

844 N. Ave 65
Los Angeles, CA 90042
Nov 28, 1992

Dear John,

In these Harrisonian resonant triads I am attempting to set a rigorous format from which all the remaining sets can be readily inferred and calculated. I find that even up to a 5-tone chain context a number of important relationships have been broadly overlooked. The acoustic gold value (1.618...) crops up in some of these, in the calculations — I would guess that gold lies just below the surface in all, altho I cannot prove it.

yours,

Ern Wilson

NOTE

proportional triad, example; 4, 5, 6 and its re-voicing 4, 6, 10^(2x5) which is a sum-triplet. We may define each member of the triad in terms of the triplet, thus;

$$4 = (2 \times 5) - 6$$

$$A = (2B) - C$$

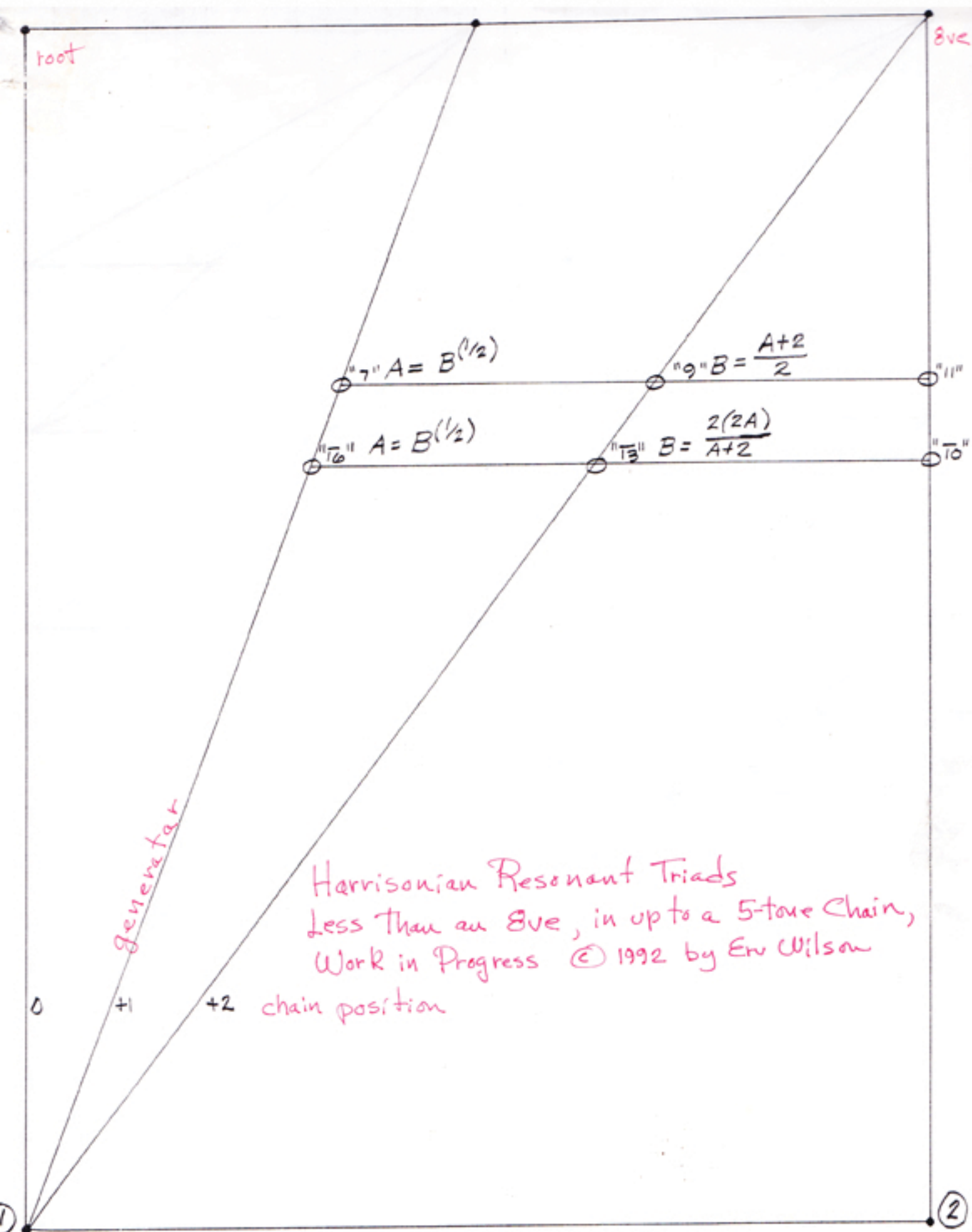
$$5 = \frac{4+6}{2} \text{ or } (2 \times 5) = 4+6$$

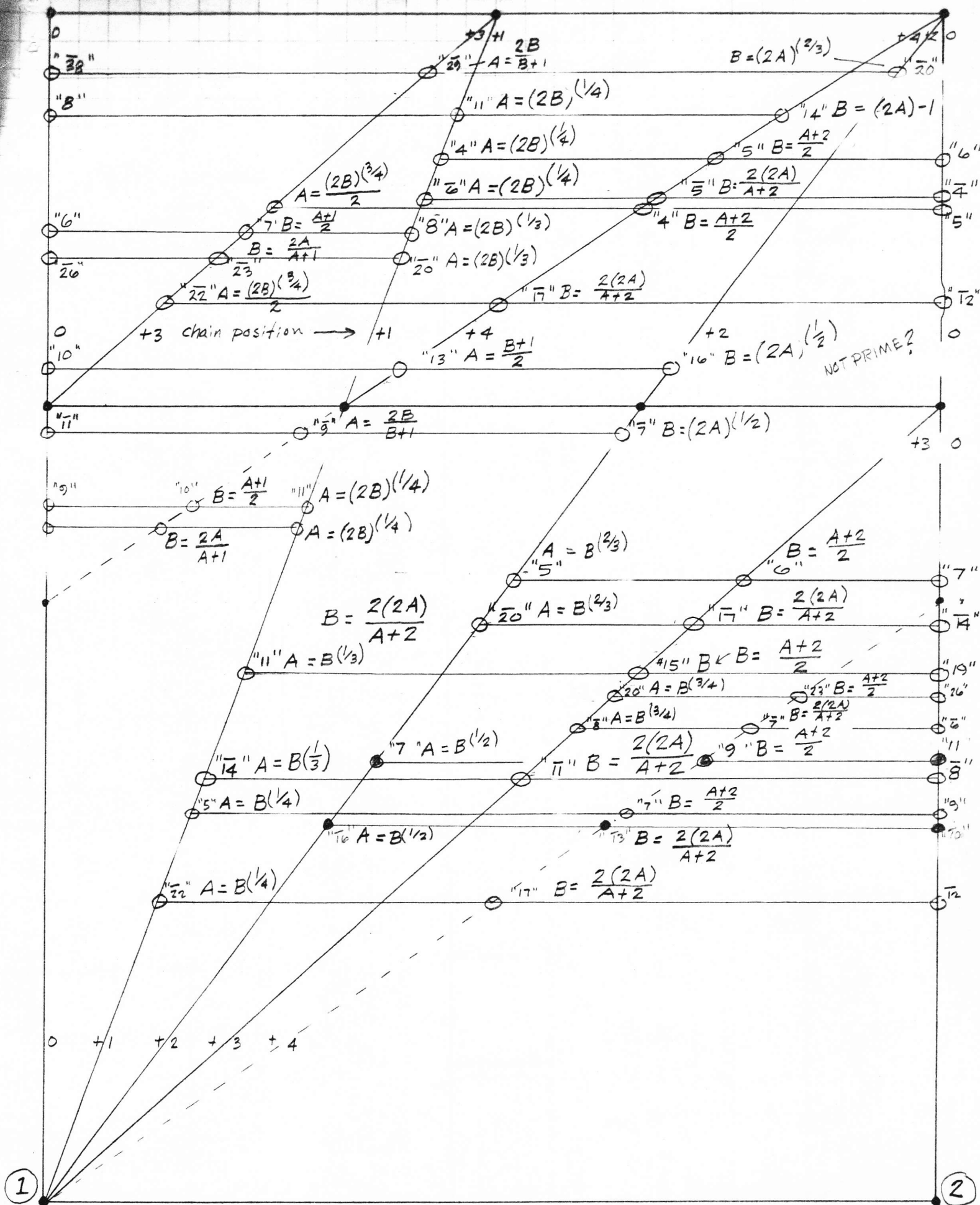
$$B = \frac{A+C}{2}, \quad 2B = A+C$$

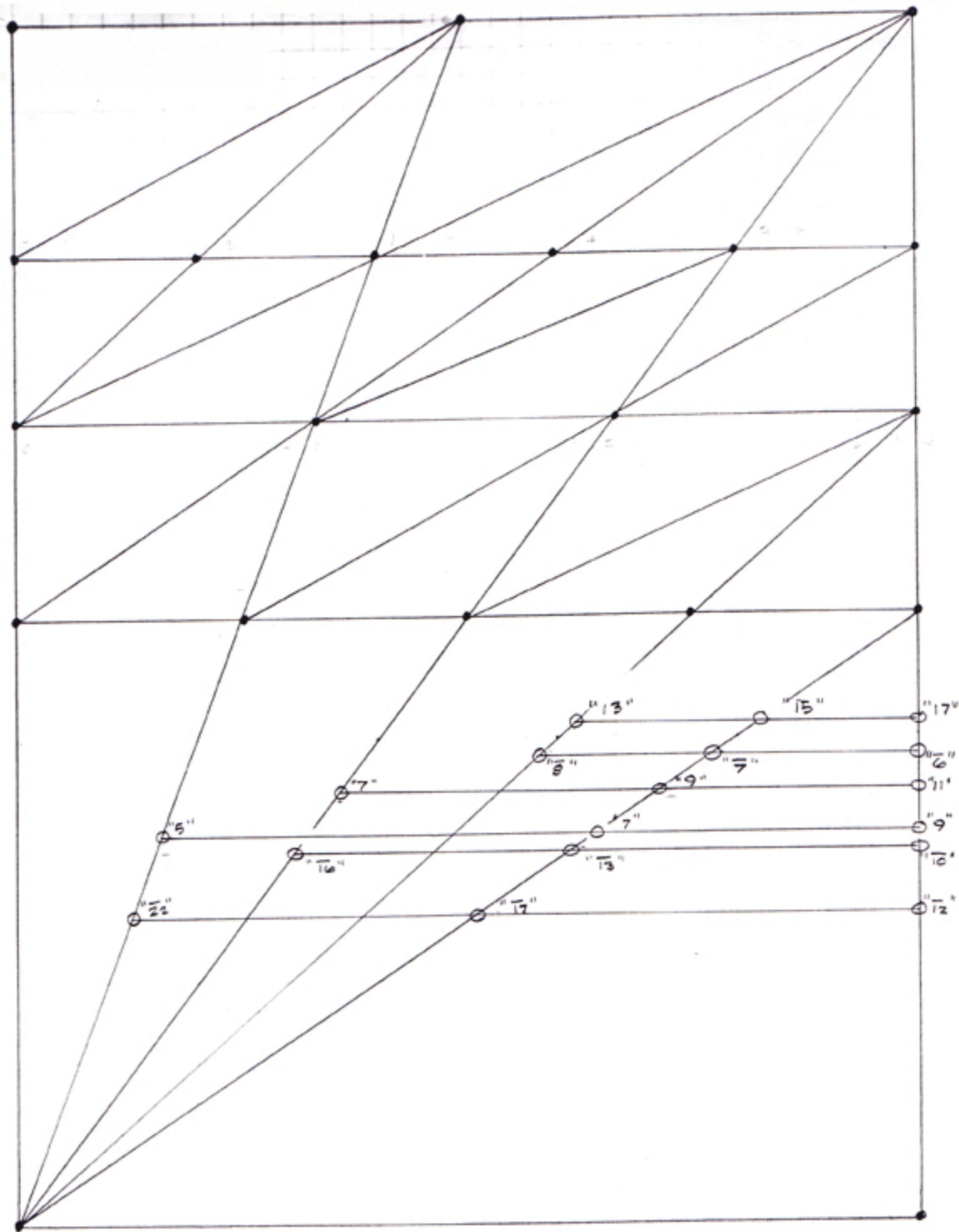
$$6 = (2 \times 5) - 4$$

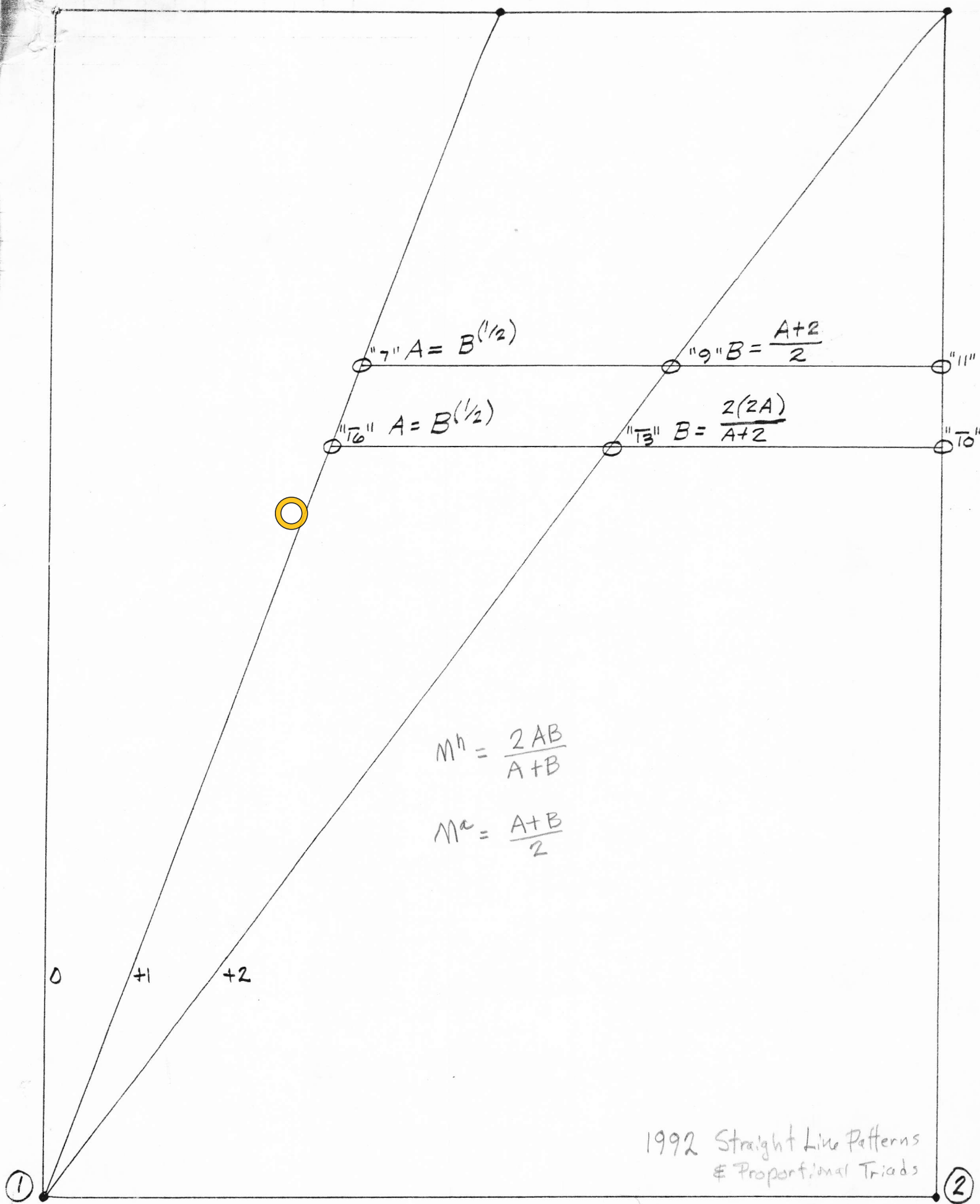
$$C = (2B) - A$$

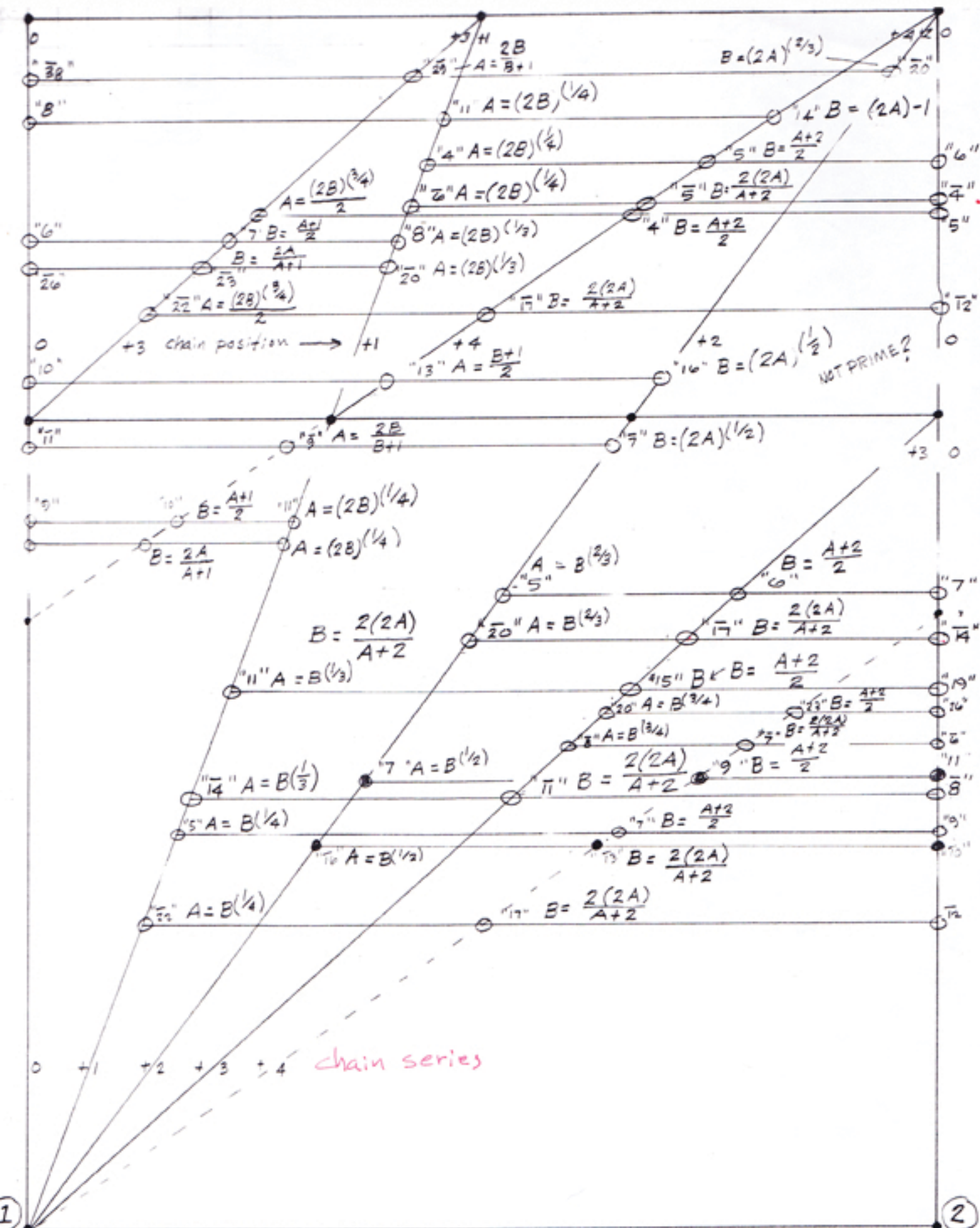
By defining the sum-triplet the proportional triad is also thereby defined.











$$A = \sqrt{B}$$

$$B = \frac{A+2}{2}$$

1.279204298
 1.280469503
 1.280716499
 1.280764713
 1.280774124
 1.280775961
 1.280776319
 1.280776389
 1.280776403
 1.280776406
 1.280776406
 1.280776406
1.2807764064 generator

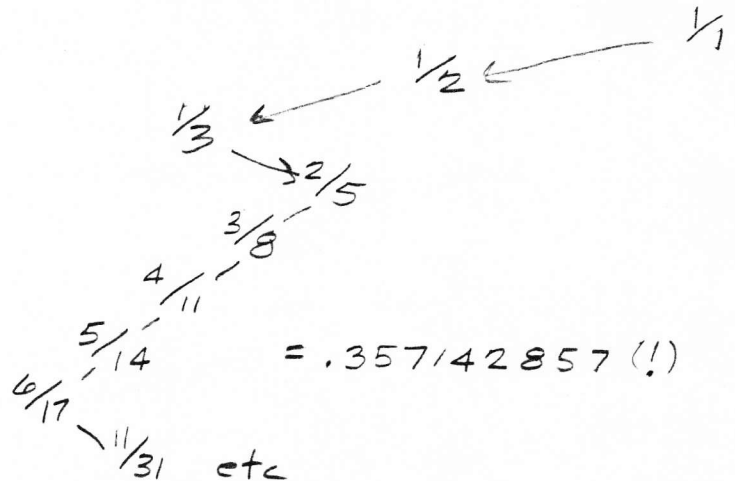
1.636363636
 1.639602149
 1.640234752
 1.64035825
 1.640382356
 1.640387062
 1.64038798
 1.64038816
 1.640388195
 1.640388202
 1.640388203
 1.640388203
 1.640388203
 1.640388203

$\log_2 .357018636$

$\frac{1}{N}$	Pattern
2	.800
1	.248
4	.024
40	.858

0/1

MOS



$= .357142857 (!)$

$$A = B^{(1/4)}$$

$$B = \frac{2(2A)}{A+2}$$

1.090980326

1.090046858

1.089895911

1.089871488

1.089867536

1.089866897

1.089866793

1.089866776

1.089866774

1.089866773

1.089866773

1.089866773

1.089866773

1.08986677306 generator

Log₂

.124151788587

1/x pattern

9/1

8 .054

18 .296

3 .377

2 .652

1 .533

1 .874

1 .144

6 .937

1 .066

15 .004

224 .953

1.416666667

1.411824355

1.411042496

1.410916021

1.410895556

1.410892245

1.410891709

1.410891622

1.410891608

1.410891606

1.410891606

1.410891606

1.410891606

1.410891606

MOS Pattern

$\frac{1}{9} - \frac{1}{8} - \frac{1}{7} - \frac{1}{6} - \frac{1}{5} - \frac{1}{4} - \frac{1}{3} - \frac{1}{2} \leftarrow \frac{1}{1}$
 $\frac{1}{9} - \frac{2}{17} - \frac{3}{25} - \frac{4}{33} - \frac{5}{41} - \frac{6}{49} - \frac{7}{57} - \frac{8}{65} - \frac{9}{73} - \frac{10}{81} - \frac{11}{89} - \frac{12}{97}$
 $\frac{13}{105} - \frac{14}{113} - \frac{15}{121} - \frac{16}{129} - \frac{17}{137} - \frac{18}{145} - \frac{19}{153} \leftarrow$
 etc $\leftarrow$

$$A = B^{(1/4)}$$

$$B = \frac{A+2}{2}$$

1.116789653

1.117298908

1.117344545

1.117348634

1.117349001

1.117349033

1.117349036

1.117349037

1.117349037

1.117349037

1.117349037

1.1173490366 generator

log₂ 16007992415

1/4 pattern

6 .246

4 .050

19 .778

1 .283

3 .524

1 .906

1 .109

9 .709

1 .409

2 .439

2 .274

3 .641

1 .559

1 .788

1 .267

3 .732

etc

1.555555556

1.558394826

1.558649454

1.558672272

1.558674317

1.5586745

1.558674517

1.558674518

1.558674518

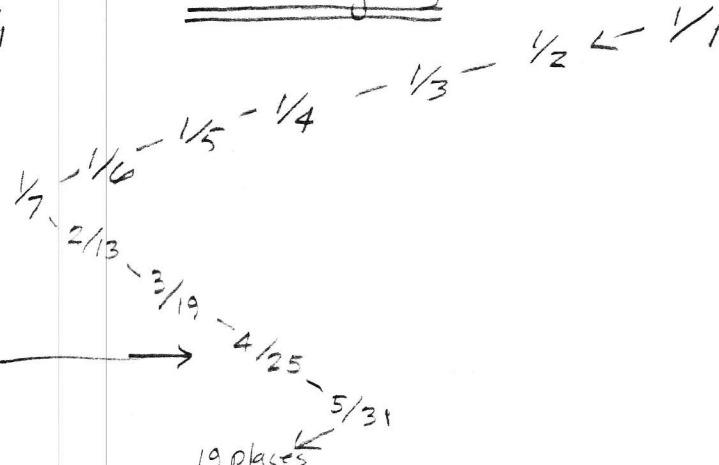
1.558674518

1.558674518

1.558674518

MOS Zigzag

0/1



$$A = B^{(1/3)}$$

$$B = \frac{2(2A)}{A+2}$$

1.13303267

1.130956324

1.130514851

1.130420865

1.13040085

1.130396588

1.13039568

1.130395487

1.130395446

1.130395437

1.130395435

1.130395435

1.130395435

1.130395435

1.13039543477 generator

Log 2

.176827544308

1/4 Pattern

5 .655

1 .526

1 .900

1 .110

9 .046

21 .462

2 .16

6 .221

4 .521

1 .917

1 .090

11 .079

12 .585

1.454545454

1.446563492

1.444870138

1.444509807

1.444433082

1.444416743

1.444413264

1.444412523

1.444412365

1.444412331

1.444412324

1.444412323

1.444412322

1.444412322

1.444412322

MOS Pattern

0/1

→ 1/6 — 1/5 — 1/4 — 1/3 — 1/2 — 1/1
 3/17 — 2/11 — 5/28
 11/62 — 8/45
 14/79 — 17/96
 20/130 — 23/113

→ 29/164 — 26/147
 32/181 → 21 pl

$$A = B\left(\frac{1}{3}\right)$$

$$B = \frac{A+2}{2}$$

1.164454574
 1.165 260 317
 1.165 359 209
 1.165 371 345
 1.165 372 835
 1.165 373 017
 1.165 373 04
 1.165 373 043
 1.165 373 043
 1.165 373 043
 1.165 373 043
 1.165 373 043
 1.165 373 04306 generator

1.578947368 First Guess
 1.582227287
 1.582630158
 1.582679605
 1.582685673
 1.582686417
 1.582686509
 1.58268652
 1.582686521
 1.582686522
 1.582686522
 1.582686522
 1.582686522

$\log_2 .220791844$

$\frac{1}{N}$ Pattern

9/1

4 .529
 1 .889
 1 .123
 8 .075
 13 .244
 4 .097
 10 .241
 4 .135
 7 .394
 2 .531
 1 .880
 1 .136
 7 .333
 2 .994
 1 .005
 192 .420

MOS pattern

$\frac{1}{5} \text{ --- } \frac{1}{4} \text{ --- } \frac{1}{3} \text{ --- } \frac{1}{2} \text{ --- } \frac{1}{1}$
 $\frac{1}{5} \text{ --- } \frac{2}{9} \text{ --- } .222222222$
 $\frac{3}{14} \text{ --- } \frac{5}{23} \text{ --- } \frac{7}{32} \text{ --- } \frac{9}{41} \text{ --- } \frac{11}{50} \text{ --- } \frac{13}{59} \text{ --- } \frac{15}{68} \text{ --- } \frac{17}{77} \text{ --- } \frac{19}{86} \text{ --- } \frac{36}{163} \text{ --- } \text{etc}$

$$A = (2B)^{(1/4)}$$

Meta-meantone

$$B = \frac{2(2A)}{A+2}$$

1.33748061
1.338103426
1.338196748
1.338210727
1.338212821
1.338213135
1.338213181
1.338213189
1.33821319
1.33821319
1.33821319
1.33821318975 generator

Log₂

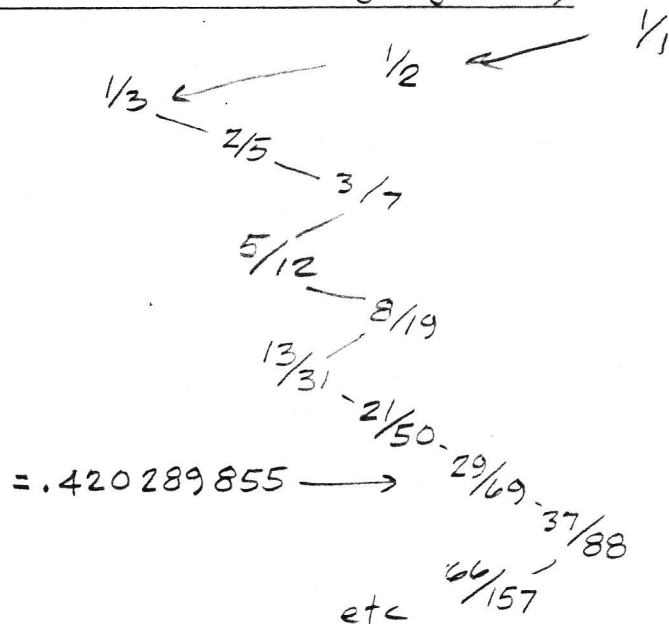
.420307968965

1/4 Pattern

2 .379
2 .637
1 .569
1 .755
1 .323
3 .088
11 .320

0/1

MOS Pattern (Zig-Zag Pattern)



$$A = (2B)^{1/4}$$

meta-mavila

$$B = \frac{A+2}{2}$$

1.351200155

1.353007151

1.353189502

1.3532079

1.353209756

1.353209943

1.353209962

1.353209964

1.353209964

1.353209964

1.353209964

1.3532099642

Log2

.4363857054

1/4 Pattern

2 .291

3 .429

2 .325

3 .068

14 .688

1 .452

2 .209

4 .782

1 .277

3 .600

1 .665

1 .503

1 .986

1 .014

.71 .350

0/1

1.666666666

1st guess

1.675600077

1.676503575

1.676594751

1.67660395

1.676604878

1.676604972

1.676604981

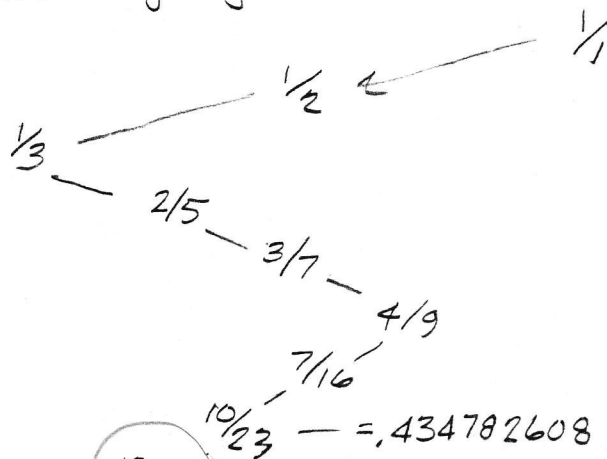
1.676604982

1.676604982

1.676604982

1.676604982

MOS zig-zag Pattern



= .434782608

$$A = \frac{2B}{B+1}$$

$$B = (2A)^{(1/2)}$$

1.222222222

1.219808111

1.219337658

1.219245857

1.219227939

1.219224442

1.219223759

1.219223626

1.2192236

1.219223595

1.219223594

1.219223594

1.219223594

1.219223594

1.2192235936

IS THIS a Bad Answer?

$$(2A)^{(1/4)} = 1.24962106769 \text{ generator}$$

$$\log_2 .321490681571$$

1/x Pattern

3 .110

9 .048

20 .429

2 .330

0/1

1.571428571

1.56347192

1.561927086

1.561625856

1.56156707

1.561555596

1.561553356

1.561552919

1.561552834

1.561552817

1.561552814

1.561552813

1.561552813

1.561552813

1.561552813

MOS Pattern

1/4 ← 1/3 — 1/2 — 1/1
 1/4 - 2/7 - 3/10 - 4/13 - 5/16 - 6/19 - 7/22 - 8/25 - 9/28 - 10/31
 9/28 = .321428571 ←
 etc

$$A = (2B)^{(1/3)}$$

Meta Slendro

$$B = \frac{A+1}{2}$$

1.326352403
1.325028342
1.324776911
1.324729155
1.324720084
1.324718361
1.324718034
1.324717972
1.32471796
1.324717958
1.324717957
1.324717957
1.324717957
1.324717957
1.324717957

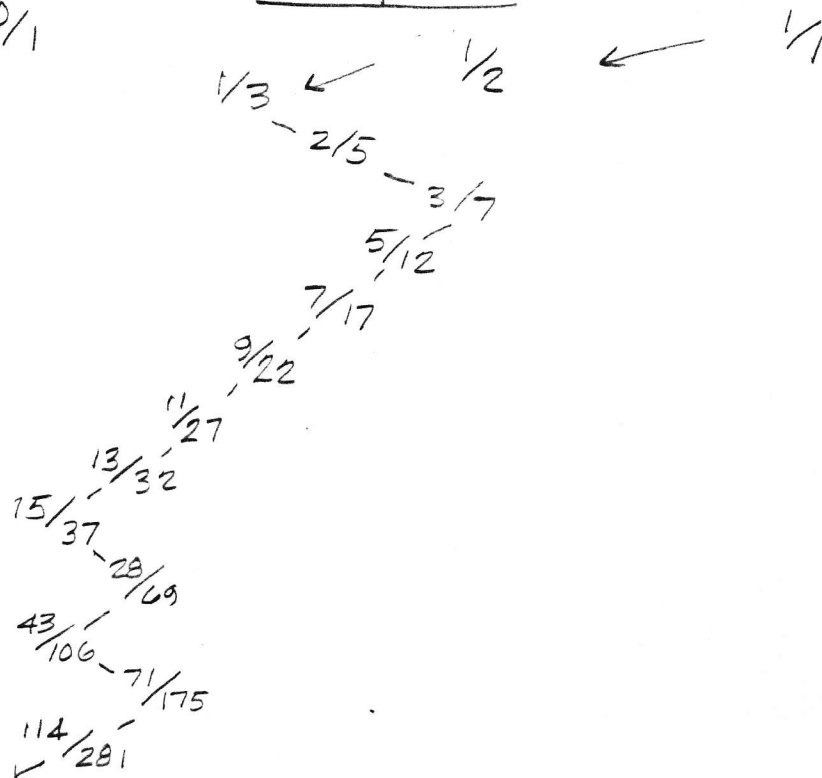
1.166666667 (guess)
1.163176201
1.162514171
1.162388456
1.162364578
1.162360042
1.162359181
1.16235917
1.162358986
1.16235898
1.162358979
1.162358979
1.162358979
1.162358979
1.162358979

1.32471795724 generator
Log₂ .405685231369 different

<u>1/2</u>	<u>Pattern</u>
2	.464
2	.150
6	.635
1	.572
1	.745
1	.341
2	.929
1	.075
13	.276

0/1

MOS pattern



$$A = (2B)^{(1/3)}$$

sub-Contrary S'lendro

$$B = \frac{2A}{A+1}$$

1.312477406

1.314290725

1.314552211

1.314589875

1.3145953

1.314596081

1.314596193

1.31459621

1.314596212

1.314596212

1.314596212

1.314596212

1.31459621227 = generator

$\log_2$

.394619733349

1/4 Pattern

2 .534

1 .872

1 .146

6 .834

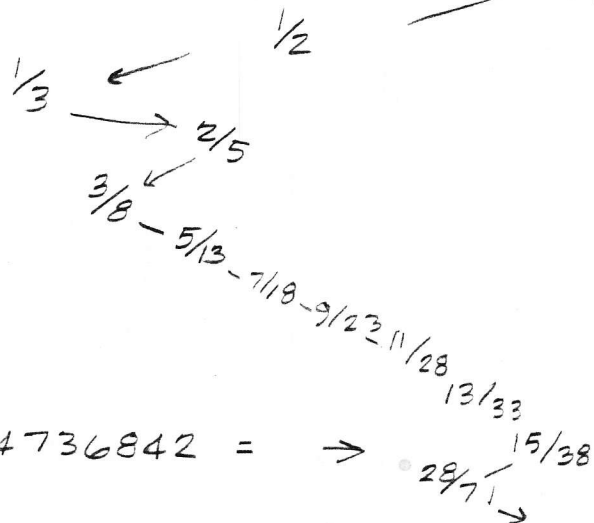
1 .198

5 .045

22 .191

0/1

Mos Pattern



$$A = (2B)^{(1/4)}$$

$$B = \frac{2A}{A+1}$$

1.214285714

1.216989426

1.217294875

1.217329322

1.217333206

1.217333643

1.217333693

1.217333698

1.217333699

1.217333699

1.217333699

1.217333699

1.21733369906 generator

Log₂

,283724698033

1/x Pattern

3 .524

0/1

1 .906

1 .103

9 .686

1 .457

2 .185

5 .397

2 .516

1 .937

1 .066

15 .051

19 .419

2 .382

2 .613

1 .629

1 .589

1.096774194

1.097875715

1.097999999

1.098014002

1.098015582

1.098015761

1.098015781

1.098015783

1.098015783

1.098015783

1.098015783

1.098115783

MOS Pattern

1/4 — 1/3 ← 1/2 — 1/1
 3/11 — 2/7
 5/18 — 7/25 — 9/32 — 11/39 — 13/46 — 15/53

← 17/60 — 19/67 — 21/74 ←
 40/141 — 61/215 — 82/289
 etc

$$A = (2B)^{(1/4)}$$

$$B = \frac{A+1}{2}$$

1.220947167

1.220771992

1.22074792

1.220744612

1.220744157

1.220744095

1.220744086

1.220744085

1.220744085

1.220744085

1.220744085

1.22074408461

generator

Log 2

.287760787088

1/4 Pattern

3 .475

2 .104

9 .543

1 .839

1 .191

5 .227

4 .396

2 .525

1 .904

1 .105

9 .449

2 .223

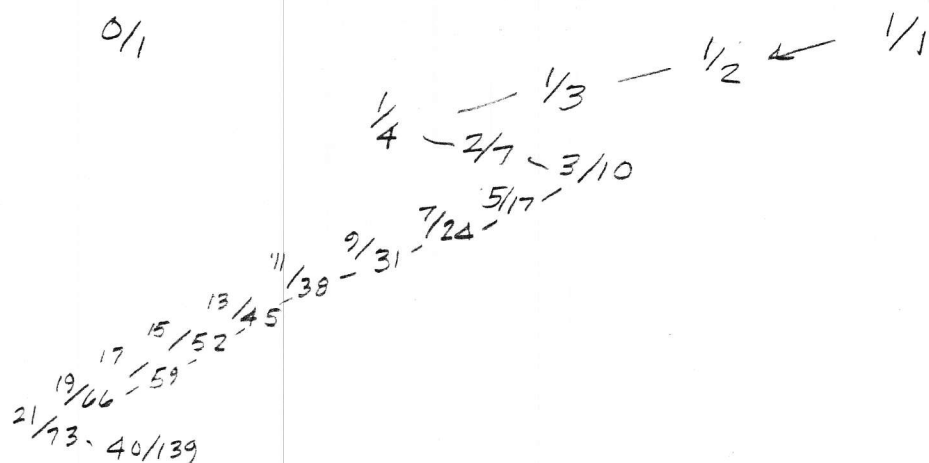
4 .482

2 .073

13 .654

0/1

MOS Pattern



$$A = (2B)^{(1/4)}$$

$$\left(\begin{array}{l} \frac{B+1}{2} = A \\ B+1 = 2A \\ B = (2A) - 1 \end{array} \right)$$

$$B = (2A) - 1$$

1.3677824
 1.364953031
 1.363839075
 1.363399747
 1.363226366
 1.363157923
 1.363130901
 1.363120233
 1.363116021
 1.363114358
 1.363113701
 1.363113442
 1.36311334
 1.363113299
 1.363113283
 1.363113277
 1.363113275
 1.363113274
 1.363113273
 1.363113273
 1.363113273
 1.363113273

1.36311327294 generator

Log 2

.446905453207

1/x Pattern

2 .237
 4 .208
 4 .794
 1 .258
 3 .861
 1 .161
 6 .204
 4 .890
 1 .123
 8 .098
 10 .102

9/1

MOS Pattern

1/3 — 2/5 — 3/7 — 4/9 — 5/11 — 1/1
 13/29 — 9/20
 → 21/47 — 17/38 — 38/85
 59/132 — 80/179
 → 101/226 — 181/405
 etc
 6 places

golden

$$A = B^{(1/2)}$$

$$B = \frac{2(2A)}{A+2}$$

1.240347346

1.237387924

1.23647563

1.236193927

1.236106896

1.236080004

1.236071694

1.236069126

1.236068332

1.236068087

1.236068011

1.236067988

1.236067981

1.236067979

1.236067978

1.236067978

1.236067978

1.236067978

1.2360679775 ($\div 2 = .618...$)

$A^{(1/2)}$

$\log_2$

1.1117859405

generator

1.152879043181

1/4 pattern

0/1

6 .541

1 .848

1 .179

5 .579

1 .724

1 .380

2 .627

1 .592

1.538461538

1.531128874

1.528871983

1.528175424

1.527960258

1.527893776

1.527873232

1.527866884

1.527864922

1.527864316

1.527864129

1.527864071

1.527864053

1.527864047

1.527864046

1.527864045

1.527864045

1.527864045

1.527864045 ($\div 4 = .381...$)

MOS Pattern

$\frac{1}{15} - \frac{1}{16} - \frac{1}{15} - \frac{1}{4} - \frac{1}{3} - \frac{1}{2} \leftarrow \frac{1}{1}$
 $\frac{1}{17} - \frac{2}{13} \leftarrow$
 $\frac{3}{20} - \frac{5}{33} - \frac{7}{46} - \frac{9}{59} - \frac{11}{72} - \frac{13}{85}$
 $\frac{24}{157} \leftarrow \frac{37}{242}$

$$A = B^{(1/2)}$$

$$B = \frac{A+2}{2}$$

1.279204298
 1.280469503
 1.280716499
 1.280764713
 1.280774124
 1.280775961
 1.280776319
 1.280776389
 1.280776403
 1.280776406
 1.280776406
 1.280776406
 1.280776406
 1.28776406
 1.287764064

$A^{(1/2)}$

$\log_2$

1.13171392428

generator

1.178509318432

1/4 Pattern

0/1

5	.601
1	.661
1	.512
1	.952
1	.050
10	.929
1	.076
13	.108
9	.214
4	.658
1	.517
1	.931
1	.073
13	.648

1.636363636
 1.639602149
 1.640234752
 1.64035825
 1.640382356
 1.640387062
 1.64038798
 1.64038816
 1.640388195
 1.640388202
 1.640388203
 1.640388203
 1.640388203
 1.640388203

MOS Pattern

$\frac{1}{6} \leftarrow \frac{1}{5} - \frac{1}{4} - \frac{1}{3} - \frac{1}{2} \leftarrow \frac{1}{1}$
 $\frac{3}{17} \leftarrow \frac{2}{11}$
 $\frac{8}{45} \leftarrow \frac{5}{28} \leftarrow \frac{5}{28} = .178571428$
 $\frac{13}{73} \rightarrow \text{etc}$

$$A = B \left(\frac{2}{3}\right)$$

$$B = \frac{2(2A)}{A+2}$$

1.394674113
 1.392589432
 1.391771229
 1.391449757
 1.391323398
 1.391273722
 1.391254192
 1.391246514
 1.391243495
 1.391242308
 1.391241841
 1.391241658
 1.391241586
 1.391241557
 1.391241546
 1.391241542
 1.39124154
 1.39124154
 1.391241539
 1.391241539
 1.391241539
 1.391241539
 1.39124153912

1.647058824
 1.643367306
 1.641919201
 1.641350356
 1.641126782
 1.641038892
 1.641004338
 1.640990753
 1.640985411
 1.640983311
 1.640982486
 1.640982161
 1.640982033
 1.640981983
 1.640981964
 1.640981956
 1.640981953
 1.640981952
 1.640981951
 1.640981951
 1.640981951
 1.640981951

$$\sqrt{A} = 1.179509025$$

$$\text{Log2} = .238186456$$

1/n Pattern

$$4 \quad .198$$

$$5 \quad .040$$

$$24 \quad .668$$

91

$$\begin{array}{ccccccc}
 & & & & \frac{1}{2} & \leftarrow & \frac{1}{3} \\
 & & & \frac{1}{4} & \leftarrow & & \\
 & \frac{1}{5} & \leftarrow & & & & \\
 & & \frac{2}{9} & \leftarrow & \frac{3}{13} & \leftarrow & \frac{4}{17} \\
 & & & & \frac{5}{21} & \leftarrow & \frac{6}{25} \\
 & & & & & & \frac{11}{46} \\
 & & & & & & \text{etc}
 \end{array}
 = .238095238$$

$$A = B\left(\frac{2}{3}\right)$$

$$B = \frac{A+2}{2}$$

1.432370839
 1.433428842
 1.433723389
 1.433805386
 1.433828212
 1.433834566
 1.433836335
 1.433836827
 1.433836964
 1.433837002
 1.433837013
 1.433837016
 1.433837017
 1.433837017
 1.433837017
 1.43383701694

1.714285714 (1st guess)
 1.716185419
 1.716714421
 1.716861695
 1.716902693
 1.716914106
 1.716917283
 1.716918167
 1.716918414
 1.716918482
 1.716918501
 1.716918506
 1.716918508
 1.716918508
 1.716918508
 1.716918508

$$\sqrt{A} = \underline{1.19742933693} \text{ generator}$$

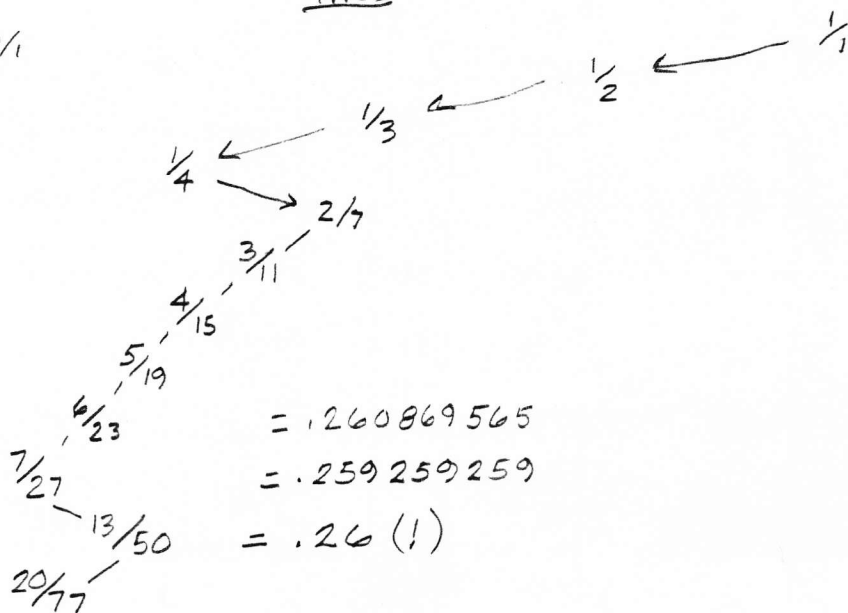
$\log_2 .259940521$

$1/x$ pattern

3. .847
 1 .180
 5 .537
 1 .860
 1 .161
 6 .185
 5 .401
 2 .489
 2 .042
 23 .431

0/1

MOS



$$A = B^{(3/4)}$$

$$B = \frac{2(2A)}{A+2}$$

1.498174513
 1.497392638
 1.497057461
 1.496913723
 1.496852072
 1.496825627
 1.496814284
 1.496809418
 1.49680733
 1.496806435
 1.496806051
 1.496805886
 1.496805816
 1.496805785
 1.496805772
 1.496805767
 1.496805764
 1.496805763
 1.496805763
 1.496805763
 1.496805763
 1.49680576252

1.714285714
 1.713092937
 1.712581678
 1.712362439
 1.712268407
 1.712228074
 1.712210773
 1.712203351
 1.712200168
 1.712198802
 1.712198216
 1.712197965
 1.712197857
 1.712197811
 1.712197791
 1.712197782
 1.712197779
 1.712197777
 1.712197777
 1.712197776
 1.712197776
 1.712197776

$A^{(1/3)}$

$\log 2$

1.14390111195

.193962339296

1/4 Pattern

5 .155
 6 .425
 2 .352
 2 .837
 1 .194
 5 .135
 7 .404
 2 .469
 2 .127

generator

91

MOS Pattern

$\frac{1}{10} - \frac{2}{11} - \frac{3}{14} - \frac{4}{21} - \frac{5}{26} - \frac{6}{31} - \frac{7}{36}$
 $\frac{1}{5} - \frac{1}{4} - \frac{1}{3} - \frac{1}{2} - \frac{1}{1}$
 $\frac{13}{67}$
 $\frac{19}{98} - \frac{32}{165} - \frac{45}{232}$
 $\frac{77}{397}$

$$A = B^{(3/4)}$$

$$B = \frac{A+2}{2}$$

1.53404593
 1.532609966
 1.532142892
 1.531990957
 1.531941532
 1.531925455
 1.531920224
 1.531918523
 1.53191797
 1.53191779
 1.531917731
 1.531917712
 1.531917706
 1.531917704
 1.531917703
 1.531917703
 1.531917703
 1.531917703
 1.53191770284

1.769230769
 1.767022965
 1.766304983
 1.766071446
 1.765995478
 1.765970766
 1.765962727
 1.765960112
 1.765959262
 1.765958985
 1.765958895
 1.765958866
 1.765958856
 1.765958853
 1.765958852
 1.765958852
 1.765958851
 1.765958851
 1.765958851

$A^{(1/3)}$

$\log_2$

1.15277658072

.205112931792

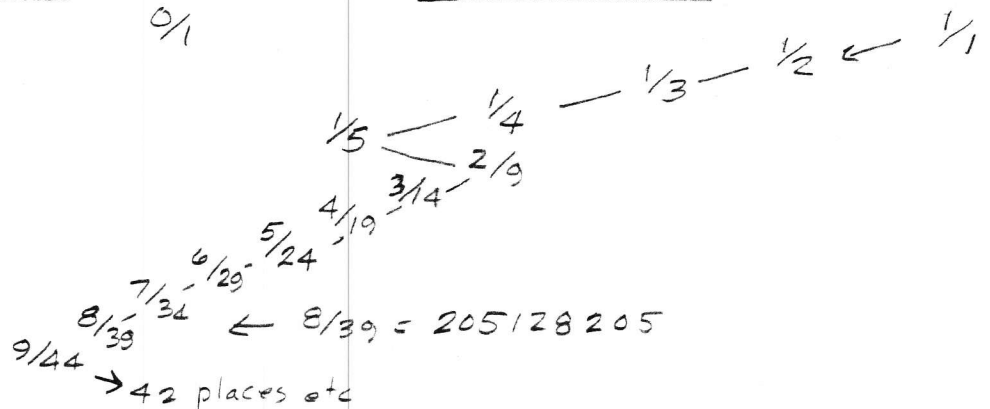
1/14 Pattern

4	.875
1	.142
7	.023
42	.918
1	.089
11	.22
4	.445
2	.222
4	.493
2	.024
40	.584

generator

0/1

MOS Pattern



$$A = \frac{(2B)^{(3/4)}}{2}$$

$$B = \frac{2(2A)}{A+2}$$

1.089091181
 1.088209793
 1.087782005
 1.087574267
 1.087473362
 1.087424343
 1.087400528
 1.087388958
 1.087383337
 1.087380606
 1.087379279
 1.087378635
 1.087378321
 1.087378169
 1.087378095
 1.087378059
 1.087378042
 1.087378033
 1.087378029
 1.087378027
 1.087378026
 1.087378026
 1.087378025
 1.08737802539

1.411764706
 1.410241546
 1.409502418
 1.409143525
 1.408969207
 1.408884527
 1.408843388
 1.408823401
 1.408813691
 1.408808973
 1.408806681
 1.408805567
 1.408805026
 1.408804763
 1.408804636
 1.408804574
 1.408804543
 1.408804529
 1.408804522
 1.408804518
 1.408804517
 1.408804516
 1.408804515
 1.408804515

$(2A)^{(1/3)}$

Log 2

1.29559774252 = generator

.373617859463 %

$\frac{1}{4}$ Pattern

2 : .676
 1 : .478
 2 : .091
 10 : .929
 1 : .075
 13 : .271
 3 : .688
 1 : .453
 2 : .220
 4 : .858
 1 : .164
 6 : .067

.373626373 = $\frac{25}{67} - \frac{28}{75} - \frac{8}{83} - \frac{34}{91}$
 $\frac{65}{174}$ - etc

MOS

$\frac{1}{3} \xrightarrow{\quad} \frac{1}{2} \xleftarrow{\quad} \frac{1}{1}$
 $\frac{1}{3} \xrightarrow{\quad} \frac{2}{5}$
 $\rightarrow \frac{3}{8}$
 $\frac{4}{11} \rightarrow \frac{7}{19} \rightarrow \frac{10}{27} \rightarrow \frac{13}{35} \rightarrow \frac{16}{43} \rightarrow \frac{19}{51} \rightarrow \frac{22}{59}$

$$A = \frac{(2B)^{(3/4)}}{2}$$

$$B = \frac{A+2}{2}$$

1.196279025

1.195235594

1.194942942

1.194860857

1.194837834

1.194831376

1.194829564

1.194829056

1.194828914

1.194828874

1.194828862

1.194828859

1.194828858

1.194828858

1.194828858

1.194828858

1.19482885799

$(2A)^{(1/3)}$ 1.33693994609 = generator

$\log_2$.41893466257

1/4 Pattern

2 .387

2 .583

1 .712

1 .403

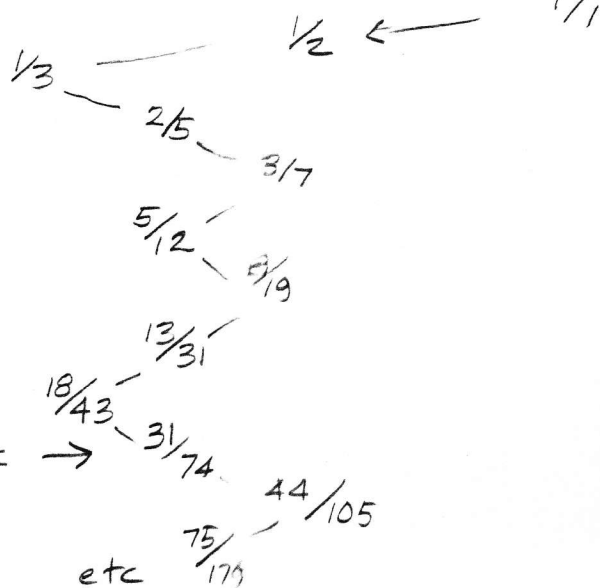
2 .478

2 .089

11 .180

1/0

MOS zig-zag Pattern



! .418918918 = →

$$A = \frac{2B}{B+1}$$

$$B = (2A)^{(2/3)}$$

1.317073171

1.312084385

1.310942149

1.310679884

1.310619627

1.310605781

1.310602599

1.310601868

1.3106017

1.310601661

1.310601653

1.310601651

1.31060165

1.31060165

1.31060165

1.31060165

1.31060164994

$(2A)^{(1/3)}$ 1.37879670012 = generator

Log 2 .463409751013

1/x Pattern

2	.157	0/1
6	.332	
3	.009	
121	.507	
1	.971	
1	.029	
34	.405	
2	.467	
2	.137	
7	.259	
3	.859	

1.928571429

1.907333335

1.902513914

1.901409598

1.901155994

1.901097725

1.901084335

1.901081258

1.901080551

1.901080389

1.901080351

1.901080343

1.901080341

1.90108034

1.90108034

1.90108034

1.90108034

MOS Pattern

$\frac{1}{3} \text{ --- } \frac{1}{2} \text{ --- } \frac{1}{1}$
 $\frac{1}{3} - 2/5 - 3/7 - 4/9 - 5/11 - 6/13 - 7/15$
 $\rightarrow \frac{13}{28} \rightarrow \frac{19}{41} \rightarrow \frac{25}{54} \rightarrow 121 \text{ places}$

19/41 = .463414634

$$A = \frac{B+1}{2}$$

$$B = (2A)^{(\frac{1}{2})}$$

1.3

1.306 225 775

1.308 154

1.308 750 27

1.308 934 568

1.308 991 523

1.309 009 123

1.309 014 562

1.309 016 243

1.309 016 762

1.309 016 923

1.309 016 972

1.309 016 988

1.309 016 992

1.309 016 994

1.309 016 994

1.309 016 994

1.309 016 994 37

$$(2A)^{(\frac{1}{4})} = 1.272 019 65 1 \text{ (generator)}$$

$\log_2$.347 120 956 809

1/4 Pattern

2 .880

1 .135

7 .392

2 .550

1 .816

1 .224

4 .457

2 .186

5 .352

etc

IS THIS A BAD ANSWER?

1.6

1.612 451 55

1.616 308

1.617 500 541

1.617 869 136

1.617 983 046

1.618 018 246

1.618 029 124

1.618 032 485

1.618 033 524

1.618 033 854

1.618 033 944

1.618 033 975

1.618 033 985

1.618 033 987

1.618 033 988

1.618 033 989

1.618 033 989

1.618 033 989 *!

MOS Pattern

0/1

1/3

1/2

1/1

2/5

3/8

4/11

5/14

6/17

7/20

8/23

9/26

17/40

25/72

43/121

67/103