

THE 8 Dozen 4 DUODECIMAL BULLETIN



*Our E-xperts
See Page 9*



*Volume 4 Dozen 2
Number 1
11 *9;(2001.)*

THE DOZENAL SOCIETY OF AMERICA
ε/₁₀Math Department
Nassau Community College
Garden City LI NY 11530-6793

= Annual Meeting Fri, Oct 5; 11 *9(10/5/01) at Bank Street School, NYC =

THE DOZENAL SOCIETY OF AMERICA

(Formerly: The Duodecimal Society of America)

is a voluntary, non profit, educational corporation, organized for the conduct of research and education of the public in the use of base twelve in numeration, mathematics, weights & measures, & other branches of pure & applied science.

Membership dues are \$12 (US) for one calendar year. Student Membership is \$3 (US) per year, and a life Membership is \$144 (US).

The Duodecimal Bulletin is an official publication of the DOZENAL SOCIETY OF AMERICA, INC., %, Math Department, Nassau Community College, Garden City, LI, NY 11530-6793.

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eaberridge@aol.com

Editorial Office:

Jay Schiffman, Editor
604-36 S Washington Sq, 815
Philadelphia PA 19106
(215) 923-6167
Gene Zirkel, Associate Editor
(631) 669-0273
genezirk@mindspring.com

Nominating Committee

Alice Berridge (Chair)
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THE DUODECIMAL BULLETIN

Whole Number Eight Dozen Four

Volume Four Dozen Two

Number 1;

11*9;



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**MINUTES OF THE ANNUAL
BOARD & MEMBERSHIP MEETINGS**

Friday, October 6, 11*9 (2001.)
Hofstra University, Hempstead, NY



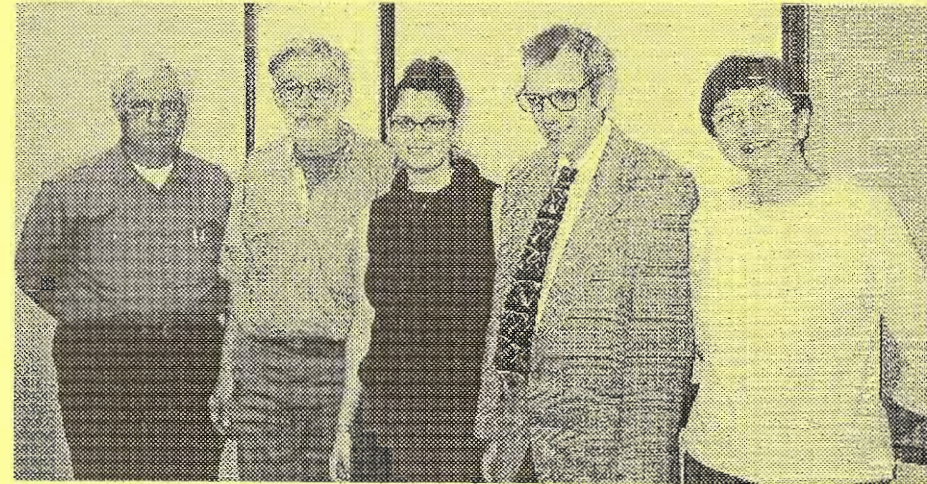
Attendance: Standing - Dr. John Impagliazzo, Prof. Jay Schiffman, Prof. Gene Zirkel, John Earnest, Chris Harvey,
Seated - Christina Scalise, Prof. Alice Berridge, Dr. Patricia Zirkel.

I - BOARD OF DIRECTORS MEETING

1. Gene Zirkel, Board Chair, convened the meeting at 4:00 pm. The following Board members were present: Alice Berridge, John Earnest, John Impagliazzo, Christina Scalise, Jay Schiffman, and Gene Zirkel.
2. The minutes of the meeting of November 6; 11*7;(11/6/99) were approved as published in The Bulletin.
3. The Nominating Committee (A. Berridge, J. Schiffman, and Pat Zirkel) presented the following slate of officers, which was elected unanimously:

Minutes of the Annual Board and Membership Meetings

Board Chair:	Gene Zirkel
President:	Jay Schiffman
Vice President:	John Earnest
Secretary:	Christina Scalise
Treasurer:	Alice Berridge



John Earnest, Gene Zirkel, Christina Scalise,
Jay Schiffman, Alice Berridge

4. Appointments were made to the following DSA Committees:

Annual Meeting Committee: Alice Berridge and Gene Zirkel
Awards Committee: Gene Zirkel, Patricia Zirkel, Jay Schiffman
Volunteers to these committees are welcome at any time

5. The following appointments were made:

Editor of The Duodecimal Bulletin: Jay Schiffman
Associate Editor: Gene Zirkel
Parliamentarian to the Board Chair: Christina Scalise

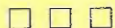
Other Business of the Board:

The next Board Meeting will be held tentatively on Friday, October 5; 11*9; (October 5,2001) early afternoon at Bank Street School in Manhattan. Christina who is on the staff at Bank Street discussed special features of the alternative learning program at Bank Street. She suggested that a special talk about the Society to faculty and/or students might be appropriate. Gene, and John Earnest who could talk on math anxiety, were both agreeable to this suggestion. Members would eat afterwards at a nearby restaurant.

Next meeting in
Manhattan at
Banks Street School

Members re-examined Bob McPherson's "Certificate of Numerical Equivalence." Corrections have been made to the document and members signed it again and it will be mailed to McPherson in Florida. Bob had submitted the document prior to this time but it had been lost in the mail.

The Board Meeting was adjourned at 4:30 PM.



II ANNUAL MEMBERSHIP MEETING

1. President Jay Schiffman gaveled the meeting to order at 4:30 PM. He is happy and grateful for the work done by Chris Harvey, John Earnest, Ricky Glass, Christina Scalise and others on the DSA web site. He said that he wants to generate membership in the Society and to increase attendance at our meeting. He drew attention to *The Journal of Recreational Mathematics*. Jay feels that since DSA member, Charles Ashbacher, is the new editor there will be a link between the two that might be beneficial to both societies. He said that a program is needed to convert back and forth from bases 2 to 36. At this time no calculator can do this. Ricky Glass had said that one of his students might be interested in exploring this topic as a special project. It was suggested that it might be publicized on our website. John Impagliazzo said a Hofstra student might be interested in the project. John Earnest and Ricky Glass could develop the interface for the project.

2. The minutes of the meeting of November 6; 11*7(11/7/99) were approved as published in The Bulletin.

3. Treasurer's Report - Alice Berridge

Alice presented Financial Statements for the years 11*8 and 11*7 for comparison, as well as Membership lists for the last two years and a listing of current members as reflected from the recent membership drive. Members have made special contributions to the Society amounting to \$179;(\$237.) A second pitch for membership will be made soon. The Balance as of October 6; was \$1499;(\$2421).

Members discussed the status of our stocks. In January shares of Lucent were sold - recently the stock plummeted so we feel lucky to have sold earlier. The other stocks had been a gift from the estate of Past President Ralph Beard and dividends from them have added to the Society for many years. This year there has been some loss so members suggested that maybe another investment plan would be more advantageous. John Earnest and Chris Harvey provided input into the subject and they will look into alternate proposals. It was suggested that the savings account be eliminated. Chris Harvey agreed to look into the possibility of online dues payment via PayPal.

4. Editor's Report - Jay Schiffman

He is still anxious to receive articles from readers. Gene is now doing the copy for The Bulletin on disk thereby eliminating paste-up work, and thus cutting costs. This has been found to be much more efficient for the Editors. Jay said he had received the last of eight articles from Ian Patten. Seven others are expected in the future. He is hoping to establish a Problem Section as on page ##; of the last Bulletin. It was suggested that he might reprint old problems also. It was suggested that articles concerning any number base should be solicited from students, graduate students from Hofstra U. and elsewhere, and from Bank St. students and faculty, as well.

5. Annual Meeting Committee - Alice Berridge and Gene Zirkel

Tentatively the next Annual Meeting will take place on October 5; 11*9; at Bank Street School.

6. Nominating Committee - Alice Berridge

The Committee presented the following slate for the class of 11*(2003): John Steigerwald, Carmine DeSanto, Jay Schiffinan, and Timothy Travis

Alice Berridge, Jay Schiffinan and Patricia Zirkel were proposed as the Nominating Committee for the coming year. All were elected unanimously.

Christina Scalise was appointed Parliamentarian to the President.

7. Awards Committee - Gene Zirkel

There were no nominations for awards for this year. It was suggested that a list of honorary members, fellows and members emeritus be published in The Bulletin. Members are asked to suggest possible honorees for next year's presentation.

John Earnest remarked that in addition to Honorary Members and Fellows, we remember our departed Members Emeriti who rest on Cloud Twelve, $\frac{1}{3}$ again higher than Cloud Nine.

7. Other Business:

It was suggested that the new website be incorporated into the new DSA stationery.

Gene reported that for this last year there were 19; email requests for 5*; copies of DSA materials versus 17; US mail requests for 98; copies of DSA materials. He indicated that a greater pergrossage ($\frac{p}{g}$) ($64 \frac{p}{g} > \frac{1}{2}$ to $58 \frac{p}{g} < \frac{1}{2}$) of requests are made via email and that a greater volume is requested via US mail ($76 \frac{p}{g} < \frac{5}{8}$ to $46 \frac{p}{g} > \frac{3}{8}$.) Gene said that old *Bulletins* and "Excursion in Numbers" are the items most often requested.

Members were especially pleased by the generosity of Hofstra U. and the planning efforts of John Impagliazzo on behalf of DSA - the meeting room was grand, the accommodations excellent and the pleasant repast was a wonderful treat for us all!

Thanks due to
John Impagliazzo

John Earnest and Chris Harvey led a discussion and analysis of the new DSA

website: {www.polar.sunynassau.edu/~dozenal/} Chris is the Webmaster; Site Editors are Chris and Christina. There is a possibility of putting the *Bulletin* on our web site. The site will incorporate a notice "hosted by Nassau Community College." Chris has already worked hard on the site and said that he will have a lot of time in the next several months to improve the fine points of the site. John Earnest was careful to examine all features of development, management and enhancement of the site and he guided the discussion at each point. Members are extremely grateful to both of them and to Christina for their good work on the project. We are very grateful to all for their willingness to continue their efforts. There was a big round of applause for these workers.

The meeting was adjourned at 6:10 PM.

Respectfully submitted,

Christina Scalise, Secretary
Alice Berridge, Treasurer



Our E-xperts

Our cover photograph shows the three people responsible for our new web page. They are John Earnest, Chris Harvey and Christina Scalise.

You can view their work by logging on to

www.polar.sunynassau.edu/~dozenal/

We are very grateful for their hard work and devotion.

What follows are four e-mails -

- 1 From Shaun Ferguson to Gene
- 2 From Neil Herron to Shaun
- 3 From Neil to feedback@freedom2measure
- 4 And an Open letter from Neil Herron

1.

Gene - here's democracy in action. Forbidden to use Imperial. Fined. Like out of "1984"?
Shaun Ferguson

2.

From: "nherron.metricmartyr" <nherron.metricmartyr@ic24.net>
Date: Mon, 18 Sep 2000 22:58:10 +0100
To: <shaunf@dircon.co.uk>
Subject: Compulsory metrication

Hi,
Slowly getting the hang of this! Please find attached a copy of our cause. Your comments and support would be greatly appreciated.

Yours Imperially,
Neil Herron

3.

From: "nherron.metricmartyr" <nherron.metricmartyr@ic24.net>
Date: Sun, 17 Sep 2000 09:05:28 +0100
To: <feedback@freedom2measure>
Subject: sunderland's metric martyrs, england

Hi,
If you are not aware of what is going on in Britain I hope this letter will give you an insight. The issue is bigger than the right to use imperial measures, it is about freedom of choice and the removal of democratic process by the unelected bureaucrats of the sinister European Union.

We need your help to raise the profile of our campaign in the USA and create links with the American media.

World attention is going to be focused on Sunderland in the coming weeks because a fruit and vegetable trader, Steven Thoburn, is going to be the first

person in Britain to be prosecuted through the criminal courts for selling goods in pounds and ounces.

Penalty.....up to £5,000 fine.....6 months in prison.....!!!!!!

We have the support of the British people. We need the support of the World's biggest imperial nation.

Look forward to hearing from you.

Yours Imperially,
Neil Herron

4.

From: "nherron.metricmartyr" <nherron.metricmartyr@ic24.net>
Date: Sun, 23 Jul 2000 23:56:05 +0100

Email:nherron.metricmartyr@ic24.net
Herron's Discount Foods Ltd.,
Units 14-16,
Park Lane Market,
Sunderland,
Tyne & Wear,
SR1 3NX,
Tel. (0191)5108148 shop
(0191)5226308 home
07776202045 mobile
Fax. (0191)=5285712

OPEN LETTER

My name is Neil Herron. I am a fishmonger at Park Lane Market in Sunderland, which is situated 100 yards away from the Trading Standards Offices at Sunderland Civic Centre.

I am an honest, hard-working, law abiding citizen and member of the business community, with a wife, Lynn, two sons, Troy and Raigan and a mortgage.

I have spent sixteen long years building up my business and raising my family, teaching my children the value of hard work, honesty, integrity, loyalty and the difference between right and wrong.

Now, according to Sunderland Trading Standards Weights and Measures Department, I am a CRIMINAL.

They have deemed it a CRIMINAL OFFENCE for me to sell my goods in pounds and ounces here on British soil.

Yes, read it again !

It beggars belief.

They have bullied, intimidated and harassed decent, loyal and honest traders into submitting to compulsory metrication against theirs' and their customers' wishes.

WE DO NOT WANT IT !

But more importantly, the PUBLIC DO NOT WANT IT !

As a nation we think imperially, whether it be the speed we drive, the distance we travel, the pint we drink, our height or the weight of your baby, Mr. Blair.

We traders are not Luddites, we are businessmen responding to consumer demand, and all those consumers demand to be served in pounds and ounces and not in a system which is alien and confusing to them. No more, no less! There may come a time in the future when consumer demand changes, and as we deal with the public daily on a one to one basis we will be first to know. That time is not now and nor will it be imposed upon us by draconian methods.

The whole issue here is about freedom of choice. I believe we live in a democracy, not a police state.

When I was served with 'The Notice of Seizure' of my imperial equipment by Trading Standards Officer Mr. Redding I questioned his legal authority. I was told in no uncertain terms that I was breaking the law and would face fines and criminal penalties if I continued to sell goods in pounds and ounces after my 28 day notice. When asked he could not tell me which law I was breaking.

I wrote an article for the local press after my second verbal "we're coming to get your scales a week on Friday Mr. Herron," warning. They ran with the story. The public had now been told of the skulduggery that was occurring. Their

response was immediate and overwhelming. Letters and calls of support started rolling in. The UK Independence Party contacted me and offered financial support should I be made the "Test Case." We had the backing of The British Weights and Measures Association.

It was also pointed out that under Section 1 of The 1985 Weights and Measures Act, I was permitted to sell loose goods in pounds and ounces. I was not a criminal, an Act of Parliament said so.

Then five days after the article, a friend of mine, Steven Thoburn the Southwick greengrocer, had three sets of imperial scales seized by two Trading Standards Officers, Mr. Redding and Mr. Fallon, with the accompaniment of two Police Officers. He was threatened with arrest for a breach of the peace if he resisted.

Steven rang me. We now had our martyr, but we were determined to stand together. If Steven Thoburn was to be branded a criminal, then so would I.

He would not stand alone. We rallied the press and the media. Support was now national again questioned the legality and morality of the council officers, actions. The challenge went out to Trading Standards..... "Come and get me. You know where I am, The wanted posters are all around the city."

The Sun newspaper and The Mail are both giving fantastic support along with the UK Independence Party.

Steven and I have been overwhelmed by the support not only in Sunderland, where it is not measured in percentages, it is total, but also from all over the country. A petition has been started at both our shops and people have been queuing to sign.

The British public have awakened to the issue. It is an issue that also involves the European Question, bigger than our right to sell goods in pounds and ounces, and one that could ultimately involve the loss of our culture, our currency, our heritage and our nation.

If this is the way the battle will be fought, by underhand, devious, intimidatory tactics of government appointed officials, then the country is now awake and ready.

Tell us the truth Mr. Blair. Give us the facts. What is the ultimate agenda? What else will you allow Europe to take from us and what will we receive in return?

I have explained to my children why their Dad is not a criminal. I challenge you Mr. Blair and your government to tell them why I am.

It has taken two market traders from Sunderland to make the nation sit up and listen. A nation whose fathers and grandfathers fought in two world wars to allow us to have our freedom, whether it be to voice our opinion or to sell a pound of kippers, or express our culture. Do not let this country of ours get sold down the river without fighting for our sovereignty and heritage.

Steven and I now know that we are not the lone voice we were when we first made our stand.

WE WILL WIN !

Yours Imperially,

Neil Herron.

△ △ △ △

Errata

In *Number Base Conversion* in our last issue on page 1 dozen 7, line -4, {1,0,0,0} should read {1,0,0,0,0} and 1000_{16} should be 10000_{16} .

Also on page 1 dozen 8, line 8, the 12 should be 2 and 81 should be 113.

Sorry about that.

PYTHAGOREAN TRIPLES

Bill Holdorf & Gene Zirkel

In a recent letter Bill Holdorf, Member number 359, included a computer program to find Pythagorean triples which are divisible by twelve. Bill's program was written in Basic, and not many people use that language any more.

Using Bill's ideas, we rewrote Bill's program in Visual Basic 6. It uses 2 commands: Run and End.

Option Explicit

Dim x, y, z1, z2, forstop As Integer

Private Sub cmdRun_Click()

'A program to find Pythagorean triples divisible by twelve

Print " x y z x^2 + y^2 = z^2"

forstop = 300

For x = 12 To forstop Step 12

For y = x To forstop Step 12

z1 = x ^ 2 + y ^ 2

z2 = Sqr(z1) 'find sq root

z2 = Fix(z2) 'truncate

If (z2 Mod 12 = 0) And (z2 ^ 2) = z1 Then

Print x, y, z2, x ^ 2; " + "; y ^ 2; " = "; z2 ^ 2

End If

Next y

Next x

End Sub

Private Sub cmdEnd_Click()

End

End Sub

Continued

□ □ □

Remember — your gift to the DSA is tax deductible

Pythagorean Triples

The output produced by both programs follows:

x	y	w	$x^2 + y^2 = w^2$
36	48	60	$1296 + 2304 = 3600$
60	144	156	$3600 + 20736 = 24336$
72	96	120	$5184 + 9216 = 14400$
84	288	300	$7056 + 82944 = 90000$
96	180	204	$9216 + 32400 = 41616$
108	144	180	$11664 + 20736 = 32400$
120	288	312	$14400 + 82944 = 97344$
144	192	240	$20736 + 36864 = 57600$
180	240	300	$32400 + 57600 = 90000$
216	288	360	$46656 + 82944 = 129600$
240	252	348	$57600 + 63504 = 121104$

✱



OUR BRITISH ASSOCIATES

The Dozenal Society of Great Britain

Walnut Bank, 29 Underhill Moulsoford, Oxford OX10 9JH, Great Britain

Telephone from US:

A. Whillock, Information Sec. (After hours) 011-44-149-165-1448
A. Denny, Public Relations (After hours) 011-44-181-947-9200
R. Carnaghan, Advisor (After hours) 011-44-192-324-1548

The Yardstick,

published by the *British Weights and Measures Association*
45 Montgomery Street, Edinburgh EH75JX, Great Britain

<http://users.aol.com/footrule>

✱

We received the following e-mail from Shaun Ferguson:

To: Gene
Subject: Re: Pi

Dear Gene,

I've had an enquiry from a member wanting the dozenal version of $\frac{1}{4}$ to three dozen places; I'm sure it was in one of your Bulletins, but I can't find my copy.

Can you let me have it by email, please?

Best wishes,
Shaun.

Our reply follows:

To: Shaun Ferguson <jasmine@appleonline.net>
Subject: Re: Pi

Your e-mail asked for the dozenal version of $\frac{1}{4}$! I thought it was a joke since that would be point 3 followed by 2 dozen and eleven zeros.

Then I noticed that the subject heading at top said Pi.

I'm guessing that the software must have transformed the symbol for pi into the symbol for one fourth.

Checking Fred Newhall's wonderful index of volumes 1 thru 35; I found 18; references to pi. There are probably more in issues printed since then. Unfortunately no one has picked up Fred's work since 1992.

The best two are:

Whole Number 3 dozen 7, Volume 1 dozen #, Number 2, page 3 dozen 7, December 1180(1968.)

Whole Number 5 dozen 7, Volume 3 dozen, Number 2, page 1 dozen 1, Summer 1197(1987.)

The former purport to give pi to a great gross of places! The latter offers 7 dozen places

Continued

I presume that you have both of these. If not, let me know.

Why does he want it???

Best to you and yours,
Gene
*

△ △ △ △

HARRY POTTER

E-mail from Andrew Denny,
Dozenal Society of Great Britain
Gene,

Just received the latest DSA *Bulletin* — thanks. It arrived the day the New York Stock Exchange ceased to quote stock prices in fractions. Ouch! One more loss of non-decimality. The mathematical world is bleeding slowly to death, and children are getting less and less real-life instruction in counting bases other than ten. (We'll gloss over the glaring mistake Thomas Jefferson made two hundred years ago in espousing the cent-divided dollar, OK?)

I suggest you give JK Rowling, author of the *Harry Potter* books, a special award for holding the dam against decimality. If you've read her books, you'll notice that everything is measured in traditional measures, and the wizard currency is in a remarkably interesting form: Galleons, Sickles and Knuts. There are 19 Knuts to the Sickle, and 27 Sickles to the Galleon. So thanks to the phenomenal popularity of these books, children the world over are getting a remarkable lesson in non-metric measures, something I suspect many teaching authorities would love to suppress. Gosh, imagine quoting stock prices on the Wizard Stock Exchange!

Best wishes,
Andrew
Norfolk, England.

*

PROBLEM CORNER

Submitted by Gene Kelly

Fourths of One Dozen

A problem that has been around for years (and which appeared in this *Bulletin* many times) is to express by using four 4s and mathematical symbols as many integers as possible from 0 on up. Thus

$$\begin{aligned} 0 &= 44 - 44 \\ 1 &= 44 / 44 \\ 2 &= 4/4 + 4/4 \\ 3 &= (4 + 4 + 4) / 4 \\ 4 &= 4 + 4(4 - 4) \\ 5 &= \dots \end{aligned}$$

In a similar vein, how many integers from 0 on upwards can be expressed using mathematical symbols along with the three digits 3, 6 & 9, once each? What is the first integer you cannot create? (Incidentally, 3, 6 and 9 are $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$ of a dozen.)

Hints:

$$3! = 3 \times 2 \times 1 = 6$$

$$;3 = 3/10 = \frac{1}{4} \text{ while } .3 = 3/*$$

$$;\bar{3} = ;3333\dots = 3/#$$

$$;\bar{6} = 6/#$$

$$;\bar{9} = 9/#$$

$$\text{while } \bar{.3} = 3/9 = 1/3$$

$$\bar{.6} = 6/9 = 2/3$$

$$\bar{.9} = 9/9 = 1$$

$$\text{thus } 3/\bar{3} = 9$$

$$3/\bar{3} = * \quad 3/;3 = \#$$

$$\text{and } 3/;3 = 10$$

Some examples:

$$16 = \sqrt{\sqrt{69}}; \times 3!$$

$$23 = (9 - 6)^{\wedge} 3$$

$$46 = \sqrt{36} \cdot \times 9$$

$$19 = 3! + 6 + 9$$

$$29 = 6/;3 + 9$$

$$70 = 9! / (6!3!)$$

Expressions for the integers from 0 thru 11; are found on page 1 dozen 9. Can you express 12; using a 3, a 6 and a 9?

*

JOTTINGS

Millie Chu, member number 351 wrote:

I am now a graduate student at the Operations Research Department at Cornell University in Ithaca, NY



Kelly G Willis, member 320, e-mailed:

Hi,

I'm writing to let you know that I'm no longer at Purdue University. Instead, I am now in the actual workforce at a local lab doing chemical production, dealing with all those carbon-do atoms. :-)

Kelly



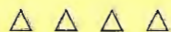
Skip Scifres wrote:

Dear Gene:

As you probably know, my first wife, the one you met, died in 1984. I remarried in 1989 and except for the effect of advanced years we are doing very well. I'm 70; and she is 73; She is a wonderful lady, loves the Lord, and we are in church just about every time the doors are open.

I'm really sorry I cannot come to the meeting next month.

Sincerely,
Skip



We welcome new member number 369; Christopher Chapman of Bellevue, Washington. On his application blank Christopher wrote:

My initial interest in DSA was musical. I'm writing a piano concerto based on Π and decided it would be easier if each digit could represent
Continued

one of the twelve pitch classes. It didn't take long to figure out that the dozenal system is also better than decimal for everything else, so now I want to give you all my money, and since I'm a musician that's exactly twelve dollars.

We enjoyed both his positive comments and his sense of humor, and we wish him well with his Π ano music.



Answers to Problem Corner

$$0 = 9 - 6 - 3$$

$$1 = \sqrt{9} - 6/3$$

$$2 = (\sqrt{9/3}) / ;6$$

$$3 = \sqrt{69} - 3!$$

$$4 = \sqrt{9 + 3!}/6$$

$$5 = 6 - ;3 - ;9$$

$$6 = 3 + \sqrt{\sqrt{69}}$$

$$7 = 6 + ;3 + ;9$$

$$8 = 9 - 3!/6$$

$$9 = 6 - 3! + 9$$

$$* = 9 + 3!/6$$

$$\# = 9 + 6/3$$

$$10 = 9 + 6 - 3$$

$$11 = 3! + 6 + .999...$$

$$12 = ???$$



DON'T KEEP THIS MAGAZINE

Do you discard your copies of the *Bulletin* after you have read them? Or do they gather dust on a shelf in your attic? Why not pass them along to your local library, or to a school library. Perhaps some nearby math teacher would appreciate a copy. You can also just leave them in a dentist's office or other waiting area.

Help spread the word!

(If you ever need a back copy, we'd be glad to help.)

WHY CHANGE?

This same question was probably rife in Europe between the years 1000 and 1500, when the new Hindu-Arabic numerals were slowly making their inching progress in displacing the comfortable and familiar Roman numerals then universally used.

Yet, although it took D years, and despite much opposition--("Who needs a symbol for nothing?")--the new notation did come into popular use. Released from the drag of Roman notation, people's thinking leapt forward dramatically, and mathematicians discovered a new dimension in mathematical symbolism. Working with Hindu-Arabic numeration, they found that the new system better accommodated mathematical statements and facilitated the working out of ideas. Re-examining their fundamental concepts of numbers, they made advances in arithmetic, algebra, logarithms, analytic geometry and calculus, and thus contributed to the explosion of human thought which later became known as the Renaissance. Then, in a related development, people awoke to the fact that different number bases could be used.

A parallel to today seems tenable. The notation of the dozen base better accommodates mathematical statement and facilitates ideation. It, too, is a step forward in numerical symbolism. The factorable base is preferred for the very same advantages which led the carpenter to divide the foot into twelve inches, the baker and the grocer (one who deals in *grosses*) to sell in dozens, the chemist and the jeweler to subdivide the Troy pound into twelve ounces. And yet, this is accomplished by such simple means that students in the primary grades can tell why they are better. Literally, the decimal base is unsatis**FACTORY** because it has **NOT ENOUGH FACTORS**.

Then should we change? Yes, but no change should be forced, and we urge no mandated change. All the world counts in tens. But people of understanding should learn to use duodecimals to facilitate their thinking, their computations and their measurings. Base twelve should be man's second mathematical language. It should be taught in all the schools. In any operation, the most advantageous base should be used, the one best suited to the task at hand. (Similar to computer scientists use of binary, hexadecimal or octal - whichever is most convenient.) If this were done, duodecimals would progressively earn their way into general popularity because they simplify the all-important problem of the correlation of weights and measures, the expansion of fractions ($1/3 = 0;4$) and give an advantage in calculations involving time and our twelve-month calendar. Perhaps by the year 2000, (or maybe by 1200; which is 14; years later!) duodecimals may be the more popular base. But then no change need be made, because people will already be using the more convenient base.

If "playing with numbers" has sometimes fascinated you, if the idea of experimenting with a new number base seems intriguing, if you think you might like to be one of the adventurers along new trails in a science which some have erroneously thought staid and established and without new trails, then whether you are a professor of mathematics of international reputation, or merely an interested pedestrian who can add and subtract, multiply and divide, your membership in the Society may prove mutually profitable, and is most cordially invited *

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