

$$\frac{64}{55} \times \frac{11}{15} = \frac{64}{45}$$

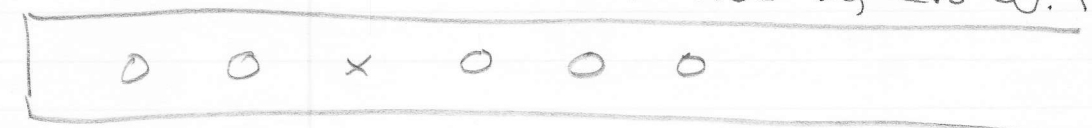
$$\frac{64}{55} \times \frac{22}{15} = \frac{128}{15}$$

$$\frac{4}{3} \times \frac{15}{11} = \frac{20}{11} \times \frac{11}{8} = \frac{5}{4}$$

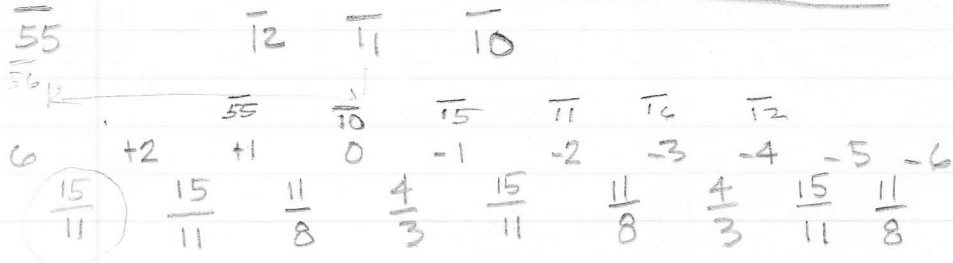
$$\frac{64}{55} \times \frac{11}{15} = \frac{64}{75}$$

9-Tone Instrument

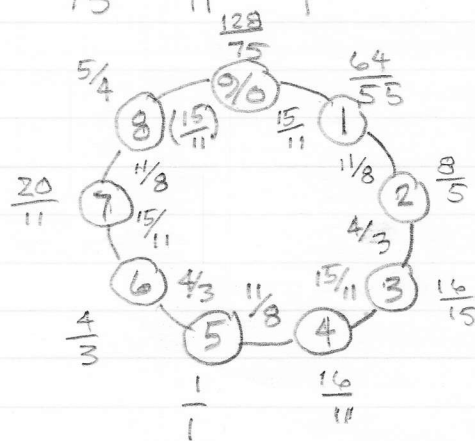
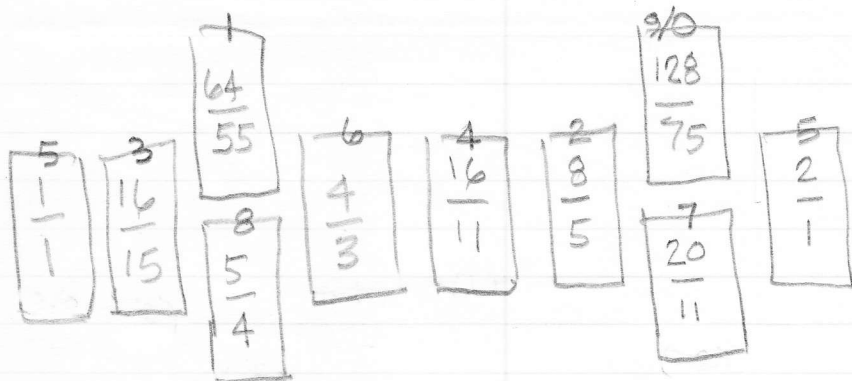
© 1982 by Erv Wilson



$$\frac{64}{55} \times \frac{15}{11} = \frac{12}{11}$$



$$\frac{16}{15} \quad \frac{12}{11}$$



- 1/1
- 16/15
- 64/55
- 5/4
- 4/3
- 16/11
- 8/5
- 128/75
- 20/11
- 2/1

- 264
- 288.6
- 307.2
- 330
- 352
- 384
- 422.4
- 450.56
- 480
- 528

- 6, 7, 9
- 2, 4, 7, 8, 9
- 1, 2, 3, 4, 7, 10
- 1, 2, 5, 6, 8, 10
- 4, 9, 10
- 2, 5, 6, 7, 9, 10
- 3, 4, 5, 7, 8, 9, 10
- 1, 3, 4, 5, 6
- 1, 2, 3, 5, 6, 8

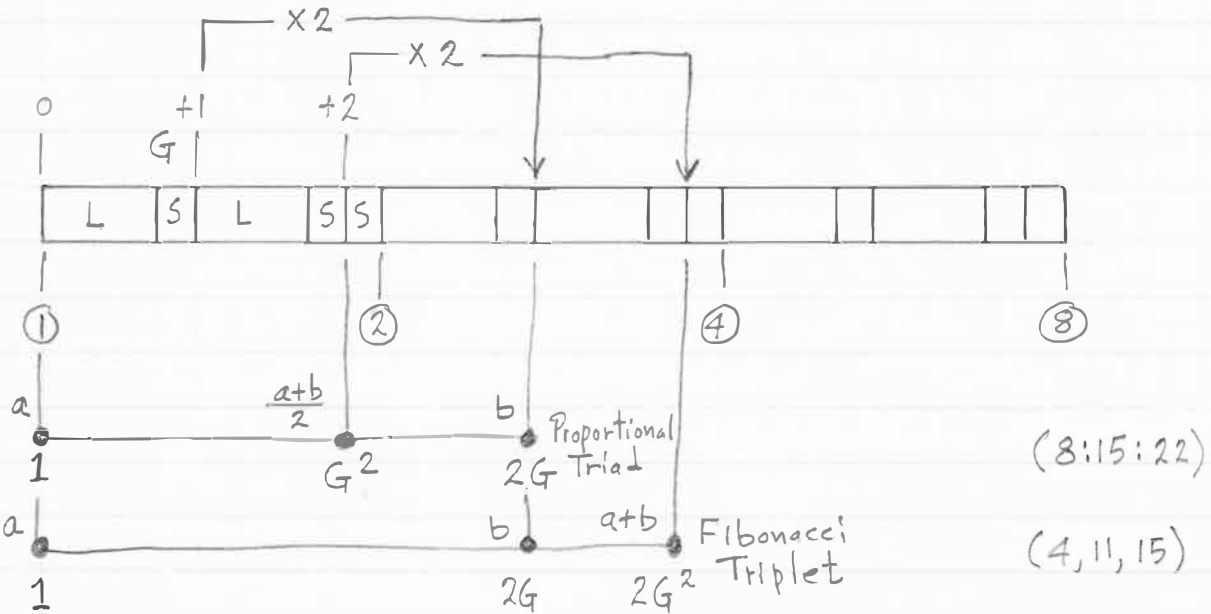
- .25
- .20
- .225

Notes on the First Polog, $(H_{n-2} + 2H_{n-1})/2 = H_n$

22 Aug 97 - E.W.
P.96

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H_{n-2} H_{n-1} H_n



Recurrence:

$$(H_{n-2} + 2H_{n-1})/2 = H_n$$

$$\Rightarrow G = ((1 + 2G)/2)^{1/2}$$

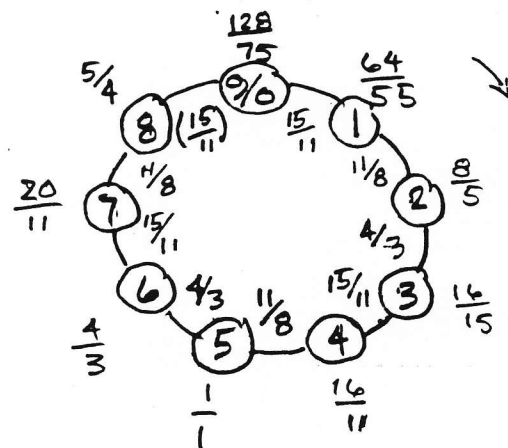
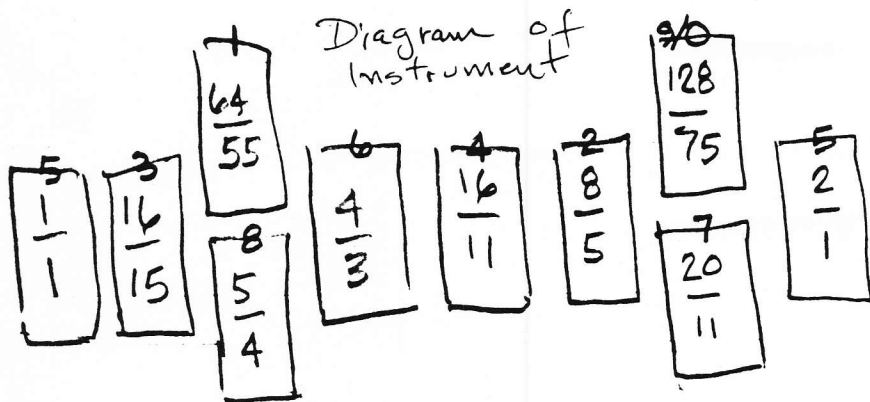
$$= 1.36602540378 \dots$$

$$\log_2 = .449984313472 \dots$$

(41)

6 8 11 15 20.5 28 38.25 52.25 71.375 97.5 133.1875
 181.9375 248.53125 339.5 463.765625 633.515625 865.3984375
 1,182.15625 1,614.85546875 2,205.93359375 3,013.36132812
 4,116.328125

Diagram of Instrument



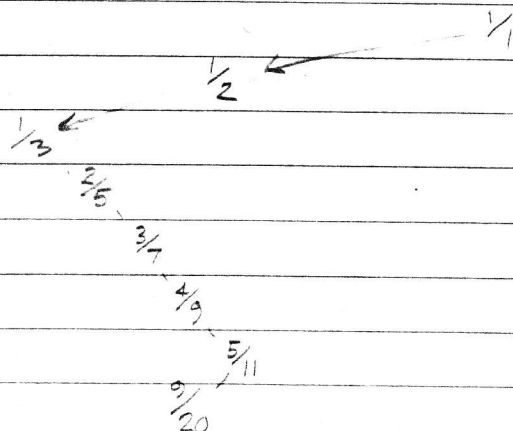
Ratio	Pitch	settings	9-tone Pelog Cycle © 1988 by Eric Wilson
$\frac{1}{1}$	264	6, 7, 9	
$\frac{16}{15}$	286.6	2, 4, 7, 8, 9	
$\frac{64}{55}$	307.2	1, 2, 3, 4, 7, 10	
$\frac{5}{4}$	330	1, 2, 5, 6, 8, 10	
$\frac{4}{3}$	352	4, 9, 10	
$\frac{16}{11}$	384	2, 5, 6, 7, 9, 10	
$\frac{8}{5}$	422.4	3, 4, 5, 7, 8, 9, 10	
$\frac{128}{75}$	450.56	1, 3, 4, 5, 6	
$\frac{20}{11}$	480	1, 2, 3, 5, 6, 8	
$\frac{2}{1}$	528		

Golden-Pellog Sequence 6-8-11 genus

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			Pitch	(Tuner Code)
1.3	$0 + 4 = 4$			
1.333...	$2 + 4 = 6$	G# 0	384	2 5 6 7 9 10
1.375	$2 + 6 = 8$	C# +1	256	1 2 4 6 9
1.363...	$3 + 8 = 11$	F# +2	352	4 9 10
1.366...	$4 + 11 = 15$	E +3	240	1 2 3 5 6 8
1.365...	$5.5 + 15 = 20.5$	E +4	328	1 2 4 6 8 10
1.366...	$7.5 + 20.5 = 28$	F +5	224	1 5 6
1.366013...	$10.25 + 28 = 38.25$	F# +6	306	1 4 7 10
1.366028...	$14 + 38.25 = 52.25$	G +7	418	1 5 7 8 9 10
1.366024...	$19.125 + 52.25 = 71.375$	+8	285.5	6 7 8 9
1.366025...	$26.125 + 71.375 = 97.5$	F +9	390	3 8 9 10
1.366025...	$35.6875 + 97.5 = 133.1875$	F# +10	266.375	1 2 3 4 6 7 9
1.366025...	etc	F# +11	363.875	2 5 6 9 10
1.366025399...	248.53125			
1.366025405...	339.5			
1.366025403...	463.765625			
1.366025404...	633.515625			
1.366025404...	865.3984375			
1.366025404...	1182.15625			
1.366025404...	1614.855469			
1.366025404...	2205.933594			
1.366025404...	3013.361328			
1.366025404...	4116.328125			

0/1



Golden-Pellog Sequence, 6-8-11 genus.

©1992 by Erv Wilson

			Pitch	(Tuner Code)
1.5	$0 + 4 = 4$			
1.333...	$2 + 4 = 6$	G# 0	384	2 5 6 7 9 10
1.375	$2 + 6 = 8$	C# +1	256	1 2 4 6 9
1.363...	$3 + 8 = 11$	F# +2	352	4 9 10
1.366...	$4 + 11 = 15$	F +3	240	1 2 3 5 6 8
1.365...	$5.5 + 15 = 20.5$	F +4	328	1 2 4 6 8 10
1.366...	$7.5 + 20.5 = 28$	C +5	224	1 5 6
1.366013...	$10.25 + 28 = 38.25$	D +6	306	1 4 7 10
1.366028...	$14 + 38.25 = 52.25$	G +7	418	1 5 7 8 9 10
1.366024...	$19.125 + 52.25 = 71.375$	+8	285.5	6 7 8 9
1.366025...	$26.125 + 71.375 = 97.5$	+9	390	3 8 9 10
1.366025...	$35.6875 + 97.5 = 133.1875$	Bb +10	266.375	1 2 3 4 6 7 9
1.366025...	etc	Bb +11	363.875	2 5 6 9 10
1.366025399...			248.53125	
1.366025405...			339.5	
1.366025403...			463.765625	
1.366025404...			633.515625	
1.366025404...			865.3984375	
1.366025404...			1182.15625	
1.366025404...			1614.855469	
1.366025404...			2205.933594	
1.366025404...			3013.361328	
1.366025404...			4116.328125	

1.36602540378

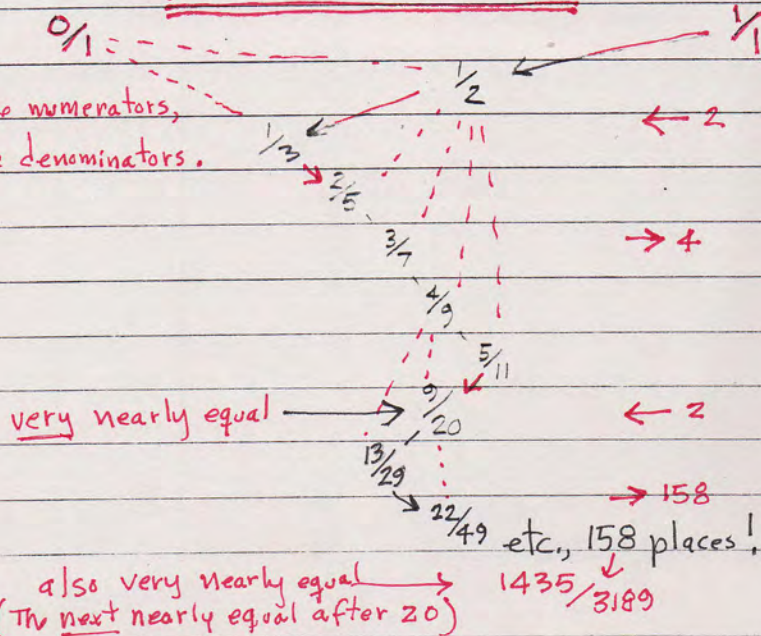
$\log_2 .449984313472$

1/4 Pattern of

← 2 .222...
 → 4 .498...
 ← 2 .006...
 → 158 (!) .922...
 ← 1 .084
 → 11 .890

Zig-Zag Pattern
 (of 2-interval scales)

note: add the numerators,
 and add the denominators.



Golden-Pelag Sequence, 10-14-19 genus

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Sequence	Pitch	Key Change	Tuner setting
$2 + 8 = 10$	320	0 G# 369.48	3 7 9 10
$4 + 10 = 14$	224	+1 C# 258.6	1 3 4 5 6 9
$5 + 14 = 19$	304	+2 F# 351.	1 3 9 10
$7 + 19 = 26$	416	+3 B 240.16	4 5 6 8
$9.5 + 26 = 35.5$	284	+4 E 327.92	1 2 4 6 8 10
$13 + 35.5 = 48.5$	388	+5 A 224	1 5 6
$17.75 + 48.5 = 66.25$	265	+6 D 305.99	1 4 7 10
$24.25 + 66.25 = 90.5$	362	+7 G 417.99	1 5 7 8 9 10
$33.125 + 90.5 = 123.625$	247.25	+8 C 285.48	6 7 8 9
$45.25 + 123.625 = 168.875$	337.75	+9 F 389.99	3 8 9 10
$61.8125 + 168.875 = 230.6875$	230.69	+10 Bb 266.36	1 2 3 4 6 7 9
$84.4375 + 230.6875 = 315.125$	315.12	+11 Eb 363.85	2 5 6 9 10

Chain of Golden-Ring
© 1993 by Erv Wilson

For Reference:
compare with
genus 10-14-19

y^N
(Power) Pitch

0	1		
1	1.366 025 404	8	64
2	1.866 025 404	16	128
3	2.549 038 106	20	160
4	3.482 050 808	28	224
5	4.756 569 860	38	304
6	6.497 595 264	52	416
7	8.875 880 194	71	568
8	12.124 677 826	97	776
9	16.562 617 923	132.5	1060
10	22.624 956 836	181	1448
11	30.906 265 798		1978
12	42.218 744 216		2702
13	57.671 877 114		3691
14	78.781 249 222		5042
15	107.617 187 778		6887.5
16	147.007 812 385		9408.5
17	200.816 406 277		12852.25
18	274.320 312 470		17556.5
19	374.728 515 607		23928.625
20	511.888 671 840		32760.875

Chain of Golden-Pelogs
 © 1993 by Erv Wilson

y^x chain of Golden-Pelogs Fourth's (1.366 025 404)
 (Power) Pitch

For Reference:
 compare with
 genus 10-14-19

0	1	8	64
1	1.366 025 404	16	128
2	1.866 025 404	20	160
3	2.549 038 106	28	224
4	3.482 050 808	38	304
5	4.756 569 860	52	416
6	6.497 595 264	71	568
7	8.875 880 194	97	776
8	12.124 677 826	132.5	1060
9	16.562 617 923	181	1448
10	22.624 956 836		1978
11	30.906 265 798		2702
12	42.218 744 216		3691
13	57.671 877 114		5042
14	78.781 249 222		6887.5
15	107.617 187 778		9408.5
16	147.007 812 385		12,852.25
17	200.816 406 277		17,556.5
18	274.320 312 470		23,928.625
19	374.728 515 607		32,760.875
20	511.888 671 840		

Pe log Sequence

$$A_n = ((1/A_{n-1}) + 2) \div 2$$

answer 1.366025404

Steps 1, 2, 3

(An) Label C

STO 4

C

C

1 ÷ RCL 4

)

+

2

)

÷

2

=

Steps 5, 6

(0 + 4 = 4) out of tolerance

$$2 + 4 = 6$$

$$2 + 6 = 8$$

$$3 + 8 = 11$$

$$4 + 11 = 15$$

$$5.5 + 15 = 20.5$$

$$7.5 + 20.5 = 28$$

~~Pellog Sequence~~
actually the calculation of the Golden-Pellog Fourth

$$A_n = \left(\left(\frac{1}{A_{n-1}} \right) + 2 \right) \div 2$$

answer 1.366025404...

Steps 1, 2, 3

(An) Label C

STO 4

C

C

1 ÷ RCL 4

)

+

2

)

÷

2

=

Steps 5, 6

(0 + 4 = 4) out of tolerance
 $6/4 = 1.5$

2 + 4 = 6

$8/6 = 1.3333...$

2 + 6 = 8

$11/7 = 1.375$

3 + 8 = 11

$15/11 = 1.3636...$

4 + 11 = 15

$20.5/15 = 1.366...$

5.5 + 15 = 20.5

$28/20.5 = 1.3658...$

7.5 + 20.5 = 28

etc

1.3660540378 recurrent sequence, redone
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27 Aug 2003, EW

$$1 + 3 = 4$$

$$1.3333$$

$$3 + 8 = 11$$

$$1.3750$$

$$4 + 11 = 15$$

$$1.3636$$

$$11 + 30 = 41$$

$$1.3667$$

$$15 + 41 = 56$$

$$1.3658$$

$$41 + 112 = 153$$

$$1.3660$$

$$56 + 153 = 209$$

$$1.366012$$

$$153 + 418 = 571$$

$$1.366028$$

$$209 + 571 = 780$$

$$1.3660245$$

$$571 + 1,560 = 2,131$$

$$1.3660256$$

$$780 + 2,131 = 2,911$$

$$1.3660253$$

$$2,131 + 5,822 = 7,953$$

$$1.366025421$$

$$2,911 + 7,953 = 10,864$$

$$1.366025399$$

$$7,953 + 21,728 = 29,681$$

$$1.366025405$$

$$10,864 + 29,681 = 40,545$$

$$1.366025403$$

$$29,681 + 81,090 = 110,771$$

$$1.366025404$$

$$40,545 + 110,771 = 151,316$$

$$1.366025404$$

$$110,771 + 302,632 = 413,403$$

$$1.366025404379$$

$$151,316 + 413,403 = 564,719$$

$$1.36602540378$$

$$413,403 + 1,129,438 = 1,542,841$$

$$1.3660540378$$

$$564,719 + 1,542,841 = 2,107,560$$

$$1.3660540378$$

$$\text{Log } 2 = .449984313472$$

1/N Pattern

$$\leftarrow 2 \quad .2222$$

$$0/1$$

$$\rightarrow 4 \quad .4984$$

$$\leftarrow 2 \quad .0062$$

$$158 \quad .9224$$

Zig-Zag Pattern

$$\begin{array}{c} \frac{1}{2} \leftarrow \frac{1}{1} \\ \frac{1}{3} \rightarrow \frac{2}{5} \leftarrow \frac{3}{7} \rightarrow \frac{4}{9} \leftarrow \frac{5}{11} \end{array}$$

$$\frac{13}{29} \leftarrow \frac{9}{20} \rightarrow .006015678$$

$$\rightarrow \frac{23}{49} \text{ etc 158 steps}$$

Note: $20 \times .449984313472 = 8.99968626944 \dots$

Just short of 9 Octaves,
also minutely flat of the 9th degree
of a 20-Tone equal scale.

Golden "Pelog" Progressions

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6 8 11 15 20.5 28 38.25 52.25 71.375
 3 4 5.5 7.5 10.25 14 19.125 (1.3660)

(4) 5 7 9.5 13 17.75 24.25 33.125 45.25 61.8125
 2 2.5 3.5 4.75 6.5 8.875 12.125 16.5625 (1.3660)

(10) 13 18 24.5 33.5 45.75 62.5 85.375 116.625 159.3125
 5 6.5 9 12.23 16.75 22.875 31.25 42.6875 (1.36602)

(7) 10 13.5 18.5 25.25 34.5 47.125 64.375 87.9375 120.125
 3.5 5 6.75 9.25 12.625 17.25 23.5625 32.1875 (1.3660)

21 21 29 68.5
 16 8 10.5

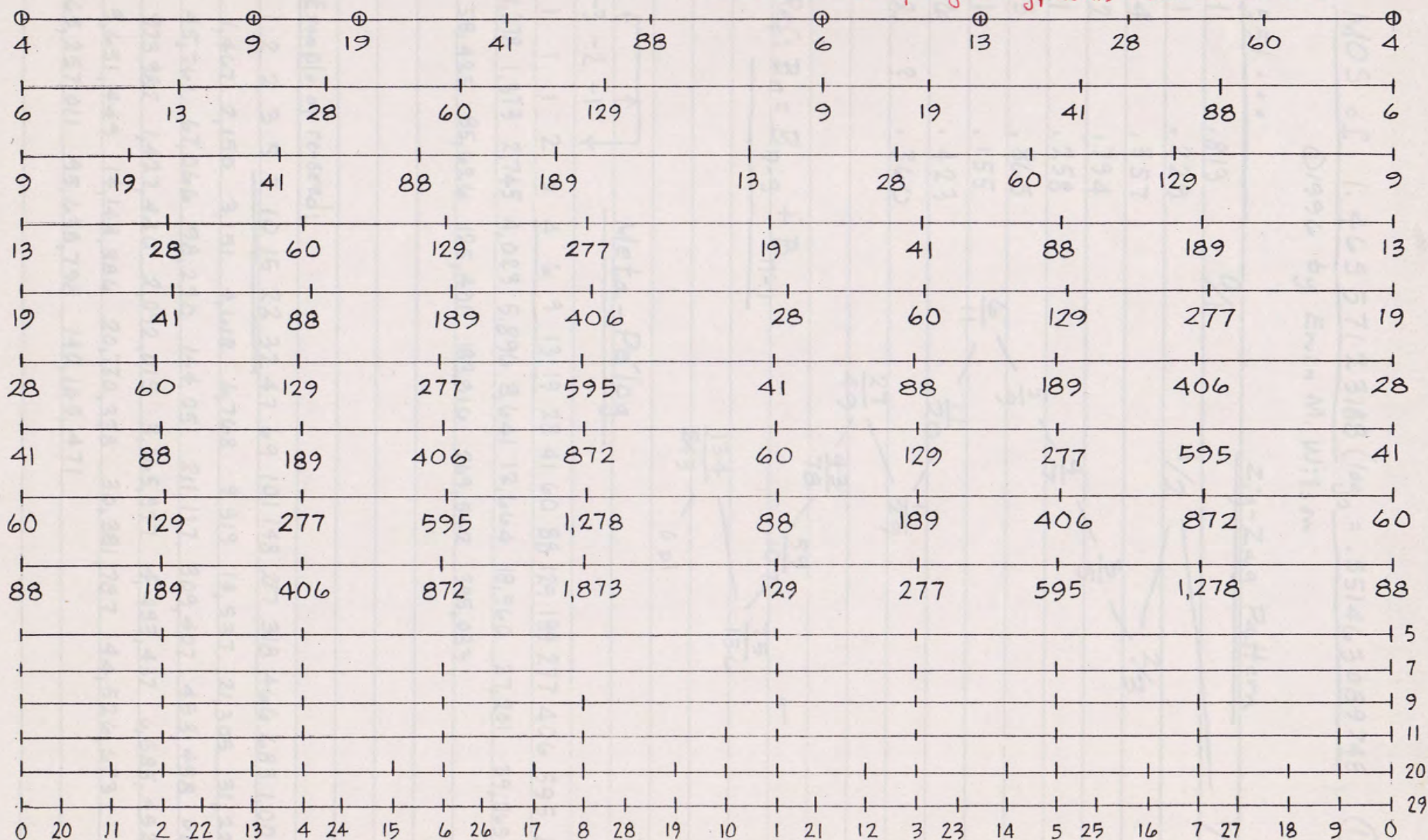
12 17 23 31.5 43 58.75 80.25 109.625 149.75 204.5625
 6 8.5 11.5 15.75 21.5 29.375 40.125 54.8125 74.875 102.28125

cont 279.4375 381.71875 521.4375 712.296875 973.015625
 190.859375 260.71875

A Progression of Meta-Pe'log 9-Tone Scales, and 2-Interval Patterns (MOS) Using .551463089748 *

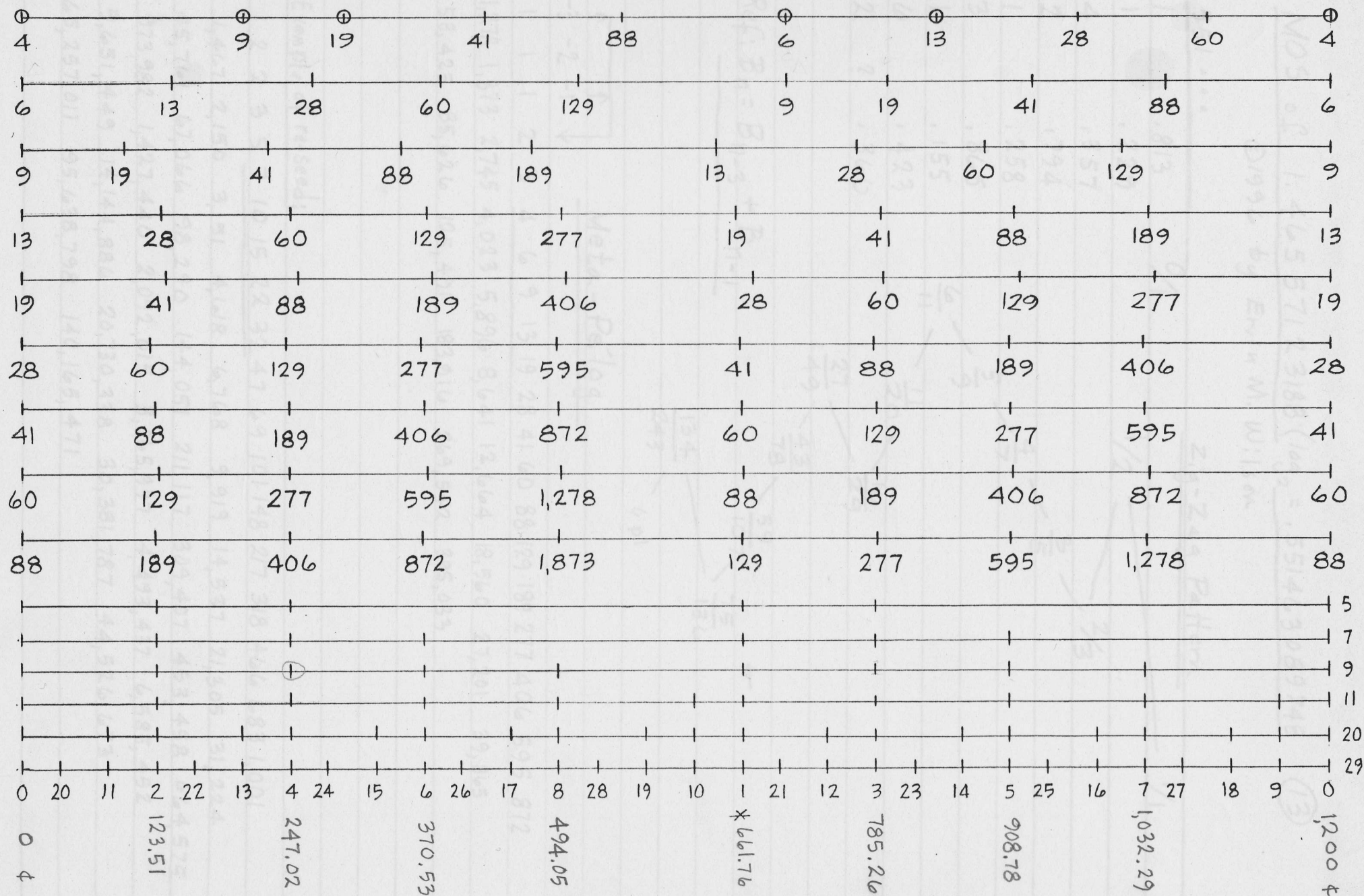
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↑ = log base 2 of 1.465571232...
— means Moments-of-Symetry, means 2-Interval patterns



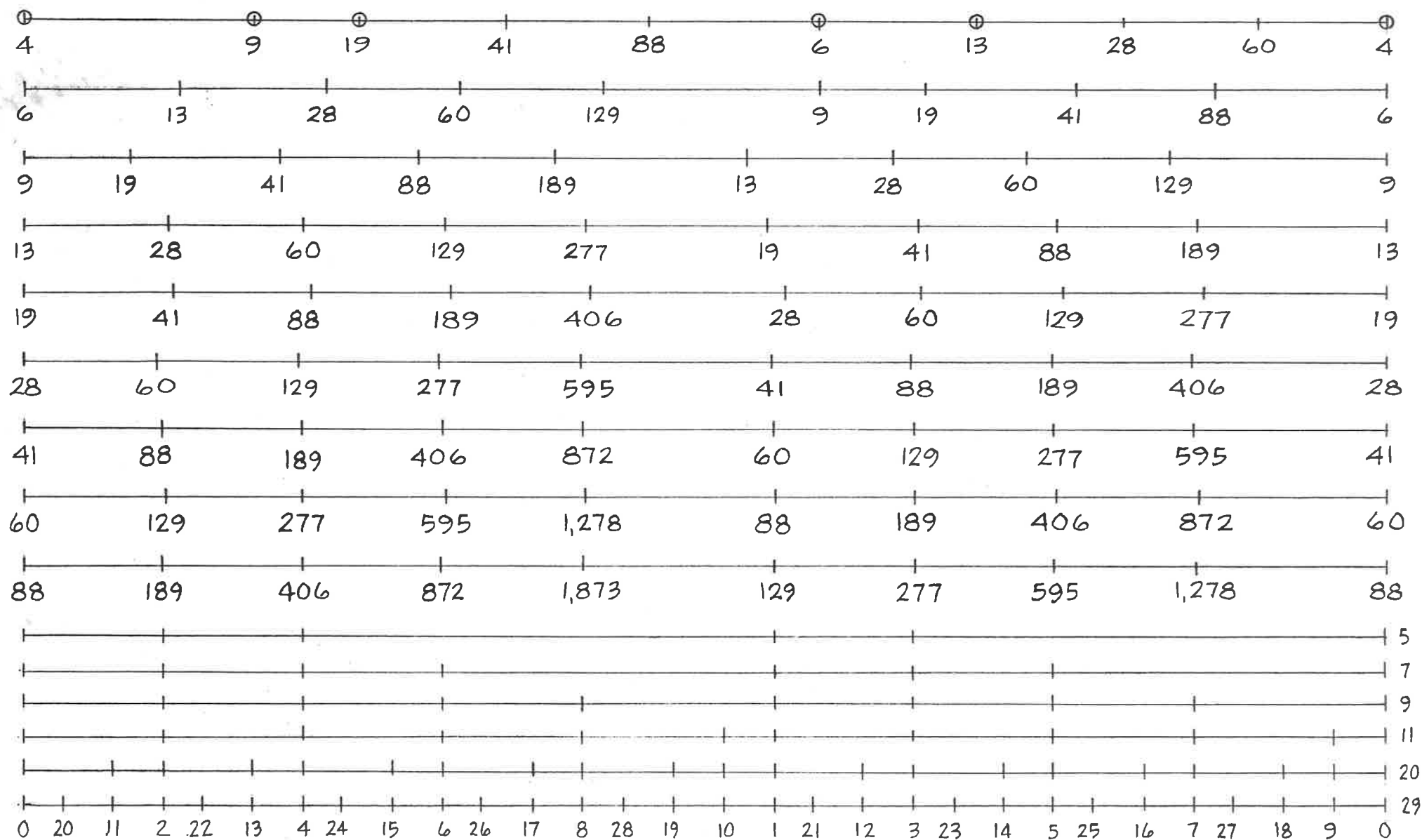
*

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$$\times 1200 = \underline{661.755707698} \text{ ¢}$$


Wilson

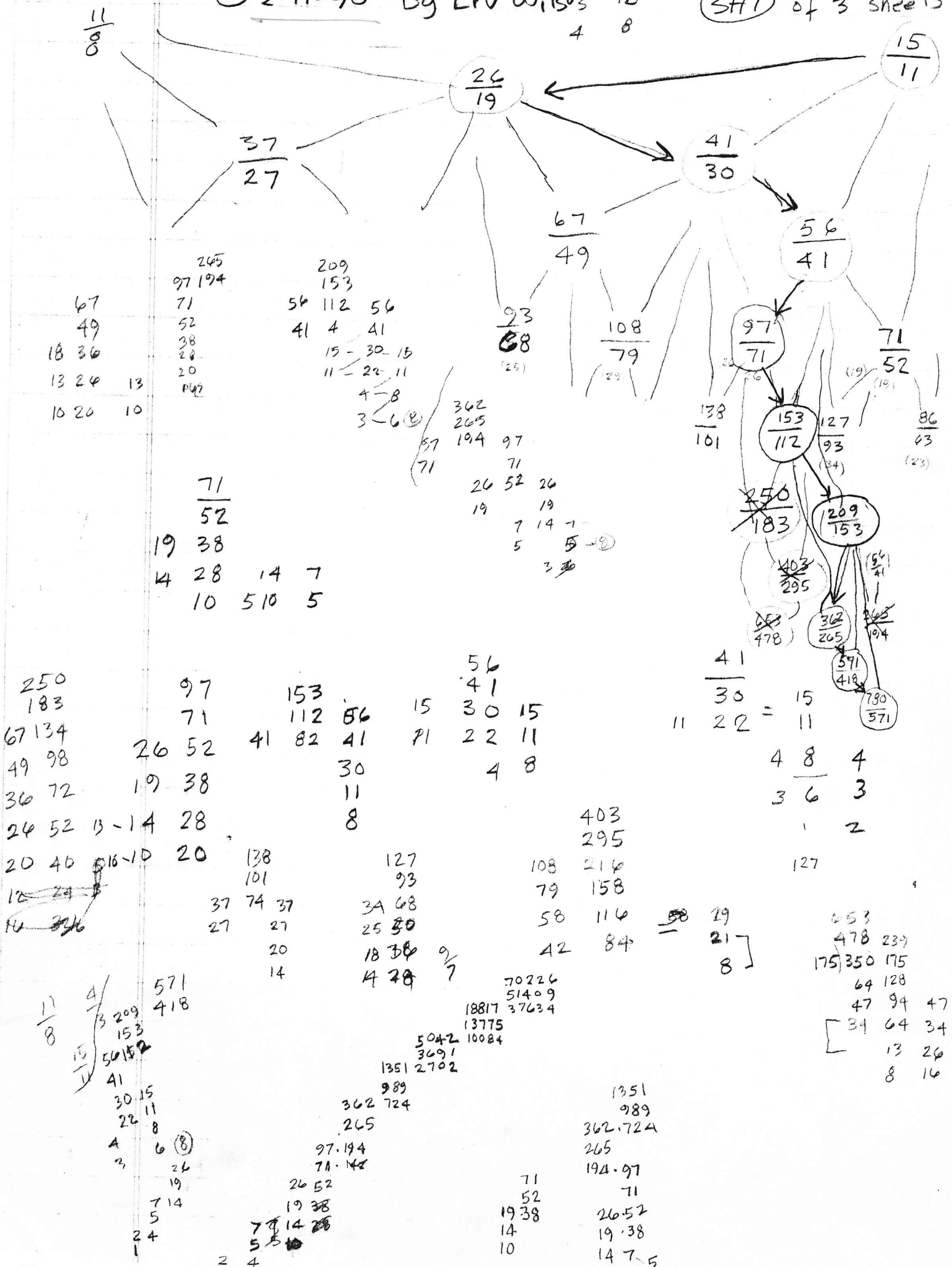
A Progression of Meta-Pe'log 9-Tone Scales, and 2-Interval Patterns (MOS) Using .551463089748 * ©1997 by Ervin M. Wilson



*

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SH1 of 3 sheets



Ø Pelog 4th

SH 2
of 3

C

1.00

F+

1.36079

220

299.3738

108.0010734

18817
13775 B

1.851749425

407.3848734

2521

5042 "

1351

989

342-724

265-530

194 97

71

26 52

19 19

14 7

10 5

A

18817

- 13775

5024

70226

- 51409

18817

262087

191861

1621800000

(70226) 29681

140452 100 51049

(51409) 32592 70226

102818 51409

18817

18817

51409

70226

191861

262087

151316

413403

10864 > 1.183012703

29681 > 1.154700539

70226 > 1.183012702

40545 > 1.154700538

110771 > 1.183012702

110771 > 1.154700538

151316 > 1.183012702

151316 > 1.154700538

(13/11)!

(15/13)!

(15:13:11)!

8

19

41

15 30

11 22

4 8

3 6

2 4

11

26

15

71

41

56

265

14

22

60

82

112

1.1875

1.157894737

1.181818182

1.153846154

1.183333333

1.154929577

1.182926829

1.154639175

1.183035714

112

265

342/181

209

989

1351

3691

5042

2911

13775

18817

1.1547169981

1.183006536

1.154696133

1.183014354

1.154701719

1.183012259

1.154700222

1.183012821

1.154700623

1.18301271

1.154700537

2131

2131

1560

571 1142

418 209

300 153

56 112

41 15

30 11

22 11

18 8

3 6

5042

3691

7953

5822

2131

10864

7953

5822

2911

2131

etc

9

11

20

29681

- 21728

15906

10864

7953

40545

29681

10864

41

110771

- 81090

29681

151316

- 110771

40545

- 413403

302632

110771

413403

302632

151316

110771

10864 21728

7953

5822 2911

2131

1560 780

571

209 418

152

56 112

41

15 30

11

48

3

1.366025404 (15/11)!

40545 81090

29681

10864 21728

7953

5822 2911

2131

1560 780

571

209 418

152

56 112

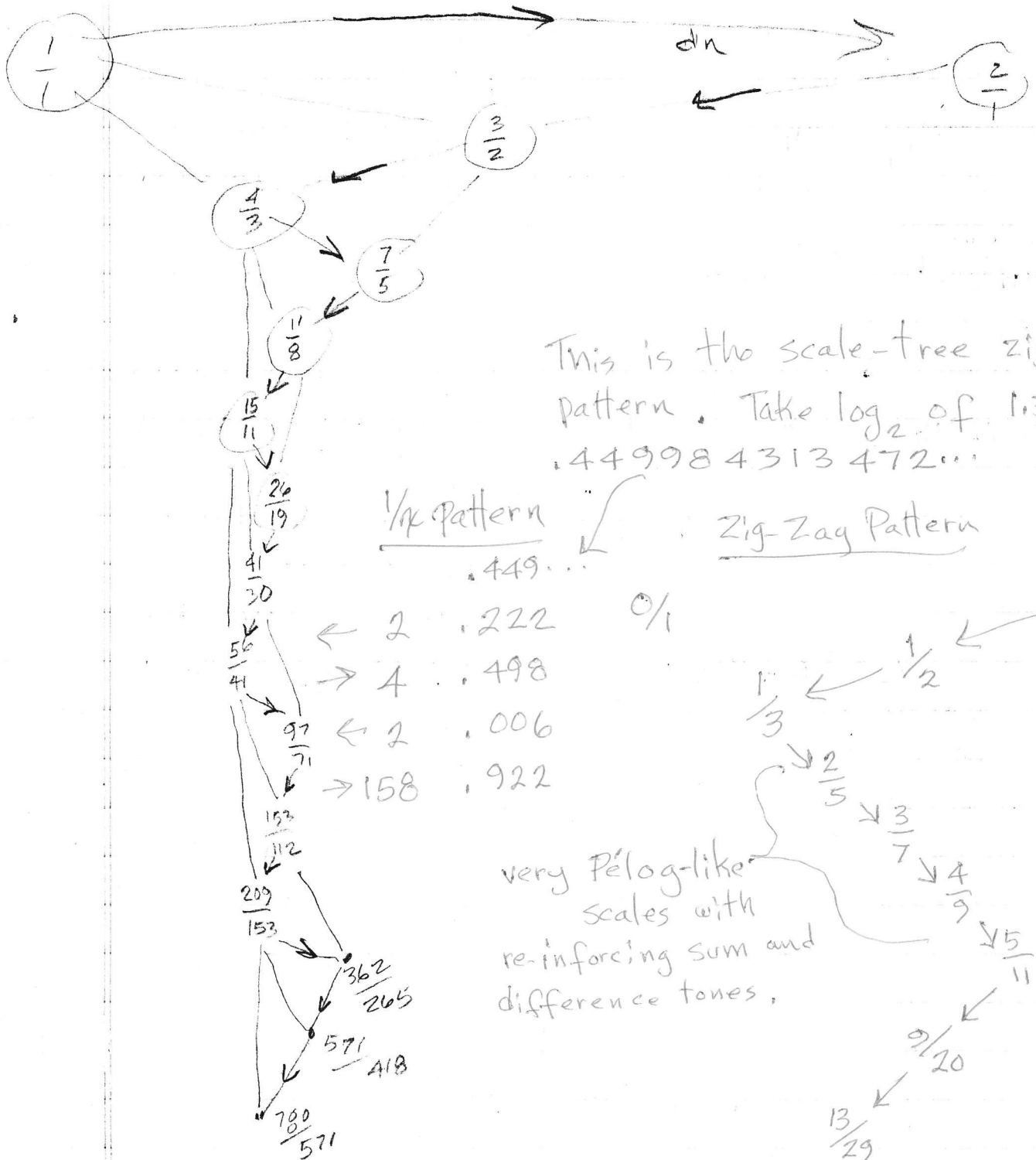
41

15 30

11

48

3



This is the scale-tree zig-zag pattern. Take $\log_2$ of 1.366...
 .449984313472...

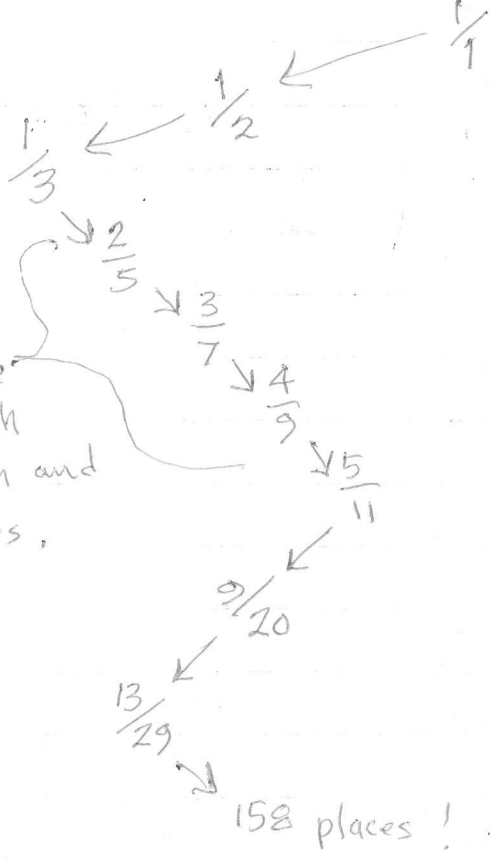
1/x pattern

Zig-Zag Pattern

← 2	.222
→ 4	.498
← 2	.006
→ 158	.922

0/1

very Pélég-like
 scales with
 re-inforcing sum and
 difference tones.



56
 41
 30

37
 27
 10 20
 9 14
 15 12

41
 30
 15 30
 11 = 22

41
 30
 22
 16

67
 49
 36 18
 26 12

15 - 11 - 9 - 3

11

15

11

8

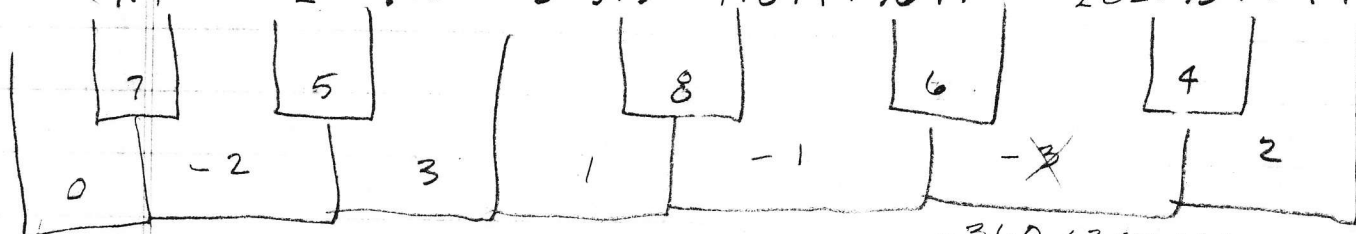
12

of 3

Φ ~~Golden~~ Pelog Fourth

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Degree	Linear	Log ₂	Pitch	Base 264
0.	0	.000000000	1.000000000	264.0000000
1.	7	.149890194	1.109485024	292.9040464
2.	5	.249921567	1.189142465	313.9336108
3.	3	.34995294	1.274519053	336.47303
4.	1	.449984313	1.366025404	360.6307066 -
5.	8	.599874507	1.515584728	400.1143683
6.	6	.69990588	1.624398816	428.8412874
7.	4	.799937253	1.741025404	459.6307066 -
8.	2	.899968627	1.866025404	492.6307066 -
9.	0	1.0	2.0	528.0
(5.)	-1	.550015686	1.464101615	386.5228264
(1.)	-2	.100031373	1.07179677	282.9543472



0./0	264.000	6 7 9
1./7	292.904	1 2 3 10
2./5	313.934	2 3 4 6 7 10
3./3	336.473	1 3 4 7 8 10
4./1	360.630	1 2 3 6 9 10
5./8	400.114	1 6 8 9 10
6./6	428.841	3 4 6 7 8 9 10
7./4	459.630	3 6 7
8./2	492.630	2 3 6 7 8

5./-1	386.522	2 4 5 6 7 9 10
1./-2	282.954	2 5 7 8 9

$\left. \begin{array}{l} 360.6307066 \\ 336.47303 \\ 264.00000 \end{array} \right\} \begin{array}{l} 24.157666 \\ 72.47303 \end{array}$
 $\left. \begin{array}{l} 360.6307066 \\ -264 \end{array} \right\} 96.6307066$

$$\left(\begin{array}{ll} 492 - 459 = 33 & 1 \\ 492 - 360 = 132 & 4 \\ 459 - 360 = 99 & 3 \end{array} \right) \text{The Pelog Triplet}$$



34995294

MOS of 1.465 571 23188 ($\log_2 = .551463089748$)

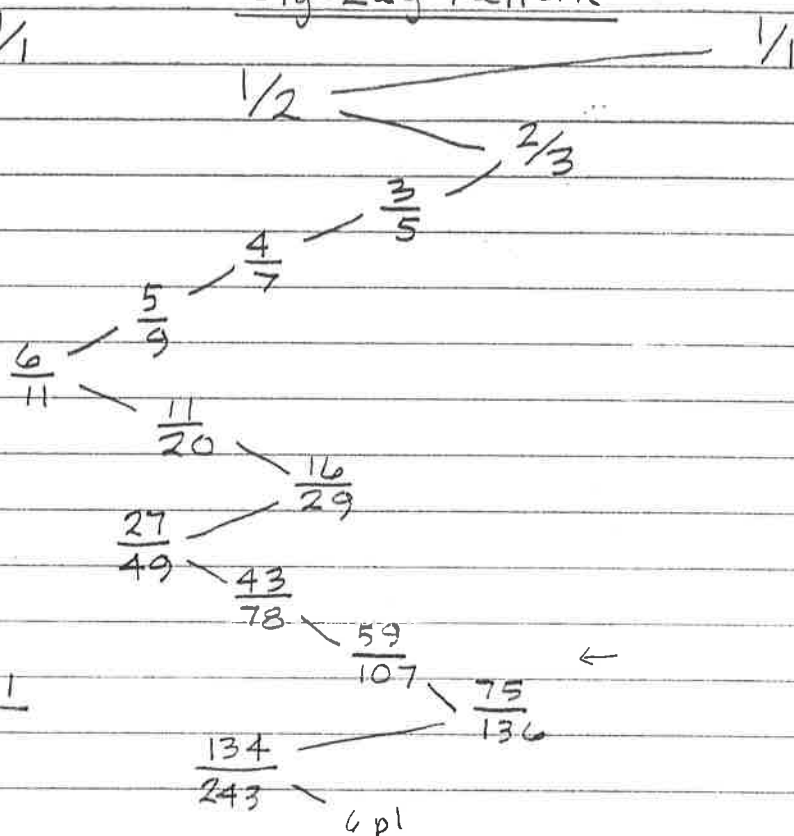
(13)

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.551...

Zig-Zag Pattern

← 1 .813 0/1
→ 1 .229
← 4 .357
→ 2 .794
← 1 .258
→ 3 .865
← 1 .155
6 .423
2 ? .360



RCL 1 Ref: $B_n = B_{n-3} + B_{n-1}$

+
RCL 3
=

STO 3, Meta-Perlog

R/S -3 -2 -1 ↓

+ 1 1 1 2 3 4 6 9 13 19 28 41 60 88 129 189 277 406 595 872

RCL 2 1,278 1,873 2,745 4,023 5,896 8,641 12,664 18,560 27,201 39,865

= 58,425 85,626 125,491 183,916 269,542 395,033

STO 2,

R/S

+

RCL Example of re-seed;

= 1 2 2 3 5 7 10 15 22 32 47 69 101 148 217 318 466 683 1,001

STO 1, 1,467 2,150 3,151 4,618 6,768 9,919 14,537 21,305 31,224

45,761 67,066 98,290 144,051 211,117 309,407 453,458 664,575

973,982 1,427,440 2,092,015 3,065,997 4,493,437 6,585,452

9,651,449 14,144,886 20,730,338 30,381,787 44,526,673

65,257,011 95,638,798 140,165,471

Meta Pélog

1.465 571 232

1551 463 090

Log₂

←

1 .813

→

1 .229

←

4 .357

→

2 .794

←

1 .258

3 .865

1 .155

6 .423

2 .360

0/1

1/2

2/3

3/5

4/7

5/9

6/11

11/20

16/29

27/49

1/1

29/6

0 0 0

28

0 0 0

27

0 0 0

26

-2

25

+7

24

0 0 0

23

0 0 0

22

+5

21

0 0 0

20

0 0 0

19

-3

18

0 0 0

17

0 0 0

16

+1

15

0 0 0

14

0 0 0

13

-1

12

0 0 0

11

0 0 0

10

-3

9

+6

8

0 0 0

7

0 0 0

6

+4

5

0 0 0

4

0 0 0

3

+2

2

0 0 0

1

0 0 0

0

0 0 0