
DSA Newscast

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MAKE A DOZENAL RULER

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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.

DODZENS ARE a lot of fun to think about and play with; but ultimately, many of us want to *use* them. We love dozens not only for the beautiful patterns and tricks they present, but for their practical utility. So let's examine one easy way to use dozens: measuring. Let's make a dozenal ruler!

To make a ruler, you need the following:

1. A scale of measurement.
2. A base material of the appropriate size.
3. Paper with the appropriate scale printed on it.
4. Some means of attaching that paper to the base material.

For the scale of measurement, select whatever scale you like the best. In the United States, and to a lesser extent in some other Anglophone countries, we already have a ready-built dozenal linear scale: feet and inches. However, many dozenalists want a consistently dozenal metric system, and there are many of these. The one your humble author prefers, and which will serve as the basis for this little article, is TGM. In TGM, the base unit of length is the Grafut, which equals approximately 0;8783 foot, or 0;3668 meters. It is, of course, divided into twelfths.

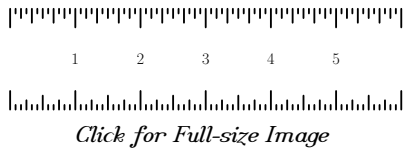
For a base material of the appropriate size, any number of possibi-

ties are available. It's easy to find approximately ruler-sized lengths of flat wood at most hardware stores. Another possibility is tin or aluminum; aluminum flashing used for sealing roofs is an excellent choice. We will use such aluminum flashing for this exercise here.

The paper with the scale printed on it is the most challenging part. One can, of course, simply take a normal customary or metric ruler and set out the sizes by hand; likely, however, this will be messy and difficult, and it doesn't allow the efficient creation of many rulers. So let's use computers for what they're really good at: automating drudgery. Specifically, we will present some Metapost code for creating a half-Grafut ruler to fit on our base material.

Our half-Grafut ruler will be divided into sixths, of course (twelfths of a full Grafut); these are called *unciaGrafut*, *uncia* meaning one twelfth. Each *unciaGrafut* we will divide into thirds on the top edge of the ruler and quarters on the bottom. In the latter case, the half-*unciaGrafut* line will be longer than the quarter-*unciaGrafut* lines.

The code for producing the scale can be found on page 8. Process this by running it through the Metapost programming language; or, alternatively, use the following image:



Click for Full-size Image

Just print that last page and you have a half-Grafut ruler.

Once you have this, cut the base material to size (with a saw if you have wood, or some tin snips or similar tool if you're using flashing), using the paper scale as a guide.

Now, you need to attach the paper scale to the base material. Glue may do for this, but since your scale is paper, you want to protect it, so transparent tape is likely a better choice.

Carefully position the paper scale onto the base material and tape it together, being sure to cover all the paper with the protective tape and wrapping all around the base material, as well. Eventually, you should end up with something like this:



Click for Full-size Image

(Obviously, this uses slightly different scale code than the one we've provided; it is TGM, but it includes some DSA branding and a TGM label rather than explicit numbering. But the principle is the same.)

This is not particularly pretty; but it is light, durable, and most importantly *functional*. And it brings us one step closer to using dozens rather than decimals in our daily life. Give it a try; and send us pictures of your results!

DOZENAL NEWS

NEW MODS AND A DOZENAL PRIMER ON THE WEBSITE

At the close of last year, the DSA published a new and revised version of the *Manual of the Dozenal System*, as well as a much shorter document meant for absolute beginners, *A Dozenal Primer*. These are now available at our web-

site, as well, free of charge:

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

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

Of course, if you'd like, you can still get handsomely printed versions; see the end of this *Newscast* for details.

SOCIETY BUSINESS

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 Soci-

ety 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.

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.

POETICAL DIVERSION

THERE IS ANOTHER BASE

□ There is another base,
that shines where Decimal shone,
And there is another number,
Though it be lesser known;
Never mind faded bases, brethren,
Never mind foolish Ten —
Here is the mighty Dozen,
whose glories can mortals ken,
where finite thirds have been;
In its unfading brightness,
I hear love of numbers hum:
Prithree, my brother,
into the Dozen come!

Perhaps lesser known than other poems we have adapted, the above is based on There is another sky by Emily Dickinson.

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



1

2

3

4

5



Click to return



Click to return

```

input TEX;
verbatimtex
%latex
\documentclass{article}
\usepackage{bold-extra}
\usepackage{fix-cm}
\usepackage{dozenal}
\begin{document}
etex
string dozstuff;
string bigfont;
bigfont := "\font\cmr=cmr17\cmr";
dozstuff := "\def\basexii#1#2#3{\ifcase\numexpr(#1)\relax0\or1\or2\or3\or4\or5\or6\or7\or8\or9\or#\2\or
width = 14.784145629380cm;
width := width + 1.00mm;                % fudge factor for printer
height = 1.5in;
lentick = 5pt;
def drawruler =
    pair p[];
    pair q[];
    for i=0 upto 72:
        p[i] = (i * (width / 72),0);
        if (i mod 12 = 0):
            q[i] = p[i] shifted (0,4lentick);
        elseif (i mod 6 = 0):
            q[i] = p[i] shifted (0,3lentick);
        elseif (i mod 3 = 0):
            q[i] = p[i] shifted (0,2lentick);
        else:
            q[i] = p[i] shifted (0,lentick);
        fi
        draw p[i]--q[i];
    endfor

    pair c[];
    pair d[];
    for i=0 upto 72:
        c[i] = (i * (width / 72),height);
        if (i mod 12 = 0):
            d[i] = c[i] shifted (0,-4lentick);
        elseif (i mod 4 = 0):
            d[i] = c[i] shifted (0,-3lentick);
        elseif (i mod 2 = 0):
            d[i] = c[i] shifted (0,-2lentick);
        else:
            d[i] = c[i] shifted (0,-lentick);
        fi
        draw c[i]--d[i];
    endfor
    pair e[];
    for i=0 upto 6:
        e[i] = (i * (width / 6),height/2);
    endfor
enddef;
def drawnums(expr number,final) =
    for i=1 upto 6:
        if (i < 6):
            label(TEX(dozstuff&bigfont&"\dozit{"&decimal(number+i)&"}"),e[i]);
        else:
            if (final = 1):
                label(TEX(dozstuff&bigfont&"\dozit{"&decimal(number+i)&"}"),e[i]);

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                fi
            endfor;
        enddef;
    beginfig(1)
        pickup pencircle scaled 2;
        drawruler;
        drawnums(0,5);
    endfig;
end
```