DSA Newsrast

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Make Some Dozenal Measuring Cups

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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.

Last issue, we saw how to quickly, easily, and cheaply build a dozenal weight-and-mass scale; some time ago, we also saw how to make a dozenal ruler. Now, let's bring our efforts into the kitchen; let's put together some dozenal volume measures! Specifically, some *measuring spoons* and *measuring cups*.

So measuring cups and measuring spoons typically come in matching sets, and those sets typically consist of some very well-defined volumes. For example, here's the set of measuring cups and spoons that we'll be dozenalizing:

Click for Full-size Image

The values most of these sets include are 0;3 tsp; 0;6 tsp; 1 tsp; 1 tbs; 0;3 cp; 0;4 cp; 0;6 cp; 1 cp. (For our metric-minded friends, fear not; these volumes will be rendered in milliliters in just a moment.)

Here's a table listing those volumes in American customary measures, in milliliters, and in our chosen dozenal metric system, TGM (the volume unit is called the "Volm"). Note that a prefixed subscript means a negative order of magnitude (e.g., "$_4$Vm" means "1 Volm divided by 10000"), while a prefixed superscript means a positive.

Custom.	mL	Vm
0;3 tsp	1;2953	0;ᘔ3ᘔ $_4$Vm
0;6 tsp	2;5606	1;ᘔ87ᘔ $_4$Vm
1 tsp	4;ᘔ190	3;ᘔ539 $_4$Vm
1 tbp	12;9530	0;ᘔ3ᘔ $_3$Vm
0;3 cp	4ᘔ;1900	3;ᘔ53ᘔ $_3$Vm
0;4 cp	66;2400	5;3313 $_3$Vm
0;6 cp	9ᘔ;3600	7;ᘔᘔ7ᘔ $_3$Vm
1 cp	178;7000	13;9939 $_3$Vm

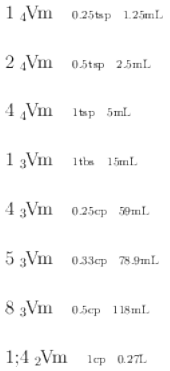
The astute (and not-so-astute, likely) reader will notice that most of the TGM values are quite close to even numbers; so close, in fact, that at the precisions we're dealing with, we can round them off to no ill effect. So here are the dimensions we'll be working with (with mL also rounded off, for completeness:

Custom.	mL	Vm
0.25 tsp	1.25 mL	1 $_4$Vm
0.5 tsp	2.5	2 $_4$Vm
1 tsp	5	4 $_4$Vm
1 tbp	15	1 $_3$Vm
0.25 cp	59	4 $_3$Vm
0.33 cp	78.9	5 $_3$Vm
0.5 cp	118	8 $_3$Vm
1 cp	0.27 L	1;4 $_2$Vm

If your recipe requires volumes so precise that the flavor will be thrown off by these roundings, then your cooking is by far the finest in

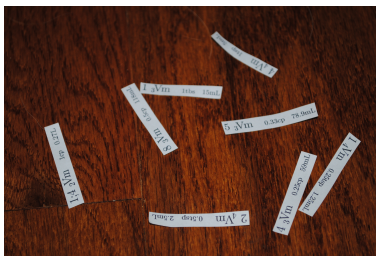
the world; you're obviously a wealthy chef, so you should just commission your own custom, exact-sized dozenal measuring cups—and print a dozenal cookbook, while you're at it!

Now, take a sheet of paper and write these volumes on it; you can include the customary, the metric, both, or neither as you wish. I've chosen to include both, listed in decimal; with the preferred dozenal measurements, in TGM, a bit larger. My printed sheet looks like this:



Click for Full-size Image

Cut them up into little slips of paper, one cup's line on each, like you're getting ready to draw names out of a hat. You'll wind up with a pile of eight slips, like so:



Click for Full-size Image

Now, simply tape each of these, with transparent tape of some type, onto the handles, over whatever markings may already by present. And you'll wind up with the following:

Click for Full-size Image

The whole process takes about a third of an hour, and the normal set of cups costs a few dollars. With this small effort, we can begin really using dozenal in our volume measures.

For extra credit, try doing it with pint or quart pitchers, the sort you might use for lemonade or iced tea. A pint, in TGM, is 0;0277 Vm, so call it 28 ₃Vm; a quart is 0;0533 Vm, so call it 54 ₃Vm. These are very much close enough for daily use. (These are customary pints and quarts, not imperial pints and quarts, which are 0;031E and 0;063E Vm respectively.) A customary gallon is 0;1910 Vm, so you might begin thinking of your one-gallon bucket as a sixth of a Volm instead.

The goal of all these exercises is to put all that great thinking and contemplation of the superiority of dozenal into *action*. Our readers will doubtlessly have many more ideas for doing so than we can possibly put into this little newsletter. So please, try things! Send us ideas! Let other dozenalists profit from and build upon your thoughts!

Next month: a dozenal thermometer!

Dozenal News

LaTeX `dozenal` Package Updated

LaTeX (the standard mathematical typesetting software, also used for non-mathematical documents) has the `dozenal` package for using dozenal numerals and counters (such as chapter and page numbers). It can be found on the Comprehensive TeX Archive Network (CTAN):

https://www.ctan.org/pkg/dozenal

The package was updated recently so that it was work across all TeX engines, including LuaTeX-based ones. Since LuaTeX engines are rapidly becoming the default in many cases, this is an important step for the package.

Schiffman's *Personalities* Republished

Long-time members will fondly remember Prof. Jay Schiffman's excellent article, *The Personality of the Integers from One to One Gross*, originally published in *The Duodecimal Bulletin* WN 74. This article gives a thorough accounting of each of these integers and their primary interesting properties. It has now been newly typeset and republished:

http://www.dozenal.org/drupal/content/schiffman_personality.html

The original printing mistakenly omitted parts of 9ᴄ and 9ᴇ, which this edition fixes. Become better friends with the integers from 1–100 with this fascinating piece.

Another Online Dozenal Calculator

We've stumbled across another online dozenal calculator, this one using "d" and "e" for ten and eleven. It is an online calculator, apparently written in Javascript, and will therefore only work when connected to its website, unless you duplicate its scripts:

http://dozenal.multifaceted.info

It appears to have just the basic four functions, plus exponentiation; but it is available whenever one has an Inter-

net connection, and could well be worth some experimenting.

Hamburg Music Notation: A Dozenal System

Music lovers have long been interested in dozenal; from the very beginning, with Vodjevetz's new musical notation, applying dozenals to music has been a constant interest. So they may be interested in reading about the Hamburg Music Notation system:

https://hamburgmusicnotation.com/about/

Taking the oft-made observation that an "octave" contains twelve semitones, Hamburg notation numbers notes and presents them as numerical quantities. Very interesting, and worth a look for those who understand such things.

Society Business

Annual Meeting Date and Location

Your annual meeting of the Dozenal Society of America has been set. It will be on October 11 (13.), 1201 (2017.), in Atlanta, GA, from 10:00–15:00 in the afternoon. Its location is the Atlanta AMA Conference Center in downtown Atlanta.

We're already looking forward to some very interesting presentations, including at least one from a member new to us this year; we hope you'll be able to join us!

Website Updates

In addition to posting Schiffman's work, we have further updated the website based on feedback we received from last month's update. Menu items are now larger, for example.

We have also moved the "Educational Materials" prepared by secretary Jen Seron (#372) and Dan Simon (#395) to a fitting place under "Resources." On the menu bar, we have put *The DSA Newscast*, and *all* back issues, on the Internet. The idea is that, for one month, the *Newscast* will be available only to members; when a new issue is published to members, the previous issue will be published to the Web.

Please continue sending in suggestions for the website; we're working hard to keep improving it.

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

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

Poetical Diversion

Number is a Vital Thing

Just as the sun shines over all the frigid earth
and sends its warm, refreshing rays to life below,
and thus gives rise to all that is of any worth
for us who struggle through our lives to better know;
but then the dark'ning moon the light's bright edge doth kiss,
and slowly blocks the light until the sun is dark,
until we who still live below the light do miss
its warming rays, and in the night our days must mark.

So Twelve has sent the benefits of numbers down,
igniting comprehension of their properties;
but Ten has blocked Twelve's glory with its dec'mal frown,
and darken'd understanding of mathematics' ease.

But just as each eclipse must end and free the sun,
So Twelve will shine too bright for Ten e'er all is done.

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

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.

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

Click to return

$1\ {}_4\mathrm{Vm}$ 0.25tsp 1.25mL

$2\ {}_4\mathrm{Vm}$ 0.5tsp 2.5mL

$4\ {}_4\mathrm{Vm}$ 1tsp 5mL

$1\ {}_3\mathrm{Vm}$ 1tbs 15mL

$4\ {}_3\mathrm{Vm}$ 0.25cp 59mL

$5\ {}_3\mathrm{Vm}$ 0.33cp 78.9mL

$8\ {}_3\mathrm{Vm}$ 0.5cp 118mL

$1;4\ {}_2\mathrm{Vm}$ 1cp 0.27L

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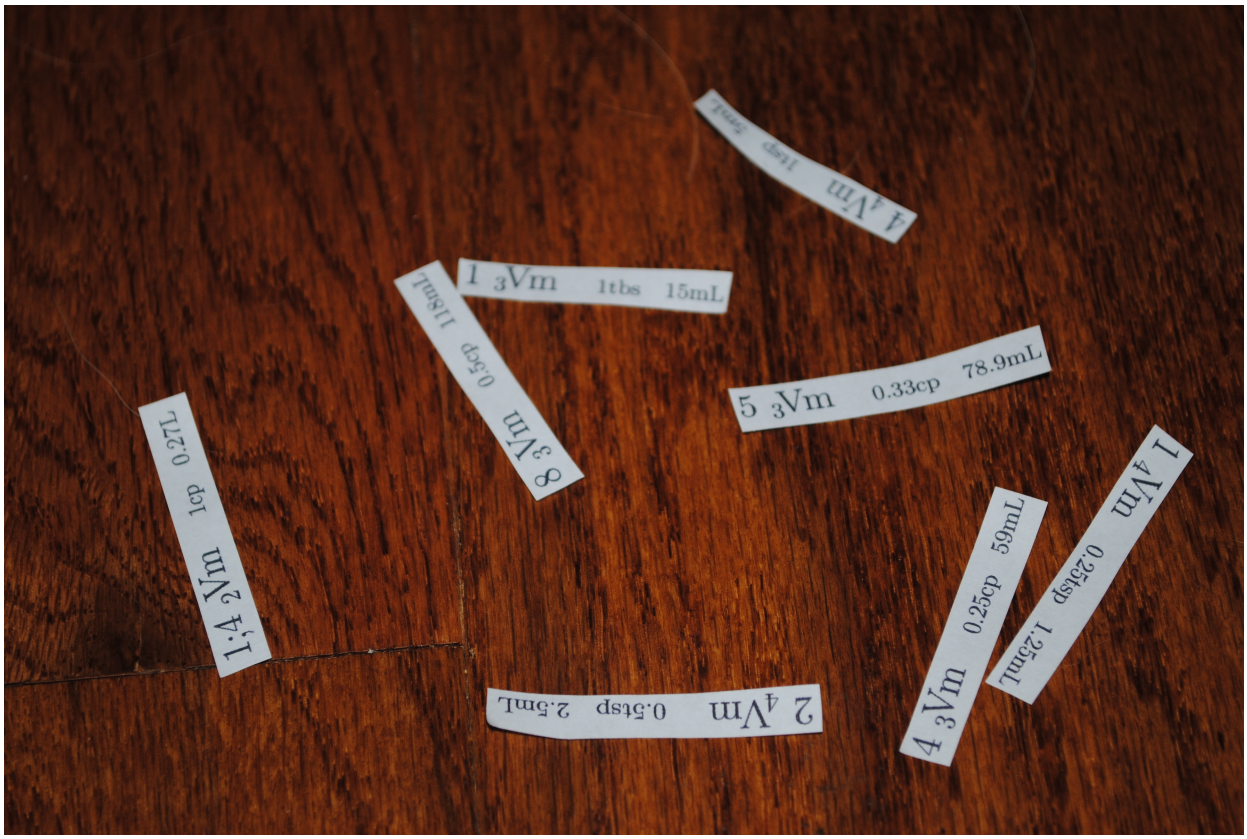

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