C A L E N D A R
F O R 1 1 Ɛ 9

The Dozenal Society of America
http://www.dozenal.org

I can promise the ones who wish to stretch their minds a bit further that they will not go unrewarded. . . . Modern mathematicians generally admit that 'the duodecimal system' would be better than our present decimal system. . . . [Dozenal] promises to be mathematics' next great step forward — the adoption of an efficient number system.

F. Emerson Andrews

December 11↋8

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	↊	↋	10	11	12	13
14	15	16	17	18	19	1↊
1↋ / 26	20 / 27	21	22	23	24	25

November

				1	2	3
4	5	6	7	8	9	↊
↋	10	11	12	13	14	15
16	17	18	19	1↊	1↋	20
21	22	23	24	25	26	

January

	1	2	3	4	5	
6	7	8	9	↊	↋	10
11	12	13	14	15	16	17
18	19	1↊	1↋	20	21	22
23	24	25	26	27		

*Literally, the decimal base is unsatis*FACTOR*y because it has* NOT ENOUGH FACTORS*....[N]o change should be forced, and we urge no mandated change....But people of understanding should learn to use duodecimals to facilitate their thinking, their computations and their measurings....In any operation, the most advantageous base should be used...If this were done, duodecimals would progressively earn their way into general popularity.*

Ralph Beard

January 11↋9

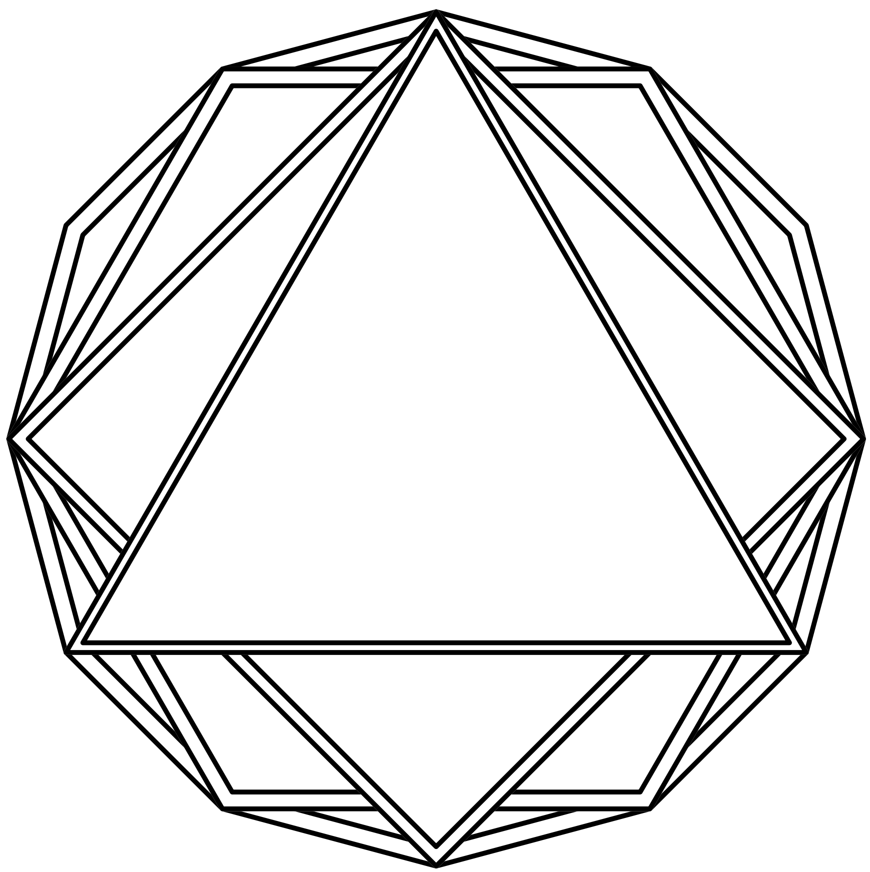
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	↊	↋	10
11	12	13	14	15	16	17
18	19	1↊	1↋	20	21	22
23	24	25	26	27		

December

						1
2	3	4	5	6	7	8
9	↊	↋	10	11	12	13
14	15	16	17	18	19	1↊
1↋	20	21	22	23	24	25
26	27					

February

					1	2
3	4	5	6	7	8	9
↊	↋	10	11	12	13	14
15	16	17	18	19	1↊	1↋
20	21	22	23	24		



The offspring of the dozen serve us well. Five of the six possible figures are convex polygons and four of these are essential to engineering and mathematics. . . . Need we search any further for a rational, serviceable number-base? Can there possibly be a better?

Troy, DSGB

February 11↋9

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
↊	↋	10	11	12	13	14
15	16	17	18	19	1↊	1↋
20	21	22	23	24		

January

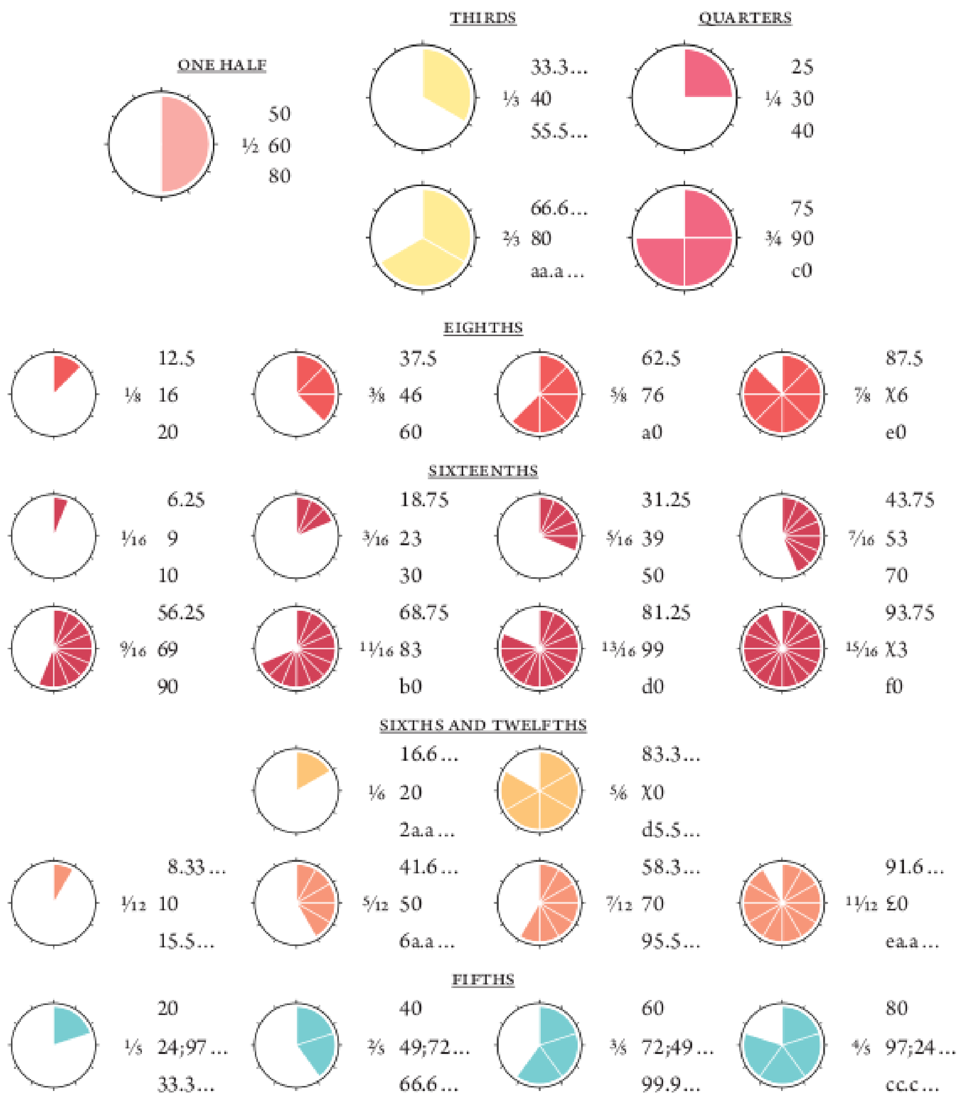
		1	2	3	4	5
6	7	8	9	↊	↋	10
11	12	13	14	15	16	17
18	19	1↊	1↋	20	21	22
23	24	25	26	27		

March

					1	2
3	4	5	6	7	8	9
↊	↋	10	11	12	13	14
15	16	17	18	19	1↊	1↋
20/27	21	22	23	24	25	26

March

					1	2
3	4	5	6	7	8	9
↊	↋	10	11	12	13	14
15	16	17	18	19	1↊	1↋
20/27	21	22	23	24	25	26



[T]welve is a highly divisible yet compact number; it has more divisors than ten. This facilitates learning and using arithmetic, and simplifies the natural fractions.

Michael deVlieger

March 11↋9

February

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
↊	↋	10	11	12	13	14
15	16	17	18	19	1↊	1↋
20	21	22	23	24		

April

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	↊	↋	10	11
12	13	14	15	16	17	18
19	1↊	1↋	20	21	22	23
24	25	26				

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
↊	↋	10	11	12	13	14
15	16	17	18	19	1↊	1↋
20 / 27	21	22	23	24	25	26

One dozen is the initial abundant number.... *The dozen is* hypercomposite.... *The dozen represents the first number which is* neither a Converse Lagrange Theorem group *(CLT)* nor supersolvable.... *One dozen is the first natural number having a* perfect number of divisors *(six).*

PROF. JAY SCHIFFMAN

April 11↋9

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	↊	↋	10	11
12	13	14	15	16	17	18
19	1↊	1↋	20	21	22	23
24	25	26				

March

					1	2
3	4	5	6	7	8	9
↊	↋	10	11	12	13	14
15	16	17	18	19	1↊	1↋
20 / 27	21	22	23	24	25	26

March

					1	2
3	4	5	6	7	8	9
↊	↋	10	11	12	13	14
15	16	17	18	19	1↊	1↋
20 / 27	21	22	23	24	25	26

May

			1	2	3	4
5	6	7	8	9	↊	↋
10	11	12	13	14	15	16
17	18	19	1↊	1↋	20	21
22	23	24	25	26	27	

1	2	3	4	5	6	7	8	9	X	Ɛ	10
2	4	6	8	X	10	12	14	16	18	1X	20
3	6	9	10	13	16	19	20	23	26	29	30
4	8	10	14	18	20	24	28	30	34	38	40
5	X	13	18	21	26	2Ɛ	34	39	42	47	50
6	10	16	20	26	30	36	40	46	50	56	60
7	12	19	24	2Ɛ	36	41	48	53	5X	65	70
8	14	20	28	34	40	48	54	60	68	74	80
9	16	23	30	39	46	53	60	69	76	83	90
X	18	26	34	42	50	5X	68	76	84	92	X0
Ɛ	1X	29	38	47	56	65	74	83	92	X1	Ɛ0
10	20	30	40	50	60	70	80	90	X0	Ɛ0	100

Base 12 (Duodecimal)

Because twelve has six divisors, with the smallest four consecutive, it presents a multiplication table featuring brief patterns in the product lines of many numbers.... [U]sers of duodecimal enjoy two other divisor product lines in the multiplication table.

Michael deVlieger

May 11↋9

April

	1	2	3	4	5	6
7	8	9	↊	↋	10	11
12	13	14	15	16	17	18
19	1↊	1↋	20	21	22	23
24	25	26				

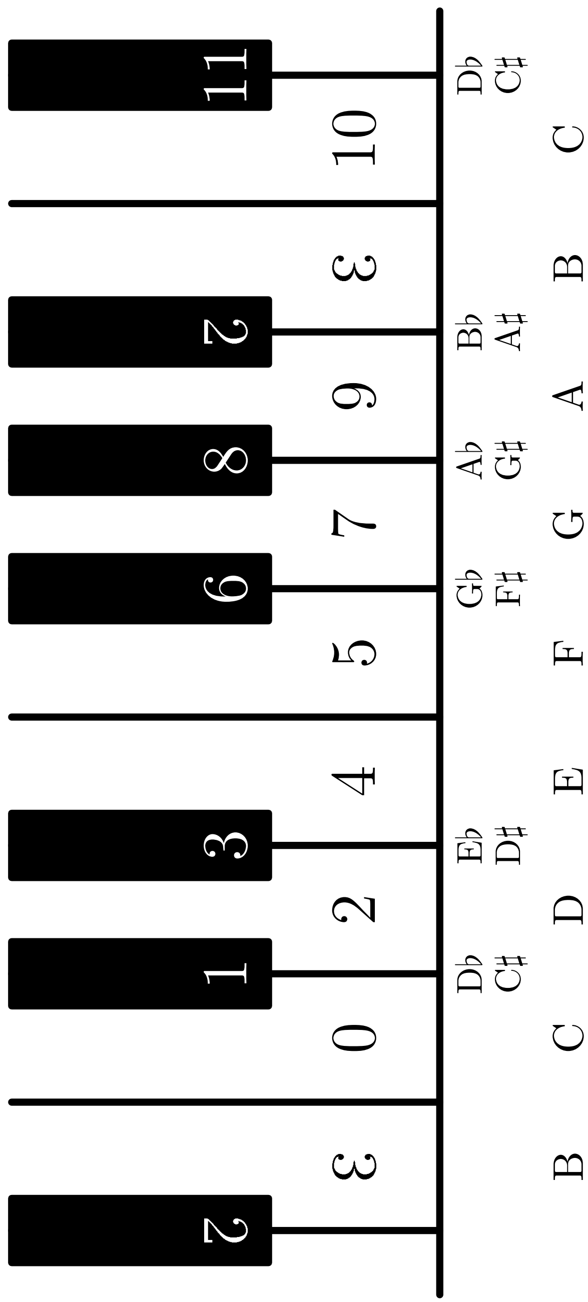
June

						1
2	3	4	5	6	7	8
9	↊	↋	10	11	12	13
14	15	16	17	18	19	1↊
1↋/26	20	21	22	23	24	25

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7	8	9	↊	↋
10	11	12	13	14	15	16
17	18	19	1↊	1↋	20	21
22	23	24	25	26	27	

June

						1
2	3	4	5	6	7	8
9	↊	↋	10	11	12	13
14	15	16	17	18	19	1↊
1↋/26	20	21	22	23	24	25



There are twelve equal notes in an octave. . . . *[They are] logarithms to base two. Expressed in dozenal numeration they form a unique system for handling ratios, with simplicities not found in any other system. The music keyboard was caused to have twelve semitones to the octave by this.*

Tom Pendlebury

June 11↋9

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	↊	↋	10	11	12	13
14	15	16	17	18	19	1↊
1↋ / 26	20	21	22	23	24	25

May

			1	2	3	4
5	6	7	8	9	↊	↋
10	11	12	13	14	15	16
17	18	19	1↊	1↋	20	21
22	23	24	25	26	27	

July

	1	2	3	4	5	6
7	8	9	↊	↋	10	11
12	13	14	15	16	17	18
19	1↊	1↋	20	21	22	23
24	25	26	27			

[Five] is not a multiple of two or three, so [it] does not normally crop up in calculations unless deliberately or unwittingly put there by us.... Every third number in counting is a multiple of three, yet this vast category skips every power of ten! All over the world every day by rounding off to hundreds, thousands, etc[.] people are rejecting multiples of three for multiples of five. Simple divisions then give recurring decimals or a rash of fives, and simple ratios become 33⅓%[,] 12½%, etc. Unnecessarily awkward expressions all caused by counting in tens.

Tom Pendlebury

July 11↋9

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
June (see below)	1	2	3	4	5	6
7	8	9	↊	↋	10	11
12	13	14	15	16	17	18
19	1↊	1↋	20	21	22	23
24	25	26	27	June / August (see below)		

June

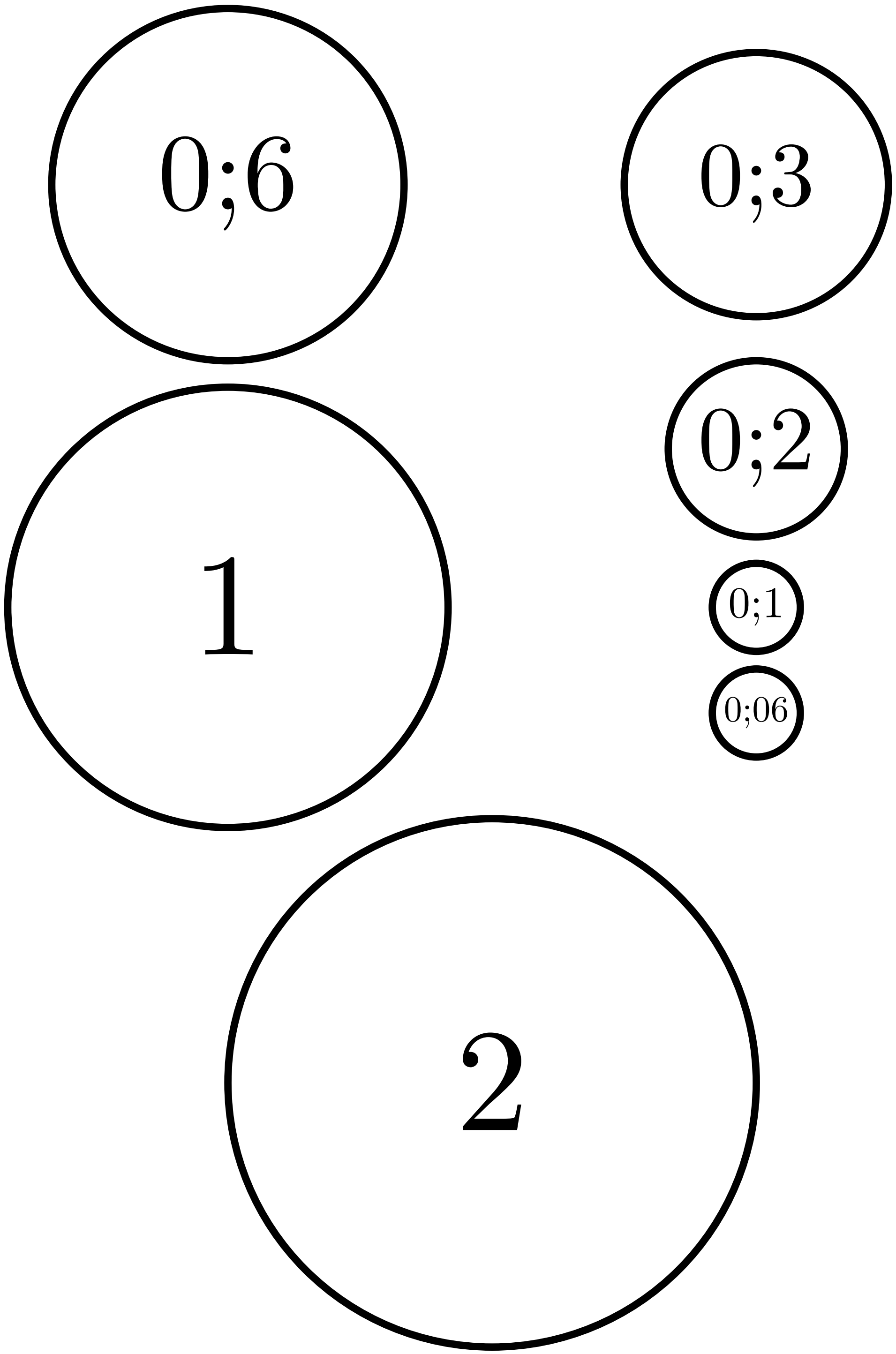
						1
2	3	4	5	6	7	8
9	↊	↋	10	11	12	13
14	15	16	17	18	19	1↊
1↋ / 26	20	21	22	23	24	25

June

						1
2	3	4	5	6	7	8
9	↊	↋	10	11	12	13
14	15	16	17	18	19	1↊
1↋ / 26	20	21	22	23	24	25

August

				1	2	3
4	5	6	7	8	9	↊
↋	10	11	12	13	14	15
16	17	18	19	1↊	1↋	20
21	22	23	24	25	26	27



Just as with pure binary, all intermediate weights can be achieved by combining others, so we need only one of each size. [But] [t]here is more. It will not have gone unobserved that [0;]3[], [0;]6[] and 1[] can be made from combinations of lower values; in fact, if we needed to go only as far as a dozen[], the 1[] weight would be superfluous. Including the 1[], therefore, allows further weighing up to and including 2… without the need for a 2[] piece. *If the 2[] is included, the range extends to 4[]* inclusive… *while the binary misses by ½…. The decimal set…involves nine weights rather than seven…*

Troy, DSGB

August 11↋9

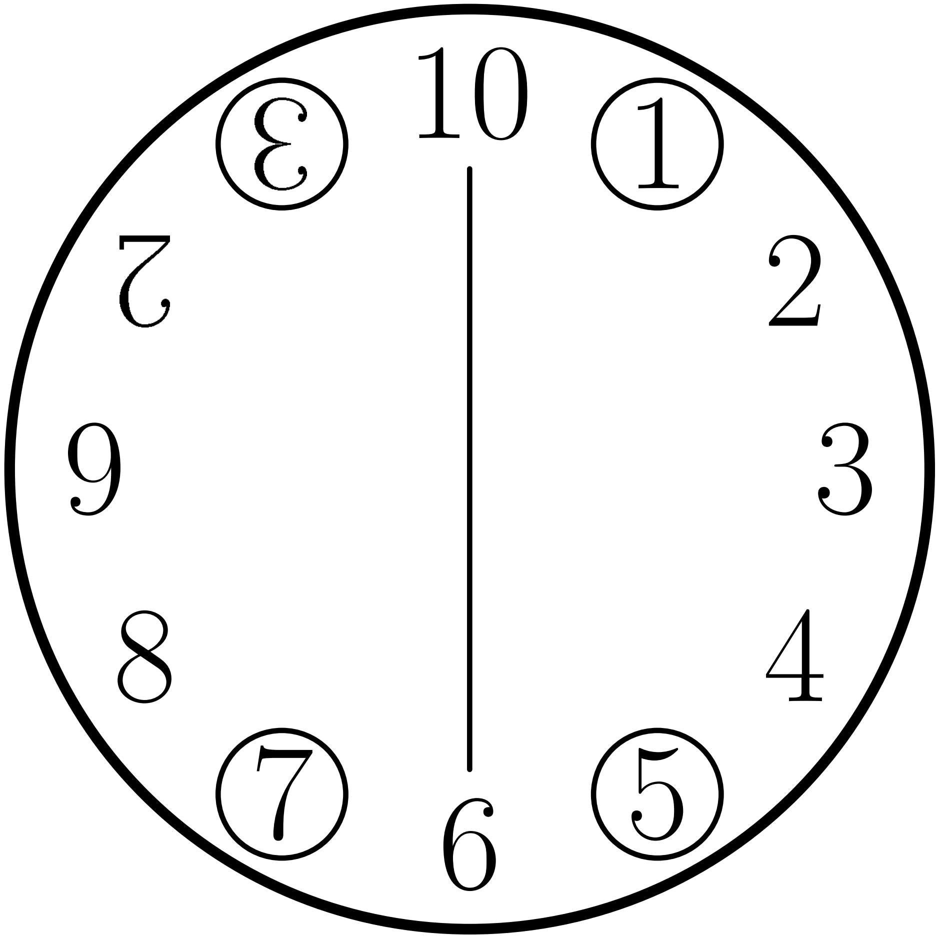
July

	1	2	3	4	5	6
7	8	9	↊	↋	10	11
12	13	14	15	16	17	18
19	1↊	1↋	20	21	22	23
24	25	26	27			

September

1	2	3	4	5	6	7
8	9	↊	↋	10	11	12
13	14	15	16	17	18	19
1↊	1↋	20	21	22	23	24
25	26					

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	↊
↋	10	11	12	13	14	15
16	17	18	19	1↊	1↋	20
21	22	23	24	25	26	27



Hence, the set of natural numbers terminating with 1, 5, 7 or ℰ must contain all prime numbers greater than 3, and excludes all odd numbers divisible by 3. It follows that this is the minimum *set to contain* all *primes greater than 3. Rearranging the terminal digits as 5, 7 and ℰ, 1 shows the set to be of the form:* $(6n \pm 1)$*. . . The fact [is] that prime-number positions are* completely *controlled by 6 (itself the product of 2 and 3, and the companion of our dozenal base).*

Don Hammond

September 11↋9

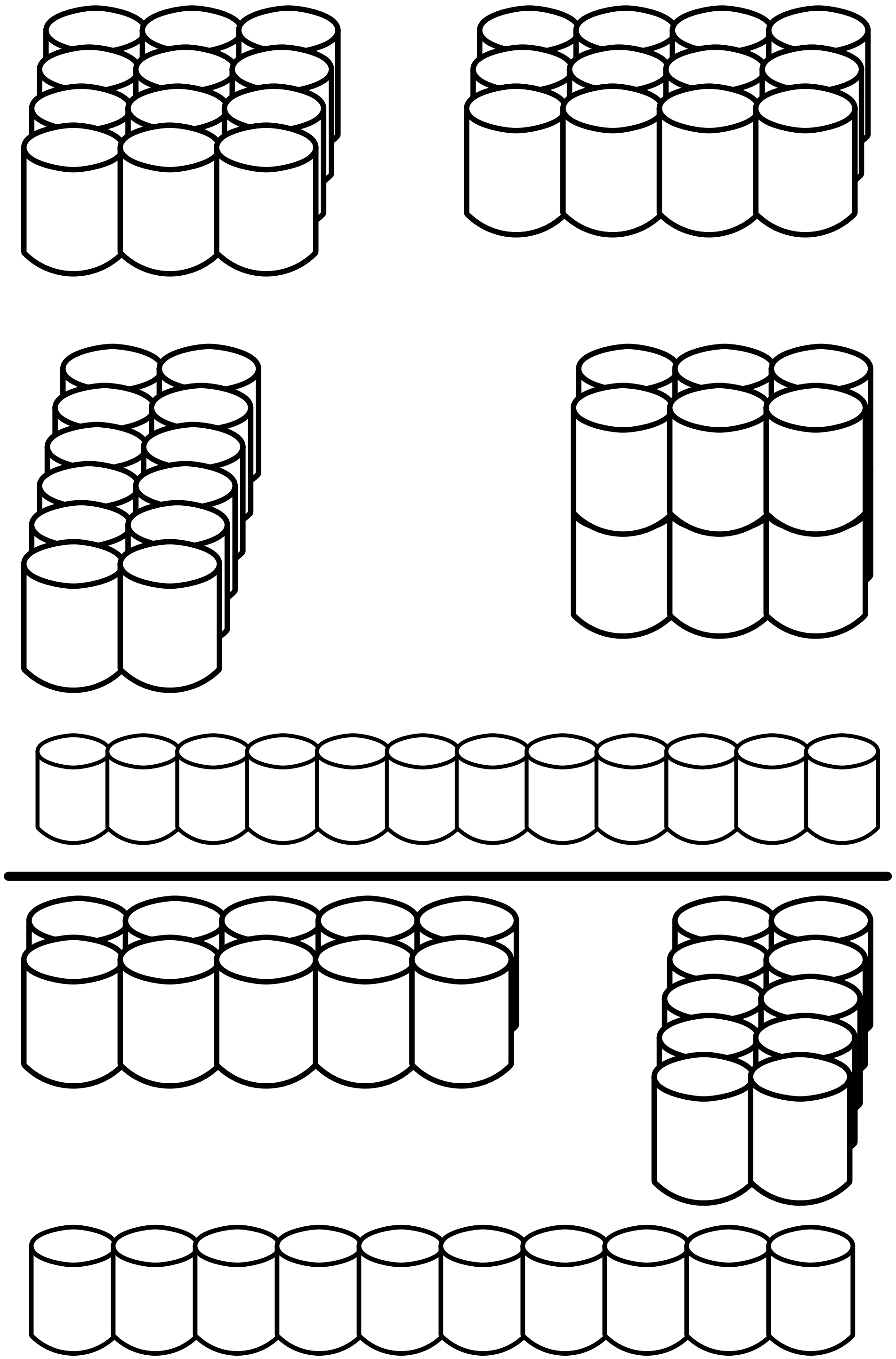
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	↊	↋	10	11	12
13	14	15	16	17	18	19
1↊	1↋	20	21	22	23	24
25	26					

August

				1	2	3
4	5	6	7	8	9	↊
↋	10	11	12	13	14	15
16	17	18	19	1↊	1↋	20
21	22	23	24	25	26	27

October

	1	2	3	4	5	
6	7	8	9	↊	↋	10
11	12	13	14	15	16	17
18	19	1↊	1↋	20	21	22
23	24	25	26	27		



Packing in dozens shows an immediate advantage…[t]he cost per can (or other object) of cardboard increases by more than ↊ per gross (over 7 per cent in decimal terms) by changing from dozens to decimal packing.…The really decisive example is the two-layer form (allowed by the factorability of the dozen) in which the total *enclosure area is less than the requirement for ten.…[S]uch cans are so much more cheaply packed by the dozen than in tens that a twelve-pack with two empty spaces actually costs less than a ten-pack completely filled!*

Troy, DSGB

October 11↋9

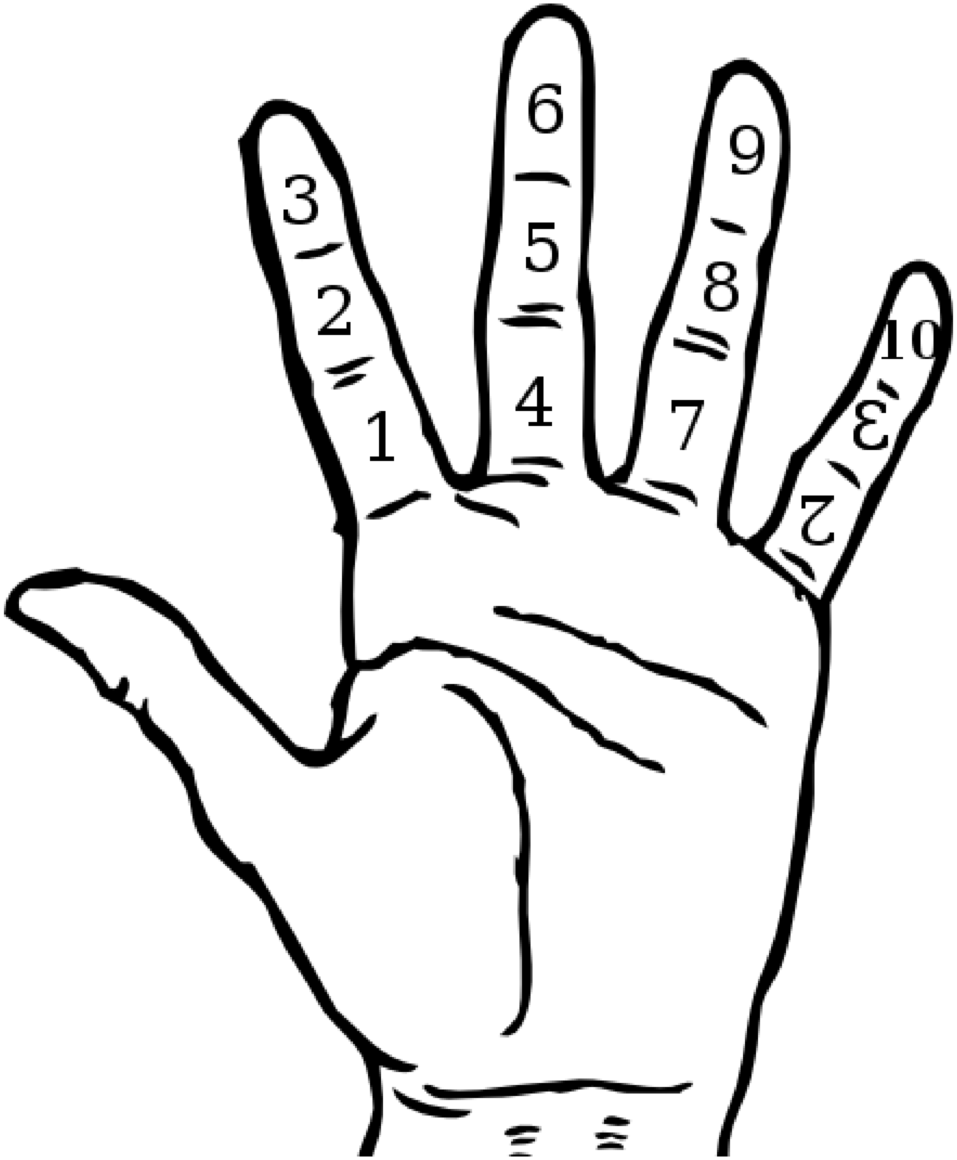
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	↊	↋	10
11	12	13	14	15	16	17
18	19	1↊	1↋	20	21	22
23	24	25	26	27		

September

1	2	3	4	5	6	7
8	9	↊	↋	10	11	12
13	14	15	16	17	18	19
1↊	1↋	20	21	22	23	24
25	26					

November

					1	2
3	4	5	6	7	8	9
↊	↋	10	11	12	13	14
15	16	17	18	19	1↊	1↋
20	21	22	23	24	25	26



[We can] count[] on the segments (phalanges) of the fingers. If one uses the thumb as a pointer, one can easily count to twelve on one hand.

Prof. Gene Zirkel

November 11↋9

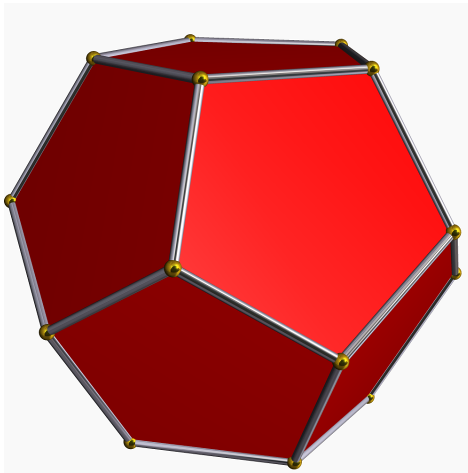
October

		1	2	3	4	5
6	7	8	9	↊	↋	10
11	12	13	14	15	16	17
18	19	1↊	1↋	20	21	22
23	24	25	26	27		

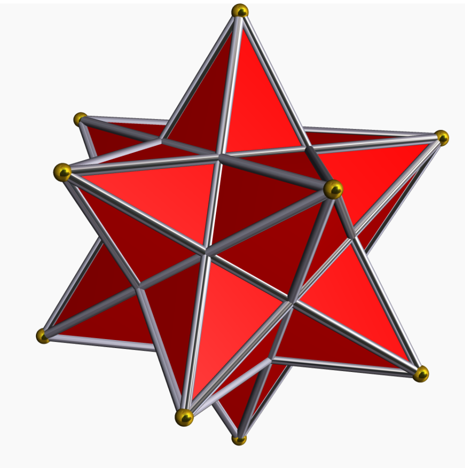
December

1	2	3	4	5	6	7
8	9	↊	↋	10	11	12
13	14	15	16	17	18	19
1↊	1↋	20	21	22	23	24
25	26	27				

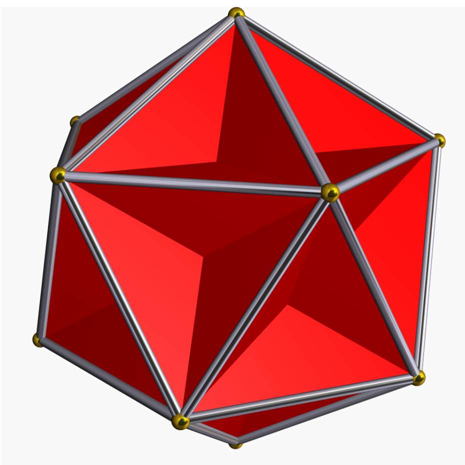
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
↊	↋	10	11	12	13	14
15	16	17	18	19	1↊	1↋
20	21	22	23	24	25	26



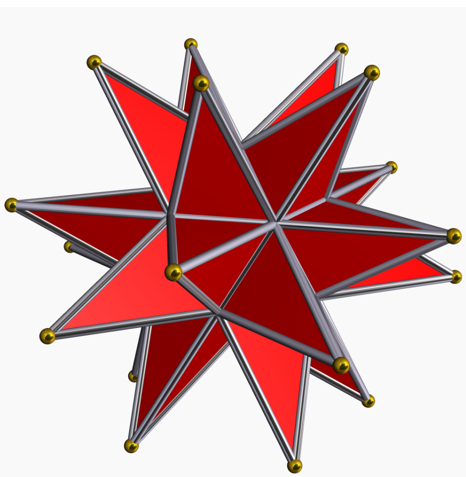
Dodecahedron



Small Stellated Dodecahedron



Great Dodecahedron



Great Stellated Dodecahedron

Of the nine regular polyhedra, fully four of them are built upon the number twelve: the dodecahedron, the small stellated dodecahedron, the great dodecahedron, and the great stellated dodecahedron. Two more, the tetrahedron and the cube, are built upon the factors of twelve. Five only becomes important when it is paired with twelve in the dodecahedron; ten is never *important. We must get to the icosahedron, at twenty, before ten plays into the question at all.*

December 11↋9

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	↊	↋	10	11	12
13	14	15	16	17	18	19
1↊	1↋	20	21	22	23	24
25	26	27				

November

					1	2
3	4	5	6	7	8	9
↊	↋	10	11	12	13	14
15	16	17	18	19	1↊	1↋
20	21	22	23	24	25	26

January

			1	2	3	4
5	6	7	8	9	↊	↋
10	11	12	13	14	15	16
17	18	19	1↊	1↋	20	21
22	23	24	25	26	27	

0 1 2

3 4 5

6 7 8

9 ↊ ↋

Let $\sigma_0(n)$ and $\sigma_1(n)$ denote the number and sum of the divisors of n, respectively (i.e., the zeroth- and first-order divisor functions). A number n is called sublime if $\sigma_0(n)$ and $\sigma_1(n)$ are both perfect numbers. The only two known sublime numbers are [decimal] 12 and [a decimal number with decimal 76 digits] It is not known if any odd sublime number exists.

Weisstein, Eric W. "Sublime Number." From *MathWorld—A Wolfram Web Resource*. http://mathworld.wolfram.com/SublimeNumber.html.

January 11↋↊

December

1	2	3	4	5	6	7
8	9	↊	↋	10	11	12
13	14	15	16	17	18	19
1↊	1↋	20	21	22	23	24
25	26	27				

February

						1
2	3	4	5	6	7	8
9	↊	↋	10	11	12	13
14	15	16	17	18	19	1↊
1↋	20	21	22	23	24	

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7	8	9	↊	↋
10	11	12	13	14	15	16
17	18	19	1↊	1↋	20	21
22	23	24	25	26	27	

February

						1
2	3	4	5	6	7	8
9	↊	↋	10	11	12	13
14	15	16	17	18	19	1↊
1↋	20	21	22	23	24	

Basic TGM (Tim, Grafut, Maz)

TGM is a system of measure named for its three primary units: the Tim (the unit of time), the Grafut (the unit of length), and the Maz (the unit of mass). The system is consistently dozenal and covers all fields of human endeavor. Designed to be easy and convenient both for the layman and for the scientist, TGM unites in itself the unique virtues of traditional systems, like the foot-pound system of the English-speaking world, and of SI and other French metric derivatives.

Part of TGM's appeal is its concomitant way of writing very large and very small quantities. While modern systems utilize "scientific notation," this is typically lengthy and bulky, and cannot be read at a glance (e.g., 4.567×10^{15}). TGM encourages users instead to simply *prefix* the power of the dozen, either superscripted if it is a positive power, or subscripted if a negative. So the above dozenized becomes $^{12}3;683$; a very tiny quantity might be $_{12}3;683$. This is at once more compact and more readable than the current practice.

Below, the basic units of the TGM system, along with many others of practical size, are displayed with their traditional and decimal metric counterparts. The full, detailed system can be obtained from the dozenal societies, or from many different places on the Internet.

Length, Area, Volume

Grafut		0;↋783 ft	0;366↋ m
Gravinch	$_1$Gf	0;↋783 in	2;569↊cm
Gravyard	3 Gf	0;↋783 yd	0;↊789 m
Gravmile	3 ^{3}Gf	0;↋51↊ mi	1;6488 km
Gravklick	2 ^{3}Gf	0;7752 mi	1;0319 km
Surf		0;↋362 ft^2	0;1070 m^2
	^{4}Sf	0;5461 acres	0;2213 ha
Volm		6;9↋47 gal	21;↊254 L
Pintvol	3 $_2$Vm	1;17↊9 pt	0;6567 L
Cupvol	1;6 $_2$Vm	1;17↊9 cp	0;3293 L
Supvol	$_3$Vm	1;0182 tbs	12;↋624 mL
Sipvol	4 $_4$Vm	1;0182 tsp	4;↋709 mL

Time, Motion, and Frequency

Tim			0;21 s
Tick	Tm		0;21 s
Unctic	^{1}Tm		2;1 s
Bictic	^{2}Tm		21 s
Block	^{3}Tm	5 min	210 s
Hour	^{4}Tm	1 hr	50 min
	$_3$Tm		0;1257 ms
Vlos		3;9874 mph	6;16↊↊ kph
Sp. Lim.	15 Vl	54;9248 mph	88;2946 kph
St. Grav.	1 Gee	28;2280 ft/s^2	9;9879 m/s^2
Freq	$1/_{Tm}$		5;9153 Hz
	5 $_3$Fq		1 RPM

Mass, Force, and Density

Maz		48;↋↊72 lb	21;↊254 kg
	^{2}Mz	4;130↋ ton	3;8804 t
Oumz	2 $_3$Mz	1;07↋8 oz	25;↋048 g
Poundz	3 $_2$Mz	16;↋↋64 oz	0;6567 kg
Denz		52;5146 lb/ft^3	6↋3;↋7↋7 kg/m^3
Mag		108↊;2↋62 pdl	191;7151 N
		49;0154 lbf	21;↊38↊ kgf
Werg		47;37↊7 lbf·ft	62;↋96↋N·m
Prem		0;506↋ lbf/in^2	1818;6↋↋0 Pa
Atmoz	2↋ Pm	12;8836 lbf/in^2	4↊900;4916 Pa
		25;↋89 inHg	535;56↋ mmHg
Pov		0;6↋45 hp	2↋↋;↊↊08 W

Temp., Elec., and Chemistry

Calg		0;0021 °F	0;0012 K
Decigree	^{2}Cg	0;21 °F	0.1 K
Tregree	^{3}Cg	2;1 °F	1;2497 K
Kur		Current	0;5↋47 A
		6 $_6$Kr	0;↋↋53 μA
Pel		Elec. Pot.	607;3167 V
		$_3$Pl	0;6073 V
		2 $_2$Pl	10;1263 V
Og		Resistance	1025;6860 Ω
Quel		Elec. Quant.	0;1048 C
		^{1}Ql	1;0487 C
Molz			21;↊254 kmol

Systematic Dozenal Nomenclature

At a Glance

Systematic Dozenal Nomenclature (SDN) is a system of referring to numbers, similar to what we do in decimal with words like "hundred," "thousand," "million," and so forth. When we count in twelves, we can't use these decimal terms; SDN provides a analogous, but superior, set of terms for dozenal. Using the internationally recognized and accepted number-word roots employed by the International Union of Pure and Applied Chemistry (IUPAC), and augmenting them with roots for "ten" and "eleven," SDN is a perfectly rational, coherent, and easy-to-learn system, requiring only twelve roots, two suffixes, and two particles.

Complete Set of SDN Prefixes				
Value	Root	Multiplier	Pos. Power	Neg. Power
0	nil	nili	nilqua	nilcia
1	un	uni	unqua	uncia
2	bi	bina	biqua	bicia
3	tri	trina	triqua	tricia
4	quad	quadra	quadqua	quadcia
5	pent	penta	pentqua	pentcia
6	hex	hexa	hexqua	hexcia
7	sept	septa	septqua	septcia
8	oct	octa	octqua	octcia
9	enn	ennea	ennqua	enncia
↊	dec	deca	decqua	deccia
↋	lev	leva	levqua	levcia

The twelve roots are listed in the "Root" column; the multiplier forms are essentially the same as the roots with a vowel inserted, with only "quadra" varying even slightly beyond that. The suffixes are "-qua," for positive powers of the dozen, and "-cia," for negative powers of the dozen. The particles are "dit," for the so-called "decimal" point, separating the whole numbers from the fractional parts (usually written ;, but sometimes '); and "per," which is used to create fractional words.

SDN leaves most of our daily language about numbers substantially unchanged. A quadruped is still a quadruped, a pentagon is still a pentagon, and so forth. These words, and many others, are perfectly regular and orthodox SDN. SDN also, however, greatly expands the reach our number words can have.

The multipliers simply multiply what they are attached to by the number they indicate; for example, a "tricycle" is a "cycle" (wheel) multiplied by three, and a "hexacycle" is a "cycle" multiplied by six. These roots can be combined, without their multiplier prefixes, to form number words they same way that we combine digits to form numbers. In other words, use these in order according to place notation, the same way that you use digits. For example, for a hypothetical insect with 357 legs:

Three	Five	Seven
3	5	7
Tri	Pent	Septa

Yielding "tripentseptaped." What we often call an "eighteen-wheeler" (dozenal 16) is a "dechexacycle" ("dec" + "hexa" + "cycle" = "1" + "6" + "wheeler"). Note that the multiplier forms mean multiplication, so only use it on the last part; "decahexacycle" would mean ten *times* six, or five dozen, rather than twelve *plus* six, or one dozen six.

The particles can be used the same way. Suppose you want a word for something that occurs twice a year; that is, every half year. One possibility is "nildithexennial," remembering that 0;6 ("zero dit six") is dozenal for one half. "Per" is used for fractions which don't fit well into uncials. E.g., 1/7, which in uncials is 0;186↊35 repeating, can be simply "unpersepta." In other words, the "dit" stands in for ";" and the "per" for "/".

Finally, the power prefixes indicate powers of the dozen. We are all familiar with terms like "bicentennial," and some of us with more difficult terms like "sesquicentennial." These are decimal terms; but their dozenal analogues are easy. "100" is 10^2; so we use the *power prefix* with the root for "two": "bi" plus "qua." This gives us "biquennial." This can be combined with multiplier forms; for example, "quadrubiquennial" means "quad" times "biqua," for four biqua years. Similarly for the negative prefixes: a cell 0;00008 Grafut in diameter is 8 *hexcia*Grafut in diameter.

And this is SDN, a much more robust number nomenclature than our current one.