<u>Fractal Tone</u> Monochord Octave: to derive tone for musical scales and chords.

(10 points from the 3^rd Degree^ for tone, and 28 points from the 4^th Degree^)

1. **Length of Monochord:** 1 meter (100 cm) in length, this length gives sustancial tone for an "A"110 or "G"98. It also lets you divide and plot points for the string ratios easily into 100 (2/1 = 50, 3/2 = 66.6, 4/3 = 75 and so on). It gives comfort for about three octaves of determining scales with.

2. **Octave:** in this instance is 50 cm, and contains the **"Infinite Complement Ratio Symmetry"** point (between 29.5 and 20.5) to be spoken in depth later. Naturally, half the length of the Monochord yields the Octave (or the distance from 1/1 to 2/1). The Octave is but a blank canvas in which you are to develop a system to draw **tones** from (hopefully not abstract); from these tones you derive scales, and then chords. (Note: shifting the Octave (with a set scale) on ascending and descending 3/2's is an old Chinese method that can be applied when playing)

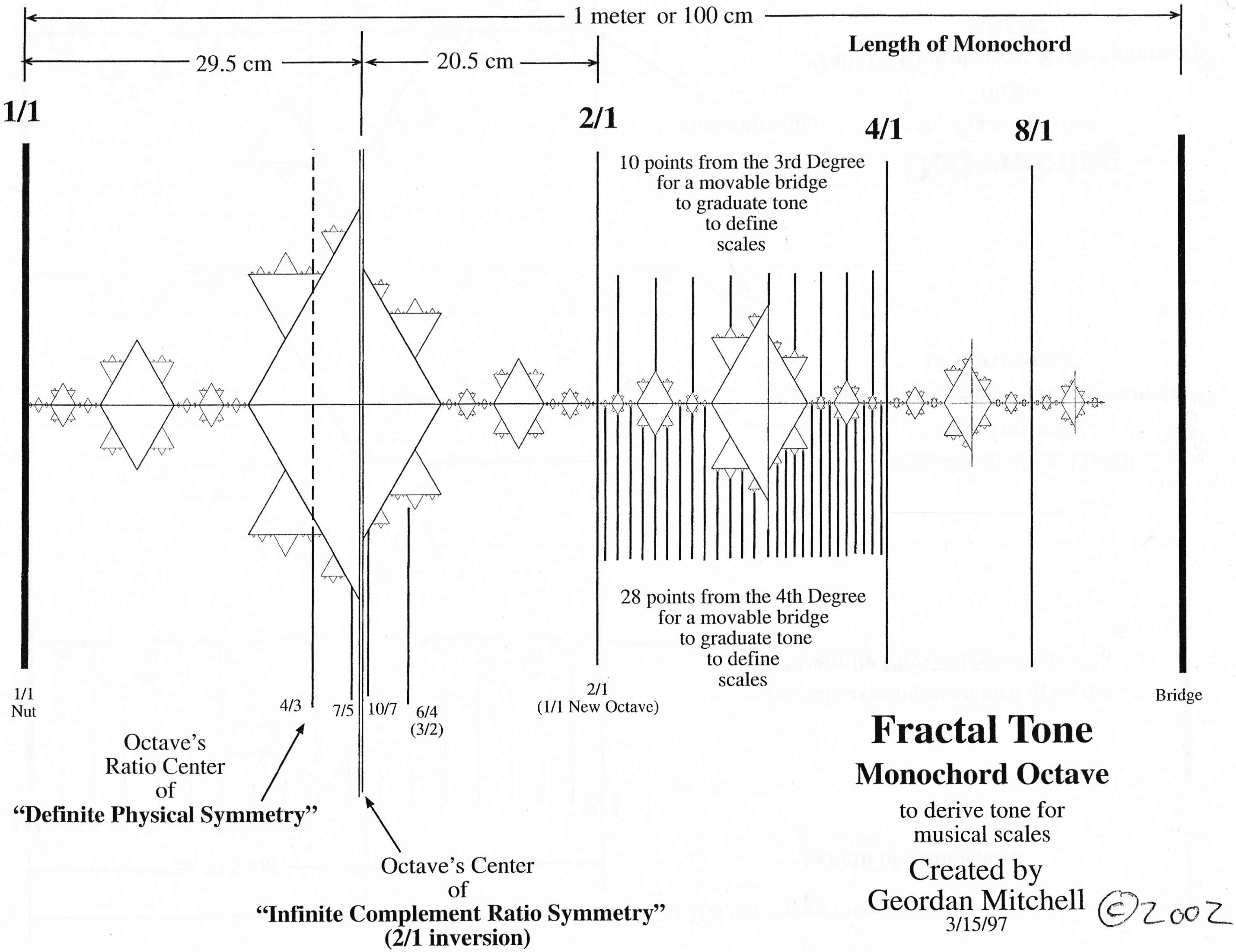
3. **1/1, 2/1, 4/1, 8/1:** this is the nature of the Octave, continually halving the next part of the string. The 1/1 is a determined tone, say "A"110vps (vibrations per second), then 2/1 (point which string is now beating 2 beats to the 1/1's 1 beat) would give you an "A"220vps, 4/1 440vps (4 beats to the 1/1's 1 beat) and so on. (Note: 3/2, point which string has 3beats to 1/1's 2beats, and so like for others)

4. **The Fractal:** is an equilateral triangle created by dividing the Octave into 3 equal lengths, then constructing your first triangle on the **center** length, then dividing the remaining lengths on each side, into 3 again, and then constructing an equilateral triangle (in the center length) amongst those. In doing this 3 times is what is meant by the "third degree", once more is the "4th"(this is the point where visually it is awkward to continue fractal division further, given the length of the monochord, 100cm). **The upward points on the fractal are to graduate the degrees of tone.**

5. **1/1 Nut, 4/3, 7/5, 10/7, 6/4 (3/2), 2/1 (1/1 new Octave), Bridge:** (notice on the drawing that the encroaching octaves never touch the **Bridge**, halving itself downwardly indefinitely). 1/1 is a **tone** that is decided on, I chose "A110" in my examples. Then, the rest of the notes from the points of graduation follow that **tone.** The **Nut** is merely the tensioner gizmo of the string. The remaining ratios are to demonstrate an explanation for the **"Infinite Complement Ratio Symmetry (2/1 Inversion)",** a term of my own. (Note: a monochord is symmetrical in that the Bridge and Nut could be flip flopped)

6. **<u>Octave's Ratio Center</u> of "Definite Physical Symmetry":** this is simply the center point of the octave if it was divided in two. If you measured the distance from 1/1 to 2/1 (50cm), and halved it (25cm), then the 4/3 is this point. (Note: the Fractal <u>is not</u> centered upon this point)

7. **<u>Octave's Center</u> of "Infinite Complement Ratio Symmetry (2/1 Inversion)":** this is the **point** from which the explanation for the word "Complement" in the book "Genesis of a Music" by Harry Partch (page 70) **springs to life from.** Here is the definition; [<u>Complement: that ratio which, added to another ratio (multiplied), makes 2/1; for example, 4/3 is the complement of 3/2: 4/3x3/2=2/1. In conventional terms, the **"inversion"** of an interval - a "perfect fourth" (4/3) is the inversion of a "perfect fifth" (3/2).</u>] To me, this point that exists between any **inversion** ratios should not be thought of as a point, but as an **infinite space** between them (the smaller the space the higher the ratios, the greater the space the lower the ratios). And, from that space working in **opposite directions outwardly.** (Note: the Fractal <u>is</u> centered upon this point)

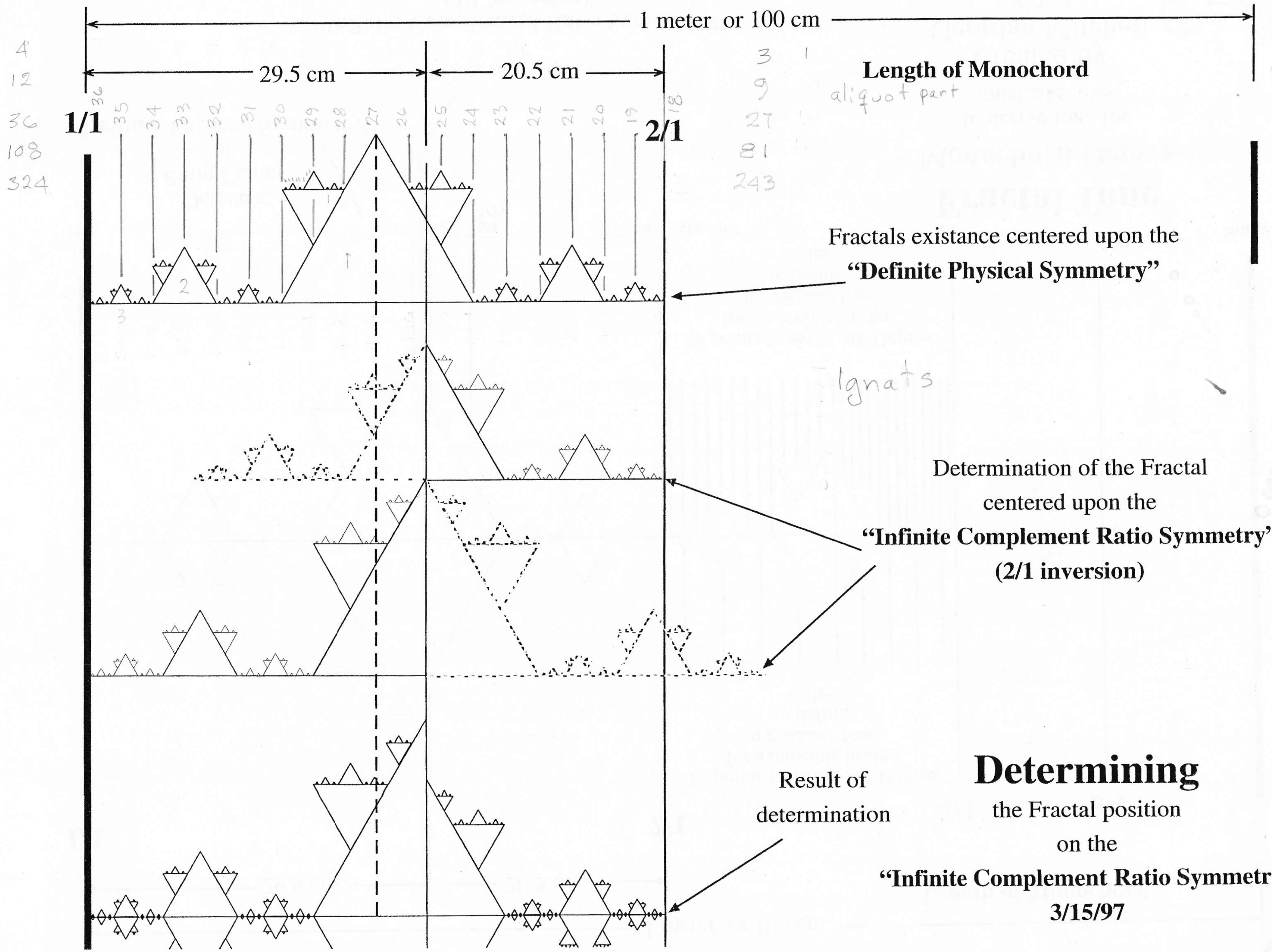


Fractal Tone

Monochord Octave

to derive tone for
musical scales

Created by
Geordan Mitchell ©2002
3/15/97



Length of Monochord

Fractals existance centered upon the **"Definite Physical Symmetry"**

Determination of the Fractal centered upon the **"Infinite Complement Ratio Symmetry"** **(2/1 inversion)**

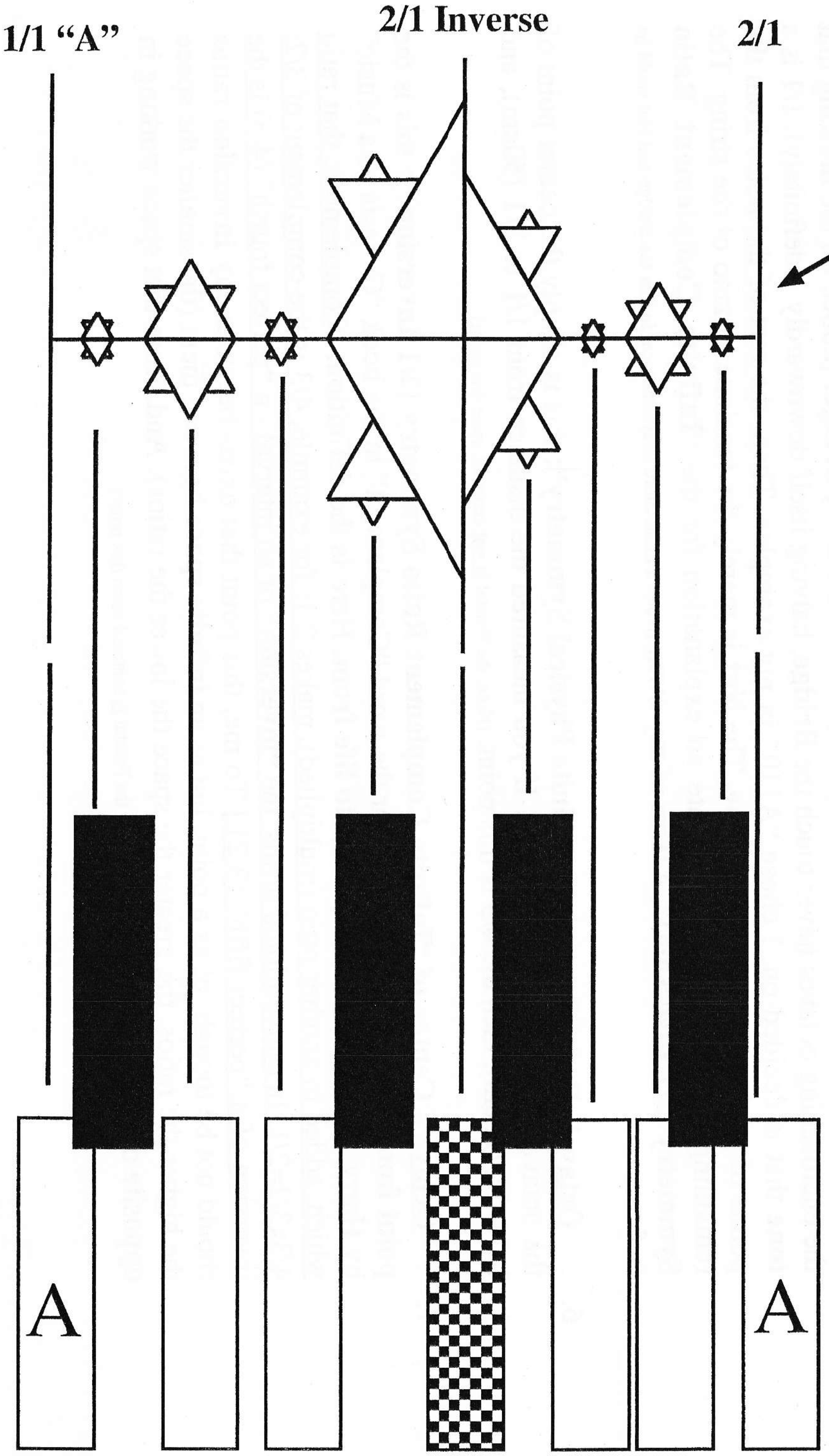
Result of determination

Determining

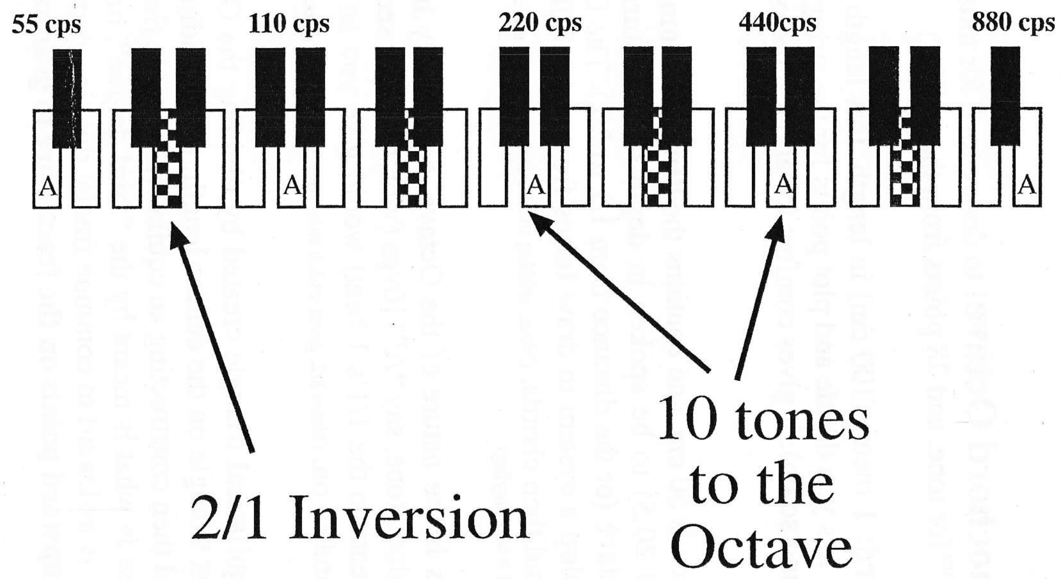
the Fractal position on the

"Infinite Complement Ratio Symmetry"

3/15/97



Determined Fractal



Fractal Octave

KeyBoard Layout in “A”

10 tone from the 3rd degree

9/21/02

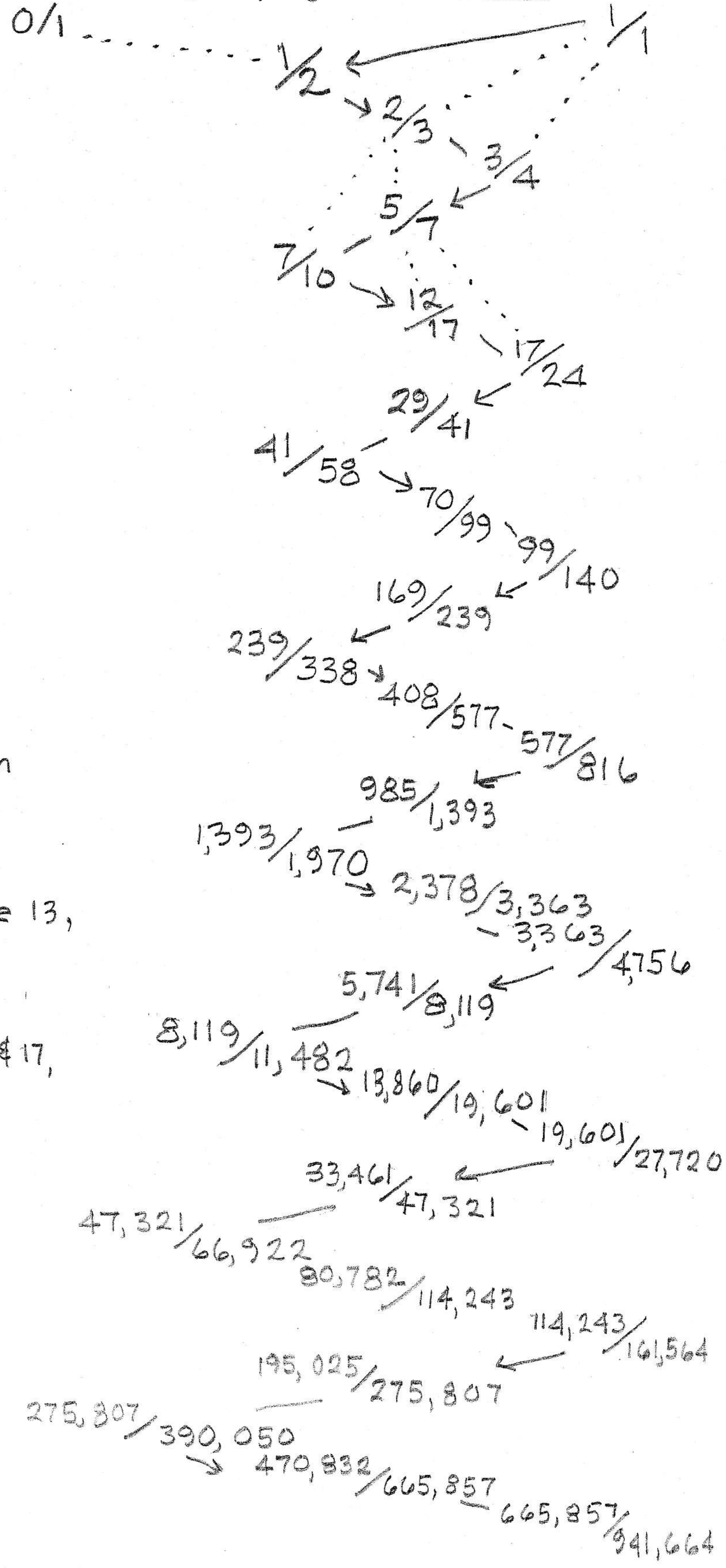
Fig 2. $1/\sqrt{2} = .707106781188 \cdots$

1/x Pattern

		.707106
←	1	.414
→	2	.414
←	2	.414
→	2	.414
←	2	.414
→	2	.414
←	2	.414
→	2	.414
←	2	.414
→	2	.414
←	2	.414

etc

Zig-Zag Pattern

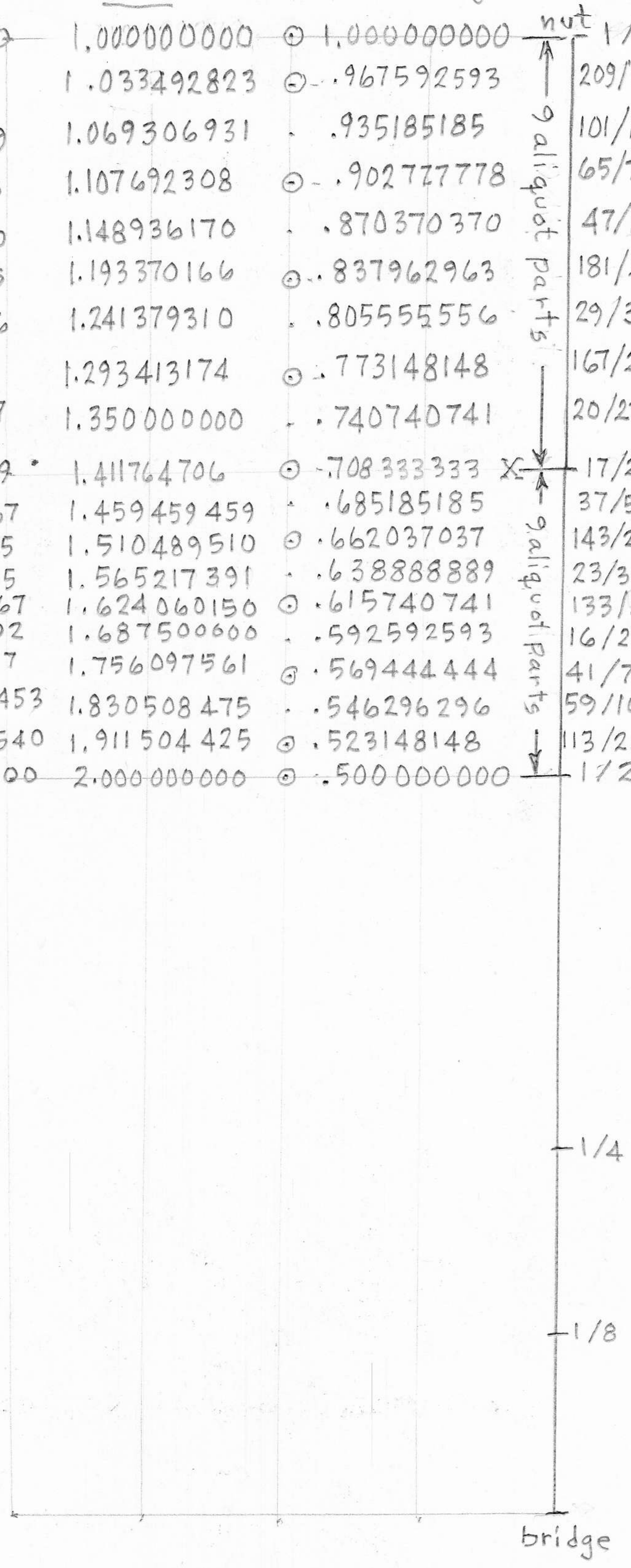


This 2zig-2zag pattern approaches $1/\sqrt{2}$.

also; See "Scale-Tree", page 13, 1994, by Erv Wilson "So-Called Farey Series--- and Lambdoma", pages 16 & 17, 1996, by Ervin M. Wilson

6Oct02. EW

Log₂	Pitch	String Length	Fraction
.000000000	1.000000000	⊙ 1.000000000	1/1
.047528370	1.033492823	⊙ .967592593	209/216
.096676019	1.069306931	.935185185	101/108
.147557188	1.107692308	⊙ .902777778	65/72
.200298650	1.148936170	.870370370	47/54
.255041615	1.193370166	⊙ .837962963	181/216
.311944006	1.241379310	.805555556	29/36
.371183210	1.293413174	⊙ .773148148	167/216
.432959407	1.350000000	.740740741	20/27
.497499659	1.411764706	⊙ .708333333 X	17/24
.545434137	1.459459459	.685185185	37/54
.595016165	1.510489510	⊙ .662037037	143/216
.646363045	1.565217391	.638888889	23/36
.699605067	1.624060150	⊙ .615740741	133/216
.754887502	1.687500600	.592592593	16/27
.812372997	1.756097561	⊙ .569444444	41/72
.872244453	1.830508475	.546296296	59/108
.934708540	1.911504425	⊙ .523148148	113/216
1.000000000	2.000000000	⊙ .500000000	1/2



	Fraction	Base
⊙ 216	1/1	A 440
7		
⊙ 209	209/216	454.74
7		
202	101/108	470.50
7		
⊙ 195	65/72	487.38
7		
188	47/54	505.53
7		
⊙ 181	181/216	525.08
7		
174	29/36	546.21
7		
⊙ 167	167/216	569.10
7		
160	20/27	594.00
7		
X ⊙ 153	17/24	621.18
5		
148	37/54	642.16
5		
⊙ 143	143/216	664.62
5		
138	23/36	688.70
5		
⊙ 133	133/216	714.59
5		
128	16/27	742.50
5		
⊙ 123	41/72	772.68
5		
118	59/108	805.42
5		
⊙ 113	113/216	841.06
5		
⊙ 108	1/2	880.0

Geordan's Scale, Apex 17/24

(as Interpreted by E.W.)

28Sep02·EW

Geordans Scale ⊙, Apex $\frac{1}{\sqrt{2}}$ —

(as calculated by E. W.)

1Oct02·EW

			String Length	Pitch	Base 440
	0.	⊙	1,000000000	1.00000000000	440.000000000
	1.	⊙	,967456309021	1.03363840897	454.800899947
	2.		.934912618042	1,06961867954	470.632218998
	3.	⊙	,9022368927063	1,10819418755	487.605442522
	4.		,869825236084	1.14965622807	505.848740351
	5.	⊙	.837281545104	1.19434138474	525.510209286
	6.		.804737854125	1.24264068712	546.761902333
	7.	⊙	.772194163146	1.29501108364	569.804876802
	8.		.739650472167	1.35198994340	594.875575096
$\frac{1}{\sqrt{2}}$	9.	☒	.707106781188	1.41421356237	622.253967443
	1.		.684094916612	1.46178545655	463.185600882
	2.	⊙	.661083052035	1.51266924318	665.574466999
	3.		.638071187459	1.56722324978	689.578229903
	4.	⊙	.615059322882	1.62585942981	715.378149116
	5.		.592047458306	1.68905378441	743.183665140
	6.	⊙	.569035593730	1.75735931288	773.238097667
	7.		.546023729153	1.83144223791	805.825784680
	8.	⊙	.523011864577	1.91200251415	841.281106226
	9.	⊙	.500000000000	2.00000000000	880.000000000

calculated by E. Wilson 2 OCT 02

Geordan's Scale© Apex 1/√2

	String Length	Frequency	Log 2	Cents	Pitch 440
⊕	1.000000000	1.000000000	.000000000	0.000000000	440.000000
⊕	.967456309	1.033638409	.047731585	57.277902295	454.800900
+	.934912618	1.069618680	.097096566	116.515879	470.632190
⊕	.902368927	1.108194188	.148210705	177.852846	487.605443
+	.869825236	1.149656228	.201202529	241.443035	505.848740
⊕	.837281545	1.194341385	.256215268	307.458322	525.510209
+	.804737854	1.242640687	.313409198	376.091037	546.761902
⊕	.772194163	1.295011084	.372964446	447.557335	569.804877
+	.739650472	1.351989943	.435084420	522.101304	594.875575
X ⊕	.707106781	1.414213562	.500000000	600.000000	622.253967
+	.684094917	1.461785457	.547731585	657,277902	643,185601
⊕	.661083052	1.512669243	.597096566	716.515879	665.574467
+	.638071187	1.567223250	.648210705	777.852846	689.578230
⊕	.615059323	1.625859430	.701202529	841.443035	715,378149
+	.592047458	1.689053784	.756215268	907.458322	743.183665
⊕	.569035594	1.757359313	.813409198	976.091037	773.238098
+	.546023729	1.831422238	.872964446	1,047.557335	805.825784
⊕	.523011865	1.912002514	.935084420	1,122.101304	841.281106
⊕	.500000000	2.000000000	1.000000000	1,200.000000	880.000000

Geordan's Scale Apex $1/\sqrt{2}$, Transposed thru 10 Keys

	X	1.000	.967	.902	.837	.772	.707	.661	.615	.569	.523	.500
$1/1$	1.000	1.000	.967	.902	.837	.772	.707	.661	.615	.569	.523	.500
	.967	.967	.936	.873	.810	.747	.684	.640	.595	.551	.506	.484
	.902	.902	.873	.814	.756	.697	.638	.597	.555	.513	.472	.451
	.837	.837	.810	.756	.701	.647	.592	.554	.515	.476	.438	.419
	.772	.772	.747	.697	.647	.596	.546	.510	.475	.439	.404	.386
$1/\sqrt{2}$	.707	.707	.684	.638	.592	.546	.500	.467	.435	.402	.370	.354
	.661	.661	.640	.597	.554	.510	.467	.437	.407	.376	.346	.331
	.615	.615	.595	.555	.515	.475	.435	.407	.378	.350	.322	.308
	.569	.569	.551	.513	.476	.439	.402	.376	.350	.324	.298	.285
	.523	.523	.506	.472	.438	.404	.370	.346	.322	.298	.274	.262
$1/2$	.500	.500	.484	.451	.419	.386	.354	.331	.308	.285	.262	.250

String Lengths, rounded off at 3 places.

(As calculated by E. Wilson 28 Oct 2002)

28OCT02·EW

Mitchell's Genera as X Approaches $1/\sqrt{2}$

Fig 1.

7,344	1/1	3,042	1/1	1,260	1/1	522	1/1	216	1/1	90	1/1
7,105		2,943		1,219		505		209		87	
6,866		2,844		1,178		488		202		84	
6,627		2,745		1,137		471		195		81	
6,388		2,646		1,096		454		188		78	
6,149		2,547		1,055		437		181		75	
5,910		2,448		1,014		420		174		72	
5,671		2,349		973		403		167		69	
5,432		2,250		932		386		160		66	
X 5,193	$\frac{577}{816}$	X 2,151	$\frac{239}{338}$	X 891	$\frac{99}{140}$	X 369	$\frac{41}{58}$	X 153	17/24	X 63	7/10
5,024		2,081		862		357		148		61	
4,855		2,011		833		345		143		59	
4,686		1,941		804		333		138		57	
4,517		1,871		775		321		133		55	
4,348		1,801		746		309		128		53	
4,179		1,731		717		297		123		51	
4,010		1,661		688		285		118		49	
3,841		1,591		659		273		113		47	
3,672	1/2	1,521	1/2	630	1/2	261	1/2	108	1/2	45	1/2

(as interpreted by ε.ω.)

6Oct02.εω

X sequence approaches 1/√2

5oct02.εω

Geordan genus X 7/10

90 63 45 (as interpreted by ε.ω.)

3 2

1/1 7/10 1/2

Nut 90 87 84 81 78 75 72 69 66 63 61 59 57 55 53 51 49 47 45 5

⊙ ⊙ ⊙ ⊙ ⊙ ⊙X ⊙ ⊙ ⊙ ⊙ ⊙

18	2
36	4
90	10
216	24
522	58
1,260	140
3,042	338
7,344	816

Geordan Genus X 3/4

×9 36 27 18

4 3 2

36 27 18

1 1

1/1 3/4 1/2

36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18

⊙ ⊙ ⊙ ⊙ ⊙ ⊙X ⊙ ⊙ ⊙ ⊙ ⊙

Geordan Genus X 41/58

522 369 261

58 41 29

17 12

1/1 41/58 1/2

522 505 488 471 454 437 420 403 386 369 357 345 333 321 309 297 285 273 261

⊙ ⊙ ⊙ ⊙ ⊙ ⊙X ⊙ ⊙ ⊙ ⊙⊙

Mitchell's 9-Fold, Aliquot Genera as X (chi) approaches 1/√2

Geordan Genus X 99/140

1,260 891 630

140 99 70

41 29

1/1 99/140 1/2

1,260 1,219 1,178 1,137 1,096 1,055 1,014 973 932 891 862 833 804 775 746 717 688 659 630

⊙ ⊙ ⊙ ⊙ ⊙ ⊙X ⊙ ⊙ ⊙ ⊙ ⊙

9-Fold Aliquot Mitchell's Genera as X (chi) approaches 1/√2

Geordans Genus X 239/338

(.015 ¢ from 1/√2)

3,042 99 2,151 70 1,521

338 239 169

1/1 239/338 1/2

3,042 2,943 2,844 2,745 2,646 2,547 2,448 2,349 2,250 2,151 2,081 2,011 1,941 1,871 1,801 1,731 1,661 1,591 1,521

⊙ ⊙ ⊙ ⊙ ⊙ ⊙X ⊙ ⊙ ⊙ ⊙ ⊙

29.Sep02.Ew

$1/x$ pattern

.935185185185... ($^{101}/_{108}$)

		.935	$^0/_1$
←	1	.069	
⟶	14	.428	
←	2	.333	
	3	.000	

Zig-Zag Pattern

$^1/_1$ ←

$^1/_2$

$^2/_3$

$^3/_4$

$^4/_5$

$^5/_6$

$^6/_7$

$^7/_8$

$^8/_9$

$^9/_{10}$

$^{10}/_{11}$

$^{11}/_{12}$

$^{12}/_{13}$

$^{13}/_{14}$

$^{14}/_{15}$

$^{15}/_{16}$ ↙

$^{29}/_{31}$ ↙

$^{43}/_{46}$

$^{72}/_{77}$

Bingo $\underline{^{101}/_{108}}$

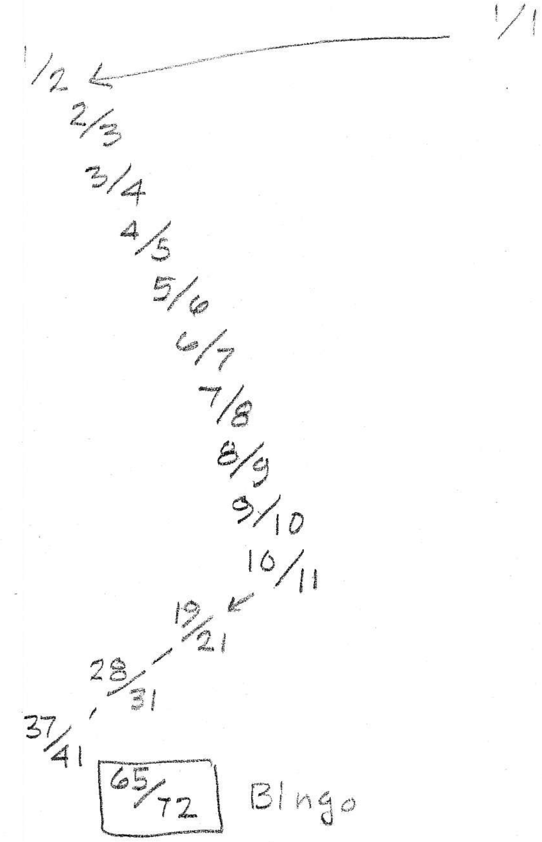
③
29 Sep 02 · EW

1/x Pattern

S.L. .902777777778 (= 65/72)

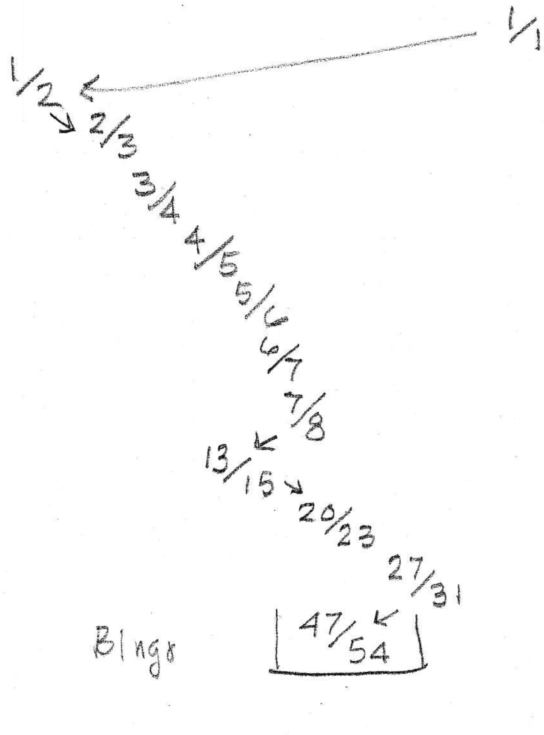
		.902 ...	0/1
←	1	.107	
→	9	.285	
	3	.500	
	2	.000	

Zig-Zag Pattern



S.L. .870370370370 (= 47/54)

		.870	0/1
←	1	.148	
→	6	.714	
←	1	.400	
→	2	.500	
	2	.000	



④

29 Sep 02. EW

1/n pattern

Zig-Zag

.837962962963 (= 181/216)

0/1

		.837
←	1	.193
→	5	.171
←	5	.833
→	1	.200
	5	.000

1/1

1/2

2/3

3/4

4/5

5/6

6/7

11/13

16/19

21/25

26/31

31/37

57/68

88/105

119/142

150/179

Bingo $\boxed{181/216}$

.805555555556 (= 29/36)

0/1

		.805
←	1	.241
→	4	.142
←	7	.000

1/1

1/2

2/3

3/4

4/5

5/6

9/11

13/16

17/21

21/26

25/31

$\boxed{29/36}$ Bingo

⑤
29 Sep02. EW

1/x Pattern

Zig-Zag

.773148148148.. = (167/216)

0/1

		.773
←	1	.293
→	3	.408
←	2	.45
→	2	.223
←	4	.500
	2	.000

1/1

1/2 ←

1/2 → 2/3

3/4

4/5

7/9 ← 4/5

10/13 — 7/9

10/13 → 17/22

24/31

41/53 ← 24/31

58/75

75/97

92/119 — $\boxed{167/216}$ Bingo

.740740740741 (20/27)

0/1

		.740
←	1.	.350
→	2	.857
←	1	.166
	6	.000

1/1

1/2 ←

1/2 - 2/3 - 3/4

5/7 ← 3/4

8/11

11/15

14/19

17/23

Bingo $\boxed{20/27}$

29 Sep 02 . EW

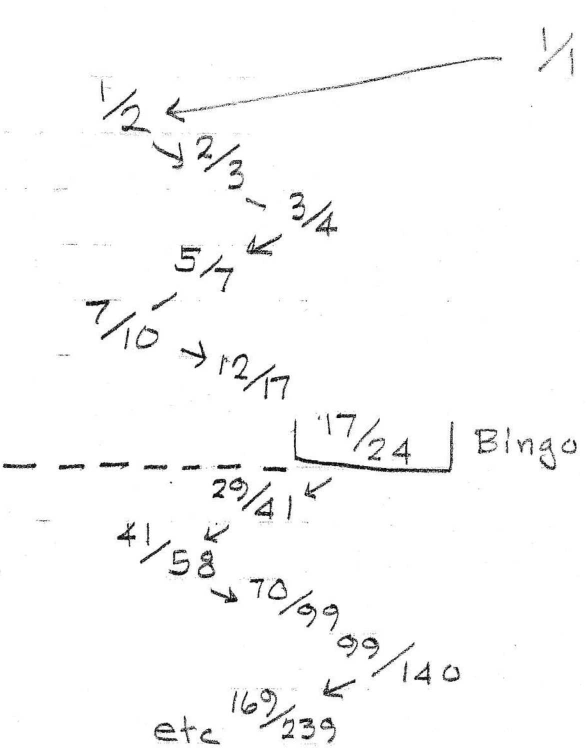
1/x Pattern

Zig-Zag

.708333333333 =(17/24)

0/1

		.708
←	1	.411
→	2	.428
←	2	.333
	3	.000



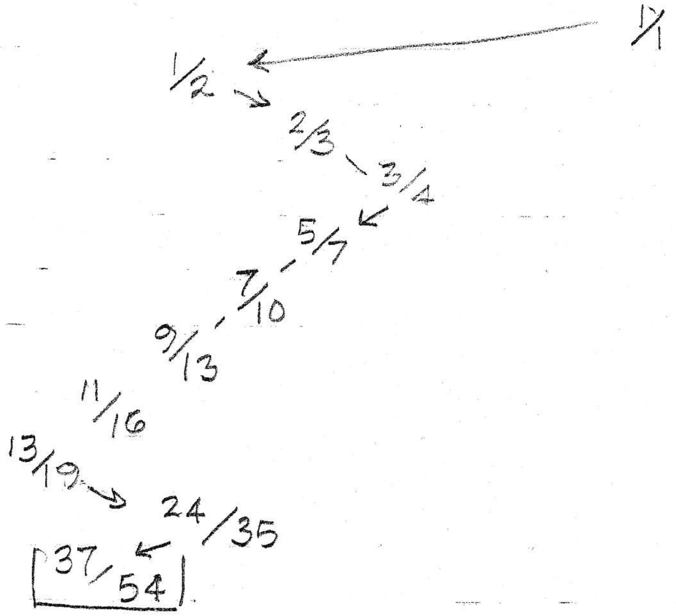
$$\frac{12}{17} \times \frac{24}{17} = \frac{288}{289}$$

Continuing this 2-Zig 2-Zag pattern approaches $\frac{1}{\sqrt{2}}$ (.7071067781188), the exact bisecting of the Octave.

.685185185185 (= 37/54)

0/1

		.685
←	1	.459
→	2	.176
←	5	.666
→	1	.500
	2	.000



⑦
29 Sep 02 · Ew

1/n Pattern

.662037037037 (143/216)
0/1

		.662
←	1	.510
→	1	.958
←	1	.042
	23	.333
	3.	.000

Zig-Zag Pattern

1/1 → 1/2
1/2 → 2/3
2/3 → 3/5
3/5 → 5/8
7/11
9/14
11/17
13/20
15/23
17/26
19/29
21/32
23/35
25/38
27/41
29/44
31/47
33/50
35/53
37/56
39/59
41/62
43/65
45/68
47/71
49/74 →
96/145
$\boxed{143/216}$ bingo

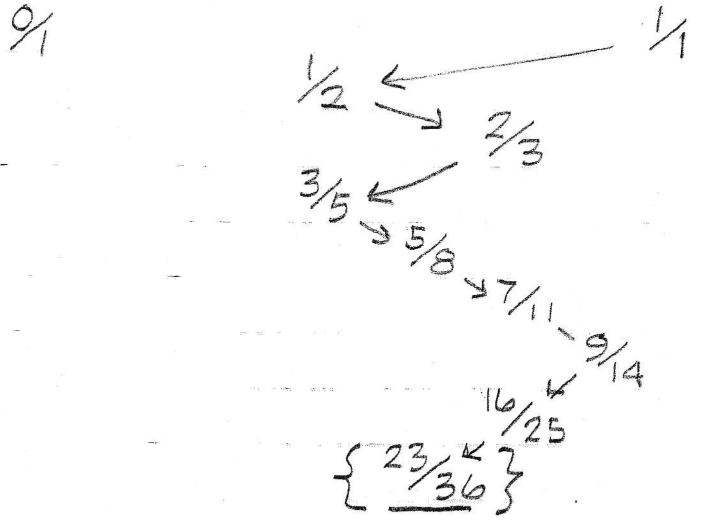
29Sep02·EW

1/x Pattern

Zig-Zag Pattern

.638888888889 (23/36)

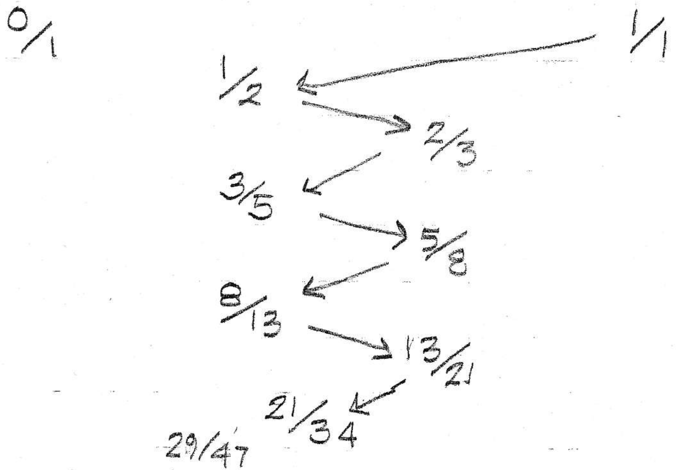
		.638···
←	1	.565
→	1	.769
←	1	.300
→	3	.333
	3	.000



(133/216)

.615740740740

		.615···
←	1	.624
→	1	.602
←	1	.66
→	1	.515
←	1	.941
→	1	.0625
	16	.000



29/47
37/60
45/73
53/86
61/99
69/112
77/125
85/138
93/151
101/164
109/177
117/190
125/203
{133/216}

16 17 33 50 83 133 216

29Sep02.EW

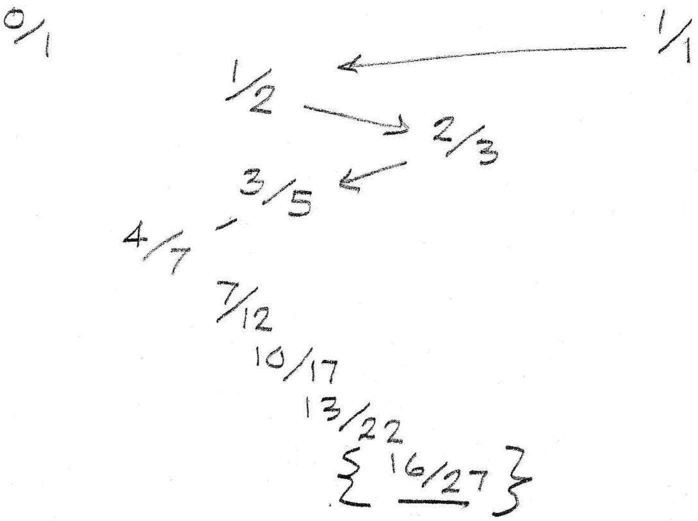
1/x Pattern

{<u>16/27</u>}

<u>.592592592593</u>

		.592
←	1	.6875
→	1	.4545
←	2	.200
	5	.000

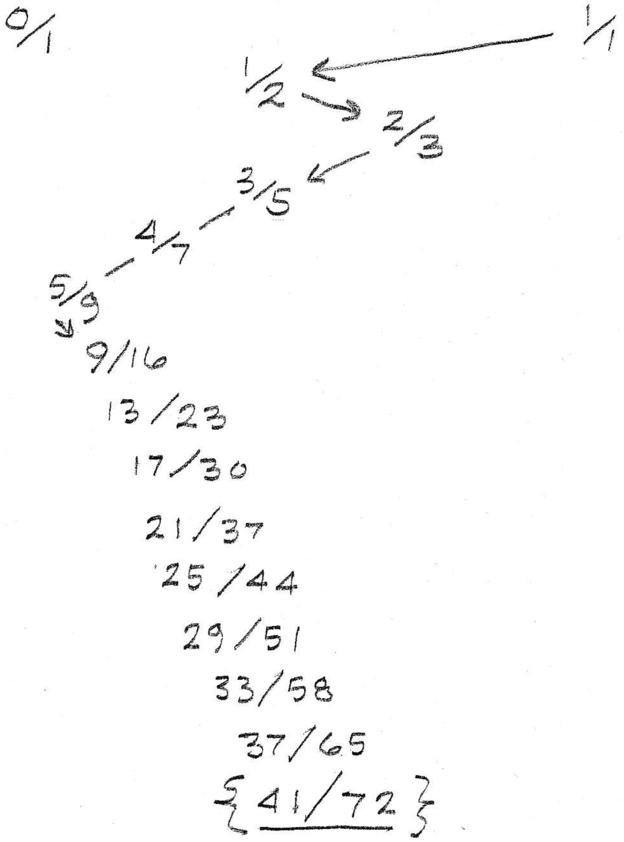
Zig-Zag Pattern



{41 / 72}

<u>.569444444444</u>

		.569
←	1	.756
→	1	.322
	3	.100
	10	.000



29Sep02·Ew

1/x Pattern

{59/108}

.546296296296

		.546
←	1	.830
→	1	.204
←	4	.900
→	1	.111
	9	.000

Zig-Zag

0/1 1/1

1/2 ←

→ 2/3

3/5 ←

4/7

5/9

6/11 → 11/20

17/31

23/42

29/53

35/64

41/75

47/86

53/97

{59/108}

{113/216}

.523148148148···

		.523
←	1	.911
→	1	.097
←	10	.300
→	3	.333
	3	.000

0/1 1/1

1/2 ←

→ 2/3

3/5

4/7

5/9

6/11

7/13

8/15

9/17

10/19

11/21

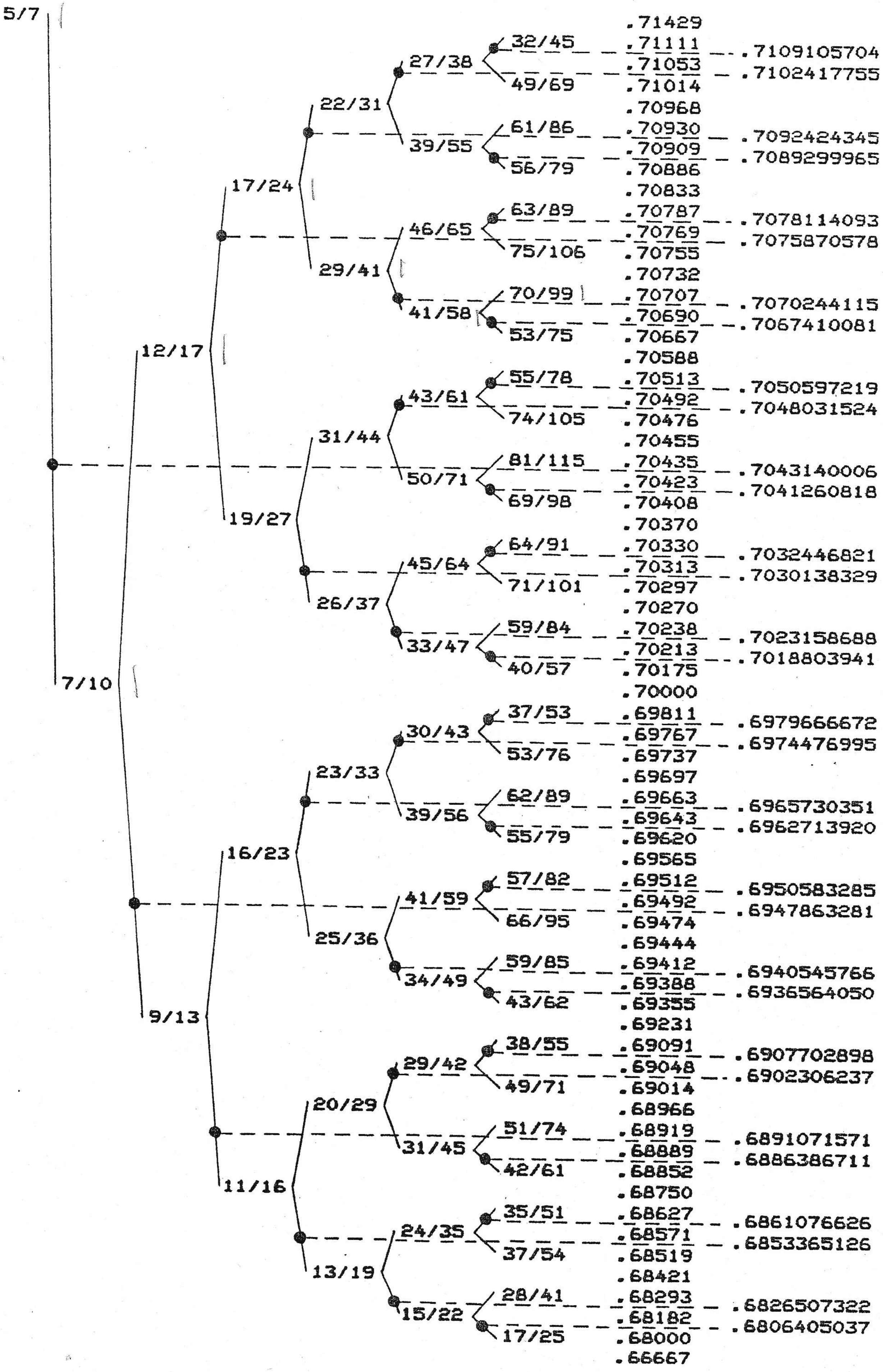
12/23 → 23/44

34/65

45/86

79/151

{113/216}


5/7
7/10
12/17
9/13
17/24
19/27
16/23
11/16
22/31
29/41
31/44
26/37
23/33
25/36
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13/19
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39/55
46/65
41/58
43/61
50/71
45/64
33/47
30/43
39/56
41/59
34/49
29/42
31/45
24/35
15/22
32/45
49/69
61/86
56/79
63/89
75/106
70/99
53/75
55/78
74/105
81/115
69/98
64/91
71/101
59/84
40/57
37/53
53/76
62/89
55/79
57/82
66/95
59/85
43/62
38/55
49/71
51/74
42/61
35/51
37/54
28/41
17/25
.71429
.71111
.71053
.71014
.70968
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.68571
.68519
.68421
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.68182
.68000
.66667
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.7102417755
.7092424345
.7089299965
.7078114093
.7075870578
.7070244115
.7067410081
.7050597219
.7048031524
.7043140006
.7041260818
.7032446821
.7030138329
.7023158688
.7018803941
.6979666672
.6974476995
.6965730351
.6962713920
.6950583285
.6947863281
.6940545766
.6936564050
.6907702898
.6902306237
.6891071571
.6886386711
.6861076626
.6853365126
.6826507322
.6806405037

~~13~~ 2/3

$\sqrt[67]{9/2} = 1.0227028$

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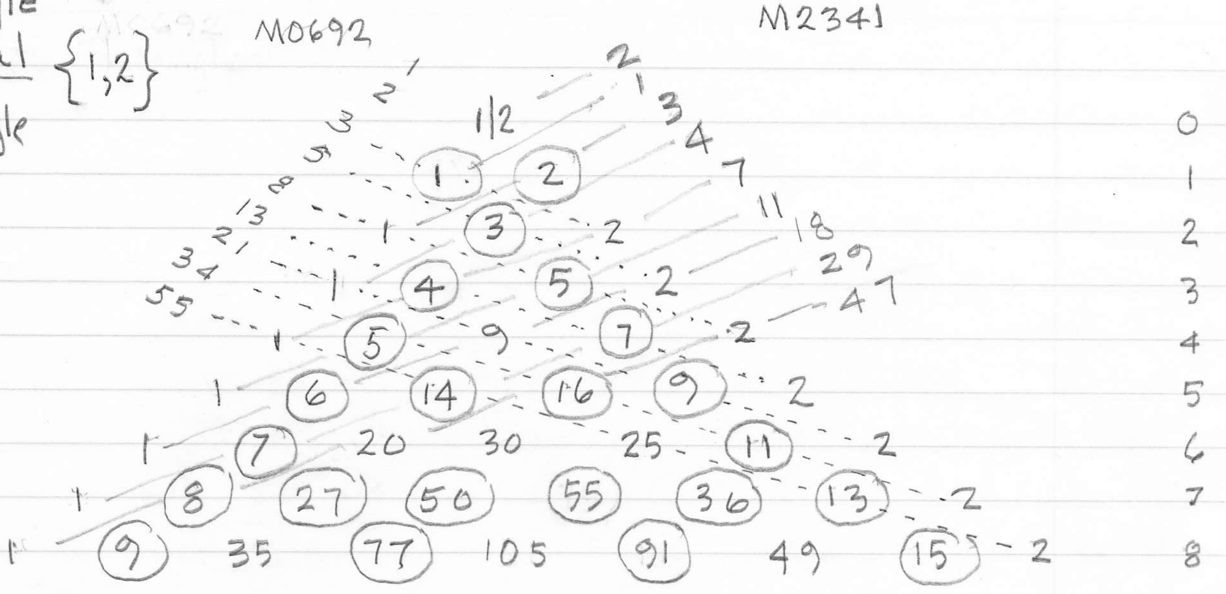
0.	528.00
1.	539.99
2.	552.25
3.	564.78
4..	577.60
5.	590.72
6.	604.13
7.	617.84
8.	631.87
9.	646.22
10.	660.89
11.	675.89
12.	691.24
13.	706.93
14.	722.98
15.	739.39
16.	756.18
17.	773.35
18.	790.90
19.	808.86
20.	827.22
21.	846.00
22.	865.21
23.	884.85
24.	904.94
25.	925.49
26.	946.50
27.	967.98
28.	989.96
29.	1012.44
30.	1035.42
31.	1058.93
32.	1082.97
33.	1107.55
34.	1132.70
35.	1158.42
36.	1184.71
37.	1211.61
38.	1239.12
39.	1267.25
40.	1296.02
41.	1325.44
42.	1355.53
43.	1386.31
44.	1417.78
45.	1449.97
46.	1482.89
47.	1516.55
48.	1550.98
49.	1586.19
50.	1622.20
51.	1659.03
52.	1696.70
53.	1735.22
54.	1774.61
55.	1814.90
56.	1856.10
57.	1898.24
58.	1941.34
59.	1985.41
60.	2030.49
61.	2076.58
62.	2123.73
63.	2171.94
64.	2221.25
65.	2271.68
66.	2323.25
67.	2376.00

split header

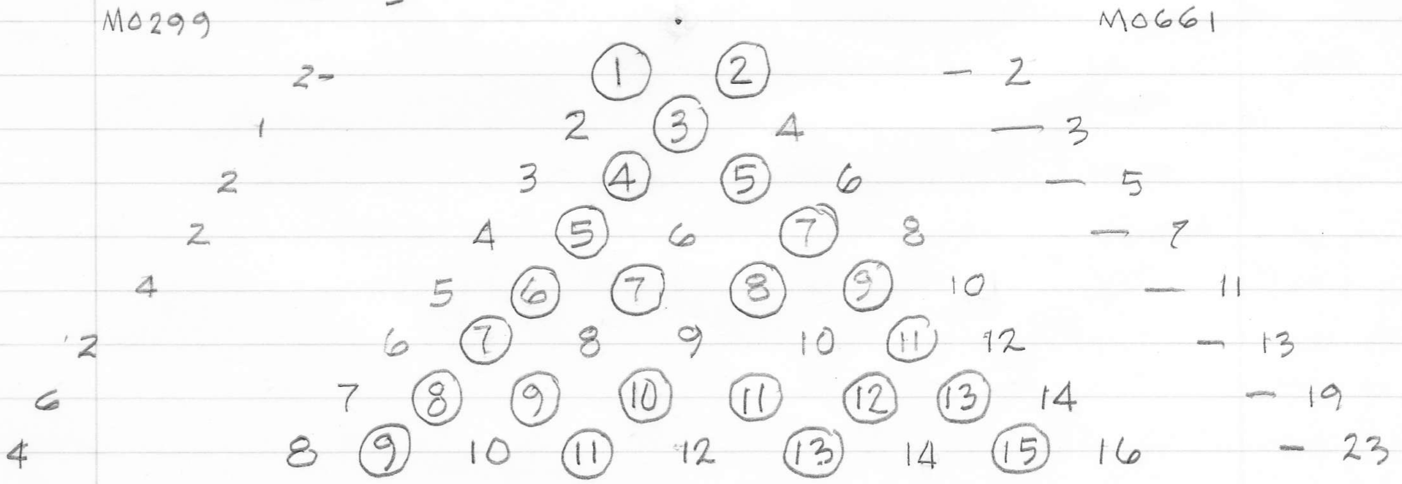
Prolog

③a

Triangle
Pascal $\left\{1,2\right\}$
Triangle



Lambda
Novaro $\left\{1,2\right\}$



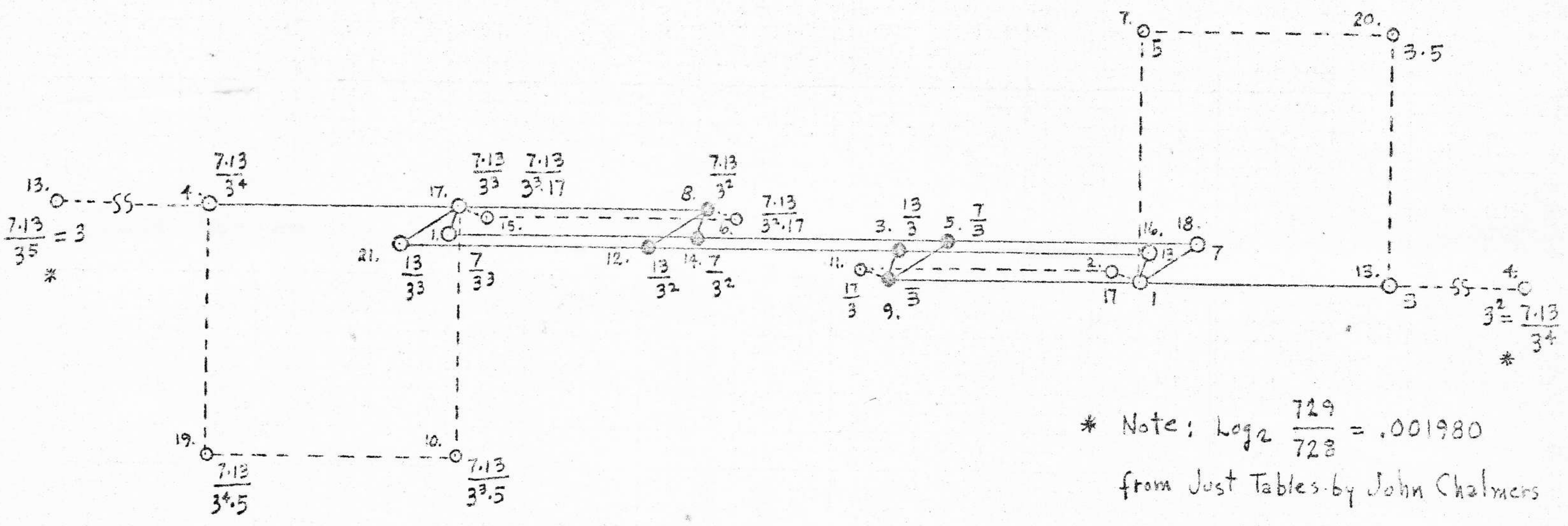
$\frac{1}{1}\ \frac{9}{8}\ \frac{8}{7}\ \frac{7}{6}\ \frac{6}{5}\ \frac{5}{4}\ \frac{9}{7}\ \frac{4}{3}\ \frac{11}{8}\ \frac{7}{5}\ \frac{10}{7}\ \frac{3}{2}\ \frac{11}{7}\ \frac{8}{5}\ \frac{13}{8}\ \frac{5}{3}\ \frac{12}{7}\ \frac{7}{4}\ \frac{9}{5}\ \frac{11}{6}\ \frac{13}{7}\ \frac{15}{8}\ \frac{2}{1}$

$\frac{9}{8}\ \frac{64}{63}\ \frac{49}{48}\ \frac{36}{35}\ \frac{25}{24}\ \frac{36}{35}\ \frac{28}{27}\ \frac{33}{32}\ \frac{56}{55}\ \frac{50}{49}\ \frac{21}{20}\ \frac{22}{21}\ \frac{56}{55}\ \frac{65}{64}\ \frac{40}{39}\ \frac{36}{35}\ \frac{49}{48}\ \frac{36}{35}\ \frac{55}{54}\ \frac{78}{77}\ \frac{105}{104}\ \frac{16}{15}$

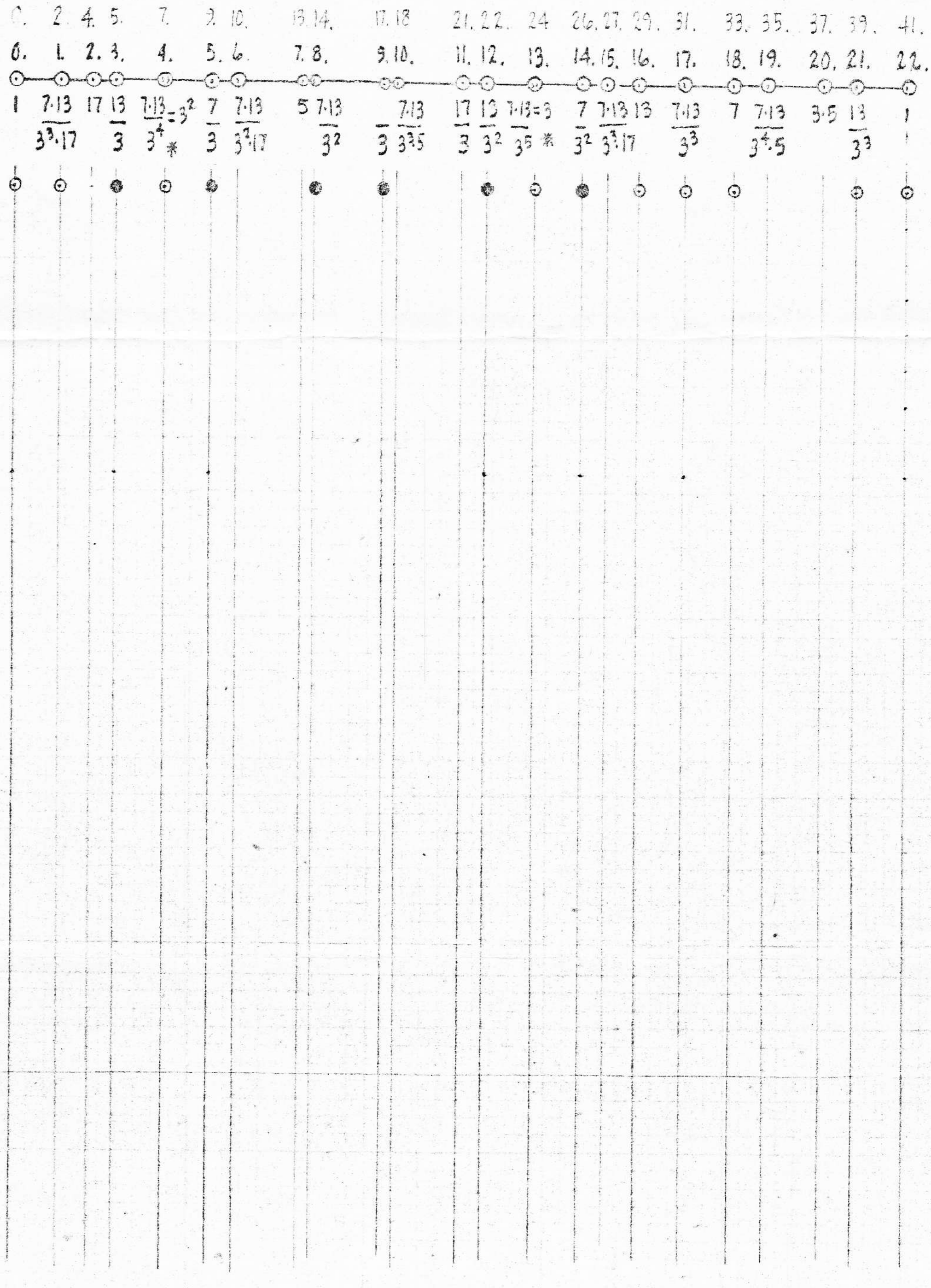
Novaro nested Escalas Harmonicas. Where $\frac{a}{b}\frac{c}{d}$ adjacent, $bc-ad=1$.
(Diaphantus)

3Mar04·EW

This is the 10-tone diaphonic cycles draped over
the 1·3·7·13 – ⑨ flankage (solid lines).
I make use of an 'interesting fusion.



* Note: $\log_2 \frac{729}{728} = .001980$
from Just Tables by John Chalmers



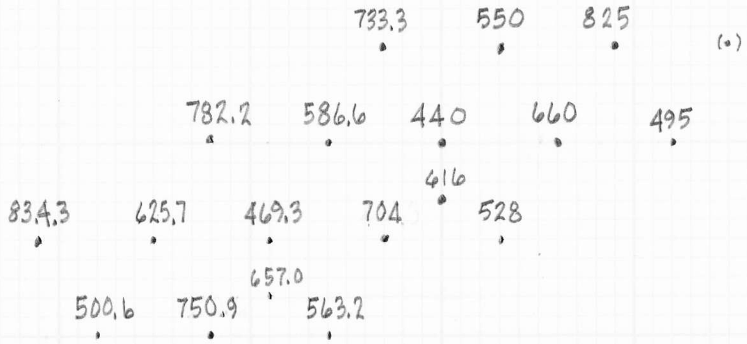
E. Wilson Dec 67

Does this

×	$\frac{1}{1}$	$\frac{5}{4}$	$\frac{3}{2}$
$\frac{1}{1}$	$\frac{1}{1}$	$\frac{5}{4}$	$\frac{3}{2}$
$\frac{5}{4}$	$\frac{5}{4}$	$\frac{25}{16}$	$\frac{15}{8}$
$\frac{3}{2}$	$\frac{3}{2}$	$\frac{15}{8}$	$\frac{9}{4}$

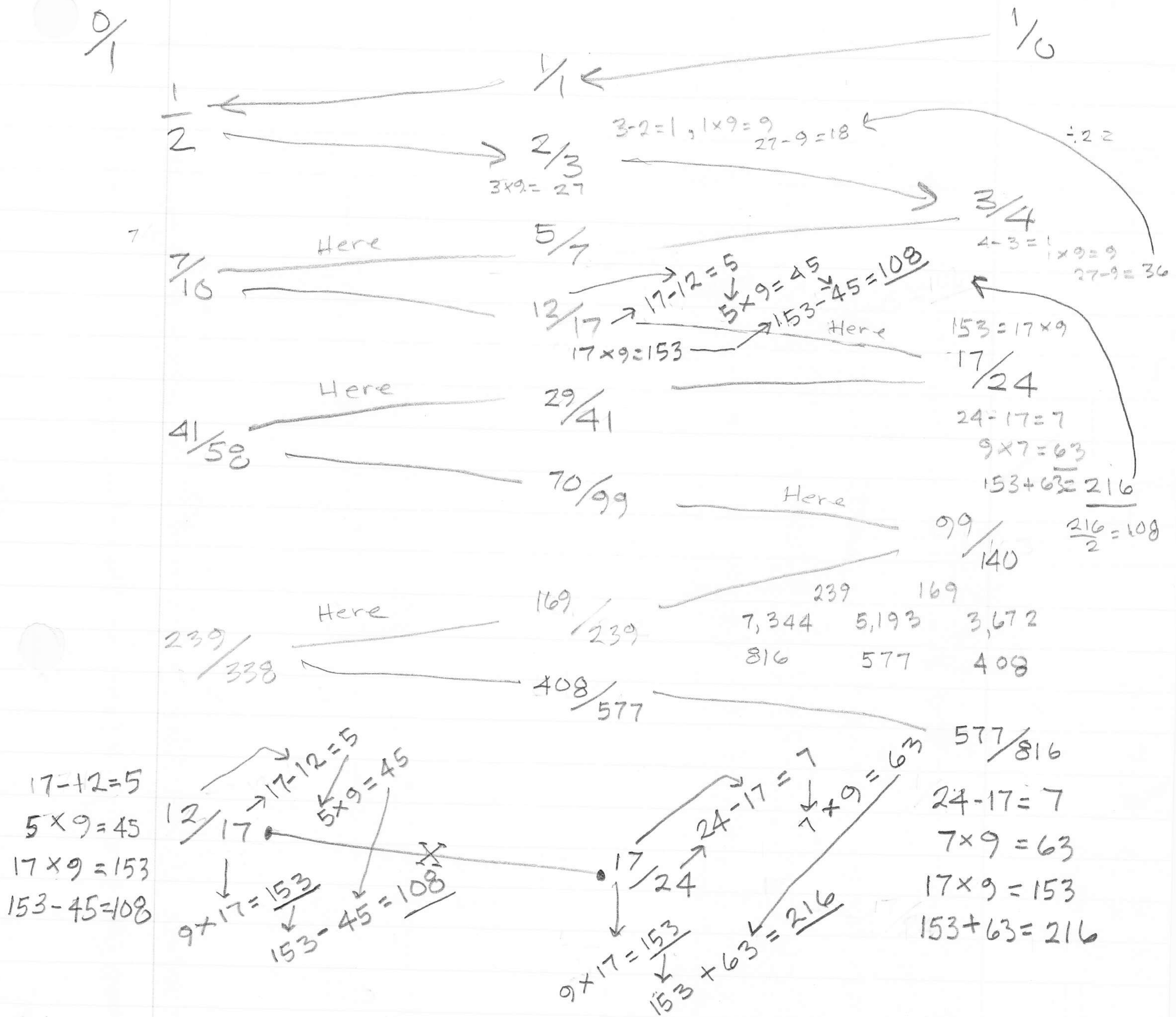
But
not this

×	$\frac{1}{1}$	$\frac{5}{4}$	$\frac{3}{2}$
$\frac{1}{1}$	$\frac{1}{1}$	$\frac{5}{4}$	$\frac{3}{2}$
$\frac{4}{5}$	$\frac{4}{5}$	$\frac{1}{1}$	$\frac{6}{5}$
$\frac{2}{3}$	$\frac{2}{3}$	$\frac{5}{6}$	$\frac{1}{1}$



Mitchells Genera {9}

4 OCT 2002 · EW



let $a = 12$; $b = 17$, $g = 9$

$$bg - (b-a)n = X$$

$$bg + (2a-b)n = b/2a$$

$$(a/b) \times (b/2a) = .5$$

27 38 54

18 9

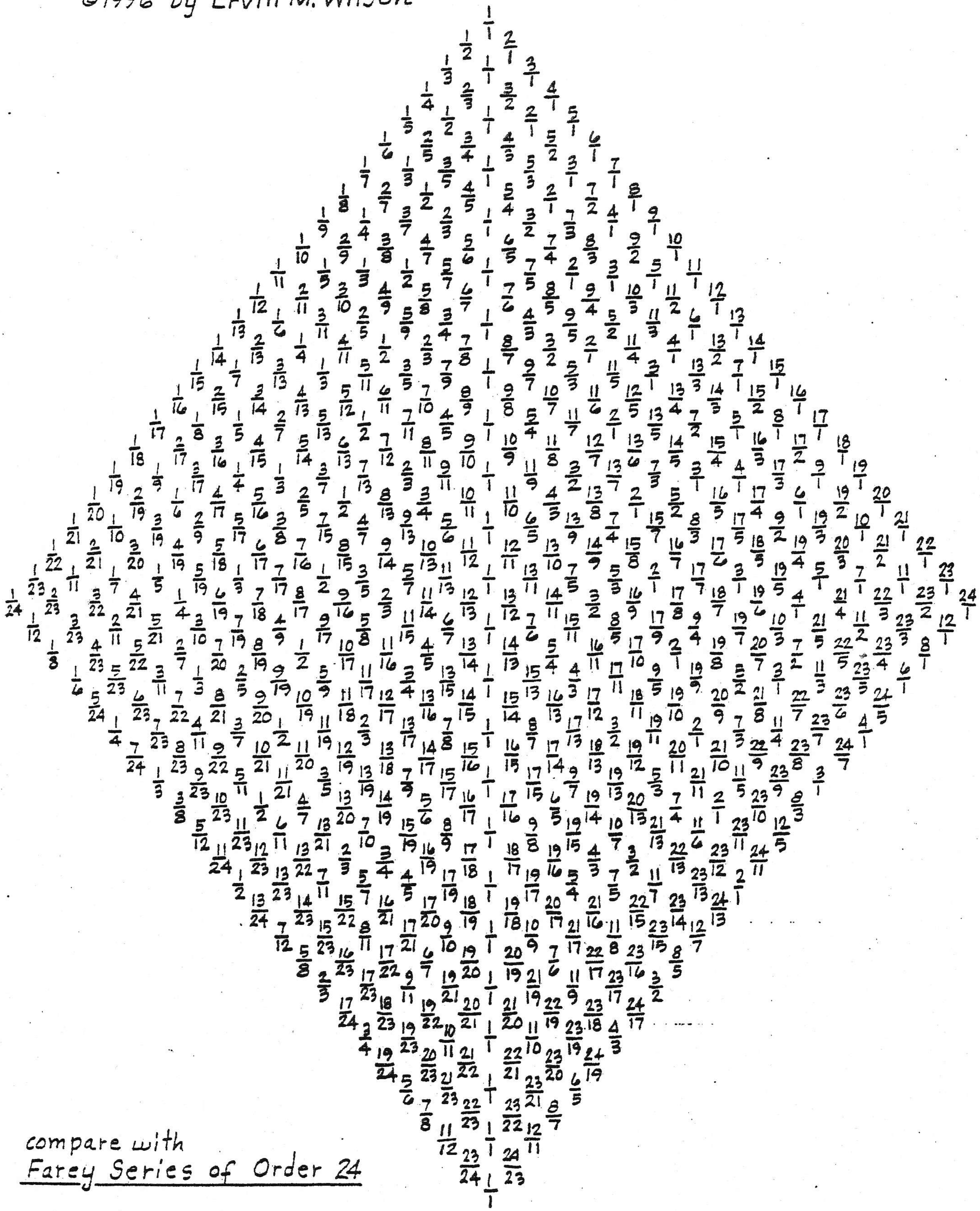
2 1

18 9

(Chi) X Sequence approaching $1/\sqrt{2}_9$ for Geordan's ~~Mitchells~~ Tuning as interpreted by E. Wilson

Lambdoma, Cap-24

©1996 by Ervin M. Wilson



compare with

Farey Series of Order 24

Farey Series of Order 24. (0/1 to 1/0)

Showing Epimoria bc/ad, and Mediants $\frac{a+e}{b+f} = \frac{c}{d}$

Start

0/1	1/0	1/4	24/23	1/2	24/23	3/4	64/63	1/1	24/23	4/3	69/68	2/1	23/22	4/1	21/20
1/24	24/23	6/23	115/114	12/23	253/252	16/21	273/272	24/23	529/528	23/17	323/322	23/11	231/230	21/5	85/84
1/23	23/22	5/19	76/75	11/21	210/209	13/17	170/169	23/22	484/483	19/14	210/209	21/10	190/189	17/4	52/51
1/22	22/21	4/15	45/44	10/19	171/170	10/13	221/220	22/21	441/440	15/11	121/120	19/9	153/152	13/3	66/65
1/21	21/20	3/11	55/54	9/17	136/135	17/22	154/153	21/20	400/399	11/8	144/143	17/8	120/119	22/5	45/44
1/20	20/19	5/18	36/35	8/15	105/104	7/9	162/161	20/19	361/360	18/13	91/90	15/7	91/90	9/2	46/45
1/19	19/18	2/7	49/48	7/13	169/168	18/23	253/252	19/18	324/323	7/5	120/119	13/6	144/143	23/5	70/69
1/18	18/17	7/24	120/119	13/24	144/143	11/14	210/209	18/17	289/288	24/17	289/288	24/11	121/120	14/3	57/56
1/17	17/16	5/17	51/50	6/11	121/120	15/19	361/360	17/16	256/255	17/12	120/119	11/5	100/99	19/4	96/95
1/16	16/15	3/10	70/69	11/20	100/99	19/24	96/95	16/15	225/224	10/7	161/160	20/9	81/80	24/5	25/24
1/15	15/14	7/23	92/91	5/9	81/80	4/5	85/84	15/14	196/195	23/16	208/207	9/4	64/63	5/1	21/20
1/14	14/13	4/13	65/64	9/16	208/207	17/21	273/272	14/13	169/168	13/9	144/143	16/7	161/160	21/4	64/63
1/13	13/12	5/16	96/95	13/23	92/91	13/16	144/143	13/12	144/143	16/11	209/208	23/10	70/69	16/3	33/32
1/12	24/23	6/19	133/132	4/7	77/76	9/11	154/153	12/11	253/252	19/13	286/285	7/3	57/56	11/2	34/33
2/23	23/22	7/22	22/21	11/19	133/132	14/17	323/322	23/21	231/230	22/15	45/44	19/8	96/95	17/3	69/68
1/11	22/21	1/3	24/23	7/12	120/119	19/23	115/114	11/10	210/209	3/2	46/45	12/5	85/84	23/4	24/23
2/21	21/20	8/23	161/160	10/17	221/220	5/6	96/95	21/19	190/189	23/15	300/299	17/7	154/153	6/1	19/18
1/10	20/19	7/20	120/119	13/22	66/65	16/19	209/208	10/9	171/170	20/13	221/220	22/9	45/44	19/3	39/38
2/19	19/18	6/17	85/84	3/5	70/69	11/13	221/220	19/17	153/152	17/11	154/153	5/2	46/45	13/2	40/39
1/9	18/17	5/14	56/55	14/23	253/252	17/20	120/119	9/8	136/135	14/9	99/98	23/9	162/161	20/3	21/20
2/17	17/16	4/11	77/76	11/18	144/143	6/7	133/132	17/15	120/119	11/7	133/132	18/7	91/90	7/1	22/21
1/8	24/23	7/19	57/56	8/13	169/168	19/22	286/285	8/7	161/160	19/12	96/95	13/5	105/104	22/3	45/44
3/23	46/45	3/8	64/63	13/21	105/104	13/15	300/299	23/20	300/299	8/5	105/104	21/8	64/63	15/2	46/45
2/15	45/44	8/21	105/104	5/8	96/95	20/23	161/160	15/13	286/285	21/13	169/168	8/3	57/56	23/3	24/23
3/22	22/21	5/13	91/90	12/19	133/132	7/8	120/119	22/19	133/132	13/8	144/143	19/7	77/76	8/1	17/16
1/7	21/20	7/18	162/161	7/11	99/98	15/17	136/135	7/6	120/119	18/11	253/252	11/4	56/55	17/2	18/17
3/20	40/39	9/23	46/45	9/14	154/153	8/9	153/152	20/17	221/220	23/14	70/69	14/5	85/84	9/1	19/18
2/13	39/38	2/5	45/44	11/17	221/220	17/19	171/170	13/11	209/208	5/3	66/65	17/6	120/119	19/2	20/19
3/19	19/18	9/22	154/153	13/20	300/299	9/10	190/189	19/16	96/95	22/13	221/220	20/7	161/160	10/1	21/20
1/6	24/23	7/17	85/84	15/23	46/45	19/21	210/209	6/5	115/114	17/10	120/119	23/8	24/23	21/2	22/21
4/23	69/68	5/12	96/95	2/3	45/44	11/10	231/230	23/19	323/322	12/7	133/132	3/1	22/21	11/1	23/22
3/17	34/33	8/19	57/56	15/22	286/285	21/23	253/252	17/14	154/153	19/11	77/76	22/7	133/132	23/2	24/23
2/11	33/32	3/7	70/69	13/19	209/208	11/12	144/143	11/9	144/143	7/4	92/91	19/6	96/95	12/1	13/12
3/16	64/63	10/23	161/160	11/16	144/143	12/13	169/168	16/13	273/272	23/13	208/207	16/5	65/64	13/1	14/13
4/21	21/20	7/16	64/63	9/13	208/207	13/14	196/195	21/17	85/84	16/9	81/80	13/4	92/91	14/1	15/14
1/5	25/24	4/9	81/80	16/23	161/160	14/15	225/224	5/4	96/95	9/5	100/99	23/7	70/69	15/1	16/15
5/24	96/95	9/20	100/99	7/10	120/119	15/16	256/255	24/19	361/360	20/11	121/120	10/3	51/50	16/1	17/16
4/19	57/56	5/11	121/120	12/17	289/288	16/17	289/288	19/15	210/209	11/6	144/143	17/5	120/119	17/1	18/17
3/14	70/69	11/24	144/143	17/24	120/119	17/18	324/323	14/11	253/252	24/13	169/168	24/7	49/48	18/1	19/18
5/23	46/45	6/13	91/90	5/7	91/90	18/19	361/360	23/18	162/161	13/7	105/104	7/2	36/35	19/1	20/19
2/9	45/44	7/15	120/119	13/18	144/143	19/20	400/399	9/7	154/153	15/8	136/135	18/5	55/54	20/1	21/20
5/22	66/65	8/17	153/152	8/11	121/120	20/21	441/440	22/17	221/220	17/9	171/170	11/3	45/44	21/1	22/21
3/13	52/51	9/19	190/189	11/15	210/209	21/22	484/483	13/10	170/169	19/10	210/209	15/4	76/75	22/1	23/22
4/17	85/84	10/21	231/230	14/19	323/322	22/23	529/528	17/13	273/272	21/11	253/252	19/5	115/114	23/1	24/23
5/21	21/20	11/23	23/22	17/23	69/68	23/24	24/23	21/16	64/63	23/12	24/23	23/6	24/23	24/1	1/0
(1/4)		(1/2)		(3/4)		(1/1)		(4/3)		(2/1)		(4/1)		1/0	

End

Compare with Lambdoma 24