,}06354\,68 \sin 2\varphi - 0{,}00719\,00 \sin 4\varphi - 0{,}00001\,54\,10 \sin 6\varphi - 0{,}00000\,277 \sin 8\varphi\}$

transversale

0

0,420788
0,301030
0,119758
0,721818
0,763053
0,958765 -1
0,721818
765327
0,956491 -1
0,680785
0,275706 -1
10° 41' 4"
0,174529
119264
194
0,1864787

0,420788
0,680785
0,740003 -1
1,101573
763052
0,338520
1,101573
765327
0,336246
0,030130
0,035216
47° 19' 13½"
0,8203047
119264
55269
654
0,8258970

$\frac{\pi}{2}$

1,5707963

1,431235
1,361570
0,069665
0,034833
8,106380
5,471224
2,635046
5,825418
8,460464
0,908827
0,927394
0,981433 -1
34830
0,016266
0,211281 -2
362216
0,573497 -2
II-II
0,037457,9

1,039156
841576
0,197580
0,098790
10,266334
5,471224
4,795000
5,825418
10,620418
1,011415
1,026142
0,985273 -1
98750
0,084063
0,924605 -2
362216
0,286821 -1
III-III
0,193562

1,651794
0,179591
0,510045
2,341430
186479
2,154951
2,097387
4,252338
H+.
H+-H
4+0.
2,115271
4,230542

$Q = 10$ mc.

$a = 4{,}795 \quad b = 1 \quad c = 2{,}635046 \quad t = 1$

Quadrat.

$a-1 = 3{,}795$	$14{,}402025$	$(a+1)^2+b^2+c^2 = 41{,}525492$	$= 6{,}444028$
$a+1 = 5{,}795$	$33{,}582025$	$(a-1)^2+b^2+c^2 = 22{,}345492$	$= 4{,}727101$
$b-1 = 0$	0	$(b+1)^2+a^2+c^2 = 33{,}935492$	$= 5{,}825418$
$b+1 = 2$	4	$(b-1)^2+a^2+c^2 = 29{,}935492$	$= 5{,}471224.$
$c = 2{,}635046$	$6{,}943467$		
$a = 4{,}795$	$22{,}992025$		

$\log(a-1) = 0{,}579212$

$\log(a+1) = 0{,}763053$

$\log c = 0{,}420788$

$\log a = 0{,}680785$

$\log\sqrt{(a+1)^2+b^2+c^2} = 0{,}809157$

$\log\sqrt{(a-1)^2+b^2+c^2} = 0{,}674599$

$\log\sqrt{(b+1)^2+a^2+c^2} = 0{,}765327$

$\log\sqrt{(b-1)^2+a^2+c^2} = 0{,}738092$

Longitudinales.

$\log\frac{b}{a-1}$ / $\log\frac{b}{c}$

$0{,}420788$
$0{,}579212$
$1{,}000000$
$0{,}674595$
$0{,}325405$
$64°\,41'\,58''$
$1{,}117\,0107$
$11\,9264$
2812
$1{,}129\,2183$

$\log\frac{b}{a+1}$ / $\log\frac{b}{c}$

$0{,}420788$
$0{,}763052$
$1{,}183841$
$0{,}809157$
$0{,}374684$
$67°\,7'\,11''{,}7$
$1{,}169\,3706$
20362
567
$1{,}171\,4635$
$1{,}129\,2183$
$2{,}300\,6818$

$\log\frac{b}{a+c}$ / $\log\frac{b}{c}$

$0{,}420788$
$0{,}763052$
$0{,}657735-1$
$0{,}809157$
$0{,}848578-2$
$4°\,2'\,10''{,}6$
$0{,}069\,8132$
5818
514
$0{,}070\,4464$
$14\,5843\,1.$
2162895

$\log\frac{b}{a-c}$ / $\log\frac{b}{c}$

$0{,}420788$
$0{,}579212$
$0{,}841576-1$
$0{,}674595$
$0{,}166981-1$
$8°\,21'\,22''{,}3$
$0{,}139\,6263$
61087
1081
$0{,}145\,8431$

$1{,}538850$
$1{,}187578$
$0{,}351272$
$0{,}175636$

$7{,}362147$
$4{,}727101$
$2{,}635046$
$6{,}444028$
$9{,}079074$
$0{,}867005$
$0{,}958042$
$0{,}908963-1$
175636
$0{,}084599$
$0{,}927265-2$
362216
$0{,}289581-1$

I-II $0{,}194796$

$40{,}525492$
$33{,}582025$
$6{,}943467$
$14{,}402025$
$21{,}345492$
$1{,}607728$
$1{,}329506$
$0{,}278422$
$0{,}139211$

$0{,}757935$
$0{,}871808$
$9\,88.6127-1$
139211
$0{,}025338$
$0{,}403772-2$
362216
$0{,}765988-2$

I-III $0{,}058343$

$1{,}129\,2183$
$1{,}171\,4635$
$0{,}554\,7746$
$2{,}855\,4564$
$0{,}175\,7694$
$2{,}097\,3870 =$

$0{,}408\,2369$
$0{,}194\,7960$
$0{,}153\,7365$
$0{,}756\,7694$

$4\pi\varepsilon_1$

$1{,}05$
35
$1{,}40$

Transversalen

0

0,2175984
0,3010300

0,5186284
0,6155004

0,9031280−1
0,5063697

0,3967583−1

13° 59' 58½"

0,2268928
171624
2836

0,2443388

0,2175984
0,5063697

0,7239681
0,6155004

0,1084677
3010300

0,8074977−1

32° 41' 41"

0,5585054
119264
1988

0,5706306

II/2

1,5707963
5706306

2,1414269
2443388

1,8970881

1,155266
1,012739

0,142527
0,071264

5,258985

3,608549
1,650436

4,125727

5,776163

0,827624
0,435197

0,392427
0,196214

6,817549

3,608549
3,209000

4,125727

7,334727

1,141262
0,225598
0,624985

1,991810
2443388

1,746471
5-8628

0,331100

0,720902
0,761629

9,959263−1
71264

0,030527

362216
484684−2

0,846900−2

II−II

= 0,070291

0,836628
0,865384

0,968244
196214

0,164458

362216
260055−1

0,578271−1

III−II = 0,378679

3.81
240
65
180
109
32.34,68
102
109

18,14776
7,132585
25,280185
91
1,4027803
0,7013902
5,027941

18,14776
3,132585
21,280185
75
1,3279753
0,6639877
4,613044

5,10776
7,132585
12,240185
1,0877881
0,5438941
3,498598

5,10776
3,132585
8,240185
4
0,9159370
0,4579685
2,870572

~~22,280185~~ ~~22,280185~~

18,14776
4,132585
22,280185 $(V)^2$
94
1,3479189
0,6739595
4,720190
$c(a-1)=4$

5,10776
4,132585
9,240185 $(V)^2$
0,9656807
0,4828404
3,039768

14,62776
3,132585
17,760185 $(V)^2$
1,2494475
0,6247238
4,214283

1
13,760185
90
1,1386243
0,5693122
3,709473

18,565687
0,05386281
0,01106436
0,04279845
0,0757494

90,380310
0,0

15,999991
9,240185
25,240176 = N
76,724279
460,34564

104,86139
4,1545413
3,
1,1545413
1082229
1,2627642

5,3090826
1082229
5,2008597

0,0086891232

399

56,848900
22,280185
79,129085 = N
373,50431
2241,0258
7,5398208
0,00

~~46,56037~~0
541,967014
1083,93403
13,698301
0,041883
13,740184

10,6276
17,760185
28,387785

188,74814
12,53034
201,27848 = N
848,24447
2544,73341
5,865114

805,86653
4,0037382
8,0074764
5983947
8,6058711

$$1{,}2502793$$

$$0{,}15392\,53 = 8\,d_4 + 16\,d_8$$

$$0{,}41\,00091 = \frac{64}{3}\,d_4 + \frac{512}{5}\,d_8$$

$$\begin{array}{r} 0000\,0404 \\ 0{,}0192\,4413 = d_4 + 2\,d_8 \end{array}$$

$$0{,}0192\,2302 = d_4 + 8\,d_8$$

$$\underline{0{,}0000\,2111 = -\,6\,d_8}$$

$$6{,}70673$$

$$-\,3{,}418767 = 4\,d_2 + 12\,d_6$$

$$-\,2{,}23\,5591 = \frac{16}{5}\,d_2 + 72\,d_6$$

$$\begin{array}{r} 2038 \\ -0{,}854\,6168 = d_2 + 3\,d_6 \end{array}$$

$$-0{,}8983\,466 = d_2 + 27\,d_6$$

$$\underline{0{,}0162702 = 24\,d_6}$$

$$d_2 = -0{,}85\,66\,506$$

$$d_4 = +\,0{,}0792\,5112$$

$$d_6 = +\,0{,}00\,06\,7792\,5$$

$$d_8 = -0{,}000003518$$

$$0{,}85\,66\,506$$
$$0000\,1411$$
$$\underline{0{,}8566\,647}$$
$$905\,361$$
$$\underline{816\,128\,6}$$
$$0{,}0385\,623$$
$$2098$$
$$\underline{80536\,1}$$
$$1{,}6322\,72$$

Andrea

$a-1=2,209$ — 4,879681
$a+1=4,209$ — 17,715681
$b-1=0$ — 0
$b+1=2$ — 4
$c=1,650436$ — 2,723939
$a=3,209$ — 10,297681

√

$(a+1)^2+b^2+c^2=21,439620$ | 4,630294
$(a-1)^2+b^2+c^2=8,603620$ | 2,933193
$(b+1)^2+a^2+c^2=17,021620$ | 4,125727
$(b-1)^2+a^2+c^2=13,021620$ | 3,608549

$\log(a-1)=0,3441957$
$\log(a+1)=0,6241789$
$\log c=0,2175984$
$\log a=0,5063697$

$\log\sqrt{(a+1)^2+b^2+c^2}=0,6656086$
$\log\sqrt{(a-1)^2+b^2+c^2}=0,4673406$
$\log\sqrt{(b+1)^2+a^2+c^2}=0,6155004$
$\log\sqrt{(b-1)^2+a^2+c^2}=0,5573325$

longitudinalis

0,2175984
3441957
0,5617941
4673406
0,0944535
51° 10′ 55½″
0,8901179
29089
2690
0,8932958

0,2175984
6241789
0,8417773
6656086
0,1761687
56° 18′ 57″
0,9773844
52360
2763
0,9828967

0,2175984
0,6241789
0,5934195 -1
6656086
0,9278109 -2
4° ~~3~~50′ 26″
0,0698162
145444
1261
0,0844867

0,2175984
3441957
0,8734027 -1
4673406
0,4060621 -1
14° 17′ 26″
0,2443461
49451
1261
0,2494173

II–II

1,272206
0,769354
0,502852
0,251426

4,583629
2,933193
1,650436
4,630294
6,280730

0,661210
0,798010
0,863200 -1
251426
0,114626

362216 -
059283 -1
421499 -1
0,263936

III–III

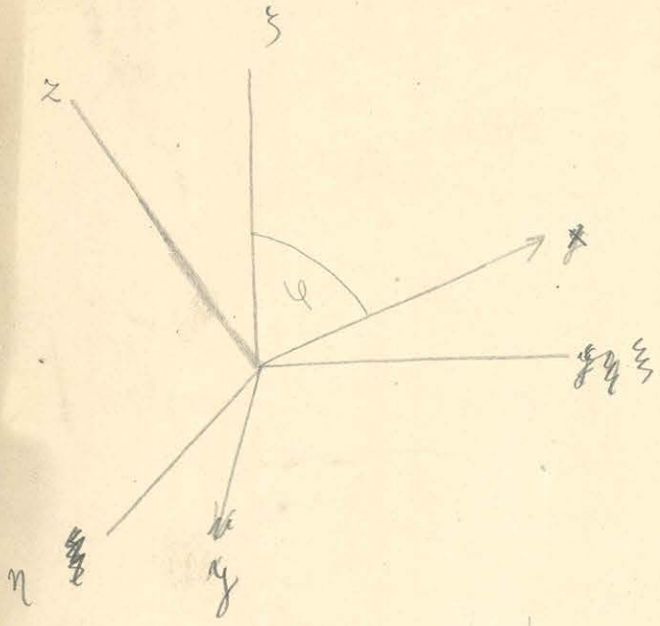
~~17,715681~~
20,439620
17,715681
2,723939
4,879681
7,603620
1,310473
0,881020
0,429453
0,214727

0,594745
0,750532
0,844213
214727
0,058940
0,362216
770410 -2
0,132626 -1
0,135714

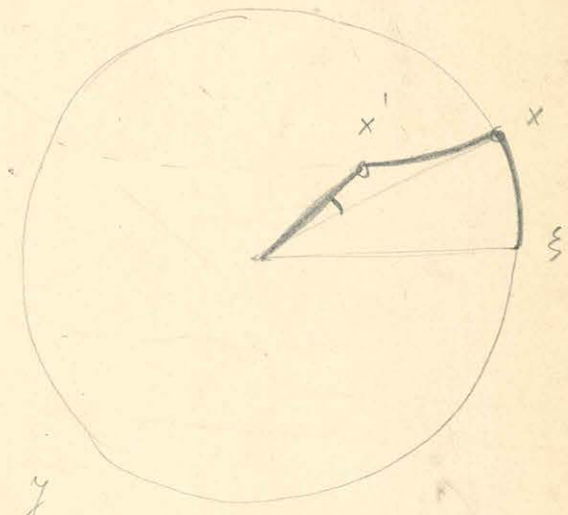
0,8932958
0,9828967
0,5509628
2,4271553
8435278
1,5836275

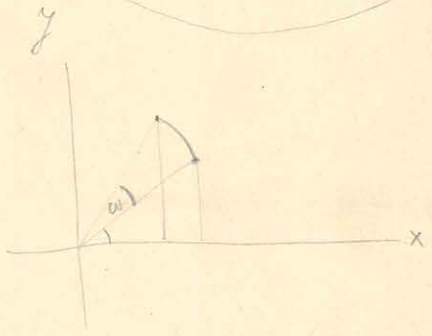
0,3556045
0,2639360
0,2239873
8435278

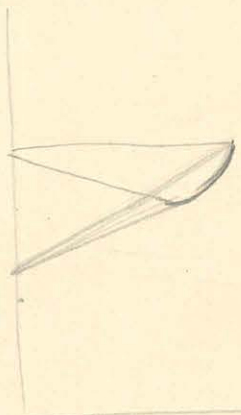
$\xi\eta\zeta$



$\cos(\xi x)$ η







z ω_z

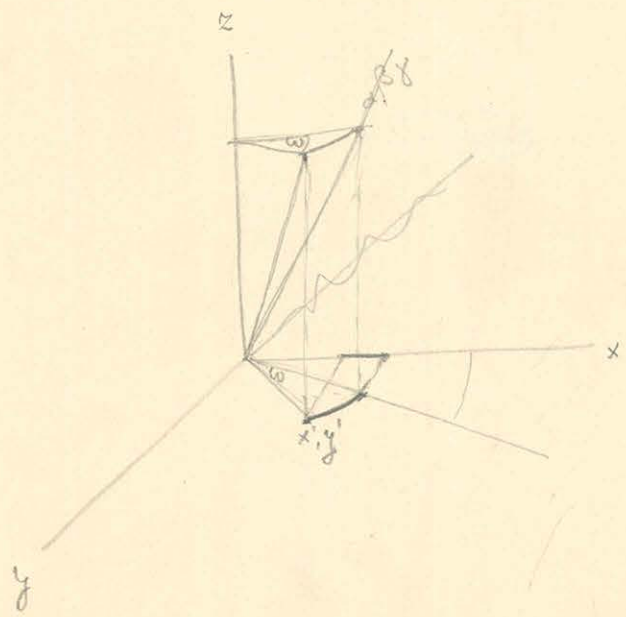
$x = r\cos\alpha$
$y = r\cos\beta$
$z = r\cos\gamma$

~~$x'a'x'$~~ = x, y, z

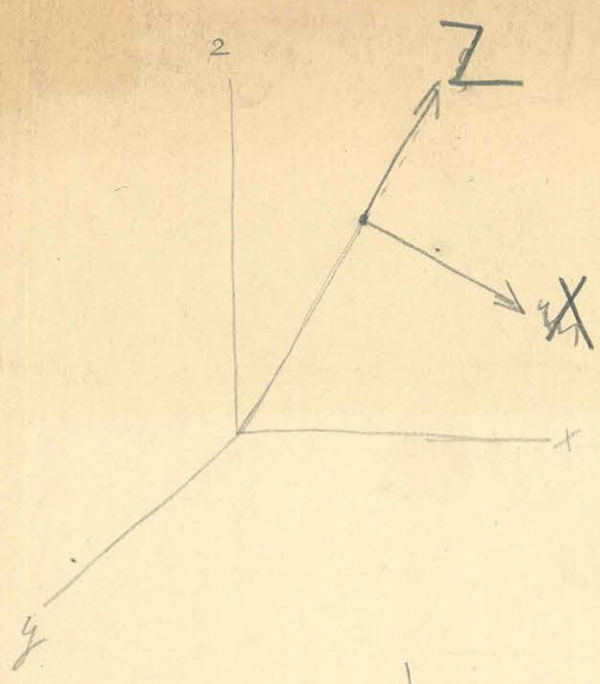
$x - x' =$ ~~xxxxx~~

$x' =$

sin



φ, λ



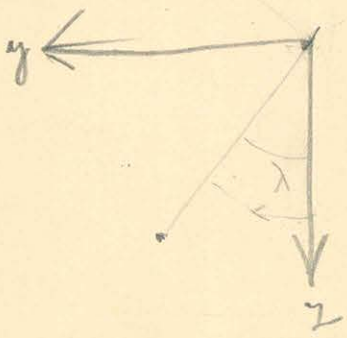
$\cos(zZ) = \sin\varphi$	$\cos(zX) = \cos\varphi$	$\cos(yz) = 0$
$\cos(xZ) = \cos\varphi\cos\lambda$	$\cos(xX) = \sin\varphi\sin\lambda$	$\cos(xy) = \sqrt{\frac{1}{2}(1+\cos^2\varphi\cos 2\lambda)}$
$\cos(yZ) = \cos\varphi\sin\lambda$	$\cos(yX) = \sin\varphi\cos\lambda.$	$\cos(yy) = \sqrt{\frac{1}{2}(1-\cos^2\varphi\cos 2\lambda)}$

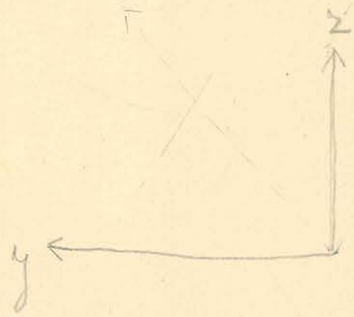
$$\cos^2\varphi\sin^2\lambda + \sin^2\varphi\cos^2\lambda = 1 - x^2$$

$$\cos^2\varphi - \cos^2\varphi\cos^2\lambda + \sin^2\varphi\cos^2\lambda - 1$$

$$-\cos^2\varphi\cos^2\lambda - \sin^2\varphi + \sin^2\varphi\cos^2\lambda$$

$$\cos^2\varphi - \cos^2\varphi\cos^2\lambda + \cos^2\lambda - \cos^2\varphi\cos^2\lambda$$

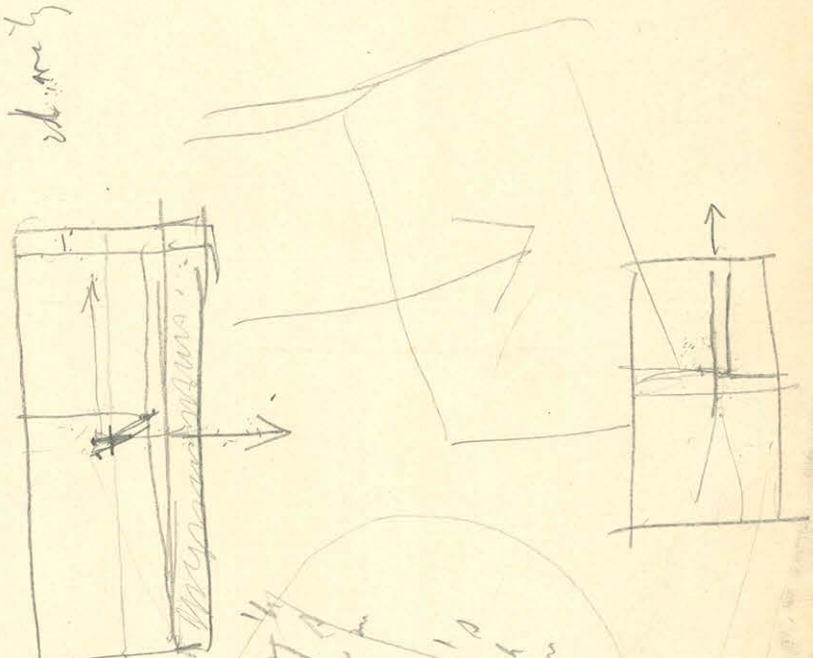




$$\frac{a^2\left(\frac{b^2}{a^2}-1\right)}{a^5\left(1+\frac{b^2+c^2}{a^2}\right)^{\frac{5}{2}}} = -\frac{1}{a^3}\left(1-\frac{b^2}{a^2}\right)\left(1+I'\frac{b^2+c^2}{a^2}+II'\left(\frac{b^4+c^4}{a^4}\right)\right)$$

$$= -\frac{1}{a^3}\left(1-\frac{b^2}{a^2}+I'\frac{b^2+c^2}{a^2}-I'\frac{b^4(b^2+c^2)}{a^4}+II'\frac{(b^2+c^2)^2}{a^4}-II'\frac{b^4(b^2+c^2)^2}{a^6}\right.$$
$$\left.+III'\frac{(b^2+c^2)^3}{a^6}\right.$$

$$\int_a^\infty = \int_a^b = \frac{1}{2}\frac{1}{a^2}-\frac{1}{4}\frac{b^2}{a^4}+I'\frac{1}{4}\frac{b^2+c^2}{a^4}-I'\frac{1}{6}\frac{b^4(b^2+c^2)}{a^6}+II'\frac{1}{6}\frac{(b^2+c^2)^2}{a^6}-II'\frac{1}{8}\frac{b^4(b^2+c^2)^2}{a^8}$$
$$+III'\frac{1}{8}\frac{(b^2+c^2)^3}{a^8}-\cdots$$



$$\operatorname{arc\,tg}\frac{bc}{(a+l)\sqrt{a^2+b^2+c^2+l^2+2al}}$$

$$\frac{1}{1+X_0^2}\;\frac{\sqrt{\quad}+\frac{2a\Delta^2}{\sqrt{}}}{N_0^2}$$

$$\operatorname{arc\,tg}\frac{bc}{(a-l)\sqrt{a^2+b^2+c^2+l^2-2al}}$$

$$N_0^2 = a\sqrt{}$$

$$\frac{bc}{1+X_0^2}\;\frac{-\sqrt{}+\frac{a^2}{\sqrt{}}}{N_0^2}$$

$$2h\Big|_n^1 = \frac{2abc+\cdots}{(1+X_0^2)N_0^2}\left(-\sqrt{}+\frac{a^2}{\sqrt{}}\right)$$

$$\frac{bc}{1+X_0^2 N_0^2}$$

$$U\Big|_m^0 = -\frac{2abc}{(1+X_0^2)N_0^2}\left(S+\frac{b^2}{S}\right)$$

$$-\frac{2abc}{S\left(1+\frac{b^2c^2}{a^2S^2}\right)a^2S^2}\left(S^2+a^2\right) = -\frac{2abc}{S(a^2S^2+b^2c^2)}\left(S^2+a^2\right)$$

$$+\frac{2abc}{S(b^2S^2+a^2c^2)}\left(S^2+b^2\right)$$

$$2\frac{AB}{(C+S)S} - \frac{2Bh}{A^2+B^2}$$

$$\frac{2Ah}{(C+S)S} - \frac{2Bh}{}$$

$$2\frac{A}{C+}$$

$$8\frac{AD}{(C+S)S} - 8\frac{BD}{A^2+B^2}$$

$$0.$$

$$+\frac{8AC}{S(S+B)} - \frac{8BL}{B^2+C^2} -$$

$$1\cdot a^2+b^2+c^2+2l(a-l)$$

$$d_8 = -0,0076428$$

$$d_{16} = 0,0000205$$

$$d_4 = 0,1660822$$

$$d_4 + 3d_{12} = 0,1683145$$

$$d_4 + d_{12} = 0,1668267$$
$$1771$$
$$1660822$$

$$2d_{12} = 0,0019882$$

$$6003228$$

$$d_4 + 2d_8 + 3d_{12} + 4d_{16} = 0,1576101$$

$$-d_4 + 2d_8 - 3d_{12} + 4d_{16} = -0,1805128$$

$$d_4 \quad - d_{12} \quad = 0,1659992$$

$$d_4 - 12d_8 + d_{12} \quad = 0,1725524$$
$$16711511$$

$$d_{12} = 0,0005799$$

$$d_4 = 0,1665-76$$

$$d_8 = -0,0059173$$

$$d_{16} = 0,0000049$$

$$2d_4 + 6d_{12} = 0,3066129$$

$$d_4 + 3d_{12} = 0,1683145$$
$$1659921$$
$$0023175$$

$$4d_{12} =$$

$$16-557$$
$$55$$
$$1665776$$

$$0,1671514$$

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$$1659921$$
$$0023175$$

$$4d_{12} =$$

$$16-557$$
$$55$$
$$1665776$$

$$0,1671514$$

Jan 5106/11

Fragmente

□ Dreieck $a = b = c = 1$ $\gamma = 11\frac{1}{2}°$

$\cos\gamma = 0{,}980785 \quad \sin\gamma = 0{,}195090$

Berechnet

$1+\cos = 1{,}980785$	$3{,}923510 = \sqrt{(1+m)^2+(1+\lambda_m)^2+\nu} = 3{,}058063$
$1-\cos = 0{,}019215$	$0{,}000392 = \sqrt{(1+\cos)^2+(1-\lambda_m)^2+\nu} = 2{,}927694$
$1+\lambda_m = 1{,}195090$	$1{,}428204 = \sqrt{(1-\cos)^2+(1+\lambda_m)^2+\nu} = 2{,}132998 - 0{,}000712$
$1-\lambda_m = 0{,}804910$	$0{,}647828 = \sqrt{(1-\cos)^2+(1-\lambda_m)^2+\nu} = 2{,}115980 - 0{,}000770$

$\log(1+\cos) = 0{,}296837 \quad \log\sqrt{(1+m)^2+(1+\lambda_m)^2+\nu} = 0{,}985404$

$\log(1-\cos) = 0{,}283633 - 2 \quad \log\sqrt{(1+\cos)^2+(1-\lambda_m)^2+\nu} = 0{,}965252$

$\log(1+\lambda_m) = 0{,}078004 \quad \log\sqrt{(1-\cos)^2+(1+\lambda_m)^2+\nu} = 0{,}967377$

$\log(1-\lambda_m) = 0{,}905242 - 1 \quad \log\sqrt{(1-\cos)^2+(1-\lambda_m)^2+\nu} = 0{,}990133$

$\log\sin\gamma = 0{,}990133$

$\log\sin\frac{\gamma}{2} = 0{,}990133 - 1$

$\log\cos\frac{\gamma}{2} = 0{,}999777$

$\log\tan\frac{\gamma}{2} = 0{,}990356$

$\log\cot\frac{\gamma}{2} = 1{,}009644$

$\log\sin\alpha = \log\sin\beta = 0{,}990133 - 1$

$\log\cos\alpha = \log\cos\beta = 0{,}999777$

$\log\tan\alpha = \log\tan\beta = 0{,}990356 - 1$

$\log\cot\alpha = \log\cot\beta = 0{,}009644$

$\alpha = \beta = 84°\,15'\,38''$

$\gamma = 11°\,28'\,44''$

$\alpha + \beta = 168°\,31'\,16''$

$\alpha + \beta + \gamma = 180°\,00'\,00''$

$\log\sin\alpha = 0{,}997777 - 1$

$\log\cos\alpha = 0{,}096223 - 1$

$\log\tan\alpha = 0{,}901554$

$\log\cot\alpha = 0{,}098446$

$\log\sin\beta = 0{,}997777 - 1$

$\log\cos\beta = 0{,}096223 - 1$

$\log\tan\beta = 0{,}901554$

$\log\cot\beta = 0{,}098446$

$\alpha = 84°\,15'\,38''$

$\beta = 84°\,15'\,38''$

$\gamma = 11°\,28'\,44''$

$\alpha + \beta + \gamma = 180°\,00'\,00''$

$1{,}428610$	$5{,}3571751$	$4{,}5719060$	$5{,}3515191$
$1{,}428610$	$1{,}428291$	$3{,}923510$	$9{,}923510$
$0{,}000369$	$0{,}602100$	6478890	$1{,}428291$
6478249	$0{,}296818$	$0{,}000369$	$0{,}000369$
	$0{,}148409$	$0{,}648249$	$1{,}428610$
$0{,}157491$	$0{,}146090$	$0{,}172891$	$0{,}721896$
$0{,}871742{-}1$	$2{,}157980$	$0{,}660078$	$0{,}157491$
$0{,}379172$	$0{,}894306$	$0{,}068948$	$0{,}151491$
$0{,}171586$	$0{,}421453$	$0{,}034224$	$0{,}157391$
$0{,}618642$	$0{,}618672$	$0{,}692648$	$0{,}618642$
$0{,}631482$	$0{,}692648$	$0{,}720394$	$0{,}631482$
$0{,}921901$	$0{,}992641{-}1$	$0{,}988659{-}1$	$0{,}921901$
$0{,}997168$	$0{,}421453$	6394224	$0{,}997168$
$0{,}937176$	$9{,}732604$	$5{,}038848$	$0{,}937176$
$0{,}000289$	$0{,}148409$	$0{,}022318$	$0{,}000289$
$0{,}460898{-}1$	$0{,}618672$	$0{,}348651{-}2$	$0{,}460898{-}1$
3622161	3622161	3622161	3622161
$0{,}823114{-}1$	$0{,}796419{-}2$	$0{,}716871{-}2$	$0{,}823114{-}1$
$0{,}000665$	$0{,}109953$	$0{,}052054$	$0{,}000665$
$0{,}026702$	$0{,}411012$	$0{,}057382$	$0{,}026702$

II-II

2,448202 2,419799 0,028403 0,197518 0,225921	5,774080 2,419799 3,354281 0,197518 3,551799	3,551799 3,354281 0,197518 0,028403 0,225921	5,774080 3,354281 2,419799 0,028403 2,448202
0,388847 0,353957 -1 1,034890 0,517445	0,761483 0,550449 0,211034 0,105517	0,550449 0,353957 -1 1,196492 0,598246	0,761483 0,388847 0,372636 0,186318
0,617816 0,642713 0,975103 -1 517445 0,492548	0,653711 0,673750 0,979961 -1 105517 0,085478	0,617816 ~~0,642713~~ 0,653711 0,964165 -1 598246 0,562351	0,642713 0,673750 0,968963 -1 186318 0,155281
362216 692448 -1 0,054664 1,134133	362216 931854 -2 0,294070 -1 0,196820	362216 750007 -1 0,112223 1,294861	362216 191119 -1 0,553335 -1 0,357548

III-III

~~0,744739~~ 0,807521 0,622993 0,184528 0,092264	—	0,866540 0,605133 0,261407 0,130704	
2,316310 2,147780 0,168530 2,392510 2,561040	4,336644 2,505174 1,831470 2,717911 4,549381	2,592210 2,147780 0,444430 2,505174 2,949604	3,948080 2,392510 1,555570 2,717911 4,273481
0,364797 0,408417 0,956380 -1 92264 0,048644	0,637153 0,657952 0,979201 -1 92264 0,071965	0,413671 0,469763 0,943908 -1 130704 0,074612	0,596386 0,630782 0,965604 -1 130704 0,096308
362216 687029 -2 0,049345 -1 0,112007	362216 854093 -2 0,216309 -1 0,164554 112007 0,276561	362216 872809 -2 0,235625 -1 0,171801 221757 0,393558	362216 983662 -2 0,345878 -1 0,221757

$-2/61\cos\varphi$

+1,2510563	− 0,7178260
0,1917359	
0,3604698	
0,5531220	
2,3557840	
7178260	
1,6379580	1,6379580

$+2/61\sin\varphi$

1,3735346	− 0,4425593
0,5754748	
0,5561910	
0,7871160	
3,2923164	
4425593	
2,8497571	= 2,8497571

$= +2/61$ ~~1,5832401 / 1,3620977 = 0,2211424~~

0,2211424

~~$4/61 + 0,1105712$~~

$= +2/61$ 1,5832401 / 1,3619123

0,2213278

$= 4/61.\ 0,1106639$ helyesbítve

□ Beisp. $a = b = 1 = 1$ $c = 2$ $\varphi = 33^\circ\,3/4$ Szamitva dec. 31 1937.

$\cos\varphi = 0{,}8314696$ $\sin\varphi = 0{,}5555702$ Ellenőrizve dec. 31 1937. Sóvári

Quadrat.

$1+\cos\varphi = 1{,}8314696$	$3{,}3542809$
$1-\cos\varphi = 0{,}1685304$	$0{,}0284025$
$1+\sin\varphi = 1{,}5555702$	$2{,}4197986$
$1-\sin\varphi = 0{,}4444298$	$0{,}1975176$

$\sqrt{(1+\cos)^2+(1+\sin)^2+4} = 2{,}7179911$

$\sqrt{(1+\cos)^2+(1-\sin)^2+4} = 2{,}5051740$

$\sqrt{(1-\cos)^2+(1+\sin)^2+4} = 2{,}3925100$

$\sqrt{(1-\cos)^2+(1-\sin)^2+4} = 2{,}1477800$

$\log(1+\cos) = 0{,}2627998$

$\log(1-\cos) = 0{,}2266782-1$

$\log(1+\sin) = 0{,}1918895$

$\log(1-\sin) = 0{,}6478032-1$

$\log\sqrt{(1+\cos)^2+(1+\sin)^2+4} = 0{,}4342353$

$\log\sqrt{(1+\cos)^2+(1-\sin)^2+4} = 0{,}3988379$

$\log\sqrt{(1-\cos)^2+(1+\sin)^2+4} = 0{,}3788537$

$\log\sqrt{(1-\cos)^2+(1-\sin)^2+4} = 0{,}3319899$

0,301030	0,301030	0,301030	0,301030
226678−1	262800	226678−1	262800
0,527708−1	0,563830	0,527708−1	0,563830
191890	191890	647803−1	0,647803−1
0,335818−1	0,371940	0,879905−1	0,916027
378854	434235	331990	398838
0,956964−2	0,937705−1	0,547915−1	0,517189
5° 10′ 30″	40° 54′ 17″	19° 26′ 56″	73° 5′ 25″
0,0872665	0,6981317	0,3391026	1,2740904
29089	157080	75601	14544
1454	824	2715	1697
0,0903208	0,7139221	0,3394472	1,2757145
7139221		1,2757145	
0,8042429		1,6151617	

0,301030	0,301030	0,301030	0,301030
191890	647803−1	191890	647803−1
0,492920	0,948833−1	0,492920	0,948833−1
262800	262800	226678−1	226678−1
0,230120	0,686033−1	1,266242	0,722155
434235	398838	378854	331990
0,795885−1	0,287195−1	0,887388	0,390165
32° 0′ 20½″	10° 57′ 50½″	82° 36′ 56″	67° 50′ 33½″
0,5585054	0,1745329	1,4311700	1,1692706
9994	165806	104720	145444
0,5586048	2448	2715	1624
1913583	0,1913583	1,4419135	1,1840774
0,7499631		1,1840774	
		2,6259909	

0,5717475	0,10575172	0,5982476	0,186318
0,6082072	0,6765716	0,6082062	0,65-6992
0,65-6992	0,7098208	0,6765716	0,7098208
0,9516175-1	0,9966708-1	0,9931551-1	9,947184-1
0,6816478	3,12653-2	2,748054	3,1265-2
2,707861	4,95-78222	3,192484	4,681922
0,3471822	0,66082,20	0,29796,4	0,67222,3
0,43,26,27	0,695291	0,5041228	0,6702,24
0,9175,5-1	0,96552,9-1	0,9383,6-1	0,9418,19-1
9225,4	9225,4	1507,04	1507,04
0,0068,19	0,057,179,3	0,02454,0	9072523
3622,16	3622,16	3622,16	3622,16
8237,21-3	7618,75-2	3987,35-2	8607,76-1
0,1959,37-2	0,12404,91-1	0,752,091-2	0,2222,692-1
0,0157,01	0,1339,73	0,1987,17	0,1665,991
			5,65,06
			0,2253,97

$0,4469,94$

$LX\ IV = 0,297548$

- z/olumy

1,1365971 − 0,7121549
0,1818119
0,3045826
0,2975480
1,9205396
7121549
1,2083847

+ z/olumy

1,2317157 − 0,4407861²
0,5421621
0,4781823
0,4469940
2,6990541
4437862
2,2552679

1,2529691
1,0047351
0,2482246

0,1241123

1,2529624
1,0047351
0,2482273
0,1241136.

$0{,}230120$ $0{,}49503\overline{8}$ $0{,}735082-1$ $28^\circ\ 31'\ 3''$ $0{,}\overline{1}88\overline{6}92$ $90\overline{1}7\overline{5}$ $1\overline{7}48\overline{0}\overline{4}\overline{4}$ $0{,}\overline{6}72\overline{5}28\overline{6}$	$0{,}68\overline{6}033-1$ $0{,}\overline{4}3902\overline{5}$ $0{,}27100\overline{8}-1$ $10^\circ\ 01'\ 56''$ $0{,}17\overline{4}\overline{5}29$ $2\overline{7}15$ $0{,}\overline{1}74\overline{8}04\overline{4}$	$1{,}266\overline{2}42$ $0{,}\overline{4}0\overline{4}719$ $0{,}86152\overline{3}$ $82^\circ 10'\ 4''$ $1\overline{4}911\overline{2}00$ $290\overline{8}9$ $19\overline{4}$ $1\overline{4}\overline{5}\overline{4}0\overline{8}\overline{8}$ $1\overline{1}9\overline{9}1\overline{4}\overline{3}0$ $2\overline{6}\overline{3}\overline{9}\overline{9}\overline{2}\overline{7}0\overline{4}$ $2{,}63324\overline{1}3$	$0{,}\overline{7}22\overline{1}5\overline{7}-$ $0{,}\overline{3}12\overline{9}\overline{6}\overline{1}$ $0{,}\overline{4}\overline{9}\overline{4}\overline{1}\overline{9}\overline{4}$ $6\overline{8}^\circ\ \overline{4}2'\ 2\overline{1}''$ $1{,}\overline{1}8\overline{6}82\overline{3}9$ $1221\overline{7}3$ $\overline{4}2\overline{1}0\overline{1}8$ $1\overline{1}9\overline{9}1\overline{4}30$

$0{,}\overline{3}35\overline{7}818-1$ $0{,}\overline{4}0\overline{4}\overline{7}19$ $0{,}\overline{1}9\overline{3}10\overline{9}\overline{9}-2$ $4^\circ\ 52'\ 38''$ $0{,}0\overline{6}\overline{9}\overline{8}\overline{7}32$ $1\overline{5}\overline{1}\overline{2}\overline{6}2$ $0{,}\overline{4}\overline{9}\overline{4}\overline{1}\overline{2}\overline{6}\overline{2}$ $1\overline{7}\overline{4}\overline{8}0\overline{4}\overline{4}$ $0{,}\overline{6}\overline{7}\overline{2}\overline{5}\overline{2}\overline{8}\overline{6}$	$0{,}\overline{3}\overline{7}19\overline{4}\overline{4}0$ $0{,}\overline{4}\overline{9}\overline{5}\overline{0}38$ $0{,}\overline{8}\overline{7}\overline{6}\overline{9}02-1$ $36^\circ\ \overline{5}\overline{9}'\ 12''$ $0{,}\overline{6}\overline{2}\overline{8}\overline{3}\overline{1}\overline{8}\overline{5}$ $\overline{1}\overline{7}\overline{2}\overline{1}\overline{6}\overline{2}\overline{4}$ $\overline{5}\overline{2}\overline{8}\overline{2}$ $3{,}\overline{3}\overline{5}\overline{4}\overline{2}\overline{8}\overline{5}\overline{2}\overline{6}$	$0{,}\overline{8}\overline{2}\overline{7}\overline{9}\overline{9}\overline{0}\overline{5}-1$ $0{,}\overline{3}12\overline{9}\overline{6}\overline{1}$ $0{,}\overline{5}\overline{6}\overline{6}\overline{9}\overline{4}\overline{4}-1$ $20^\circ\ \overline{1}\overline{5}'\ 2''$ $0{,}\overline{1}3\overline{4}\overline{9}0\overline{6}\overline{5}\overline{7}\overline{9}$ $\overline{4}\overline{7}\overline{6}\overline{5}\overline{3}$ 92 $1{,}\overline{2}\overline{6}\overline{6}\overline{2}\overline{4}\overline{2}$ $1{,}\overline{6}\overline{0}\overline{2}\overline{4}\overline{9}\overline{0}\overline{1}\overline{4}$	$0{,}\overline{9}\overline{1}\overline{6}\overline{0}\overline{2}\overline{2}$ $0{,}\overline{4}\overline{3}\overline{9}\overline{0}\overline{2}\overline{5}-$ $0{,}\overline{9}\overline{7}\overline{7}\overline{0}\overline{0}\overline{2}$ $71^\circ\ 33'\ 3\overline{7}''$ $2{,}\overline{7}\overline{3}\overline{9}\overline{1}\overline{8}\overline{3}\overline{8}$ $\overline{9}\overline{5}\overline{5}\overline{9}\overline{2}$ $1\overline{7}\overline{2}\overline{9}\overline{4}$ $1{,}\overline{2}\overline{4}\overline{8}\overline{9}\overline{6}\overline{2}\overline{5}$

$$\square \quad a = b = \ell = 1 \qquad c = 2 \qquad \gamma = 33^\circ 7'$$

$$\sin\gamma = 0{,}\overline{8}31\overline{4}\overline{6}\overline{9}\overline{6} \qquad \sin\gamma = 0{,}5\overline{5}\overline{5}\overline{7}\overline{2}\overline{0}\overline{2}$$

Ellipse.

$1+\cos\gamma = 1{,}\overline{8}31\overline{4}\overline{6}\overline{9}\overline{6}$	$\lambda_1 = 3{,}\overline{3}\overline{5}\overline{4}\overline{2}\overline{8}\overline{6}\overline{9}$
$1-\cos\gamma = 0{,}\overline{1}\overline{6}\overline{8}\overline{5}\overline{7}\overline{0}\overline{4}$	$\lambda_2 = 0{,}\overline{0}\overline{2}\overline{8}\overline{4}\overline{0}\overline{4}\overline{5}$
$1+\sin\gamma = 1{,}\overline{5}\overline{7}\overline{5}\overline{5}\overline{7}\overline{2}\overline{0}\overline{2}$	$\lambda_1 = 2{,}\overline{4}\overline{1}\overline{9}\overline{7}\overline{2}\overline{8}\overline{6}$
$1-\sin\gamma = 0{,}\overline{4}\overline{4}\overline{4}\overline{4}\overline{1}\overline{4}\overline{2}\overline{9}\overline{8}$	$\lambda_2 = 0{,}\overline{1}\overline{9}\overline{7}\overline{5}\overline{1}\overline{7}\overline{2}\overline{6}$

$$\lambda_1 (1+\sin) = 0{,}\overline{2}\overline{6}\overline{2}\overline{7}\overline{4}\overline{9}\overline{9}\overline{8} \qquad \lambda_2 \sqrt{(1+\sin)^2+(1+\lambda_1)^2+\gamma} = 3{,}\overline{1}\overline{2}\overline{6}\overline{3}\overline{5}\overline{2}$$

$$\lambda_1 (1-\sin) = 0{,}\overline{2}\overline{2}\overline{6}\overline{6}\overline{7}\overline{8}\overline{2}-1 \qquad \lambda_2 \sqrt{(1+\sin)^2+(1-\lambda_1)^2+\gamma} = 2{,}\overline{1}\overline{7}\overline{4}\overline{8}\overline{0}\overline{5}\overline{4}$$

$$\lambda_2 (1+\sin) = 0{,}\overline{1}\overline{9}\overline{1}\overline{8}\overline{8}\overline{9}\overline{5} \qquad \lambda_2 \sqrt{(1-\sin)^2+(1+\lambda_2)^2+\gamma} = 2{,}\overline{5}\overline{3}\overline{9}\overline{3}\overline{9}\overline{1}$$

$$\lambda_2 (1-\sin) = 0{,}\overline{6}\overline{7}\overline{4}\overline{8}\overline{0}\overline{5}\overline{2} \qquad \lambda_1 \sqrt{(1-\sin)^2+(1-\lambda_2)^2+\gamma} = 2{,}\overline{0}\overline{5}\overline{5}\overline{7}\overline{2}\overline{0}\overline{5}-$$

$1-l = 0{,}7$ $\quad \sqrt{5+(1-l)^2}$

$1+l = 1{,}3$

~~$\lg + l = 0{,}7 + 1$~~

$\lg(1-l) = 0{,}845098 - 1$

$\lg(1+l) = 0{,}113943$

$1-l = 0{,}7$	$(1-l)^2 = 0{,}49$
$1+l = 1{,}3$	$(1+l)^2 = 1{,}69$

$\sqrt{5+(1+l)^2} = 2{,}586504$

$\sqrt{5+(1-l)^2} = 2{,}343075$

$\lg(1-l) = 0{,}845098 - 1$ $\qquad \lg\sqrt{5+(1+l)^2} = 0{,}412713$

$\lg(1+l) = 0{,}113943$ $\qquad \lg\sqrt{5+(1-l)^2} = 0{,}369786$

0,301030
845098-1
0,146128
369786
0,776342-1
30°57'31"

0,5235988
1483257
150?
0,5?85844

0,301030
113943
0,414973
412713
0,002260
45° 8' 57"

0,7852982
23271
2760
0,7880016
?85844
1,?265860

0,301030
113943
0,187087
412713
0,774374-1
30°44'40"

0,5235988
1275?1
1939
0,5?65918
1609?754
697?693

0,301030
845098-1
0,455932
369786
0,086146
50°38'44½"

0,8726646
1105?8
2157
0,8829341
0,6187539

0,429752
0,173186
0,256566
0,128283

0,6?7798
0,661484
0,997617-1
128283
0,104600

0,019522-1
?62216
0,?81748-1

0,240851

0,755112
0,652246
0,102866
0,051433

0,524146
0,554671
0,969475-1
51433
0,920908

0,?20?12-2
?62216
0,682528-2

0,048142
0,096284

-1,?26586
6497693
2,325281
0,802837
0,320947
?,449015
?,189099
0,059916

6249?
6657???
676

0,618759
2,062513
1,?26586
-?,?89099

Quadrieren

$$\mathcal{H} = -\left\{ \Big|_c^b \frac{}{a-l} + \Big|_a^b \frac{}{a+l} \right\} + \frac{a+l}{l} \Big|_c^{a+l} b - \frac{a-l}{l} \Big|_c^{a-l} b + \frac{b}{l} \left\{ \Big\|_c^{a+l} b - \Big\|_c^{a-l} b \right\} + \frac{c}{l} \left\{ \Big\|\Big|_c^{a+l} b - \Big\|\Big|_c^{a-l} b \right\}$$

A $\qquad$ B $\qquad$ C

$$\frac{\partial \mathcal{H}}{\partial l} = -\frac{\partial A}{\partial l} + \frac{a+l}{l} \frac{\partial}{\partial l} \Big|_c^{a+l} b - \frac{a-l}{l} \frac{\partial}{\partial l} \Big|_c^{a-l} b + \frac{b}{l} \frac{\partial B}{\partial l} + \frac{c}{l} \frac{\partial C}{\partial l}$$

$$+ \frac{a}{l^2} \left\{ \Big\|_c^{a+l} b - \Big|_c^{a-l} b \right\} - \frac{b}{l^2} B - \frac{c}{l^2} C$$

3,9235104	~~3,9235104~~	~~0,0192147~~	~~0,0192147~~
~~1,1950903~~	0,8049097	1,1950903	0,8049097
3,9235104	3,9235104	0,0006920	0,0006920
1,4282408	0,6478796	1,4282408	0,6478796
9,3517512	8,5713900	5,4319328	4,6515716
411	2	95	27

~~9705~~

80

ln 0,9708929	0,9990513	0,7049544	0,6675998
ln 0,4854464	0,4665257	0,3674777	0,0007999
3,058063	2,927694	2,3306585	2,1567505
		2,0006650	

$$\frac{1}{6}6\gamma\alpha_\gamma + \frac{1}{6}512\alpha_8 + \frac{1}{6}1728\alpha_{12} = 1,3923172.$$

$$-\gamma\alpha_\gamma + 8\alpha_8 - 12\alpha_{12} = -0,7221113$$

$$\gamma\alpha_\gamma + 8\alpha_8 + 12\alpha_{12} = 0,6211103$$

$$-\alpha_\gamma + 2\alpha_8 - 3\alpha_{12} = -0,1805282 25$$

$$+\alpha_\gamma + 2\alpha_8 + 3\alpha_{12} = +0,1576100725$$

$$+\alpha_\gamma + 8\alpha_8 + 27\alpha_{12} = 0,1306\gamma\gamma09$$

$$\gamma\alpha_8 = -0,02\gamma\gamma27\zeta0$$

$$2\alpha_\gamma + 6\alpha_{12} = 0,9366629000$$

$$2\alpha_\gamma + 30\alpha_{12} = 0,3\gamma\gamma783\beta\gamma$$

$$2\gamma\alpha_{12} = 0,0111\zeta\gamma\beta\gamma$$

$$\alpha_\gamma + 3\alpha_{12} = 0,1683\gamma\zeta0\alpha$$
$$1399\gamma39\gamma$$

$$\frac{1669201\zeta}{1669201\zeta}$$

$$\alpha_1 = 0,1669201\zeta$$

$$\alpha_8 = -0,0061068\beta$$

$$\alpha_{12} = +0,0007\beta\gamma\gamma\gamma\beta$$

$$0,\beta\beta\gamma\gamma\beta\gamma$$
$$0,\beta\beta\zeta\zeta\gamma$$
$$0,\beta\gamma\gamma\zeta\zeta\gamma$$
$$0,\beta\gamma\gamma\zeta\zeta\gamma$$

$$8,3592302.$$

$$\alpha_4 + 8\alpha_8 + 27\alpha_{12} + 64\alpha_{16} + 125\alpha_{20} = 0,1305981$$
$$\alpha_4 + 2\alpha_8 + 3\alpha_{12} + 4\alpha_{16} + 5\alpha_{20} = 0,1561008$$
$$-\alpha_4 + 2\alpha_8 - 3\alpha_{12} + 4\alpha_{16} - 5\alpha_{20} = -0,1805282$$
$$+\alpha_{20} = 0,1659970$$
$$+\alpha_4 - \alpha_{12} = 0,1755237$$
$$\alpha_4 - \sqrt{2}\,\alpha_8 + \alpha_{12} - \alpha_{20} = 0,1683145$$

0,3366290

2,4976128
1305981

2,3670147

$$+\alpha_4 + 3\alpha_{12} + 5\alpha_{20} = 0,1683145$$
$$15\alpha_4 + 24\alpha_8 + 21\alpha_{12} - 45\alpha_{20} = 2,3670147$$
$$5\alpha_4 + 8\alpha_8 + 7\alpha_{12} - 15\alpha_{20} = 0,7890049$$

$$5,6568542\alpha_4 - 8\alpha_8 + 5,6568542\alpha_{12} - 5,6568542\alpha_{20} = 0,9929120$$
$$10,6568542\alpha_4 + 12,6568542\alpha_{12} - 20,6568542\alpha_{20} = 1,8254496$$
$$\alpha_4 + 1,1876727\alpha_{12} - 1,9383633\alpha_{20} = 0,1712935$$

0,0023175

$$\alpha_4 - \alpha_{12} + \alpha_{20} = 0,1659970$$
$$\alpha_4 + 3\alpha_{12} + 5\alpha_{20} = 0,1683145$$
$$2,1876727\alpha_{12} - 2,9383633\alpha_{20} = 0,0052965$$
$$\alpha_{12} + \alpha_{20} = 0,0005793\,8$$
$$\alpha_{12} - 1,3431458\alpha_{20} = 0,0026483\,9$$
$$2,3431458\alpha_{20} = -0,0020690\,1$$

$\alpha_{20} = -0,0008830\,45$
57938

$\alpha_{12} = +0,0013624\,3$

$\alpha_4 = -0,1682425$

$\alpha_8 = -0,0039322$

883045
441523
1324568

$\alpha_{16} = -0,0010687\,35$

0,0022454 8
1659970

$\alpha_4 = 0,1682425$

0,8412125
0,0095370
0132457

0,8639952
8325376

$-0,0314576$

$4\alpha_8 + 8\alpha_{16} = 0,0244274$

$\alpha_8 + 2\alpha_{16} = -0,0061068\,5$
39322

$-0,0021747$

45 24586565
5,65685 42

$+0,1682425$
0367856

2050281

$-0,0314576$
$0,0695904$
$0,1103806$

$-0,2114286$

16813169
28565368

1793 8242

161226

56768

3158368

5952082

339212

234767

25394969

1

0,5566972
0,954243
1,5111215
0,4887785-2

1,1109943
0,6152225
1,7291168
0,2708032-1

0,0308166
0,0186566
0,0121600
486400

5,529413

$$\frac{2}{(9.17+16)\sqrt{17}}\left[-3+\frac{1052}{\underbrace{9.17+16}_{169}}+\frac{9}{17}\right]$$

0,7426779
2,227887
0,5147922-2
0,6152225
0,8995767-3

0,0079953
0,0158706

3,1309977
2,227887
0,9030990

0,9542423
1,2304449
0,7237974-1

$$= \frac{\cdots}{(\cdots)}$$

16,25
22,25
18,25
20,25

$$\log 8 \frac{\cdots}{(\cdots)}$$

$$\log \frac{\cdots}{\cdots}$$

1770345
1810378
3,5807227

$$\log(\cdots)$$

$$\frac{dx}{\sqrt{a^2+b^2+c^2}}$$

$$x =$$

1,1380760 19,7426408 43,7426408
0,1207682 2,914216 0,085748642
0,0463522 16,656849 13,828422
0,0933202 -2

$$\frac{3}{4} = 1,4092034$$

25,65-6854-4 1,9284768
22,8284272 1,2048401
12,1215728 1,15-6444
14,3431456 11

12,7 136
18 9
176 145

76 30
12
44

5,2573592 5,2573492
0,0857864 0,0857864
5,9481456 5,9481456

76,4

37872344

$$6{,}965^{-}760 \qquad 1{,}321905$$

$$-0{,}8{,}\overline{\pi}0\,7200 = d_2 + 27\,d_6$$

$$-0{,}894\,0040 = d_2 + 3\,d_6$$

$$\underline{\qquad\qquad} \qquad 2\,y\,d_6 = 0{,}02328\,y_0 \;\Big|\; 0{,}000{,}9707\pi 2$$

$$0{,}\pi\,6310^{-}6 = 8d_4 + 16\,d_8$$

$$0{,}165298 = 8d_4 + 64\,d_8$$

$$0{,}06213\,? = 48\,d_8$$

$$48 \Big/ 0{,}06213{,}2 = 0{,}0000\,4\,4\,\pi 2$$

$$\underline{\qquad\qquad} \qquad 0{,}020388\,2\,5^{-}$$

$$\underline{\qquad\qquad} \qquad 9{,}202\,99\,\pi 3$$

$$1{,}5^{-}7079\,6$$

$$76\,\pi\,6\,?$$

$$\underline{\qquad\qquad}$$

$$2{,}3\,3\,5\,\pi\,7\,9$$

$$\underline{\qquad\qquad}$$

$$1\,9\,3\,2\,\pi\,2\,4$$

$$\underline{\qquad\qquad}$$

$$9\,6\,6\,2\,1\,2\cdot$$

$$\underline{\qquad\qquad}$$

$$1\,9\,3\,2\,7\,\pi$$

$$\underline{\qquad\qquad}$$

$$1{,}6\,2\,7\,9\,2\,7$$

$$\underline{\qquad\qquad}$$

$$\pi\,7\,\pi\,0\,0\,6\,7$$

$$\underline{\qquad\qquad}$$

$$3{,}3\,6\,8\,0\,0\,\pi$$

$$0{,}\pi \qquad 0{,}\pi\,4$$

$$\underline{\qquad\qquad}$$

$$\pi\,2$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,\pi\,\pi\,2\,0\,0$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,1\,9\,9\,5\,7\,3^{-}$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,\pi\,2\,\pi\,\pi\,\pi$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,0\,0\,0\,9\,1\,8\,\pi$$

$$\underline{\qquad\qquad}$$

$$1{,}\pi\,2\,\pi\,9\,8\,6$$

$$\underline{\qquad\qquad}$$

$$1{,}7\,\pi\,0\,0\,1\,6\,9$$

$$\underline{\qquad\qquad}$$

$$1\,7\,\pi\,0\,0\,1\,6\,9$$

$$\underline{\qquad\qquad}$$

$$1\,1\,7\,\pi\,0\,0\,1\,6\,9$$

$$\underline{\qquad\qquad}$$

$$2\,9$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,\pi\,\pi\,2\,0\,0$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,0\,0\,0\,9\,6\,2\,5^{-}$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,1\,9\,9\,5\,7\,3^{-}$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,\pi\,2\,\pi\,\pi\,\pi$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,0\,0\,0\,9\,1\,8\,\pi$$

$$\underline{\qquad\qquad}$$

$$1{,}\pi\,2\,\pi\,9\,8\,6$$

$$\underline{\qquad\qquad}$$

$$0{,}5^{-}\,9\,\pi\,2\,0$$

$$\underline{\qquad\qquad}$$

$$1{,}6\,8\,\pi\,2\,\pi$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,0\,0\,0\,9\,1\,8\,\pi$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,2\,\pi\,2\,1\,\pi\,2$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,\pi\,\pi\,0\,9\,1\,8\,\pi$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,5\,8\,\pi\,9\,6\,5\,6$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,5^{-}\,9\,8\,3\,0\,0$$

$$\underline{\qquad\qquad}$$

$$-0{,}0\,0\,0\,\pi\,0\,9\,6\,2$$

$$\underline{\qquad\qquad}$$

$$1{,}6\,8\,6\,\pi\,2\,3\,8$$

$$\underline{\qquad\qquad}$$

$$5\,8\,\pi\,5\,6\,6$$

$$\underline{\qquad\qquad}$$

$$1{,}6\,2\,7\,9\,2\,7\,2$$

$$\underline{\qquad\qquad}$$

$$1{,}6\,2\,\pi\,2\,0\,9$$

$$\underline{\qquad\qquad}$$

$$0{,}2\,6\,2{,}1\,\pi\,1$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,2\,\pi\,2\,1\,1\,\pi\,8$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,0\,0\,0\,9\,1\,8\,\pi$$

$$\underline{\qquad\qquad}$$

$$1{,}6\,8\,\pi\,2\,\pi\,8$$

$$\underline{\qquad\qquad}$$

$$0{,}5^{-}\,9\,\pi\,2\,0$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,0\,0\,0\,9\,1\,8$$

$$\underline{\qquad\qquad}$$

$$1{,}7\,\pi\,2\,\pi\,9\,8\,6$$

$$\underline{\qquad\qquad}$$

$$2\,\pi\,2\,1\,7$$

$$\underline{\qquad\qquad}$$

$$1\,1\,7\,\pi\,0\,0\,1\,6\,9$$

$$\underline{\qquad\qquad}$$

$$2\,9$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,\pi\,\pi\,2\,0\,0$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,1\,\pi\,0\,2\,2\,0\,0$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,0\,0\,0\,9\,6\,2\,5^{-}$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,1\,9\,9\,5\,7\,3^{-}$$

$$\underline{\qquad\qquad}$$

$$\pi\,0$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,\pi\,\pi\,2\,\pi\,\pi\,\pi$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,0\,0\,0\,9\,1\,8\,\pi$$

$$\underline{\qquad\qquad}$$

$$1{,}\pi\,2\,\pi\,9\,8\,6$$

$$\underline{\qquad\qquad}$$

$$0{,}5^{-}\,9\,\pi\,2\,0$$

$$\underline{\qquad\qquad}$$

$$0{,}0\,0\,0\,0\,9\,1\,8$$

$$\underline{\qquad\qquad}$$

$$1{,}7\,\pi\,2\,\pi\,9\,8\,6$$

$$\underline{\qquad\qquad}$$

$$2\,\pi\,2\,1\,7$$

$$\underline{\qquad\qquad}$$

$$1\,1\,7\,\pi\,0\,0\,1\,6\,9$$

$$\underline{\qquad\qquad}$$

$$2\,9$$

$0{,}1631060 = 8\alpha_4 + 16\alpha_8$

$0{,}1652194 = 8\alpha_4 + 64\alpha_8$

$0{,}0021134 = 48\alpha_8$

$1{,}921755$

$0{,}1652194$

$0{,}217552$

$48 \mid 0{,}0021134 \mid 0{,}00004403$

192

193

140

$0{,}02038825$

8804

$0{,}02030021$

$6{,}965910$

$-0{,}8707388 = \alpha_2 + 27\alpha_6$

$-0{,}8940040 = \alpha_2 + 3\alpha_6$

$0{,}0233265 = 24\alpha_6$

$0{,}8940040$

2908

$0{,}8942948$

$24 \mid 0{,}0233265 \mid 0{,}00096937$

216

166

144

225

216

90

72

180

8940040

29081

8969121

$1{,}7938242$

874714

7064528

$0{,}0812008$

77552

35224

$0{,}0247784$

5984

3522

874714

$0{,}0872008$

0058164

3522

873694

$1{,}7938242$

873694

7064548

$l=1 \quad a=1 \quad b=3 \quad c=3 \quad S_1^2=\sqrt{18} \quad S_2^2=\sqrt{22}$

9^{31}_{3}

$$9\left(\frac{1}{\sqrt{18}(9)}-\frac{1}{\sqrt{22}(13)}\right)$$

0,02618925
0,01640004
0,00978921
0,08810289

38,18376

60,97546

3818376|

$$\frac{3}{(198+36)\sqrt{22}}\left(-3+2\,\frac{961}{234}+\frac{9}{22}\right)$$

$\frac{36}{234}$

|234|1,78

$\frac{1922}{234}$

5,213675
409091
5,622766
365,8528

0,0203883

1,798346

22 |900| 5 409
2 200
198

234 |1922| 821
1872
500
468
320
1260

1,466676

$0,02038825 = \alpha_4 + 2\,\alpha_8$

$0,02291681 = \alpha_4 + 8\,\alpha_8$

$6\alpha_8 = 0,00252856$

0,00042143

$\alpha_8 = 0,00042143$

$\alpha_4 = 0,01954539$

$\alpha_6 = 0,00172296$

$\alpha_2 = -0,899773$

2^2
$4\,4^2$
3^1
9^3

0,02038825
84286
0,01954539

$\alpha_4 =$ 6,821226

8

$-0,894004 = \alpha_2 + 3\alpha_6$

$-0,852653 = \alpha_2 + 27\alpha_6$

$0,041351 = 24\,\alpha_6$

~~0,00344598~~
~~19~~

0,894004
5769
0,899773
1,798546

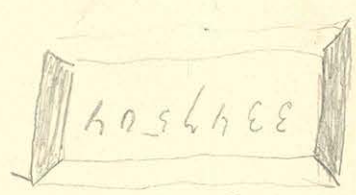
0,00337144
0,07818160
0,01033776
0,09189080
1,7998546
1,7079538

1,798346
078182
3371
1,879899
1,0338
1,869561

1,798346
091891
1,706455

$$\frac{1}{(14+36)\sqrt{14}}\left(-3+2\frac{225}{14+36}+\frac{1}{14}\right)$$

$$\frac{2}{(26+14\sqrt{14})\sqrt{26}}\left[-3+2\frac{729}{170}+\frac{1}{26}\right]$$



$$\frac{\sqrt{14}\left(\frac{1}{5}-\frac{1}{\sqrt{26}\cdot 14}\right)}{3}$$

$S_1^2 = 14$

$S_2^2 = 26$

1,783321

1,772433
1,877612

$\lg\sqrt{21} = 0,2$
$\sqrt{21} = 4,582575$
$\sqrt{14}$

21000039

~~$\frac{x}{\sqrt{xz}}$~~ $\frac{x}{x^2+z^2} - \frac{x}{(y+s)s}$

~~xzy~~ $x\left(\frac{ys+s^2-x^2+z^2}{(y+s)s(x^2+z^2)}\right)$ $\frac{y(\cancel{y+y})}{s(x^2+z^2}$

$\frac{1}{5}\left(\frac{4}{\sqrt{21}} + \frac{2}{3}\right)$

0,87287174
66666667
1,53953841
0,30790768
124878
−0,183029

8728717

$\frac{20}{8}$

2,5

0,397940
0,198970

$-\frac{2ab}{(b^2+c^2)\sqrt{a^2+b^2+c^2}}$

0,20000000
0,07692308
0,12307692

0,80

0,602060
0,746835
0,855125 −1
198970
0,054195
0,729959 −2
362216
~~0,096488~~ −1
0,096175

0,150515

$\frac{3}{\sqrt{14}}\left(-\frac{1}{5} + \frac{1}{13}\right)$

−0,8017832 : 0,12307692

0,09868101
0,19736202

0,30790768
1247885
1831192

$\sqrt{17} = 4,123105$
0,6152245

53,600365
−0,11192952

$\frac{3}{13}\left(\frac{2}{\sqrt{17}}\right.$

0,879509
0,852669
0,967240 −1
150515
0,117755

0,070980 −1
362216
0,433196

0,271241
111935
0,159202

$\frac{3+\sqrt{13}}{3+\sqrt{17}}$

0,5569715

$\sqrt{13} = 3,605550$

600203
172992
1778195

6565403
43817
7003360

2 ördök

6,07142857

187,0830 0,0032453128

$0,02038825 = \alpha_4 + 2\alpha_8$

$0,02065659 = \alpha_4 + 8\alpha_8$

$6\alpha_8 = 0,00026834$

$0,00004472.$

$\alpha_8 = 0,00004472.$

$\alpha_4 = 0,02029881$

$\alpha_6 = 0,00096954$

$\alpha_2 = 0,896913$

$816,965880 = 0,870735$

0,02038825
8944
0,02029881

$\frac{1}{550} \Rightarrow \begin{cases} 1,793826 \\ 1788518 \end{cases}$

$-0,894004 = \alpha_2 + 3\alpha_6$

$-0,870735 = \alpha_2 + 27\alpha_6$

$-0,023269 = 24\alpha_6$

$24 \mid 0,023269 \mid = 0,00096954.$

216
166
144
229
216
130
100

$\frac{1}{10}$ $= 1,693112$
16737

0,894004
2909
0,896913

1,793826

$1,391936 = 64 A_4 + 128 A_8$

$1,034604 = 64 A_4 + 512 A_8.$

$0,357032 = -384 A_8$

$A_8 = -0,0009203$

$A_4 = 0,0236101$

$0,557032 - 1$
$2,584301$
$0,968741 - 4.$
$2,107210$
$0,075951 - 1$

$1,391936$
$0,119111$
$1,511047$
$0,179278$
$1,806180$
$0,973098 - 2$

$-6,748796 = 8A_2 + 24A_6$

$-6,400704 = 8A_2 + 216A_6.$

$+0,348092 = 192A_6.$

$A_6 = 0,0018129 8.$

$0,00$

$A_2 =$

$0,541694 - 1$
$2,280301$
$0,258393 - 2$
$1,280241$
$0,638604 - 2$

$f(x+h, y+k) = f(x,y) + h f'(x,y) + k($

$-6,748796$
$0,043512$
$-6,792308$
$0,849038$

$-0,849038$
001813
$0,850851$
$8475 - 2.$

$-1,774295 = 2\alpha_2 - 4\alpha_4$

$-1,600200 = 2\alpha_2 + 4\alpha_4$

$0,174098$
$0,843599$
$1,687200$
$0,086995$
$0,021749.$

167752
$0,836871.$

$$\frac{\alpha_2}{2} + \frac{\alpha_4}{2} + \frac{\alpha_6}{6} + \frac{\alpha_{10}}{10}$$

$$0{,}423230 - 0{,}011061 - 0{,}000170 + 0{,}000004$$

$$0{,}000000 + 0{,}000100 + 0{,}001996 - 0{,}006120 - 0{,}088488 - 0{,}026961$$

$$\frac{\lambda^2}{6}\,\alpha_2 \cdot \alpha_7 = 0{,}015786$$

$$\frac{2}{3}\,\mathrm{tg}\left[\quad\right] = 4\left[\frac{1}{\Gamma(13\cdot 9} - \frac{1}{\Gamma(13}\right] = 0{,}048600$$

$$\left/\frac{a+c}{c_2}\right. + \left/\frac{c-c}{c_2}\right. = 2{,}199807$$

$$\left[\quad\right] = 2{,}087969$$

$$\left/\frac{6}{c-c}\right. + \left/\frac{6}{a+c_2}\right. = 0{,}312768$$

0,215295
140722
0,356117

0,964179 -2
517252
0,281431 -1

0,458946

~~0,278578~~
0,278759
7905-08
0,169867

0,593716
0,310417 -2
0,904133 -2

0,346605 -1
593716
0,940321

0,776622 -1
1725 ms
0,090884

0,7905-08 -1
1- cc4cc5'0
1- 1824c'0
0,140722
1- c19'cb'0
-scc2c5'0

gyakran

2,270475 - 1,476614
0,191175
0,080192
~~0,016092~~
0,146262
~~3,457934~~ 3,004444
~~1,476614~~ 1,476614
~~1,980919~~ 1,527489
1,527830
- 1,232775

0,871608
0,211000
0,373528
0,453490

0,090881
0,965615
0,184070
0,649685

1,190926
1,232775
0,957151

1,411513
1,259024
0,152489
0,576245

0,829452

305

1,527820

8110084
4054984

0,5-82840 -1
830500
0,413340 -1

5-10 = 5

9,-25-1 -1

2,68894

0,65-75-2
1,815-06y
20,65685-
y
13,7y263
8,91y22

0,65-5-7
1,285-111
17,828y2
y7
12,17y56
y,91y22

0,48-2y6
0,990y92
9,9y515
8-79
9,25-73y
8,91y22

0,14-2c5'0
1- 1824c'0
1- cc4cc5'0
1- 8-5-06'0
0,7905-08
1- 1824c'0
1- cc4cc5'0
-scc2c5'0

$$\frac{1}{6}\left(8\alpha_2 + 64\alpha_4 + 216\alpha_6 + 512\alpha_8 + 1000\alpha_{10} + 1728\alpha_{12} + 2744\alpha_{14}\right)$$

$$\alpha_6 = -0,0009829$$

$$\alpha_2 = 0,8465482$$

$$\alpha_4 = -0,021660$$

$$\alpha_8 = -0,0000445$$

$$2\alpha_6 = -0,0019658$$

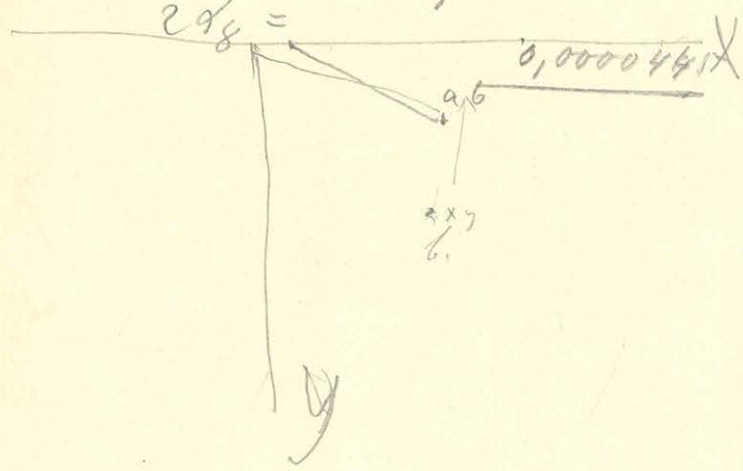
$$8\alpha_4 + 16\alpha_8 = -0,173992$$

$$\alpha_4 + 2\alpha_8 = 0,021749$$

$$8\alpha_4 + 16\alpha_8 = -0{,}173992$$

$$\alpha_4 + 2\alpha_8 = -0{,}021749$$

$$2\alpha_8 = -0{,}000089$$



$$+\frac{(b-y)(a-\alpha)}{\left((a-x)^2+(b-y)^2+z^2\right)^{\frac{1}{2}}}+\frac{(a-x)\,b}{\left((a-x)^2+(b-y)^2+z^2\right)^{\frac{1}{2}}}$$

$$+\frac{\alpha(b-y)}{\left(\quad\right)^{\frac{1}{2}}}+$$

$$\sin\varphi = y \qquad \frac{18\sqrt{2}}{35-3} \qquad \sin\varphi = x$$

$$+\frac{(b-y)}{\left((a-x_{max})^2+(b-y)^2+z^2\right)^{\frac{1}{2}}}+\frac{(b-y)(a-\alpha)}{(b-y_{max})(a-\alpha)}$$

$$330$$

$$\frac{\alpha_2}{2}+\frac{\alpha_4}{4}-\frac{\alpha_6}{6}+\frac{\alpha_8}{8}-\frac{\alpha_{10}}{10}+\frac{\alpha_{12}}{12}-\frac{\alpha_{14}}{14}$$

$$\frac{\alpha_1}{1}+\frac{\alpha_3}{3}+\frac{\alpha_5}{5}+\frac{\alpha_7}{7}+\frac{\alpha_9}{9}+\frac{\alpha_{11}}{11}+\frac{\alpha_{13}}{13}+\frac{\alpha_{15}}{15}$$

$$\frac{\alpha_1}{1}+\frac{\alpha_2}{2}+\frac{\alpha_3}{3}+\frac{\alpha_4}{4}+\frac{\alpha_5}{5}+\frac{\alpha_6}{6}+\frac{\alpha_7}{7}+\frac{\alpha_8}{8}+\frac{\alpha_9}{9}+\frac{\alpha_{10}}{10}+\frac{\alpha_{11}}{11}+\frac{\alpha_{12}}{12}+\frac{\alpha_{13}}{13}+\frac{\alpha_{14}}{14}+\frac{\alpha_{15}}{15}$$

$$\frac{\alpha_1}{1}+\frac{\alpha_2}{2}+\frac{\alpha_3}{3}+\frac{\alpha_4}{4}+\frac{\alpha_5}{5}+\frac{\alpha_6}{6}+\frac{\alpha_7}{7}+\frac{\alpha_8}{8}+\frac{\alpha_9}{9}+\frac{\alpha_{10}}{10}+\frac{\alpha_{11}}{11}+\frac{\alpha_{12}}{12}+\frac{\alpha_{13}}{13}+\frac{\alpha_{14}}{14}+\frac{\alpha_{15}}{15}$$

$$\frac{\alpha_1}{1}+\frac{\alpha_2}{2}+\frac{\alpha_3}{3}+\frac{\alpha_4}{4}+\frac{\alpha_5}{5}+\frac{\alpha_6}{6}+\frac{\alpha_7}{7}+\frac{\alpha_8}{8}+\frac{\alpha_9}{9}+\frac{\alpha_{10}}{10}+\frac{\alpha_{11}}{11}+\frac{\alpha_{12}}{12}+\frac{\alpha_{13}}{13}+\frac{\alpha_{14}}{14}+\frac{\alpha_{15}}{15}$$

$$\frac{\alpha_1}{1}+\frac{\alpha_2}{2}+\frac{\alpha_3}{3}+\frac{\alpha_4}{4}+\frac{\alpha_5}{5}+\frac{\alpha_6}{6}+\frac{\alpha_7}{7}+\frac{\alpha_8}{8}+\frac{\alpha_9}{9}+\frac{\alpha_{10}}{10}+\frac{\alpha_{11}}{11}+\frac{\alpha_{12}}{12}+\frac{\alpha_{13}}{13}+\frac{\alpha_{14}}{14}+\frac{\alpha_{15}}{15}$$

$$+\ 2{,}49\,\overline{4}\,\overline{4}\,520 \qquad -\ 0{,}232129\,\overline{6}$$
$$0{,}319\,\overline{1}\,26\,8$$
$$+\ 0{,}228\,\overline{4}\,\overline{4}\,10$$
$$1{,}\overline{0}\overline{0}8\,\overline{4}\,58\,0$$
$$+\ \overline{4}{,}0504\,\overline{7}\,\overline{7}8 \qquad \overline{4{,}29\,\overline{6}5\overline{7}36}$$
$$\overline{232\,1\,24\,\overline{6}}$$
$$+\ 3{,}818\,3\,\overline{4}\,82 \qquad \overline{4{,}\overline{4}\,6\,\overline{2}\,1\,69} \qquad 30\,\overline{7}\,9\,52\,16$$

$$+\ 0{,}899\,10\,\overline{66} \qquad -\ \text{卷}\ 1{,}022\,01\,28$$
$$\overline{0{,}10\,8\,\overline{8}\,\overline{4}\,85}$$
$$0{,}\overline{1}\,\overline{7}\,90\,\overline{4}\,92$$
$$0{,}0\,10\,8\,\overline{8}\,\overline{4}\,9$$
$$1\,73\,9\,5\,\overline{4}\,8$$
$$\overline{1{,}\overline{2}\,5\,\overline{4}\,3\,\overline{4}\,\overline{4}} \qquad 1{,}\overline{4}\,\overline{6}\,12\,16\,9 \qquad 0{,}5\,0\,\overline{4}\,22\,9$$
$$1{,}02\,20\,12\,8 \qquad 0{,}21\,\overline{4}\,6\,93\,17$$
$$0{,}2\,32\,38\,21 \qquad \overline{1{,}\overline{2}\,\overline{4}\,6\,\overline{5}\,23\,7} \qquad 1\,\overline{2}\,0\,\overline{8}\,\overline{4}\,\overline{5}\,2$$
$$0{,}\overline{6}\,23\,26\,19$$

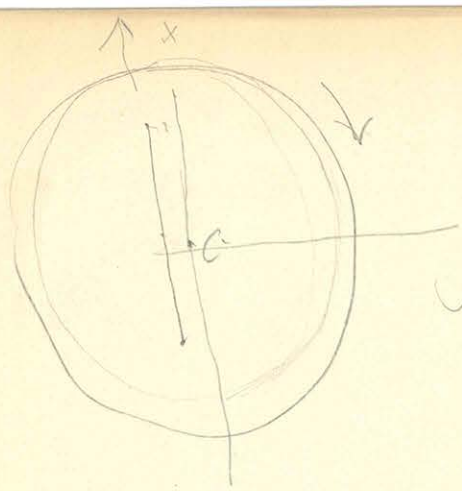
$$\overline{\overline{4}{,}\overline{1}\,\overline{4}\,3\,\overline{8}\,\overline{6}\,3} \qquad 0{,}\overline{2}\,\overline{6}\,\overline{5}\,\overline{7}\,9\,\overline{6}\,7 \qquad 0{,}\overline{2}\,\overline{6}\,\overline{5}\,\overline{7}\,9\,\overline{6}\,7$$
$$\overline{\overline{5}\,\overline{7}\,6\,2\,\overline{4}\,\overline{5}} \qquad 0{,}\overline{2}\,\overline{6}\,\overline{5}\,\overline{7}\,9\,\overline{6}\,7$$
$$\overline{\overline{4}\,\overline{7}\,0\,\overline{1}\,\overline{7}} \qquad 0{,}\overline{2}\,\overline{6}\,\overline{5}\,\overline{7}\,9\,\overline{6}\,7$$
$$0{,}\overline{0}\,\overline{0}\,\overline{1}\,\overline{6} \qquad \overline{1}\,\overline{7}\,\overline{9}\,\overline{5}\,\overline{4} \qquad 0{,}\overline{2}\,\overline{6}\,\overline{5}\,\overline{7}\,9\,\overline{6}\,7$$
$$0{,}\overline{0}\,\overline{2}\,\overline{3}\,\overline{5}\,\overline{0}\,\overline{8} \qquad 0{,}\overline{0}\,\overline{8}\,\overline{6}\,\overline{9}\,\overline{7}\,\overline{7} \qquad 0{,}\overline{2}\,\overline{6}\,\overline{5}\,\overline{7}\,9\,\overline{6}\,7$$
$$\overline{\overline{1}\,\overline{7}\,\overline{3}\,\overline{9}\,\overline{4}} \qquad 0{,}\overline{2}\,\overline{6}\,\overline{5}\,\overline{7}\,9\,\overline{6}\,7$$
$$\overline{\overline{8}\,\overline{6}\,\overline{9}\,\overline{7}} \qquad 0{,}\overline{2}\,\overline{6}\,\overline{5}\,\overline{7}\,9\,\overline{6}\,7$$

11,442544
2,701314
15,143858
1914
1,282000.

11,442544
5794
11,448338
1544
1,188882

6,850348
3,701314
10,551662
1455
1,162913

6,850348
5794
6,856142
1085
1,035676.



$$\frac{l(\cancel{\alpha-\alpha})(y-b)}{\left((x-a)^2+(y-b)^2+z^2\right)^{\frac{3}{2}}}$$

$$\frac{l(y-\beta)}{\left((x-l-\alpha)^2+(y-\beta)^2+z^2\right)^{\frac{3}{2}}}$$

$N =$

$$\frac{l(y-\beta)}{\left((x-l-\alpha)^2+(y-\beta)^2+z^2\right)^{\frac{3}{2}}} = \frac{ly}{\left((x-l)^2+y^2+z^2\right)^{\frac{3}{2}}} - l\beta\left[\frac{1}{N_0^{\frac{3}{2}}}\right] + 3\left[\frac{ly^2}{N^{\frac{5}{2}}}\right]\beta$$

$$+ 3\,\frac{ly\times\alpha_1}{N^{\frac{5}{2}}}$$

$$\frac{\sin^2\varphi}{(a+b\cos\varphi)^{\frac{5}{2}}}$$

$$\frac{\sin\varphi\cos\varphi}{(a+b\cos\varphi)^{\frac{5}{2}}}$$

$\sqrt{2,00000000} = 1,41421356\ldots$ 1505150

1

100 : 24
96

400 : 281
281

11900 : 2824
11296

~~0772~~

60400 : 28282
56564

383600 : 282841
282841

10075900 : 2828423
~~8485269~~

1590631000 : 28284265
1414213225

176418775,00 : 282842706
169705636

6721126400 : 282842712

1,92388 7612

7612 2617317

675325

3382683 ~~338~~

2617317

92388

$$\frac{1}{z} - \frac{1}{z}$$

$$S_1 =$$

$$\text{dyn} \quad - \frac{4\pi c}{3}\left[\frac{1}{S_1} \right] = \frac{2}{3}\left[\frac{1}{3,5^{r}} - \frac{1}{\sqrt{\varepsilon_1}\,(17}\right]$$

$$\text{dyn} \quad = -2\left[\frac{1}{\sqrt{13 \cdot 9}} - \frac{1}{\sqrt{17 \cdot (13}}\right]$$

$$\frac{8\pi\, y\, 3\, 5^{-4}}{3^{-}\, \varepsilon\, 9} \qquad \frac{8\, \varepsilon\, 8\, y\, 6}{}$$

$$9,10\,76\,12\,806 \qquad 0,03^{r}\,8\,8\,7\cdot$$

$$\frac{\text{opp}\,6\,\varepsilon\,\varepsilon\,\varepsilon\,\varepsilon\,\varepsilon\,\varepsilon\,6}{1,8\,3\,6\,0\,2\,\varepsilon\,5} \qquad \overline{\qquad}$$

$$\frac{9,0\,8\,3\,8\,3\,0\,6\,y\,0\,3}{}$$

$$\text{Ek}_1 \; 9,\varepsilon\,\varepsilon\,y\,1\,2\,0 \qquad V\varepsilon_1 = y,5^{-}\,8\,2\,6\,y - \qquad 77,9\,0\,5^{-}\,7\,2$$

$$\text{Ek}_2 \; 0,1\,5^{-}\,6\,4\,7\,2\cdot \qquad V\varepsilon_2 = 3,6\,0\,5^{-}\,5^{-}\,6 \qquad 0,0\,1$$

$$\text{Ek}_3 \; 9,6\,\text{m}\,5\,2\,2\,5^{-} \qquad \eta_7 = y,1\,2\,3\,1\,1 \qquad \overline{\qquad}$$

$$5^{-}\,3,6\,0\,0\,y\,2$$

$$32,y\,5^{-}\,0\,2\,y \qquad 0,0\,3\,0\,y\,1\,6\,6\,0\,2$$

$$1\,8\,6\,5^{-}\,6\,5^{-}\,7$$

$$\overline{0,0\,1\,2\,1\,6\,6\,6\,3}$$

$$0,0\,2\,y\,3\,2$$

$$1,3\,0\,3\,73$$

$$\overline{1,3\,2\,8\,0\,5^{-}}$$

a, 0,09 + b 0,09 + c 0,09 = 0,05999193

b. 0,0819 + c . 0,089261 = − 0,000923

b. 0,2304 + c 0,377856 = − 0,000022

0,01886976 b + 0,02056573 c = − 0,00021266

0,01886976 b + 0,03094641 c = 0,00000180

0,01038068 c = + 0,00021086
7.

666577
22408
0,699985
20312
0,679672

c = 0,0203127.

b = − 0,0334078

a = 0,679672

0,001813132
923
0,0027361

~~+ 0,069~~

0,
+ 0,06117048
− 00002706
0,06114342
00001470
0,06115815

+ 0,4349901
− 0,0138858
0,4211043
+ 0053249
0,426429

+ 0,06117048
0002706
0,06089988
0000147
0,06090135

[illegible]

a. 0,090000 + b. 0,090000 + c. 0,090000 = 0,05999193
0, 0,09 + b. 0,0081 + c, 0,000729 = 0,060915

b. 0,081900 + c 0,089271 = 0,00092307

a. 0,640000 + b. 0,640000 + c. 0,6400000 = 0,42660928
a. 0,640000 b, 0,409600 c. 0,2621440 = 0,42663100

b. 0,230400 + c. 0,3778560 = − 0,00002172

b. 0,01886976 + c 0,02056804 = − 0,000212675
+ c 0,00309464 0 = − 0,000001779

—

c 0,01037836 = + 0,000210896

c = + 0,0203206

~~0,66657700~~
~~273711~~
~~0,669314 11~~
0

0,66657700
3342014
~~215686~~
0,6999971*
203206
0,6796765

+ 0,06117093
− 00027070
0,06090023
00001481
0,0609150

~~0,00318 7263~~

0,001814040
00092307
~~b =~~ 0,00273711

b = − 0,03342014

a = 0,6796765

+ 0,4349933
136888
0,4213045
53269
0,4266314

+ 0,4349933
− 0,0144889
+ 0,4205044
0053269
0,425831

$$f = ax^5 + bx^4 + cx^3 + \dots \qquad \frac{df}{dx} = 5ax^4 + 4bx^3 + 3cx^2 + \dots$$

$$\left(\frac{df}{dx}\right)_0 = \frac{dy}{dx} = \frac{dy}{dt} : \frac{dx}{dt}$$

$$\frac{dy}{dx} = \frac{dy}{dt} \cdot \frac{dt}{dx}$$

$$\frac{dy}{dx} = \frac{dy}{dz} \cdot \frac{dz}{dx}$$

$$\frac{dy}{dx} = \frac{dy}{dz} \cdot \frac{dz}{dt} \cdot \frac{dt}{dx}$$

$$\frac{dy}{dx} = \frac{dy}{dz} \cdot \frac{dz}{dt} \cdot \frac{dt}{du} \cdot \frac{du}{dx}$$

$$\frac{dy}{dx} = \frac{dy}{dz} \cdot \frac{dz}{dt} \cdot \frac{dt}{du} \cdot \frac{du}{dv} \cdot \frac{dv}{dx}$$

$$\frac{dy}{dx} = \frac{dy}{dz} \cdot \frac{dz}{dt} \cdot \frac{dt}{du} \cdot \frac{du}{dv} \cdot \frac{dv}{dw} \cdot \frac{dw}{dx}$$

$$\frac{dy}{dx} = \frac{dy}{dz} \cdot \frac{dz}{dt} \cdot \frac{dt}{du} \cdot \frac{du}{dv} \cdot \frac{dv}{dw} \cdot \frac{dw}{dx} \cdot \frac{dx}{dx}$$

$$\frac{dy}{dx} = \frac{dy}{dz} \cdot \frac{dz}{dt} \cdot \frac{dt}{du} \cdot \frac{du}{dv} \cdot \frac{dv}{dw} \cdot \frac{dw}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx}$$

$$\frac{dy}{dx} = \frac{dy}{dz} \cdot \frac{dz}{dt} \cdot \frac{dt}{du} \cdot \frac{du}{dv} \cdot \frac{dv}{dw} \cdot \frac{dw}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx}$$

$$\frac{dy}{dx} = \frac{dy}{dz} \cdot \frac{dz}{dt} \cdot \frac{dt}{du} \cdot \frac{du}{dv} \cdot \frac{dv}{dw} \cdot \frac{dw}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx}$$

$$\frac{dy}{dx} = \frac{dy}{dz} \cdot \frac{dz}{dt} \cdot \frac{dt}{du} \cdot \frac{du}{dv} \cdot \frac{dv}{dw} \cdot \frac{dw}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx}$$

$$\frac{dy}{dx} = \frac{dy}{dz} \cdot \frac{dz}{dt} \cdot \frac{dt}{du} \cdot \frac{du}{dv} \cdot \frac{dv}{dw} \cdot \frac{dw}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx}$$

$$\frac{dy}{dx} = \frac{dy}{dz} \cdot \frac{dz}{dt} \cdot \frac{dt}{du} \cdot \frac{du}{dv} \cdot \frac{dv}{dw} \cdot \frac{dw}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx}$$

$$\frac{dy}{dx} = \frac{dy}{dz} \cdot \frac{dz}{dt} \cdot \frac{dt}{du} \cdot \frac{du}{dv} \cdot \frac{dv}{dw} \cdot \frac{dw}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx}$$

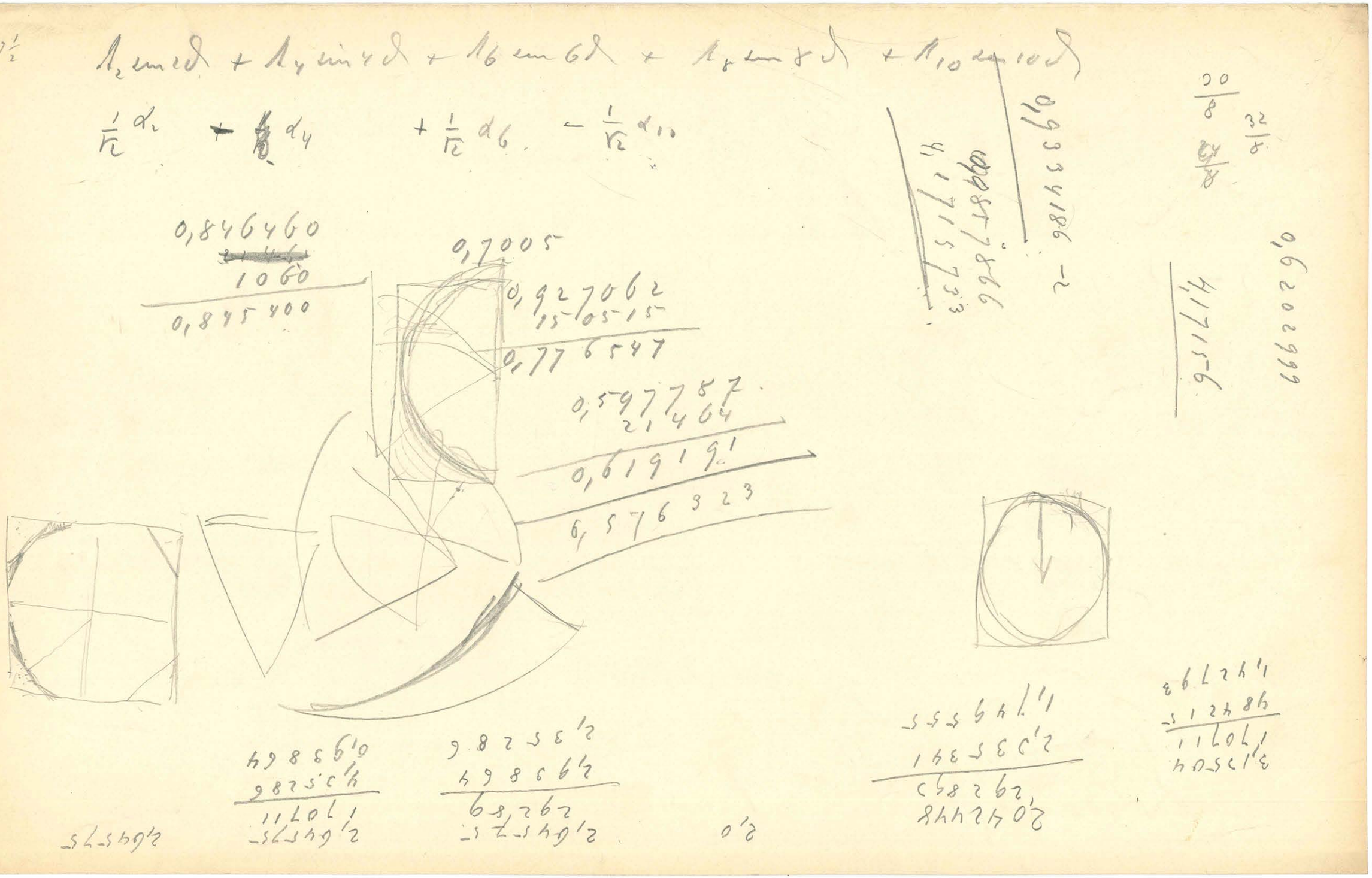
$$\frac{dy}{dx} = \frac{dy}{dz} \cdot \frac{dz}{dt} \cdot \frac{dt}{du} \cdot \frac{du}{dv} \cdot \frac{dv}{dw} \cdot \frac{dw}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx}$$

$$\frac{dy}{dx} = \frac{dy}{dz} \cdot \frac{dz}{dt} \cdot \frac{dt}{du} \cdot \frac{du}{dv} \cdot \frac{dv}{dw} \cdot \frac{dw}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx}$$

$$\frac{dy}{dx} = \frac{dy}{dz} \cdot \frac{dz}{dt} \cdot \frac{dt}{du} \cdot \frac{du}{dv} \cdot \frac{dv}{dw} \cdot \frac{dw}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx} \cdot \frac{dx}{dx}$$

$\frac{1}{2}$ $A_2 \cos\alpha + A_4 \sin 4\alpha + A_6 \cos 6\alpha + A_8 \cos 8\alpha + A_{10} \cos 10\alpha$

$\frac{1}{12} a_2 + \frac{1}{12} a_4 + \frac{1}{12} a_6 - \frac{1}{12} a_{10}$



$$\frac{8\,\nu\,\acute{e}\nu\,\acute{o}o}{0,8\,3\,6\,8\,7\,6}$$

$$\frac{0,0\,0\,9\,\overline{5}\,9\,\chi}{}$$

$$\frac{\delta}{16}\quad\frac{3}{8}\qquad\qquad 3\cdot\delta\,\delta$$

$$0,8\,3\,\delta\,\delta\,7\,6\,\left(1+\lambda^2\,0,0\,0\,9\,\overline{5}\,9\,1\right)-\lambda^2\,0,0\,2\,1\,2\,2\,\lambda_m\,\nu\beta-\lambda^4\,0,0\,\overline{0}\,7\,0\,0\,2\,0\,\lambda_m\,\delta\beta$$

$$2\cdot 0,8\,3\,\delta\,\delta\,7\,2\,\delta\,(1$$

$$\text{Anya:}\qquad 1,\delta\,\overline{5}\,7\,2\,\overline{5}\,2\,(1+0,0\,0\,0\,2\,3\,9\,8)-0,0\,2\,2\,1\,2\,2\;-0,0\,0\,0\,3\,8\,3=1,\delta\,\overline{5}\,2\,\delta\,1$$

$$\underline{1,\delta\,7\,7\,7\,\delta\,\delta}$$

$$\text{Anya:}\qquad 1,\delta\,7\,7\,7\,\delta\,\delta\qquad +0,0\,2\,2\,1\,2\,2\;-0,0\,\overline{0}\,\overline{0}\,7\,2\,3\,)\;=1,\delta\,9\,9\,\overline{5}\,0\,\overline{5}-$$

$$\frac{\partial f}{\partial p}=-\gamma/\sigma\cdot\rho^2\left\{2\alpha_2\,\omega\tau^2\beta+4\alpha_4\,\omega\,\gamma\beta+6\,\alpha_6\,\omega\,\delta\beta+8\alpha_8\,\omega\,\varepsilon\beta+10\,\alpha_{10}\,\omega\,\iota\omega\beta\right)$$

$$\text{Anya:}\quad -\gamma/\sigma\cdot\delta\,\iota^2\left\{2\alpha_2\;+4\alpha_4\;\;+6\,\alpha_6\;\;+8\alpha_8\;\;+10\,\alpha_{10}\right.$$

$$-\alpha_2\qquad+\gamma\alpha_4\qquad-6\,\alpha_6\qquad+8\alpha_8\qquad-10\,\alpha_{10}$$

$$+\tfrac{1}{6}8\alpha_2\qquad-\tfrac{1}{6}6\gamma\alpha_4\qquad+\tfrac{1}{6}2\,\delta\,\alpha_6\qquad-\tfrac{1}{6}\overline{\gamma\gamma}\,\alpha_8\qquad+\tfrac{1}{6}\overline{1}\,0\,0\,0\,\alpha_{10}$$

$$\text{Anya:}\quad -\gamma/\sigma\cdot\rho^2\left\{-\alpha_2\,\omega\tau^2\varphi+\alpha_4\,\omega\,\tau^4\varphi-\alpha_6\,\omega\,\delta^6\varphi+\alpha_8\,\omega\,\overline{\tau}^8\varphi-\alpha_{10}\,\omega\,\overline{1}\,0^{10}\varphi\right.$$

$$-\alpha_2\qquad+\gamma\alpha_4\qquad-6\,\alpha_6\qquad+8\alpha_8\qquad-10^{10}\alpha_{10}$$

$$-\tfrac{1}{6}\,\overline{1}\,8\,\alpha_2\qquad-\tfrac{1}{6}\,6\,\gamma\,\alpha_4\qquad+\tfrac{1}{6}\,2\,1\,8\,\alpha_6\qquad-\tfrac{1}{6}\,\overline{\gamma\gamma}\,\alpha_8\qquad+\tfrac{1}{6}\,\overline{1}\,0\,0\,0\,\alpha_{10}$$

$$-1,2\,8\,6\,\overline{1}\,3\qquad+0,2\,3\,\overline{1}\,9\,6\,\overline{9}\,9\qquad+0,0\,3\,7\,0\,6\,\overline{6}\qquad-0,0\,\overline{1}\,5\,9\,\overline{5}\,7\qquad-0,0\,0\,6\,6\,6\,\overline{7}$$

$$\text{Anya:}\quad \frac{\partial\,\overline{f}}{\partial\,\varphi}\Big)_{\overline{r}}=-\gamma/\sigma\cdot\iota^2\left\{-\alpha_2\,\omega\,\iota^2\varphi+\alpha_4\,\omega\,\overline{\gamma}^4\varphi-\alpha_6\,\omega\,\delta^6\varphi+\alpha_8\,\omega\,\overline{\tau}^8\varphi-\alpha_{10}\,\omega\,\overline{1}\,0^{10}\varphi\right.$$

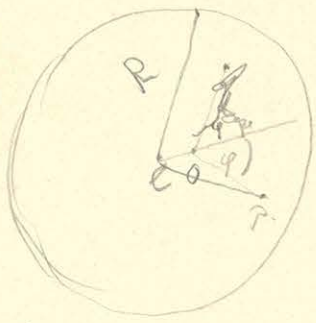
$$-\alpha_2\qquad+\gamma\alpha_4\qquad-6\,\alpha_6\qquad+8\alpha_8\qquad-10^{10}\alpha_{10}$$

$$+\tfrac{1}{6}8\alpha_2\qquad-\tfrac{1}{6}6\gamma\alpha_4\qquad+\tfrac{1}{6}2\,\delta\,\alpha_6\qquad-\tfrac{1}{6}\overline{\gamma\gamma}\,\alpha_8\qquad+\tfrac{1}{6}\overline{1}\,0\,0\,0\,\alpha_{10}$$

$$\text{Anya:}\quad \frac{\partial\,\overline{f}}{\partial\,\rho}\Big)_{\delta}=-\gamma/\sigma\cdot\iota^2\,\gamma,\delta\,0\,0\,2\,0\,\delta\,\rho$$

$$\text{Anya:}\quad \frac{\partial\,\overline{f}}{\partial\,\gamma}\Big)_{\overline{r}}=\gamma/\sigma\cdot\rho^2\,\overline{\gamma\gamma}\,\gamma\,\delta\,2\,\rho$$

Körlap felett excentrikusan fekvő vékony egyenes körvezető feletti fekvő mozgásának ...



C a körlap középpontja.
O a fekvő középpontja.
φ a körív i sugara. CO-tól mérve

$CP = x \qquad \underline{CO = \varepsilon}$

$x^2 = \varepsilon^2 + l^2 + 2l\varepsilon\cos\varphi$

Fekvőre ható $\frac{\partial V}{\partial \varphi} = \frac{\partial U}{\partial \varphi}$.

Tömegsűrűség σ = felületi sűrűség.

$$V = -2\pi\sigma z + 2\sigma\left\{\sqrt{(R+x)^2+z^2}\left[F_1'(k,\tfrac{\pi}{2}) - \frac{x^2-R^2}{\sqrt{(R+x)^2+z^2}}F(k,\tfrac{\pi}{2})\right] - \frac{(x-R)z^2}{(x+R)\sqrt{(R+x)^2+z^2}}\Pi\left(\lambda,k,\tfrac{1}{2}\pi\right)\right\}$$

$$k^2 = \frac{4Rx}{(R+x)^2+z^2} \qquad \lambda = -\frac{4Rx}{(R+x)^2}$$