


Vol. 34 No. 1
Friday Jan. 20, 1984

math NEWS

University of Workload
WATERLOO, ONTARIO
CANADA, N2L 3G1

STUDENT CARD

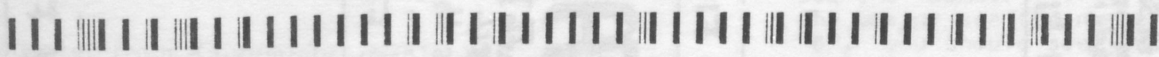


Signature - Alfred Ed. Newman

ALFRED ED.
mathNEWS

VON NEWMAN
UNDERGROUND

LIFE TERM



<p>Friday 20:00 Seminar Sylvia C. Boyd Optimizing over the Subtour of the Travelling Salesman! MC 3084 3:30 Math Soc. Nominations Deadline</p>	<p>Saturday 21 Humanities Theatre: Alligator Pie 10:30, 1:00, 3:30</p>	<p>Sunday 22 Humanities Theatre: Canadian Dancemasters of America 4:00, 8:00</p>	<p>Monday 23 FASS Tickets now on Sale!</p>	<p>Tuesday 24 Math Colloquium L. Avramov (Sofia) 8pm WPIRG Theatre of the Arts: Under the Gun 31 Drop Deadline Math Colloquium Y.T. Sui (Harvard) mathNEWS Production Night(ward) 7pm</p>	<p>Wednesday 25 Road Trip to Vague WATGALOO INN What do Math Grads do? Guy Hulbert Brad Hart 1:30 MC 1056</p>	<p>Thursday 26 Images in Vogue WATGALOO INN What do Math Grads do? Guy Hulbert Brad Hart 1:30 MC 1056</p>
<p>Fed Flicks: 27</p>	<p>Trading Places 28 Deadline for Articles for mN V34 #2</p>	<p>30 Man. Sci. Seminar Dr. Jack Mosevitch OR at Air Canada! CPH 3386-3:30</p>	<p>31 Man. Sci. Seminar Dr. Jack Mosevitch OR at Air Canada! CPH 3386-3:30</p>	<p>7 Math Colloquium C.F. Quinn (Virginia Polytech)</p>	<p>14 mathNEWS Production Night(ward) 7pm</p>	<p>16</p>
<p>Fed Flicks: 3</p>	<p>4</p>	<p>5</p>	<p>6</p>	<p>8</p>	<p>9</p>	<p>15</p>
<p>Fed Flicks: 10</p>	<p>11 Deadlines for Articles for mN V34 #3</p>	<p>12</p>	<p>13 Man. Sci. Seminar Dr. Shoukry D. Saleh Cross-Cultural Studies of Organizations! CPH 3386 3:30</p>	<p>14 mathNEWS Production Night(ward) 7pm</p>	<p>15</p>	<p>16</p>
<p>FEBRUARY 1</p>						
<p>FASS</p>						
<p>Cinema Gratis: The Man Who Would be King</p>						
<p>Cinema Gratis: Where the Buffalo Roam</p>						
<p>Cinema Gratis: Everything You Always Wanted to Know About Sex - A Midsummer Night's Sex Comedy</p>						

Opinion

Being that you, the unfortunate readers, will likely have to endure my ramblings all term long (barring an editorial decision to the contrary), I have decided to give you a treat: a real, goo, old-time fairy tale which quite well applies to the modern society.

Little Red Hen

Once upon a time there lived a little red hen, who found on the dirty yard of the farm a few grains of wheat. The hen called a meeting of all the animals, and told them that by planting the seeds and harvesting the wheat, everybody would get some bread. She then asked help from the other animals.

The wheat grew well, and soon was ready for harvesting, and again the hen asked the others for help.

The little red hen harvested all the grain by herself. She took it to the mill to be ground. Once she had the flour, she once again pleaded for help.

can't do it, explained the cow.

The little red hen had to work again. She baked four large loaves of bread, and left them outside to cool. This caused great commotion in the yard. Everybody wanted, or rather demanded, their share of the loaves. The hen refused all the others, though, and announced she was eating everything by herself.

socialism, claimed the sheep.

The excited animals organized a protest march around the yard, carrying banners and signs demanding their rights, and screaming obscenities at the little red hen. To calm the situation, a government Work Safety Inspector, who soon returned the situation to normal according to his instructions.

all sure whether your work conforms to the government regulations. You could get a sizable fine, if we decide to get picky.

moving to socialism, the efficient workers must share the fruits of their labour with those who are less productive, the inspector lectured, according to what he had heard from his uncle Doug.

So the bread was distributed, and everybody was once again happy in the yard. The little red hen was also smiling, and told everybody how happy she was that she could keep one of the loaves.

But later, the other animals wondered why the little red hen never baked again.

(adapted from Kauppalehti, 1981)

Letters to Freditor

Dear Fred:

I'm really upset about the Record Store being closed on Wednesday's. Being in Math, all my classes are Monday, Wednesday and Friday. But Monday, I always sleep in and miss them and Friday, I can't be bothered so Wednesday is my only day on campus and it's closed. What do I do, I'm desperate, please help me?

"Down and Out"

Dear Down:

First of all, you snivelling little runt, the Record Store is operated by the Feds, not MathSoc. So why don't you send your silly, stupid whining letters to Imprint and stop wasting our time. Secondly, why not try being bothered on Friday, if you are really desperate.

Dear Fred:

I'm in 4B Electrical Engineering, and I've just realized that I want to be in Math. What should I do about this dilemma?

Kinda Late

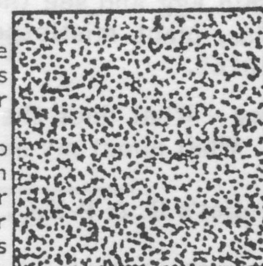
Dear Kinda:

I'm glad you finally came to your senses. However, after 4 years of being brain-washed by EngSuc, you need a long period of recovery. That is why if you wish to be allowed into this faculty, you must start back in 1A. If this is successfully completed, then you will have the privilege of doing 1B and so on. But remember, you will always be watched because of your lapse that sent you to EngSuLand for so long.

EYE TEST

As a public service effort we include, this week, a test for color blindness.

If you are unable to see the number "17" in the box, or see the number "6", you should see your optometrist as soon as possible as you have some symptoms of color blindness.



Wanted (Not Wanted)

Wanted - simple proof of four-colour theorem - no experience needed

Hey C.C. - liked the T. in the R.R. - you G. like no one ever has.

Lonely SuperPet looking for suitable companion for serious editing and debugging. No microwats please.

Swamp Newts Unite! - Throw off the yoke of the imperialist Turtles and stop the flow of red tape forever!! Let's get things moving again in the Swamp!!

Shy? I'm not!! - Call me anytime for insults, verbal abuse, coarse language, heavy breathing, and hacking coughs. Diner's Club and PAC Cards accepted. 556-DUMB.

Wallet and ID lost at V1 Chicken Fat party. Reward. Call Dave, 666-LOST.

Dial-A-Problem - Ever wake up at 3 AM with that unquenchable thirst for a good non-homogeneous DE?? Or do you just have cravings for group theory problems with a side order of nasty quadratics? A new on-line service can get you the problems you need, and fast! Call evenings 666-HARD. Old Putnam contests for parties of 10 or more.

Wallet found in N6, covered in chicken fat. Enquire N8 108.

PSA - Problem Solvers Anonymous is a brotherhood of former math junkies will to help YOU break a 5- or 10-DE per day habit. Meet Tuesdays in CPH 4019.

Busy? - AVATAR Services will attend your co-op or grad interview for you if you don't have time. Co-ordinator interviews by special arrangement, midterms and finals by class only.

LISA G. - You grok very well what goes down here - see you next full moon.

Tree Worship - Join the ancient Order of the Cosmic Egg and see the world. Learn to sacrifice virgins, plant mistletoe, etc. Ask for Blain-Ed, 147-8142.

Nancy - What does the gold say?? Is the room for me? What about my hamster?

Bill - Let's R. & P.H.C. at the C.&D., eh? - Bruce.

Bruce - Can't R. but can P. on night of full moon. See you outside MHR at 1:30 AM.

Grok - Yes, you too can GROK. Just 15 minutes a day can give you a lifetime mental asset, maybe even an extra limb or two. Call Bob at 884-4200.

Imu-Fuji-Chrome - Japanese eyeball massage relaxes muscles, eases mental disorders, removes undesirable memories and thought patterns. Call Myron, 666-OUCH.

Big Brother is watching YOU.

Big Brother's Mom is watching BOTH of you.

NEWT Meeting - Jan 27, 4:30 PM, CPH 6666. New newts welcome.

Lonely latenight MC janitor looking for suitable 2nd-floor terminal for conversation and NIM. No microwats please.

Want to work on new Newspeak Dictionary? See O'Brien, MC 3032.

Volunteers needed for Portability Lab. Bring luggage.

Lotto 6-49 for UW!

This is an urgent plea for all of you out there to go out and buy a Lotto 6-49 ticket for this week's draw! The jackpot still wasn't won last week and will now be between \$10 million and \$11 million. Why do we want **you** to win all this money? (It's Canadian dollars, but it's still worth something...)

Well, we don't. What you are expected to do upon receiving your \$10M cheque is to turn it over to the Math Faculty. They could certainly use the money since Betty is keeping her purse strings pretty tight. Furthermore, their budget was probably not large enough to buy any tickets, even at \$1 a shot. You would still be allowed to keep 10% of your win as your "commission". This is nothing to just snort at, since it still works out to a cool \$1,000,000. Like, that's a pretty good deal, eh?

The Faculty can certainly use that \$9 million: they should be able to invest it with 10% (\$900,000) annual interest. For that, they could hire 20 new profs (english-speaking yet!), or maybe 10 profs and 20 TA's. They could even buy another VAX (with graphics) so that fourth-year CS courses would not be quite as full. With all the new profs, they could even allow some non-CS majors to register in courses of higher caliber than CS330, and (gasp!) relax the CS admission requirements a bit. So, **Lotto 6-49 for UW!**

Editor's note: Some people never get their articles done in time...

THE MATHEMATICS COLUMN

Some graphs with curves (and some without) in polar co-ordinates.

by Fraser Simpson

If you're familiar with complex numbers, you have probably come across polar co-ordinates. It is not likely, however, that you will have done much with polar graphs, so this may be your big break. Get out a pencil and keep reading.

In Cartesian co-ordinates, a point is located using two distances x and y . In polar co-ordinates, a point is located by its distance, r , from the pole (the polar equivalent of the origin) and its angle, θ , from the polar axis (the polar equivalent of the positive x -axis). For example, the point $(1,1)$ corresponds, in polar co-ordinates, to $(\sqrt{2}, \pi/4)$, where θ , of course, has been measured in radians. The point $(-2,0)$ corresponds to $(2,\pi)$.

Circles and Spirals

Since polar graphs have a lot to do with looping and curving, it should be no surprise that the trigonometric functions will show up in the equations of even simple polar graphs. We will start, however, with an equation that contains no trig functions: $r = 0$. Since we do not specify θ here, it is permitted to do whatever it likes. It doesn't matter in this case, since if r stays at length 0, we end up with only a single point for all values of θ . That point will be the pole.

Now let us consider a slightly different equation: $r = \theta$. One way to picture what happens with this relation is to imagine the polar axis sweeping around counter-clockwise starting at $\theta = 0$. Then the r values are plotted, depending on the values of θ at the different positions. Since $r = \theta$, the r values are plotted farther and farther out as θ increases from zero to infinity. When the angle is θ , the positive r values are to the left and the negative r values are to the right. The graph is a spiral, and is known as the Spiral of Archimedes (see Figure 1). What happens if we include all

negative values of θ ? The angle will start sweeping clockwise from $\theta = 0$ for negative values of θ . So the r values --- also negative --- should start to appear in the equivalent of the second quadrant in Cartesian co-ordinates. Try drawing it in.

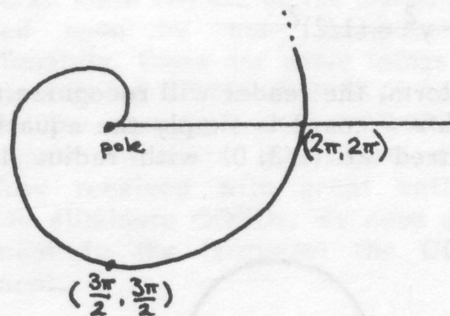


Figure 1: The Spiral of Archimedes

To change from polar co-ordinates to rectangular co-ordinates (or vice versa), we need only superimpose the Cartesian plane on the polar plane and note the relations connecting x , y , r , and θ (see Figure 2). We have:

$$\begin{aligned} r^2 &= x^2 + y^2 \\ \cos \theta &= x/r \\ \sin \theta &= y/r \end{aligned}$$

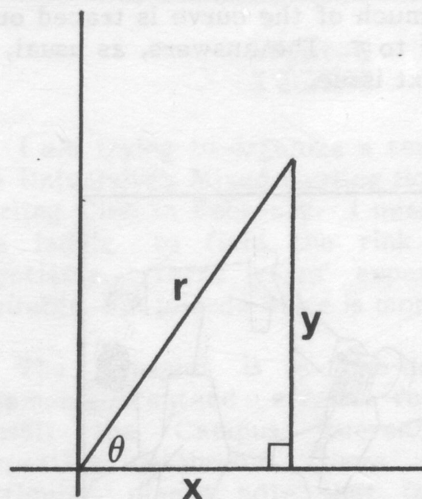


Figure 2

Some graphs, by converting polar co-ordinates to rectangular, become easy to draw because we can recognize the rectangular version. For example, $r = \cos \theta$ is a well-known graph. Substituting (x/r) for $\cos \theta$ gives $r = (x/r)$, or $r^2 = x$. Using the formula for r^2 , we have:

$$r^2 = x$$

$$x^2 + y^2 = x$$

$$(x^2 - x + 1/4) + y^2 = 1/4$$

$$(x - 1/2)^2 + y^2 = (1/2)^2$$

From this form, the reader will recognize that the polar graph $r = \cos \theta$ is simply the equation of a circle centred at $(1/2, 0)$ with radius $1/2$ (see Figure 3).

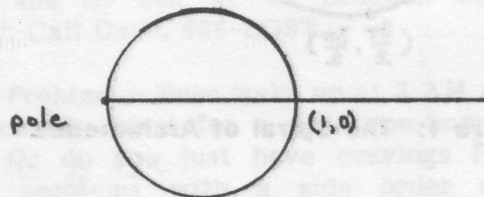
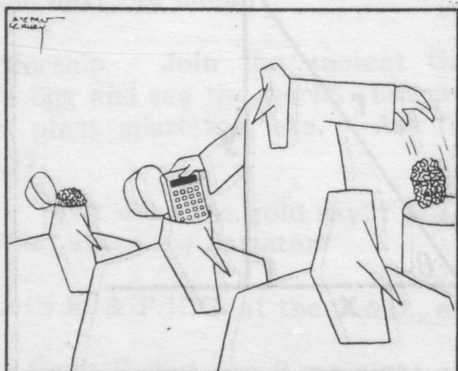


Figure 3: The graph of $r = \cos \theta$.

Ready to try a few? First, sketch the graph of $r = 5$. Then, using the same conversion tricks as done for $r = \cos \theta$, work out and then sketch the graphs of $r = \sin \theta$ and $r = \sec \theta$. The first one will be no big surprise, but the second one will! It's a lot simpler than it looks. Once you've got those two, have a look at $r = \cos \theta$ once again. Using the sweeping axis idea given for the Spiral of Archimedes, convince yourself that the graph is correct. Now (and this is an important exercise) figure out how much of the curve is traced out as θ varies from 0 to π . The answers, as usual, will appear in the next issue.



Teaching Option Taking Applications

The Teaching Option is now taking applications from interested students. A small and very successful program, it has an exceptional history of job placement both during work terms and at graduation. Candidates should be Co-op students no later than their 2B term, either having completed or presently on their second work term. Based on two interviews, marks, and your standing with your work term employers, admission will be offered to the program. Applicants should remember that they will be working with children and adolescents and should take into consideration how well they are able to deal with such. Contact Professor E. Anderson or R. G. Scoins for more information and attend the special information session next week (announcements of time and place not available at press time).

mathNEWS

the Math Student paper. On a n-page issue, to seek out new differential equations, to determine whether $AX = B$, to boldly print what has been printed many times before.

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mathNEWS is a biweekly phenomenon this term funded by, but otherwise independent of, the Mathematics Society at the University of Waterloo. Content is the responsibility of the **mathNEWS** editors and staff, although they will probably deny it. Any opinions expressed herein were those of the writers (and occasionally the typists), and were not necessarily those of MathSoc or **mathNEWS**. Send your correspondence to **mathNEWS**, MC3035, University of Waterloo, 200 University Ave. W., Waterloo, Ontario, Canada, N2L 3G1.

Editor-inChief: Tom Haapanen
(once again, he probably denies it)

Curious George

This column is not about children's stories. It is about a story written by a man whose name was not George Orwell. It is about 'Nineteen Eighty-Four'. It is also about 1984 and how it may be influenced by 'Nineteen Eighty-Four' - an important distinction should be made between the two.

'Nineteen Eighty-Four' was written as a metaphor for 1948, and was written by a man who died shortly after its publication. George Orwell (really Eric Blair) did not live to see any of the modern world (ie. post-1950), however much the modern world seems to conform to his vision. This is why, in 'Nineteen Eighty-Four', time, in the sense of progress and change, has stopped at 1948. In this sense Orwell's world is a kind of Nehwon (no-when). It is also a kind of Utopia (no-place, in Latin), in the sense that its physical setting need not be Airstrip One (England) or this planet at all. It is the world of the imagined reality, of the waking nightmare.

In the face of this it seems wrongheaded to make any connection between Orweli's world and ours. The world and populace are not divided into three parts, and not all the nations of the world have adopted the equation "WAR = PEACE". "FREEDOM = SLAVERY" and "IGNORANCE = STRENGTH" are more meaningful to us. We are free but we are also bound by uncountable laws. The less we know about the powers that be, the more we can be controlled. However, the most relevant resemblance of 1984 to 'Nineteen Eighty-Four' is the loss of privacy.

In the life of Winston Smith (Orwell's protagonist) the loss of privacy is total. The government, or rather the Inner Party, has the means of watching everyone all the time. The computer, in 1984, is such a means. In 'Nineteen Eighty-Four', the privacy of the skull is also lost. The soul (or psyche, or computer program for the human machine) is laid open for the Inner Party to accuse, dissect, bring to perfection (as defined by the love of Big Brother), and to destroy. But in 1984 our souls, so far, are our own.

The year 1984 is young and, I suppose, we will not know much about it until it is over. In future columns there will be room to discuss how computers implement part of 'Nineteen Eighty-Four' (eg. "Big Brother is a computer.") and to examine the subtle incursion of Newspeak into our society. Remember that 1984 begs comparison to 'Nineteen Eighty-Four', but the novel itself needs no comparison; it is a solid nightmare that stands alone.

Tom Ivey

ElseWhen

mathNEWS 10 years ago

-From the depths of aimless chatter and babble, an integral part of math society sessions, the major issues to be settled by council at this past Tuesday's meeting soon became apparent - what flavour of doughnut to choose, and later - who should have the pleasure of adjourning the meeting.

-As we all know the use of the GOTO statement is frowned upon by many computer scientists. Unfortunately, there are some things which can't be done without GOTOs in FORTRAN. A recent proposal for changes to the FORTRAN language that would eliminate the GOTO altogether is therefore received with great enthusiasm. In order to eliminate GOTOs, we need only add one statement to the language: the COME FROM statement.

-Well, rejoice, for now, in room 3047, there are 10 Hewlett-Packard 45 calculators installed, with 15 more due to arrive in mid February.

-FULLDUPLEX

This week's column includes libelous innuendo, malicious slander, and an obscure philosophical harangue. See if you can find examples of all three, as there will be a test on it later.

-The influence of Compsci. extends to all Math courses in a process of saturation. Due to the great number who are in the faculty for the sole reason of studying Compsci., the Math courses offered are diluted to the tastes of this mass. Any serious student has to wait until third year to get some challenging and interesting material.

**Wanted
3 curlers**

I am trying to organize a team to compete in the University's Mixed Curling Bonspiel at the Ayr Curling Club in February. I need two lassies and one laddie to field the rink. Positions are negotiable. Three years' experience would be desirable, but joie-de-vivre is more important!

The bonspiel is a one-day, 6-end-game, 3-games-guaranteed affair; for more details consult the Campus Recreation flyer now decorating washroom floors everywhere. In particular, please note that faculty and staff holding memberships are also eligible.

Ross Brown - 886-9128

Tape Tangles

Everybody has heard of Dolby, right? But are you aware of the (dis)advantages of Dolby C, DNR, dbx and Hi-Com? What should your next tape deck / car stereo / portable have? We'll take a quick look at the most popular noise reduction systems first.

What's That?

The following will summarize the most significant noise reduction systems on the market.

Dolby B reduces high-frequency noise by boosting low-level high-frequency signal during recording, and then reducing them (and the tape hiss) during playback. It provides up to 10 db of noise reduction.

Dolby C is similar in principle to Dolby B; however, it works on a wider range of frequencies, and with more boost and reduction, for up to 20 db of NR.

ANRS is JVC's equivalent of Dolby B. It is fully compatible.

dbx is currently touted by many as the state-of-the-art in noise reduction systems. When recording with dbx, the low-level signals are boosted, and the high-level signal reduced, both throughout the audible frequency range. It provides 30 db of noise reduction, plus 10 db of additional headroom for high-level signals.

adres was developed by Toshiba, and is quite similar to dbx. It also provides 30 db of NR by using signal compression and expansion.

Hi-Com was developed by Telefunken. It provides 20 db of noise reduction with no side effects.

DNR is a decode-only system, meaning that the system is used only during playback. This means that any music whatsoever may be fed through DNR for lower-noise reproduction. It provides up to 10 db reduction.

Super ANRS, Dolby HX and Dolby HX Professional are not noise reduction systems in the strictest sense of the word. Rather, they provide additional headroom for high-level, high-frequency signals, in order to avoid tape saturation. They may possibly be discussed in a future column.

Aleph-null bottles of beer on the wall
Aleph-null bottles of beer
If some finite subset should happen to fall
There's aleph-null bottles of beer on the wall

Is Anything Compatible?

Well, for starters, the only fully compatible systems are Dolby B and ANRS. If you have a not-quite-perfect listening environment, something less than full compatibility might be satisfactory. In this case, you can (1) play Dolby B tapes without noise reduction, (2) play Dolby B tapes with DNR, (3) play Dolby C tapes with Dolby B, or (4) play Dolby C tapes with DNR. Trying to play a Dolby C tape without noise reduction, or playing any of dbx, adres, or Hi-Com tapes with anything but the proper system will generally result in a pretty pathetic sound. Many car decks and several portables have Dolby B, and ones with dbx and/or Dolby C are now starting to come out. You can also buy a separate dbx decoder for your car. If you only plan to play the tapes on your home deck, you should not worry too much about compatibility.

Enough is Enough --- or is it?

How many db's of noise reduction does one really need? Well, 10 db would give you a noise level only 1/2 of the original, and 20 db would be 1/4. It turns out that (with a high-quality deck) Dolby B is sufficient for all FM signals, and most LPs. If you step up to Dolby C, you will be able to handle about 99% of the LPs, and about 90% of the new (digital) Compact Discs. dbx and adres will be inaudible with any type of music, while Hi-Com will be marginally better than Dolby C. It should be noted that dbx (and adres) does have the capability to totally eliminate the tape hiss — quite a beautiful silence!

The Missing 'A'

In practice, your best choice is either dbx or Dolby C, for both current and future compatibility as well as high-quality sound. Your choice would probably depend largely on how much you value compatibility versus silence. (You should also note that dbx requires a decent-quality deck and a good tape to work properly.)

And yes, whatever happened to Dolby A? In fact, it's a noise reduction system used in professional recording studios. It was considered by Dolby to be too prone to misadjustment as well as complex (read: expensive) for the mass market.

Väinämöinen

Trademarks: Dolby B, Dolby C: Dolby Laboratories; DNR: National Semiconductor; dbx: dbx Inc.

The Ed 2000 the year of the divide check

Everyone at one time in his life has slept through Stanley Kubrick's 2001. Why does no-one pay attention to the (more significant) year which precedes 2001?

At one second past midnight on the first of January, 2000 A.D., many computer systems will crash. That is, if we continue to ignore the gravity of the situation. Most computer systems, especially those in the real world (i.e., not here), count their days, months and years in bidecimal bliss, whistling in the face of doom. At that fateful witching hour, as bands of Australian aborigines propel magic embers into the ether wastes in mystical ceremony, each of these high-tech marvels will curl up its silicon toes and die, dazed by the concept that it is now "less than" yesterday!

Being a mathie, we are honour bound to protest the arithmetic inconsistency between decades and centuries. We are told that a century consists of ten decades, but in fact it is actually nine plus a few spare pieces. For instance, the 20th century (1901-2000) contains 9 years of the 00's, all of the 10's, 20's, ..., 90's, and 1 year of the (20)00's. The first A.D. decade, therefore, was only 9 years long. How silly. The other difficulty is in trying to explain to people that no, the 21st century doesn't really start until 2001, and neither does the 3rd millenium (wow! what a trip). How do we resolve this mess? We rename all the years from ZERO (for APL fans, that means .IO <- 0). So the 20th century runs from 1900 to 1999, which makes far more arithmetical sense in that the first two digits are the same in all years.

So, the next time you see George Orwell on your telescreen, tell him he has another year to wait. Happy new year 1983, everybody!

Ross Brown

Examples of SI prefixes in everyday use

10^{-6}	phones =	1 microphone
10^{-2}	pedes =	1 centipede
10^{-6}	phones =	1 megaphone
10^{-12}	boos =	1 picoboo
10^{-18}	boys =	1 attoboy
10^{-2}	mental =	1 centimental
10^2	cards =	1 dekacards
10^{12}	bulls =	1 terabull
10^9	os =	1 gigolo
10^{-1}	mate =	1 decimate
10^{-3}	cans =	1 millican
10^1	dents =	1 decadent
10^{-3}	tarries =	1 military
10^3	monjaros =	1 kilomonjaro
10^{12}	fermis =	1 terafirmi
10^6	fish =	1 microfiche

Blatant filler

can be cured

but not if it's in mathNEWS.

Sigh!

Motto Blotto

You all know our motto, **Concordia Cum Veritate**. A few potshots are taken in its direction here.

CONCORDIA: Why use our motto to advertise another university?

CUM: This one gets snickers from engineers, who seem to have another interpretation of it.

VERITATE: A clumsy and hard-to-say Latin word meaning "truth". The whole thing says, "In harmony with truth," or thereabouts. To be more in line with the avowed spirit of its leaders, this university should replace **Veritate** with **Pecunia**, making it "In harmony with money."

Notice: if you can figure out the barcode on the cover (7bit ascii), get us your name & id number, and we will raffle off a minor prize to correct respondents. Answer in next issue.

UW arts centre

From our good friends over in Hagey Hall we have some news about three special features before the end of this month being put forward. Tomorrow at 10:30, 1:0 and 3:30, **Theatre Passe Muraille** is presenting **Alligator Pie** at the Humanities Theatre. This is a superb show for any young children and is \$3.50 or \$3.00 for those twelve and under or those over sixty.

Continuing until the twenty-sixth of February is the display by **Andrew James Smith** entitled **Paper Veils - Painting with Paper**, presently showing in the UW Arts Gallery at the Theatre of the Arts in Modern Languages. I recommend it to anyone with a few spare minutes that is down in the Arts area of campus as the skill shown by this producer of handmade paper is something quite impressive. Hours for the display are from 9 am to 4 pm Monday to Friday and 2 to 5 on Sunday afternoon, and admission is free as always

On this Sunday at both 4 pm and 8 pm at the Humanities Theatre, the **Canadian Dancemasters of America** presented by **Bojangles Dance Studio** here in Waterloo will be performing. The 4 pm show will feature the Petit Miss Dance while the 8 pm show is the Junior Miss Dance. Tickets are \$4.00 per show or \$7.00 for the two shows together and are, of course, available at the UW Arts Centre box office in Hagey Hall.

KW Chamber Music Society Performances

Next Monday, the new principal violinist of the KW Symphony and the Canadian Chamber Ensemble, **Kathryn Hubley** will be performing in concert with David Tutt at the Piano at the Music Room, 57 Young St. W., Waterloo in renditions of Bach's Sonata in c, and the 2nds of Brahms and Bartok. On the Friday of next week, the Society will be hosting a group of musicians from Banff performing Bach and Gaubert flute pieces, horn pieces by Beethoven and Mozart, piano selections by Chopin and Moszkowski, and Doppler for all three. The following Sunday the Wentworth Piano Duo of Jean and Kenneth, described as one of the world's finest four-hands piano teams, will be here from Sarah Lawrence College in New York. Their selections consist of Variations on a Theme of Moore by Chopin, Mozart's Sonata K. 521, and Schubert's Grand Duo. All concerts are at 8 pm and tickets are available individually for \$10 or \$7 for students and seniors or at a discount of 20% if ordered in a six pack. Tickets are available at the UW Box Office at HH, Kadwell's Record Shop, or Sam the Record Man, or at the door.

"Statistician is a person who is able to reach an obvious conclusion based on improbable assumptions." Well, I had to open the term with something, didn't I? Some of you may remember me from last term (worse than the bloodsucking monkeys from West Midland, Pennsylvania, eh kiddies) and those who do not should be eternally grateful. My trustworthy (?!) assistant production manager just told me I am supposed to use up half a page for this masthead, so patience! I promise to spend this term filling mathNEWS with my incoherent and/or ignorant and/or disgusting, totally opinionated articles this term. Thanks to my employer (who shall remain unnamed to protect his identity) I can this term work on mathNEWS without the fear of failing any courses. Anyway, let's get down to business: here is a mostly complete but likely incomplete list of personnel for tonight ... Alfred Ed. C.T. von Neumann (production manager; layout, some typing & taping, cover pose), Brian (MathSoc office manager; finding things previously lost), Beryl (MFCE, emergency IBMsend), Fraser Simpson (typing, taping & layout), Scooter! (asst. prod. mgr.; layout, typing), Stewart Melanson (cover mug shot drawing), Tom Ivey (typing (fast!!!), layout, taping), and finally me, Tom Watts (hmmm ... oh yeah ... mainly editing and printing the articles on the X2700). On the literary side we find interesting personnel such as dwarf (aleph-null), wross (2000, SI, motto blotto (not sure if it got in)), Vainamoinen (6-49, tangles), Fraser Simpson (math column, crossword), AECTvN (elsewhen), Herb (creativity), Marcel (arts ctr, symphony), Scooter! (teachies), Watts (opinion, ramblings), and grmcfarlane whose ISSN number was regurgitated. Well, that about sums it up (oh, more: technical editor's report: Xerox did not break down, but we still could not use itroff from watdcsu. maybe next time we'll be in fancier print yet...) Please remember: the MathSoc nominations close today --- your class rep position is still most likely open, so get nominated. The elections will be soon, but naturally nobody bothered to tell us the date. Being that the last bus left 30 minutes ago, I guess I'll have to be happy with a night of playing rogue... 'tis
LOGOFF AT 00:37:43 EST WEDNESDAY 01/18/84

Would you like to contribute to
mathNEWS?

See us in MC3035 or drop a note
in our box.

The Editor's Ramblings

"How did I get myself into this mess again?", I ask myself. Well, I guess my first mistake was attending the **mathNEWS** organizational meeting last week, and there meekly murmuring something about possible consenting to be a co-editor. Now, out of the other ten or so people present at the meeting, ten or so had more or less feeble excuses for not willing to co-edit ("I'm taking 10 courses this term", "I have a class on Tuesday nights" or "I'm not even supposed to be here"). So what did they (read: MathSoc and other evil minds) do about the situation? Well, they figured they might as well make me full editor, as it was now too late for me to back out of editing. Aaaarrgh!!!

There just **had** to be some way out of this, I thought. Delegation! Delegate everything to somebody else and then you can do nothing but sit back and supervise. Step One: rename my position (the editor has **power**, you know) Editor-in-Chief. Step Two: begin naming Assistant Editors. OK, so I appointed a News Editor (does this mean we will have some news this term? Maybe...), Art Editor (remember, beauty is in the eye of the beholder...) and a Production Manager (got to have someone to handle the dirty work. I figured there were still things left over, so now we also have a Math Editor (this is **mathNEWS**, you know!), Society Editor and an Editor-at-Large. We could still use a Sports Editor, a Technical Editor, and maybe even an Editorial Editor (i.e. somebody to write the editorials for me...).

What do all these guys do? Well, I'm still working on that. I do know that we (note: this is **not** a royal "we") are supposed to put together this term's **mathNEWS**, the best rag on campus (or so we think). This means we need people who write, edit, type, do layout, tape, operate scissors, order pizza, buy pizza, are a general inspiration...

If you can think of a nice title you'd like to have, and/or you think you could do something even marginally useful, drop us a note in MC3035, in the **mathNEWS** box across from the C&D, or in the MathSoc office (MC3038). Just write down your name/pseudonym and phone number, and throw it in the box. Better yet, drop by a production night (next one is on February 1, 1984). If you have an article you'd like to submit, you can mail it to userid MATHNEWS on CMS or the 'Bun.

Tom Watts

SCuMSbag

SCuMSbag returns, triumphant from making it through the exams! (I was not fortunate enough to be on work-term in the fall.) In case you weren't around, this column attempts to make life on various CS course systems a little bit easier, using only legal means. **SCuMSbag**, of course, is derived from **SCuMS** (**SCMS**, or Student CMS) and bag.

Did you ever want to fool around a bit on the IBM PCs which have infiltrated large areas of the second floor? Well, there used to be several public accounts around; however, these have been removed, so your only alternative is JANET. you?

You can access JANET (= Just Another NETWORK) from these same machines, by entering "janet" in the language menu. Janet has a number of public accounts, too, called DEMO1 and up, and requiring no password (or, more exactly, it will accept any password). This system is similar to the Physics' WatPhun system, and has several advantages, including the ability to load APL in under 20 seconds. However, you have no file security (anyone can sign on to the account and wipe out your priceless files), and you can't access any of the microNET files. Real (i.e. non-demo) userids on the Janet are very hard to come by. (Note: if you really wanted to know: Janet does let you use IBM DOS 2.0, with IBM Basic and all the Waterloo languages.)

Tom Watts

Call for Papers

15th Ontario Universities Computing Conference
June 4-6, Lakehead University
Thunder Bay, Ontario

Theme: short-term tactics to cope with rapid change
Papers are invited on a suitable topic, either from or associated with any of the following: Forecasting and Planning; Microcomputers for Students (use, ownership); Networking (standardization); User Training (computer literacy); Information System Automation (libraries, offices, instruction); Social Issues.

Papers will be selected from abstracts of not more than 500 words which must be submitted by January 27, 1984, to:

Program Committee, 15th OUCC
Department of Computer Services
Lakehead University
THUNDER BAY, Ontario
P7B 5E1

RiddleQuest

Riddles have been with us for a long time (and with WATSFIC for even longer!), so it's about time they were dragged up to shine (or flop) in the public eye. Everyone knows the old garden variety one-line two-groan type riddle (eg. "Why did the YAP cross the road?", "How many engineers does it take to smash a light bulb?"), so let's restrict this column (for now) to the more classical, rhyming-type riddles. As this kind usually requires a bit of intellectual effort to solve or even guess at, they are useful exercises for those of us whose brains were removed and soaked in brine during the last work term.

1. Oedipus was the incestuous King of Thebes in Greek legend, but early in his career the Sphinx asked him this well-known riddle:

"What beast walks on four legs at dawn, on two legs in the light of noon-day, and on three legs at dusk?"

Oedipus, after some sweat, answered it correctly and the Sphinx killed itself straightaway. (No, this is NOT the way to get rid of some columnists!!)

2. Tolkien quoted a few rather easy riddles from English folklore in the 'Riddles in the Dark' chapter of 'The Hobbit'. The first one I quote is an old chestnut, and shouldn't present any problem even to those who haven't heard it:

"Thirty white horses on a red hill, First they champ Then they stamp Then they stand still."

The second riddle is more contrived, with more of the rhymer's art in it:

It cannot be seen, cannot be felt, Cannot be heard, cannot be smelt. It lies behind stars and under hills, And empty holes it fills. It comes first and follows after, Ends life, kills laughter.

3. Some riddles aren't much more than glorified crossword puzzle clues, and don't take much imagination to make up:

My end is my beginning, and modest is my span; In every place you'll find me, so name me if you can. In marriage bed you'll find me, in speech a godsend, And in life's beginning, as well as at life's end. In cellar and in garret, in cities do I dwell, But in no land you'll find me, for I reside in Hell.

4. Other riddles have strange, phonetic ways of describing their answers, along with obscure poetic hints. This one is of medieval origin, but its answer is still relevant today:

Throatdoor, tongueback, nose and teeth Spell a heavenblack hell beneath. Engage warily, young men, Lest it prove a lion's den.

5. This riddle seems to have the counterpart to the last for an answer, but not really. It is from the Exeter Book (Codex Exoniensis) found in the library of Bishop Leofric:

I'm a strange creature, for I satisfy women, a service to the neighbours! No one suffers at my hands except for my slayer. I grow very tall, erect in a bed, I'm hairy underneath. From time to time a beautiful girl, the brave daughter of some churl dares to hold me, grips my russet skin, robs me of my head and puts me in the pantry. At once that girl with plaited hair who has confined me remembers our meeting. Her eye moistens.

Readers are invited to submit (in the **mathNEWS** box on 3rd floor) answers to these if they really feel like it. The answers to these should appear next issue, when I figure them out.

Road Trip to Late Show

Niagara Falls, NY

When? Wed., January 25, 1984.

Time? Leave @ 5pm, return @ 4am.

Deal (all-you-can-drink):

Women : \$4.50

Men : \$6.75

Cost (bus):

Mathies \$9.00

Others \$10.00

Bus: Air-conditioned coach

Refreshments: BYOB (keep it small)

Dress:

-No T-shirts

-No sweatshirts

-No faded jeans

-Wear a collar shirt

Bring your ID & Passport!

Cryptic Crossword

by Fraser Simpson

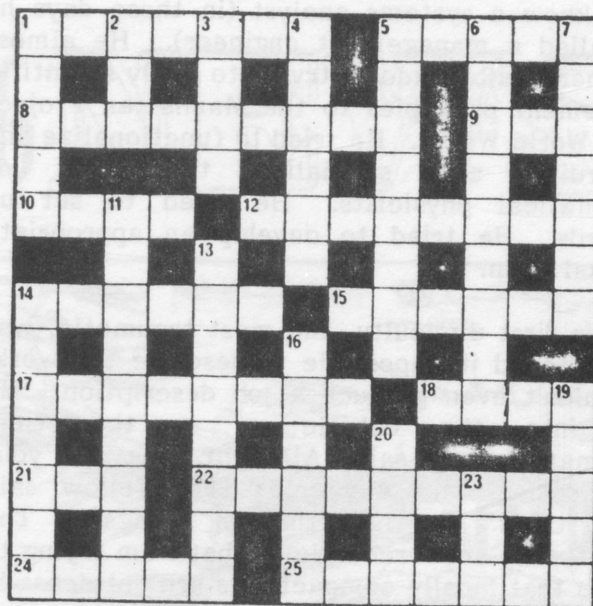
Solve this crossword as you would any other cryptic crossword. Solutions should be submitted to **mathNEWS** no later than January 28th, 1984. Prize: Math 83/84 T-Shirt. Winner will be announced in the next issue.

 $dy/dx = 0$

1. Liberal changes for a writing system. (7)
5. Many split particles carried along in the water. (5)
8. Strange lint and 19 slivers of wood. (9)
9. A member to note. (3)
10. Actors thrown out. (4)
12. Not feeling so relaxed, so prepared the baby's food. (8)
14. Cleans animals that don't win contests. (6)
15. Lively part of a play I've added. (6)
17. Deserts created by sailor and son, perhaps. (8)
18. It's an easy job returning some dishes. (4)
21. Rumanian coins used as a decoration in Hawaii. (3)
22. And please change the public walkway. (9)
24. Not left as a part of the law. (5)
25. Gives up and withdraws. (7)

 $dx/dy = 0$

1. A computer language that's easy to learn. (5)
2. Verbal tool for everyone. (3)
3. and 5 down. The type of call a cross-country runner would make? (4,8)
4. They happen to be seen on TV, strangely. (6)
5. see 3 down.
6. In a temporary accommodation, I will get on with a purpose. (9)
7. Part of a sewing machine that could be related. (7)
11. Sing about the coffee whitener, yelling one's head off. (9)
13. Be on diet arrangement, having a lot of restraint. (8)
14. Fifty realms, perhaps, of a lesser size. (7)
16. Disturbing sin for each gunman in hiding. (6)
19. Harass the reporters. (5)
20. Powder found in a fatal concoction. (4)
23. Also to be a rise of acid in the genes shortly. (3)

MathSpeak

This column is intended to introduce "brave new words" into the mouths and minds of all you merry Mathnews readers out there. Students of BNWs are encouraged to practice them often, preferably during lectures and especially in MTHEL 100. Twenty lip-ups a day and tongue depressors are also useful in intermediate BNW study.

Pfloggle - any question that does not need an answer; useful on STAT 230 assignments.

MU - this magic word un-asks a question; use it when you meet up with a pfloggle (q.v.)

Grok - to wholly understand a concept or situation, to the extent of absorbing that concept or situation into oneself, or other selves; eg. "She groks computability theory.", "I grokked that one last night. It was fun.", "Haven't we grokken this before, Indy?"

Poseur - rhymes with "Hoser"; anyone who pretends to be a Newt but is actually in Engineering.

Nettles - problems/bugs/foul-ups associated with the new Janet System, esp. those related to or caused by obnoxious Microwat users.

Hackles - long-standing bugs/gripes associated with CMS and SCuMS, esp. those related to/caused by confused CS 240 students.

Tom Ivey

Creativity Quantized

"I know a systems analyst (in those days he was called a management engineer). He almost had a nervous breakdown trying to apply scientific management principles to the Manhattan Project during World War II. He tried to functionalize and standardize and specialize the work of mathematical physicists. He tried to set up standards. He tried to develop an appropriate appraisal form.

"His first difficulty, the most traumatic, was that he found it impossible to describe the work. He couldn't even produce a job description. He went into the cubicle of a theoretical mathematician and said, 'All right, what are your tasks, duties, and elements?' The fellow said 'What's that?' He went through it again. The fellow finally answered, 'Well, what I am trying to prove is that locally compact sets are not dense in themselves in Hilbert space.' The engineer asked, 'That's a duty? Show me these things.' The fellow said, 'I can't because they don't really exist. They are just abstract ideas which we invent.' The systems analyst exploded. 'You are working with something that doesn't exist? Come on now, tell me your tasks, duties and elements.'

"Eventually the engineer went to the second page in a book, published by the U.S. Employment Service, which tells how to analyze a job. It says, 'If you don't make any sense of what the incumbent says, watch what he does.' So he began to observe.

"Well, the mathematical physicist did only three things. He drank coffee in the office, he looked at books, and he wrote on the blackboard. That's all he did. Obviously, my analyst was getting nowhere.

"He went to the man's boss, who really wasn't his boss because it turned out that the man really didn't have a boss. 'What's this fellow doing?' he asked. The boss said, 'We don't know what he is doing. If we knew what he was doing, we wouldn't have him doing it.' Astonished, the analyst asked, 'Do you mean to tell me that you don't know the tasks, duties, and elements of this subordinate?' The boss responded, 'Hell, no. That's why we've got him doing it. He's the only man in the country who understands this sort of thing.'



"So the analyst went on to the next part of the interview form. 'Now tell me,' he asked the boss, 'how do you know when he is doing the job well? What are the criteria?' The boss answered, 'I haven't the slightest idea.' When the analyst persisted, he finally said. 'Well, I guess he is doing it well when he tells me so.' 'Do you mean to tell me,' shouted the analyst, 'that you depend on a subordinate to tell you when he is doing a job right?' The boss stood his ground. 'That's absolutely true. He's the only person in the country who can understand the proof of these theorems. If he says he's doing it right, he's doing it right. That's why we have him doing it.'"

Herb Hillman

Subscriptions

mathNEWS subscriptions for this term are still available! If you want one for an off-campus friend, the cost is only \$3.00 (the cost of mailing 6 issues first class). You can make a payment in MathSoc; give them the name and mailing address, plus \$3, and ask them for a receipt. The issues are usually mailed out the same day they come out. Summer term subscriptions will be available later in the term.

Math Faculty members can obtain a complimentary subscription to **mathNEWS** by sending their name and office number to mathNEWS, MC3035 via on-campus mail.

Things to Expect to See in This Term's

mathNEWS

- An Opinion in favour of Nuclear War
- More information per page
- More Filler per page
- More Page per page
- What Elizabeth Taylor thinks of Joan Rivers and how she is going to beat the subsequent murder rap
- Brampton Billy Davis announces an election goody of no income taxes, only a 250% sales tax!
- Betty Stephenson received her doctorate from the inside cover of a book of matches after U of T flunked her out with a 26% average.
- Consecutive Page Numbers
- ... And Best of ALL ...
- The **mathNEWS** ISSN number!

All this term in **mathNEWS**!!!!

-(Doesn't this look like an advert for the Multinational Enquirer?)