

# DSA Newscast

## GETTING STARTED WITH DOZENS, PART II

### IN THIS ISSUE . . .

**Getting Started with Dozens, Part II**

**Dozenal News**

Arithmophobia Even More Widespread than Previously Believed . . . . .

A Different Form of Tallying . . . . .  
*AGAINST THE METRIC SYSTEM*  
Published . . . . .

**Society Business**

*DUODECIMAL BULLETIN* 72 Mailed  
Call for Submissions . . . . .  
Website Update . . . . .  
Volunteers Needed . . . . .  
DSA Printed Works Still Available . . . . .

**Poetical Diversion**

Do Not Go Gentle To That Decimal Night . . . . .

**Donations**

**For Sale**

*The Dozenal Society of America is a voluntary, nonprofit educational corporation, organized for the conduct of research and education of the public in the use of dozenal (also called duodecimal or base twelve) in calculations, mathematics, weights and measures, and other branches of pure and applied science.*

**I**N PART I OF THIS little series, we addressed a few good ways of getting used to dozens; that is, of learning to think about numbers in terms of dozens instead of tens. Today, we'll address a few ways of learning how to manipulate dozens easily, to help us get used to using dozenal just as easily—more easily!—than we use decimal.

### LEARN THE TOTALS

For addition and subtraction especially, but also for multiplication (just repeated addition, after all), it's important to learn the *totals*. In dozenal, our total unit is twelve, not ten; but we've grown up getting used to recognizing the numbers that total ten, not twelve. We need to break this habit by getting used to it the other way.

For example, a decimally-trained mind spots a 7 and immediately pairs it with a 3, to make a total of 7. We may not actually have the 3, but the ability to quickly make such pairs greatly facilitates later efforts at mental arithmetic. We need to beat this impulse back; rather than pairing a 7 with a 3, we need to pair it with a 5 to give us 10, not 7. We need to do this consistently, with all the numbers 1–8.

1	8
2	7
3	9
4	8
5	7
6	6
7	5
8	4
9	3
7	2
8	1

Then, we need to learn *elementary results*. These are primarily the entries in the addition and multiplication tables. Of course, the addition table includes the pairs we discussed above; but we need those pairs so often that it's good to consider them, and remember them, separately, as they are needed for almost all mental arithmetic.

The multiplication table can be observed color-coded here:

1	2	3	4	5	6	7	8	9	7	8	10
2	4	6	8	7	10	12	14	16	18	17	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	7	13	18	21	26	28	34	39	42	47	50
6	10	16	20	26	30	36	40	46	50	56	60
7	12	19	24	28	36	41	48	53	57	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
7	18	26	34	42	50	57	68	76	84	92	70
8	17	29	38	47	56	65	74	83	92	71	80
10	20	30	40	50	60	70	80	90	70	80	100

Click for Full-size Image

But don't be afraid; this is dozenal!

The decimal multiplication table is largely a mysterious mass of apparently arbitrary numbers; but nearly the entire dozenal table follows clear, easy-to-remember patterns. The colors on the table show where to look for the patterns.

Consider the line for 3. We can see every fourth multiple of 3 is also a multiple of 10; we can further see that every four multiples has the pattern 3, 6, 9, 0 in the ones place.

Likewise, consider the line for 4. We can see that every third multiple

of 4 is also a multiple of 10; we can further see that every three multiples has the pattern 4, 8, 0 in the ones place.

Finally, for a bit of a different pattern, consider the line for 8. We see that every third multiple of 8 is also a multiple of 10, just like 4; however, rather than advancing one multiple of 10 each time, as 4 does, we advance *two* multiples of 10 each time. Furthermore, our pattern goes 8, 4, 0 in the ones place, rather than 4, 8, 0. Since we know that every third multiple of 8 is a multiple of 10, we can easily tell

that, for example,  $8 \times 6 = 40$ , because every third multiple has a 0 in the ones place, and we're multiplying by 6, so we're on the second of the third multiples; and since we advance two multiples of 10 for every 3 multiples of 8, we know that we're on the second of those two-multiple advances, making 40.

These patterns are easy to memorize; so memorize them! Next month, we'll see how to use these patterns to do much more complex problems mentally, without much more mental effort.

## DOZENAL NEWS

### ARITHMOPHOBIA EVEN MORE WIDESPREAD THAN PREVIOUSLY BELIEVED

*The New Journal of Physics* gives us cause to fear that arithmophobia—or numerophobia, the fear of numbers—is even more widespread than most of us already believed:

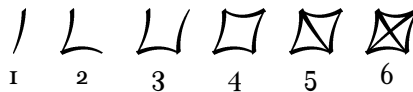
<http://iopscience.iop.org/article/10.1088/1367-2630/18/11/118003>

Entitled *Are Physicists Afraid of Mathematics?*, Dr. Andrew D. Higginson of the University of Exeter conducted some statistical analysis showing that even in physics, a science well-acquainted with mathematical descriptions of reality, papers with a high density of equations are cited significantly less than papers with a low density of equations.

Dozenalists have often noted that arithmophobia is quite common; "I'm not a math person" is one of the most common claims of the last few unquades. But if arithmophobia is truly this widespread, perhaps it is time for us, as a society, to consider why this is true and how we can change it.

### A DIFFERENT FORM OF TALLYING

Dozenalists use several different forms of tallying. Some, for example, simply tally as we do in decimal, but crossing the vertical lines at 6 rather than at 5. Some follow the approach of the dozenal package for L<sup>A</sup>T<sub>E</sub>X, which forms a double-crossed box one line at a time:



Dmitriy Zelinskiy (#489) suggests another way, which like the last can take advantage of dozenal's high divisibility to make it immediately clear how much of a unit of six we've counted. Use dozenal's divisibility by 3 and simply count by threes:



In this way we take advantage of the divisibility of the dozen (four of these groups makes twelve, of course),

while simultaneously making it very easy to spot what fraction of the dozen we have. After six, the next groups can be placed above or below the first, making a nice, compact square of four groups of three strokes each.

How do other dozenalists keep tallies when counting?

### AGAINST THE METRIC SYSTEM PUBLISHED

The DSA has added to its repertoire of online historical dozenal documents *Against the Metric System*, by the famous nineteenth-century author Herbert Spencer:

[http://www.dozenal.org/drupal/content/spencer\\_against\\_metric.html](http://www.dozenal.org/drupal/content/spencer_against_metric.html)

While Spencer is famous for having opposed metrification, he does *not* defend the customary-imperial system. Rather, he identifies the fatal flaw of both the metric and the customary-imperial system as *decimalism*, and explains the superiority of dozenal arithmetic. A great read by a consummate writer.

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## SOCIETY BUSINESS

### DUODECIMAL BULLETIN 72 MAILED

It's been a long time coming, but the hard copies of *The Duodecimal Bulletin* 72 were finally mailed this month. Our former printer had gone out of business, and we had a very difficult time finding a printer who could produce our *Bulletin* at a reasonable price. Editor John Volan (#418) tried several options and, after a great deal of work and research, finally located a good one. Thanks to John for all his work; we hope the printed *Bulletin* is enjoyed by those who received it.

### CALL FOR SUBMISSIONS

Ideas about dozenals? Brilliant plans for furthering dozenals? Thoughts on notation; measurement; arithmetic; mathematics in general? Send them in to the Editor of the Bulletin:

[editor@dozenal.org](mailto:editor@dozenal.org)

Many people seem to think that their ideas are too small to be of interest to the *Bulletin*, or that others have already written about them. The former, though, is *never* true, and the latter is irrelevant. New takes on old ideas are always interesting, and no idea is so small that some cannot learn and be edified by it.

We're all very excited about our upcoming issue, and we hope to have a great deal of input from our membership to include. Thank you.

### WEBSITE UPDATE

Merry [Christmas | Hanukkah | Kwanzaa | your preferred holiday | no holiday but general well wishes] to the Dozenal Society of America!

Finally, something significant to report! The switchover is now complete; our new website is up and running.

We've done our best to maintain the same look and feel as the old site while still streamlining it internally for easier security and quicker loading. I think we've done a pretty good job, and hope our membership will agree. Significant changes include:

- Rounded corners! A small thing, to be sure, but a nice one.
- Clearer user-interaction cues. Formerly, we had a "Sign in" link in the upper right corner, which turned out to be used very rarely even by our registered members; while our "Join us" link was buried deeper in the page hierarchy. Now we have a direct link to "Join Us" in the upper right corner, and have eliminated logins entirely. Our suspicion is that the logins were probably the means by which our security was breached in any case, and given that very few members used it, we determined we were better off without it.
- New content; but we've already discussed that.

We're still hoping to cause the site to adjust more gracefully to smaller screens, but that must remain a work in progress.

We are, as we constantly state, an all-volunteer organization, and none of us are professional webmasters. This means that keeping our website up and useful is a difficult undertaking. We appreciate your patience as we've made this transition.

### VOLUNTEERS NEEDED

As mentioned earlier, the DSA is an all-volunteer organization, and we pay no salaries. As a result, everything that we do comes out of the spare time of our members, time that they have to take away from their families, jobs, or other obligations.

We all love dozenals and enjoy assisting the Society in educating people about them; however, as the Society expands and does more, we find ourselves in need of more help.

Fortunately, the Society has a large membership with a very broad range of professions and experience. If you think you can spare any time or effort for the cause of educating the world about dozenals, please let us know:

[contact@dozenal.org](mailto:contact@dozenal.org)

You can help as much or as little as you'd like. Thank you.

### DSA PRINTED WORKS STILL AVAILABLE

The DSA is still offering a great selection of printed works, which can be purchased via Lulu; see the end of this *Newscast* for pricing. Any profits (for many of these works there is none) go to the Society.

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## POETICAL DIVERSION

### DO NOT GO GENTLE TO THAT DECIMAL NIGHT

Do not go gentle to that decimal night;  
mankind should raise Twelve's banner far and wide!  
Rage, rage against the smoth'ring of that light!

The wise e'er know that Twelve, not Ten, is right,  
because it is abundant; so take pride:  
do not go gentle to that decimal night.

Good men can see and praise how piercing bright  
Twelve is, how decimal weakly has its say;  
rage, rage against the smoth'ring of the light!

Wild men, who count their fingers, in mad flight  
from decimal's weakness seek for great Twelve's way;  
do not go gentle to that decimal night.

Grave men, near death, who see with blinding sight  
how Twelve doth blaze like stars while Ten, dim, lay;  
rage, rage against the smoth'ring of the light!

So you, my doz'nal brethren, from our height,  
bless mighty Twelve with your fierce tears, I pray;  
do not go gentle to that decimal night!  
Rage, rage against the smoth'ring of the light!

*With my sincerest apologies to Dylan Thomas.*

## DONATIONS

Members, please remember that while dues are no longer required for membership, we still rely on the generosity of members to keep the DSA going. Donations of any amount, large or small, are welcome and needed.

A donation of \$16; (\$18.) will procure Subscription membership, and entitles the payer to receive both a digital and a paper copy of the *Bulletin* if requested. Other members will receive only a digital copy. To invoke this privilege, please notify the Editor of the Bulletin, John Volan, at

[editor@dozenal.org](mailto:editor@dozenal.org)

As members know, we are a volunteer organization which pays no salaries. As such, every penny you donate goes toward furthering the DSA's goals.

It may be worth considering a monthly donation; say, \$3, or \$6, or whatever seems reasonable to you. This can be set up quite easily with Paypal, which is available at our web site.

Of course, if you prefer to donate by check, you may send them to our worthy Treasurer, Jay Schiffman, payable to the Dozenal Society of America, at:

Jay Schiffman  
604-36 South Washington  
Square, #815  
Philadelphia, PA 19106-4115

Remember, too, that the DSA is a 501(c)(3) tax-exempt organization; as such, your contributions may be tax deductible under applicable law.

Thanks again for your assistance; it's your donations that keep the DSA going. We can't keep doing it without you.

## FOR SALE

The DSA is pleased to offer the following for sale. These are all either at cost, or the proceeds go to the Society.

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Item	Price (\$)
Dozenal Wall Calendar, 1201	10.05
Dozenal Planning Calendar, 1201	8.32
TGM: A Coherent Dozenal Metrology	8.00
Manual of the Dozenal System	3.46
A Dozenal Primer	4.50

Prices are, unfortunately but by necessity, in decimal. To find these works, simply go to: <http://www.lulu.com/shop/shop.ep> and enter the appropriate terms. E.g., searching for "TGM dozenal" will turn up the TGM book.

We hope to offer other titles, and even some other items (such as dozenal clocks and the like), in the future.

## EACH ONE, TEACH ONE

1	2	3	4	5	6	7	8	9	7	8	10
2	4	6	8	7	10	12	14	16	18	17	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	7	13	18	21	26	28	34	39	42	47	50
6	10	16	20	26	30	36	40	46	50	56	60
7	12	19	24	28	36	41	48	53	57	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
7	18	26	34	42	50	57	68	76	84	92	70
8	17	29	38	47	56	65	74	83	92	71	80
10	20	30	40	50	60	70	80	90	70	80	100

*Click to return*