

An Urgent Plea

You read the writings of a disillusioned math student. Why disillusioned, you ask? I fear E.Siastes is correct about beloved U of W. I am among the many 2A honours math students whom have been given the dubious honour of writing the Stats 230 exam at 9:30 in the morning, followed by the Math 230A (calculus) exam at 2:00 p.m. And, as the finishing touch, both exams will take place on the 23rd of December.

For those who don't yet realize why I'm upset: writing two exams in a row is difficult in any case. Writing statistics and calculus (both required subjects) in a row is next to suicide!

Being a devoted student, my request, along with the rest of 2A, was to have one of the two exams moved to an earlier date. We were quickly informed that this was impossible (I'll bet!), but that calculus could be moved to the 7:00 p.m. slot (big help!). A petition that was circulated had no visible effect on anything. MathSoc, the voice of the math students, was approached. They said they were sorry, but could do nothing.

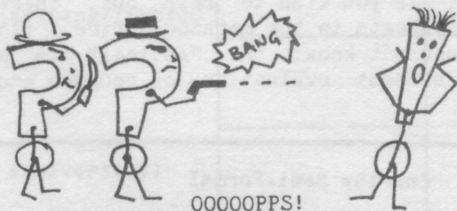
Nothing?! Can the selling of T-shirts, pi and e buttons, coffee and doughnuts really justify the existence of MathSoc?

The calculus profs were next in line to take action; so, in keeping with form, they held a meeting. Their decision: "We can do nothing easily; therefore, we will do nothing."

So, here I sit, with the rest of 2A, waiting for some help that may never come. MathSoc, in all your anonymity, I call to you now for all of 2A. "Help us!!" Perhaps if you organized a meeting with Dr. George (Dean of Math), to which all of 2A went, something could be done. (Especially if we didn't leave until something was done.)

If, however, no help comes, and the call of 2A falls on deaf ears, I shall join the rest of 2A on the 23rd for both exams. And then, I shall probably join the rest of 2A in leaping off the 3rd floor balcony of the Math and Computer Building. (Actually, that is an exaggeration - I shall actually join the rest of 2A in trying to move all my stuff for work term and in getting home before Christmas is over.)

Grounded Lightning



Well, in last issue, we had a little problem with Killer Kquestions. It seems that we forgot to add one extra piece of information. We should have added that $abcd=1$. We hope that this will help you solve our problem. For those who have actually sent in solutions, our congratulations.

Wiehave Eggonface

MGB Casino Night and Record Raffle

We're holding a Record Raffle to raise funds for the Math Grad Ball '82. Tickets cost only \$1 and are available by the 3rd floor lounges, or from any MGB committee member. Tickets will be sold up until the time of the draw.

PRIZES

First Prize: 25 LP's of your choice
 Second Prize: 15 LP's of your choice
 Third Prize: 10 LP's of your choice

From Records on Wheels
 King Street, Kitchener

PLUS

Every ticket is worth a 10% discount on any regular-priced LP at Records on Wheels from December 4 to December 15. This means that if you don't win, you can STILL get your money's worth out of your ticket.

The draw will be held at 11:00 pm on Tuesday, December 3 at MGB's Casino Night. For this night, the 5th floor Math Lounge will be transformed into a casino. On entering, you will be given a supply of "funny money". Play such games as Roulette or Crown and Anchor, then use your winnings to bid for prizes at the Prize Auction at the end of the evening.

Mark Thursday, December 3 on your calendar as Casino Night! It's sure to be fun!

MGB '82

Take your
mathNEWS
 to lunch.

Vol. 27 No. 6
Friday, Nov. 20, 1981
(bet you'll read it anyway!)

More Real News!

The Waterloo warriors Band is celebrating its 15th anniversary this year, and to celebrate it, the members are having a reunion, held in conjunction with the Naismith Classic basketball tournament.

The Naismith Classic is the biggest sporting event held on campus each year (unless we host the CIAU championship). This year, it is played over three days: Friday, November 20 to Sunday, November 22, and it involves eight university and four high school teams. The universities participating are: UQTR (Trois Rivieres), Acadia, Ottawa, Laurentian, Manitoba, York, Laurier and Waterloo. For more information, go to the Athletic Department in the PAC.

mathNEWS Hierarchy of Intelligence

Gottfried Von Leibniz
 Rene Descartes
 Isaac Newton
 Euler
 The Natural Log
 Stud McGee
 mathNEWS staff
 Lewis Carroll (Charles Lutwidge Dodgson)
 The Jabberwock
 UNIX
 The Pink Tie
 Jcwinterton
 Calum I. Dalek
 C&D staff
 Graduate mathies
 CS majors
 Other mathies
 Imprint staff
 Honeywell
 Commodore PET
 The Warriors Band
 fred
 TI-59's & 58C's
 IEM
 Gandalf boxes
 Science students
 Kinesiology
 Integrated Studies students
 CKMS-EM
 TI-55's
 microSCOPE staff
 Arts Lion staff
 Gazette staff
 Student CMS
 WIDJET
 Artsies who take CS electives
 Hewlett-Packard calculators
 University of Guelph
 TRaSh-80's
 Other artsies
 Engineers
 E. Siastes
 Wim Simonis & Bob Elliott
 WLU
 Plummer Hardhat Band
 Graduate engineers
 The Limp Tool
 EngSoc executive
 Chevron staff

Cryptic Cryptogram

This is yet another substitution cypher.
 Good luck.

Omukteog yet qmlt gtygmblwtgg: and unw'k umt
 heno krto, and nwqa imgr and bndqu!

Solution next week.

Solution to last puzzle:

The squaw on the hippopotamus is equal to the sum of the squaws on the other two hides.

New Computing Breakthrough!

Because so many users have asked for an operating system of even greater capability than VM, IBM announces the virtual universe system--OS/VU.

Running under OS/VU, the individual user appears to have not merely a machine of his own but an entire universe of his own, in which he can set up and take down his own programs, datasets, systems networks, personnel and planetary systems. He need only specify which universe he desires and the OS/VU system generation program (IBMGOD) does the rest. This program will reside in SYS1.GODLIB. The minimum time for this function is 6 days of activity and 1 day of review. In conjunction with OS/VU, all system utilities have been replaced by one program (IEMPROPHET) which will reside in SYS1.MESSIAH. This program has neither parms nor control cards as it knows what you want to do when it is executed.

Naturally, the user must have attained a certain degree of sophistication in the data processing field if an efficient utilization of OS/VU is to be achieved. Frequent calls to non-resident galaxies, for instance, can lead to unexpected delays in the execution of a job. Although IEM, through its wholly owned subsidiary, the United States, is working on a program to upgrade the speed of light and thus reduce the overhead of extraterrestrial and metadimensional paging, users must be careful for the present to stay within the laws of physics. IEM must charge an additional fee for violations.

OS/VU will run on any IBM X0XX equipped with extended warp feature. Rental is twenty million dollars per CPU/nanosecond.

Users should be aware that IEM plans to migrate all existing systems and hardware to OS/VU as soon as our engineers effect one output that is (conceptually) error-free. This will give us a base to develop an even more powerful operating system, target date 2001, designated virtual reality. OS/VR is planned to enable the user to migrate to totally unreal universes. To aid the user in identifying the difference between virtual reality and real reality, a file containing a linear arrangement of multisensory total records of successive moments of now will be established. Its name will be SYS1.EST.

Antical Helpers Needed!

Two people from each math class are needed to help with the Mathematics Society's Anticalendar. If you wish to help out, there are sign-up sheets in the mathSOC office. (In case anyone doesn't know: the "Antical" is a summary of student evaluations of courses and profs.)

Charity Semi-Formal

Village One and Two Residences present a charity semi-formal, to be held on November 28, 1981. Location: Bingham Park, Marshal Hall, 1208 Victoria St. N., Kitchener. (Transportation will be provided.) The price of admission is \$25.00 per couple; music will be provided by "Tabloid", and there will be cocktails served at 5:00 p.m., followed by dinner at 6:00 p.m. All proceeds will be donated to the Ontario Heart Foundation.

mathNEWS Questionnaire!

November 1981

Who are you?
 ___ Math ___ Non-Math Year ___ M ___ F

Do you read mathNEWS: always ___ usually ___ sometimes ___ never ___

How often should mathNEWS appear?
 weekly ___ bi-weekly ___ tri-weekly ___
 other (please specify) _____

Feature Ratings
 (where "feature" is defined to be anything that appeared more than once)

(please circle) x = don't read or haven't read comments

At The Movies	x	1	2	3	4	5	6	7	8	9	10
Bits 'n' Bytes	x	1	2	3	4	5	6	7	8	9	10
CSC Flash	x	1	2	3	4	5	6	7	8	9	10
Fed Speak	x	1	2	3	4	5	6	7	8	9	10
For Madmen Only	x	1	2	3	4	5	6	7	8	9	10
Frustratin' Fallacies	x	1	2	3	4	5	6	7	8	9	10
Galumphing Gourmets	x	1	2	3	4	5	6	7	8	9	10
Gridword/cube	x	1	2	3	4	5	6	7	8	9	10
Mathematical Puzzles	x	1	2	3	4	5	6	7	8	9	10
Observations	x	1	2	3	4	5	6	7	8	9	10
Of Cabbages and Kings	x	1	2	3	4	5	6	7	8	9	10
Platter Spatter	x	1	2	3	4	5	6	7	8	9	10
TTWIAHA	x	1	2	3	4	5	6	7	8	9	10

Overall Evaluation: (Please check)

more wanted enough less wanted written comments

news items				
sports				
real mathematics				
technical (CS oriented)				
campus events				
creative writing/fiction				
opinions				
politics (university)				
politics (non-university)				

Mathematical Puzzles

Last issue, two puzzles appeared. The first one asked: what, if any, is the maximum overhang that can be obtained by stacking identical rectangular bricks, one on top of another? In fact, there is no limit! The arrangement of bricks shown in figure 1 is stable (i.e. it will not topple over). In order to prove this, it is necessary to show that each brick in the structure lies under the centre of gravity of all the bricks which rest on top of it. Actually, the centre of gravity of the first i bricks is $1/2i$ from the right end of the i th brick which is directly over the right corner of the $i+1$ th brick. This can easily be shown by induction on i . When i is 1, all we are saying is that the centre of gravity of the first brick is halfway from the right side of that brick. Now assume the result is true for the first i bricks. Then, if the centre of gravity of the first $i+1$ bricks, c , has a horizontal distance of x from the right side of the $i+1$ th brick, the torques about c must be balanced (see figure 2). The torque due to the first i bricks is equal to (assuming each brick has unit mass) the number of bricks, i , times the horizontal distance of their centre of gravity from c . Therefore the first i bricks exert a torque of ix about c . The torque of the $i+1$ th brick is $(1)(1/2 - x)$ in the opposite direction. We therefore have $ix = 1/2 - x$, which implies $x = 1/2(i + 1)$. By induction on i , the proof is complete and the structure is stable. Since the total overhang of such a structure is

$$\sum_{i=1}^{n-1} \frac{1}{2i}$$

which is proportional to the familiar harmonic series (which is divergent), we can make the overhang arbitrarily large by choosing a sufficiently large number of bricks, n .

Note that the overhang grows logarithmically with the number of bricks used or, equivalently, the number of bricks required to obtain a specific overhang grows exponentially with the size of the overhang. If we remove the restriction that only one brick may be on top of another then our solution can be improved. For example, using four bricks in the above solution, we get an overhang of $11/12$ (figure 3); however, if we allow multiple bricks to occupy a layer then we can get an overhang of 1 with the same four bricks (figure 4). This suggests an interesting and nontrivial variation of the

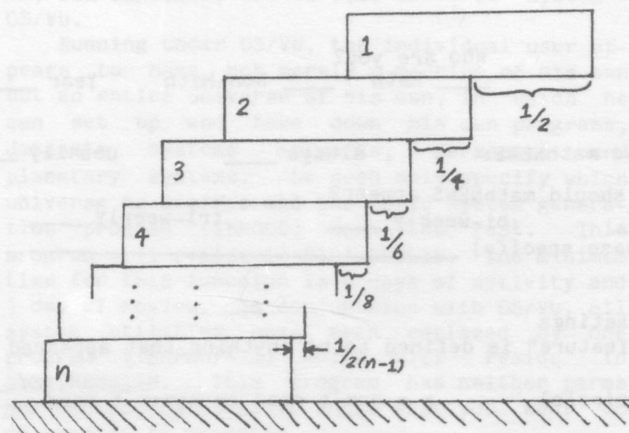


figure 1

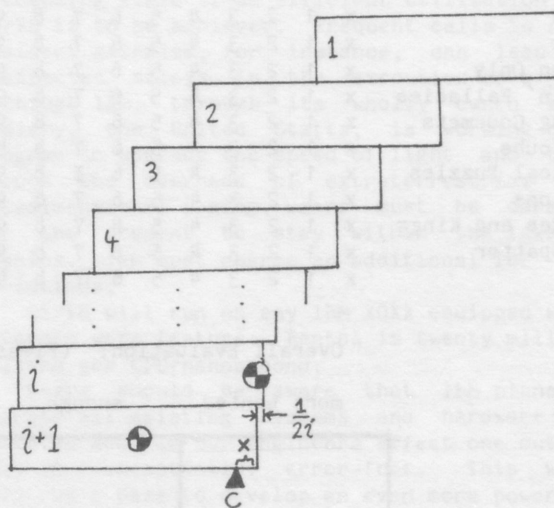


figure 2

problem: given n bricks, what is the maximum overhang that we can have (allowing any number of bricks to occupy a layer)? How fast does this maximum overhang grow with n ? I do not know what the maximum is but I can show that it can grow at least as fast as the square root of n which is a considerable improvement over the logarithm of n . Any interesting results submitted to mathNEWS will be printed in the next issue.

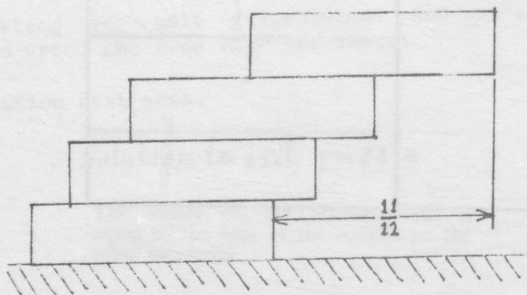


figure 3

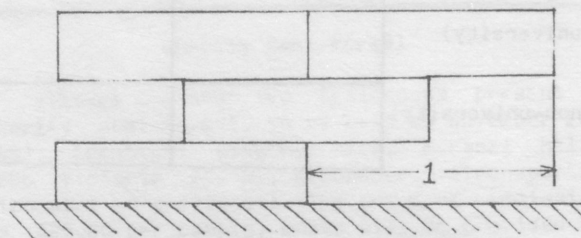


figure 4

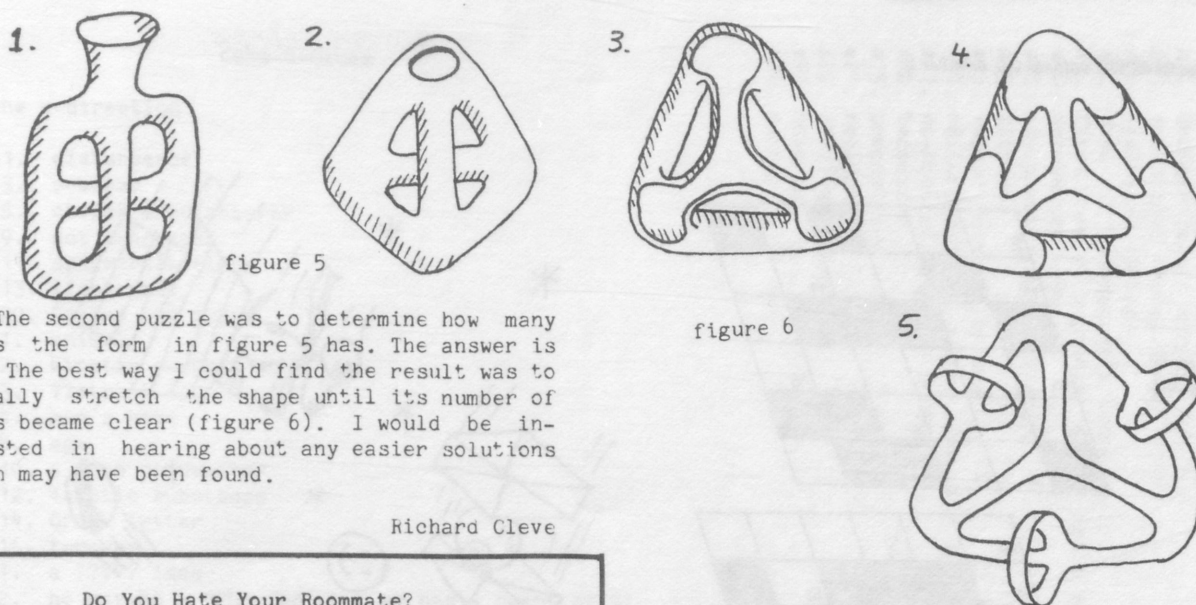


figure 5

figure 6

The second puzzle was to determine how many holes the form in figure 5 has. The answer is six. The best way I could find the result was to mentally stretch the shape until its number of holes became clear (figure 6). I would be interested in hearing about any easier solutions which may have been found.

Richard Cleve

Do You Hate Your Roommate? Village 2 take note...

" 'The time has come,' the walrus said,
'To speak of love and hate confused...'"

Around this time of year, many students (mainly first year but not entirely) are coming to realize that they really don't like their roommate. If asked, they have a list of reasons (mostly petty) that they will use to justify their feelings. Reasons such as "She always borrows my stuff without asking" and "He always wants me to go out with him and his friends to the pub" are not uncommon. Most often, however, these are actually just excuses. Often, the person doesn't honestly know why she or he dislikes her or his roommate. For those who can be honest enough with themselves to admit not really knowing, I shall present an explanation that just may make your life a little easier.

Consider (especially first year students) your present situation. In September you were suddenly uprooted and placed into residence. At your home last summer, you most probably had some close friends (a new girlfriend or boyfriend perhaps?). Now you start to wonder, "How close will we be when I return?" This is a question not easily answered. Depending on the situation, and the friend, you may be closer than ever ("Distance makes the heart grow fonder."); or, on the other hand, your friendship may turn into a mere acquaintance. Your greatest fear (obviously) is that your friendship will be over. This does not make you feel happy. So, you take your unhappiness out on whatever is around you. You begin to hate your looks, your clothes, your room, your food (well, maybe you can justify hating the food), your professors, your classes, and that person who's always around--your ROOMMATE!!!

Now think, is your roommate really Godzilla in drag? (Be honest, now! P.S. If so, please send pictures to mathNEWS to be printed!) Has your roommate REALLY done something to disturb you? (If so, and you have said nothing, then YOU are partially to blame!) Be objective; is your roommate really that bad, or have you made him the unwitting scapegoat of your own insecurity?

If there is the slightest chance that maybe,

Finally, something from WATSFIC!

The WATSFIC Dungeons & Dragons tournament is going on this weekend--for more details, drop into the WATSFIC office today, or sometime on Saturday.

The next WATSFIC meeting will be Tuesday, November 24 at 7:30 pm in the WATSFIC office.

just maybe, your roommate has become your scapegoat then, just maybe, you should do some serious thinking. Should you decide that your roommate actually is a member of the human race after all, then try being a friend. Not necessarily the closest of friends, but at least sociable friends. If you're worried that your roommate won't like you because you were nasty, I can assure you that your roommate was too confused by your behaviour to know what was going on. (Unless your roommate is smart enough to read mathNEWS in which case she or he will understand.)

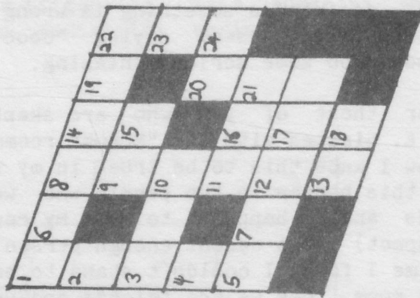
In theory, your roommate should be your close friend (after all, you DO live together). This does not mean that if you are not the closest of friends something is wrong. It does mean that if you resent saying "Good morning" you should do some serious thinking.

For those of you who are skeptics (this means E. Siastes with the "MORON" roommate!) and ask how I know this to be true, in my first year I saw this happen to two people who were close friends and it happened to me. My roommate (in retrospect) was a decent enough person, but at the time I found I couldn't stand to be together in our room. Now we are friends and we go out on the town occasionally. If I'd known then what I know now, I would have had an easier time of 1A.

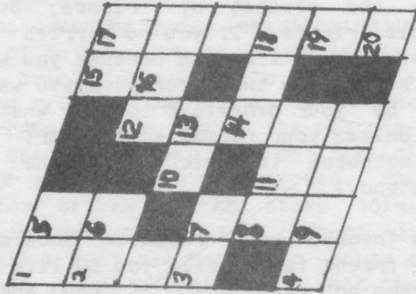
If, after thinking, you decide you really do hate your roommate, what can I say? (Maybe your roommate really IS Godzilla in drag!)

Grounded Lightning

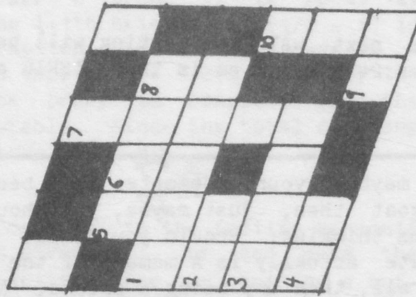
A.



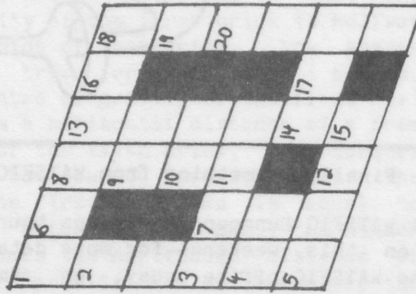
B.



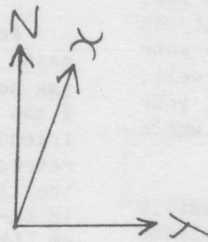
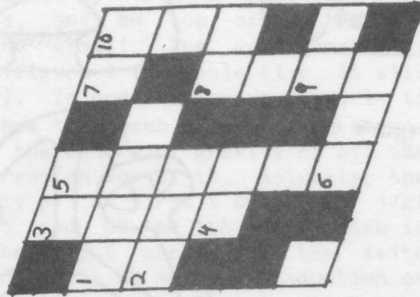
C.



D.



E.

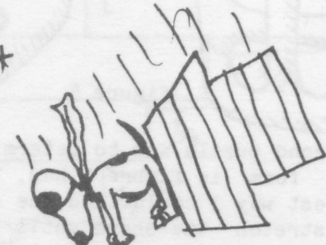
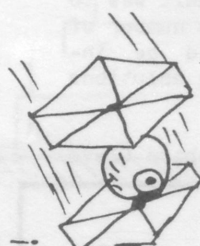
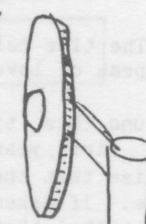
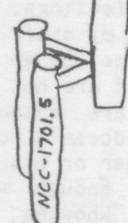
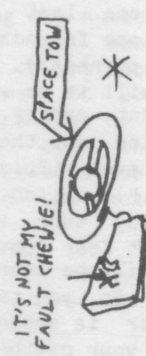


Directions

A long time ago...
In an imagination far away....

The futuristic
3-D crossword!

CUBES WARS



Cube-O-Clues

the x-direction

- a1. disturbance
- a3. possess
- a5. cheese manufacturer
- a9. not connected
- a11. spacecraft slang
- a13. lieutenant
- a20. Dallas bad guy
- b1. animal
- b2. kinetic energy
- b3. ??stract
- b4. man's name
- b8. age
- b10. a moon on Jupiter
- b12. caustic substance
- b14. Greek letter
- b16. turnkey
- c1. a ????? lass
- c2. he may be a "Pb"-foot but he has a heart of ??
- c3. ????? 500
- c4. touchdown!
- c5. low ds/dt
- c9. railway
- d1. round glass object
- d3. stepped upon
- d4. about (a matter, used in business)
- d5. integers of the form 2x are ?????
- d9. U.S. in French
- d10. complete the series: F,?,?,X
- d14. physics unit
- e1. snow transportation
- e2. what Santa will bring you if you're a good boy or girl
- e3. Associated Press
- e4. touch-tone
- e6. \$.05
- e7. preposition
- e8. tellurium
- e9. exists

And now for something completely different...the y direction clues

- a1. of sheep
- a8. yearly
- a14. UW building
- a16. fast Fourier transform
- a20. to write down
- a22. term of address
- b1. fern like plant (Steve Martin known for his ???? Cola)
- b5. xenon
- b7. ??? Arthur, better known as Maude
- b11. Rhode Island
- b12. navigation system
- b15. complete the series time:E,J,O,?,?
- b17. surname of character in b16. z-direction clues
- c1. sustenance used for the entrapment of aquatic life forms on a metal object
- c5. the phenomena sensed by the two funny looking things on the side of your head
- c6. the abbreviation of the mathscot
- c7. syrupy golden substance produced by insects
- c8. Wyoming
- c10. computer nickname
- d1. ?????? d'
- d7. revolution
- d8. Quebec songstress
- d13. beast of ??????
- d18. word commonly associated with the army
- e1. street
- e3. concatenation of two words meaning many
- e5. ?????? Place
- e8. a breakfast cereal. (Hint:there's a rabbit on the front of the box)
- e10. article

dunh dunh dunh dunh...prepresenting...the z-direction clues!

- a1. porous, artificial, light substance
- a2. another letter series: M,?,?,J
- a3. satellites travel in an ?????
- a4. technical college
- a6. take (in pharmacist's lingo)
- a7. first name of a premier (don't split your mind on this one)
- a10. derogatory term
- a12. assistant program director
- a13. lithium
- a15. vapour mass in the sky
- a16. editing program on the Honeywell
- a17. co-host of Whitarlo programs
- a18. Tennessee
- a19. preposition
- a21. exclamation
- a22. ?????? shooting
- a23. that is
- a24. nurse
- b4. object
- b6. Environmental Studies
- b7. macho actor (first name)
- b9. advance
- b13. railway that runs to Moosonee
- b16. Guess the series: ?,?,U,S
- b18. Star Wars character (first name only, please)
- b19. a Science society
- b20. ??? on the Park
- c3. infrared
- c6. Kung-Fu actor, Bruce ???
- c7. pencil type
- d2. Shakespeare:?? You Like It.
- d6. Alcoholics Anonymous
- d8. Letter Series: T,?,?,N
- d11. overtime
- d12. ??:sue, ??trust, ??rable
- d15. nickel
- d16. French article
- d17. Rhode Island

th-th-that's all folks! Happy cubing.

Frustratin' Fallacies

This week I'm going to offer a choice of small fallacies to nibble at. These bounced around the office one production night, and they are in the same genre as the $1 = 2$ Fallacy I introduced in my first column. So without further ado: Can you disprove these proofs?

Proof that $2=1$

$$x^2 = \underbrace{x+x+\dots+x}_{x \text{ times}}, \quad x \neq 0$$

$$2x = \underbrace{1+1+\dots+1}_{x \text{ times}} \quad \text{by differentiation}$$

$$2x = x$$

$$\therefore 2 = 1$$

Proof that $-1=1$

$$\begin{aligned} -1 &= i \cdot i \\ &= \sqrt{-1} \cdot \sqrt{-1} \\ &= \sqrt{-1 \cdot -1} \\ &= \sqrt{1} \\ &= 1 \end{aligned}$$

Proof that $0=1$

$$\begin{aligned} \int \frac{1}{x} dx &= x \cdot \frac{1}{x} - \int x d\left(\frac{1}{x}\right) \quad \text{by Parts.} \\ &= 1 - \int x \cdot -\frac{1}{x^2} dx \\ &= 1 + \int \frac{1}{x} dx \\ \therefore 0 &= 1 \quad \text{(subst. } \int \frac{1}{x} dx \text{ from sides)} \end{aligned}$$

Proof that $2=0$

$$\begin{aligned} e^{i\pi} + 1 &= 0 \quad \text{(Euler's Equation)} \\ e^{i\pi} &= -1 \\ e^{2i\pi} &= 1 \quad \text{(squaring)} \\ 2i\pi &= 0 \quad \text{(ln of sides)} \\ \therefore 2 &= 0 \quad \text{(since } i \neq 0, \pi \neq 0) \end{aligned}$$

David Welbourn

Answers to these fallacies and others somewhere else in this issue.

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So You Are Thinking of Cheating, Eh?
We have ways of dealing with people like you. . . .

Well, final exams are coming up and things are tougher than they were in high school - but that is no excuse!

Last spring the Senate of this place decided on a new set of rules concerning the action to be taken upon an academic offence. (I'll define what an academic offence is later on.) The gist of what the Senate said is that you can expect one or more of the five things to happen if you are caught cheating:

1. A reprimand.
2. A failing grade.
3. Being placed on probation.
4. A suspension from this University.
5. Expulsion from this University.*

A reprimand is nothing. It is just a warning. You might get one of these if you could produce a doctor's certificate stating that your death was to be in the near future and that continuing attendance was meaningless as you are soon to be going anyway.

A failing grade is about the lightest thing that you can reasonably hope to get away with. The failing grade may apply to an assignment, midterm exam, final exam or course.

Being placed upon probation is meaningless in this faculty. This applies to the Faculty of Arts and E.S. I think.

Suspension. You are damn lucky to get this. You are likely to have two terms off. You can get your head together and make some bucks. You will also have the pleasure of entertaining your friends and family with the story of how you got caught.

Expulsion. This is gross. This will stick with you for the rest of your life. There is only one way to get back into any post-secondary institution and that involves becoming another human being and I have yet to totally consider the logistics involved. You should basically forget any concept about ever getting a degree (including a general B. A. with a major in basket weaving) anywhere. And again as before you have the opportunity of sitting by the fireside and informing your friends and family as to how you managed to finish your education so quickly.

You do have a few things going for you if you are accused of cheating.

It is the wish of the Senate that the student and the member of the faculty concerned come to some type of mutual agreement that is satisfactory to both parties before academic discipline is considered at a formal level.

Should you and the faculty member be unable or unwilling to come to a mutual agreement the case will be pursued at the formal level by the Academic Discipline Committee. (Yes, every faculty does have one.) On this committee two students sit. These students don't take time out of their own lives just to give you a break, but they will consider the case fairly.

continued
on page 10

PLATTER SPATTER

Heaven Up Here Echo and the Bunnymen

Nowadays, most people wishing to form a band and to have a go at producing thought-provoking music first head straight to their local music store to spend their aunties' inheritances on an imposing and intimidating array of synthesizers, mellotrons, flangers and thingamajiggers; if they deign to employ the boring old guitar at all, it is only as an instrument of torture, inflicting punishment on both their equipment and their audiences' ears by producing weirdly distorted effects. Thus, the new Echo and the Bunnymen album is a refreshing change; this band seldom uses keyboards, relegating them to the background when they do. By exploiting the full range of possibilities inherent in the electric guitar (producing both tinny, trebly sounds and full, distorted ones), the Bunnymen create a sound which varies from the hauntingly beautiful ("All My Colours", which features Leslie Penny on woodwinds, and "A Promise", which has been running through my head for weeks) to the loud and frenetic (the title track). Hugh Jones' production is layered, but not cluttered. Easily one of the best albums of the year.

Rage In Eden Ultravox

This is the second Ultravox album to have appeared since vocalist/lyricist John Foxx and guitarist Robin Simon were replaced by ex-Rich Kid Midge Ure. This band contains some of the finest musical talent around these days, especially Billy Currie, keyboardist and violinist, and this album shows off their abilities quite well. Still, occasionally I wish that Ure had more of the intensity that the departed Foxx displayed (there are about five million vocalists around trying for the cold, remote sound), and I have heard all the drum synthesizers and rhythm machines I care to hear, at least for awhile.

Concert Review

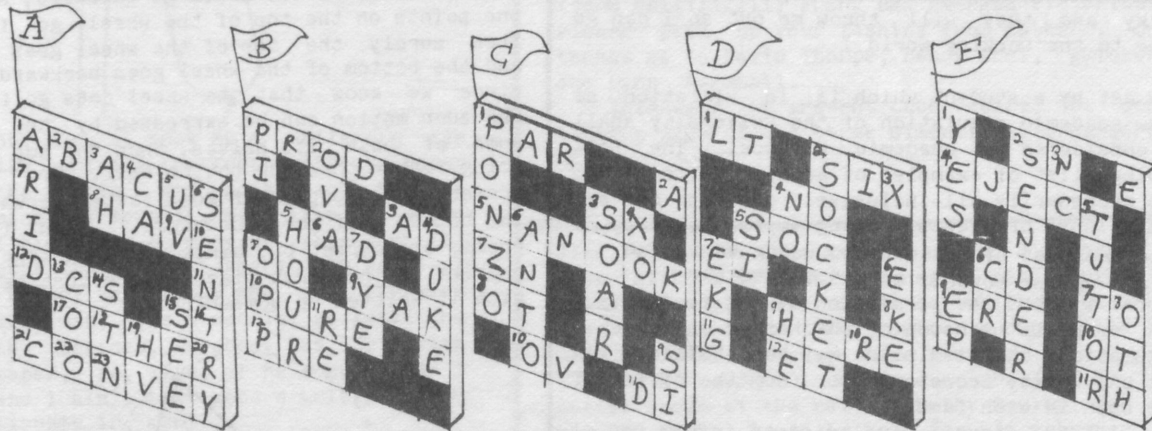
New Order, Blur, and Magic Dragon, Concert Hall, Toronto, November 15.

Magic Dragon: A Vancouver band, whose playing was undistinguished but quite competent (a friend of mine thought it sounded like Orchestral Manoeuvres - I didn't really notice the similarity). The bass player was by far the best of the lot.

Blur: A three-piece band that put on a great show. While the guitarist and the drummer (who looked like they had been rescued from Skid Row in the nick of time) churned away at their respective instruments with savage ferocity, the singer/saxophonist alternately screamed into his microphone, produced every possible sound imaginable on his sax (the best results were achieved when he dropped the microphone inside it) and ad-libbed a rambling monologue between songs. Great!

New Order: Their sound man should be strongly encouraged to find employment elsewhere (I recommend the manure-shoveling trade), since everything went wrong: the guitars were far too loud, the keyboard players sounded like children with new toys, and the vocals were nearly inaudible (the singer finally dropped the microphone to the ground in frustration). To top it all off, the speakers went dead partway through, forcing a long-suffering audience to endure more mind-numbing disco music in the interim. (When the band resumed playing, several roadies hovered around the perimeter like vultures, ready to swoop down at the first sign of trouble.) Still, the rhythm section was superb, and they did manage to pull off a nearly perfect version of "Ceremony". Oh well, I guess Murphy's Law applies to musicians, too; now, if only my friends in Toronto would stop bugging me about missing the Jon Hassell concert on Saturday...

David Till



CUBE-0-GRID

Cube-0-Solutions!

continued from page 8

The requirement of this committee is that first they establish that you did or did not commit an academic offence. It is assumed that you did not cheat until the contrary is proven. If it is shown beyond a reasonable doubt that you did commit an academic offence then they are required to administer one or more of the five punishments listed above.

Ah, so now you find that you never did cheat, but everyone thinks you did, or rather everyone who counts thinks you did. You now have two more chances. Your first chance is the Dean of Math, Dr. J. A. George. He is your first and likely your most hopeful route of appeal. Beyond this is a former Dean of Engineering here; namely, Dr. D. I. Wright, the President of the University of Waterloo. To find his office go to that building in which co-ordinators know nothing of co-ordinating and life seems to pass you and thousands by in an instant. This building is commonly known as Needles Hall. Fortunately for you the people who occupy that building have just as good intentions as those who live in the Math & Computer Building. According to the Senate policy he is the last hope that one has.

But out of the dark and murky mud of policy comes the fact that all rules have their exceptions. And there does exist one more chance for you. (It is so simple that you should have thought of it by now.) The last frontier is that of the Senate, the group of well meaning individuals who set down this policy. If they set it down then they have the power to change it, even for an individual case. As to how you approach the Senate, I have no idea. But if you have to, you will likely learn in a hurry. (It is either that or else sit by the fireside and watch yourself grow old without the elusive E.Math.)

Well, I said that I would define what an academic offence is. So I shall copy word for word from page 19 of this year's calendar without mentioning who wrote the paragraph nor from where it has come. (Perhaps I shall get lucky and they will throw me out so I can go home to the working world.)

Any act by a student which is in violation of any academic regulation of the University shall be considered an academic offence. The following list of examples of academic offences is not necessarily all-inclusive: cheating on examinations or tests; being impersonated by or impersonation of another and using work done in one course towards credit in another course without the permission of the two profs. The complete version of the Report on Academic Regulations and Discipline may be obtained from the University Secretariat or from the office of the Dean in each faculty.

In the above I have tried to inform you of what sorts of things you can expect as well as hold your attention. But I do wish to make it clear that an academic offence is taken very seriously by the powers that be.

You can expect me in the future to write something concerning this and other regulations and standards concerning what in my mind is the best faculty on this campus.

D.A. Emery
D.A. Emery

Answers to Fallacies

Proof that 2 equals 1

This one doesn't work because of the erroneous differentiation done on the right hand side. It's erroneous because the number of terms in the expression is variable, that is x , and differentiation wasn't done with respect to this variable.

Proof that -1 equals 1

The rule that lets you say "the square root of a times the square root of b equals the square root of a time b" is only valid for non-negative numbers.

Proof that 0 equals 1

I leave this as an exercise (I forgot why).

Proof that 2 equals 0

I'm not all that sure about this one, either. Can I get back to you on this?

Proof that God exists

The argument uses the fallacy of ambiguity. Specifically, the word "Law" is meant in two senses: the physical structure of things and as a commandment.

Proof that All Triangles are Isosceles

Long as the "proof" was, it committed the mistake of not considering all cases. Specifically, it missed checking if the case where the bisector of the angle C and the perpendicular bisector of AB intersected outside the triangle ABC; the perpendiculars dropped from their point of intersection N to the sides CB and CA, one of which is on the side proper, the other on the side's extension. (See Figure 1)

Dividing the Apples

Suzie doesn't have too much difficulty if she gives the last friend her apple in the basket (gives both apple and basket).

Bicycle Problem Revisited

I'm sorry that my proof was not convincing, but I'll try again. For starters, the motion described by John (japlaice) where both halves of the wheel go forward at the same speed as the rest of the bike is not the motion of a turning wheel, but a wheel being locked and dragged or pushed. Since we seem to agree that the points on the bottom of the wheel go backward, and that the points on the top of the wheel go forward, then surely the top of the wheel goes forward and the bottom of the wheel goes backward. But since we know that the wheel does go forward, and such motion can be expressed by the vector sums of both its halves, then the top half is going faster than the bottom half. Or, if you prefer, the top half goes faster forward than the bottom half goes backward. This isn't a proof, of course, but since I didn't make up the problem in the first place, there must be a book with it written up somewhere.

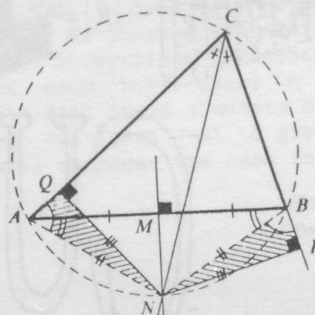


Fig. 1

The Bugs Bunny Road Runner Hour

(or, The Phantom Strikes!!)

One day, as I was strolling into class, I saw great hordes of people discussing their new sophisticated watches. They had calculator watches, digital wrist radio watches and other assorted electronic marvels. I settled down in class, taking notes until IT happened. IT was annoying, unsettling and downright crazy. IT drove me up the wall every time IT happened.

Yes, folks, I am talking about the menace of the beeping watch. IT always squeaks off at precisely the top of every hour, 24 hours a day. If an Algebra class starts at 1:30, then the following scenario occurs:

The prof is teaching us some material. Shortly before two, though...

"And now, we get to learn the-*beep*-Theorem, which is useful for GCDs.

"Ha, ha, your watch is fast," whispers a student.

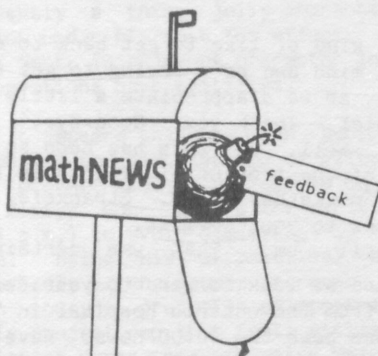
But then, a few more beeps occur a few minutes later.

"We see that this theorem depends on *Beep-Beeee-Bee-Beep* for its efficiency." And, finally, the whole room suddenly breaks out into an electronic circus of beeps.

"Now, before I forget, this week's assignment is *EEEE-BEEP-BIP-BEEE-BEEE-Beep* and you must be sure to *Beep* the equations or else you wind up with a *BEEP* mess."

Arrgh!!! He couldn't have swore. It must have been those watches. I can't wait for those new talking watches.

the Phantom



Like, wow, man, it took me a while to see it, but, like, where's the frosh with the funny name? Has the bawlin' kid gone back to his f----- mansion? I mean it, man, like, it was a drag without him. And no more of this putting him down, just cuz he ain't there, you know? I mean, like, he may talk funny and cut everyone up, but, still, man, he's a mathie, so leave the kid alone, eh? Besides, somebody has to write for this paper, so, like, if he's out, then I may be in, and I ain't that good a writer, see? So keep whatisname in, man!

Ray Shades
Peace Promoter
U of W

Dave Thorpe has my vote. I'd like to see "those infernal pinball machines" shot too! Why should 122 students using the lounge have to listen to the ridiculous racket of only 2?

Jo Allen



A short flash this week, due to pressing assignments. On Monday the 9th, we had a meeting with the local chapter of CIPS, to discuss careers in computer science. With the assistance of student representative Dean Edmonds, whom we thank heartily, the CSC had a good meeting.

The next meeting is on Monday the 23rd, to be followed soon thereafter by a meeting on Wednesday the 25th, with Richard Lipton of Princeton (!!!) talking on VLSI and Bill Buxton of U. of Toronto presenting the first CSC concert, respectively. These should both be excellent meetings, and are not to be missed!

Finally, there's a job that a budding system programmer might like to do. The new VAX computer, besides being a nice system to work on, has a Versatec printer that can be used to provide high-quality, multi-font hard output. But the software to do such marvellous things doesn't exist yet. If you'd like to work on adapting existing software to work with this new device, please contact the CSC and we'll put you in touch with the appropriate people. If you have a Honeywell account, you can mail userid rnhbartels for more information.

peter rowley

CUBE-O-SOLVERS

We hope that you are enjoying our newest diversion. Ihanx to those of you who sent in solutions to mathNEWS. And, from our entries, (drum rollllllllll) Frank Bax emerged victorious! Please pick up your T-shirt from mathSOC. Our thanks go to David Thorpe, Henry Chai, gkloker, and Lynn Marshall.

This week, we present Cube-O-wars, the continuing saga of the three dimensional crossword. Enjoy.

Finally! After five ~~xxx~~ issues, I, Jim Jordan, your faithful production manager, get to write the stuff that fills up all our white space when we finish the issue, better known as the ~~XXXX~~ MASTHEAD. Anyway, here goes. Tonight's resident loonies were: David Till, better known as the editor; Peter Rowley, for his CSC Flash; David Leibold for his cubeword ~~xx~~ and layout; Richard Cleve for his puzzles ~~xx~~ and layout; Ying Lam for stuff from mathSOC, jcwinterton for his cryptogram; David Welbourn for some grafix and layout; D'Arcy Emery for his excellent (?) article on academic offences; the Math Grad Ball Committee; ~~xx~~ and a first-timer, Glenn McFarlane, for his help with the layout. And now for the ~~x~~ anonymous contributions: The Phantom, Ray Shades, Grounded ~~Lightnin~~ Lightning (twice--thanks), and the person who contributed the stuff on IBM's new developments. If you turn the page over, I shall continue...

Observations

'The National' Special Report

I have spent the last thirteen years in a small town in the Red Lake district of North-Western Ontario, and not too much has happened to me. Sure, I was one of the 6000 people evacuated during the forest fire of May 1980, but that was just a minor inconvenience. Besides, where else does one get an all-expenses-paid trip to Winnipeg on the Ontario Government and the Canadian Armed Forces?

But Red Lake is not the only small town in North-western Ontario. Dryden, which is approximately 120 miles away from Red Lake, is the home of the regional fire control centre. Our foreign correspondent, Cathy (with a K) Mills, files this eyewitness report.

"Good morning! This is the 10:00 news report coming to you from the confines of the Ontario Government Building in the quaint little burg of Dryden in North-western Ontario, where our foreign correspondent, Ms. Katharine D. Strangefellow, is currently on assignment. Over to you, Katharine:

"Good morning! As you know, I am on assignment here to find out just what our provincial offices do for us. There is very little activity at the present time; however, I will endeavour to interview the loyal Ministry of Natural Resources employees to get the inside story, as it were. Excuse me, miss. Could you tell our listeners your name and job title?"

"Don't bother me; I'm in the middle of a fascinating book!"

"Oh. No doubt it pertains to radio operations or Ministry policies and procedures."

"Uh, no. It's a science fiction novel about dragons, to be exact."

"Oh. How do dragons relate to the MNR?"

"They don't."

"Oh. Well. Excuse me, sir. Yes, you. Would you care to answer some questions for our audience; it won't take too much of your time."

"Why, sure! I've got all the time in the world; there's nothing to do here anyway."

"Oh. And what is your job here, sir?"

"I am a unit crew leader in the Fire Control Section."

"That's very interesting. Could you give our listening audience a brief description of a typical day in Fire Control? I'm sure they would be glad to know what their tax dollars are funding."

"Why, sure, glad to. I'll use yesterday as an example. We had two crew members, the radio operator and myself on. I sort of aimlessly wandered around and visited with the

radio op when she wasn't writing letters to friends or reading. The boys kind of drifted in and out once in a while and went for coffee a lot. Our supervisor made a brief visit in the morning, but he left after a while. Guess he got bored. I'd have to say that the high point of the day was when one of the crew leaders who was on days off came in to return some skunk traps. Is that enough for your audience?"

"Uh. Well. Yes, thank you. Let's move on to other interviewees, shall we. Oh, my! There's a fellow lying on the table in the radio room, moaning! Excuse me, miss. Is there something wrong with that man? Did he suffer smoke inhalation on a fire?"

"Uh, no. He just went out on the town last night and came in here to recover. He'll be alright in a couple of hours."

"Does he work here?"

"He was a crew member for the summer and is going back to school to become a biologist or a conservation officer or some such thing. Who knows, he may even go in for a brain surgeon! Oh, excuse me, I have to answer my radio."

"Go ahead. Now we'll see a radio operator in action!"

"4014, this is Dryden Fire, go ahead."

"TCM for 15."

"That's all roger, check TCM for 15, Dryden clear."

"4014 clear."

"Is that some kind of code? Does it pertain to Fire #15, perchance?"

"Uh, no. That stands for "We're going for coffee at the Trans-Canada Motel for 15 minutes" which usually lasts for about 30, if you know what I mean."

"Oh."

"I'd kind of like to get back to my book if you don't mind and he's trying to get rid of his hangover, so we'd appreciate a little bit of peace and quiet. Thank you. Good-bye."

"Oh. Well. Uh, this has been an inside look at one of the provincial offices in Dryden, Ontario. I'm Katharine D. Strangefellow and leaving. Back to you, Orville."

"Yes, well, um. That was certainly enlightening and we look forward to your next inside report from the Ontario Hospital in Thunder Bay. This has been the 10:00 news. Have a good day! (There go our ratings!)"

Thanks, Kathy, for that report. It saved me the trouble of writing a column this week. Now if more people would contribute, a select few of us would not have to do all the work!

W. J. J.

Oh, I almost forgot about Jo Allen, who supplied us with more feedback. Let's see. I hope I ~~haven't~~ haven't forgotten anyone else. How much space do I have left? AHA! LOTS! Don't forget to fill out and return the questionnaire...we want to know how many people like what articles. Oh, yes. Hugh McCague, our madman, ~~did~~ did solve last issue's killer ~~q~~ questions--we didn't have the space to print his proof. ~~And~~ And a special thank you to Dryden, Ont.'s Kathy Mills, Tony Cain and Delores Mantey--Kathy wrote the body of my Observations column and sent it to Tony and Delores, who passed it on to me. Don't forget the Naismith this weekend--support the Warriors, and while your at it, support the athletics teams--our broomball team needs players. Good evening, ladies and Bruces. Welcome to the University of Wallawaloo. Only ~~one~~ one rule applies--no pooftahs (sorry Walter). Help! *** Jeez! Give this guy an inch and he'll take ten yards! I thought I'd do him a kindness by letting him write this masthead, and look what he's done! Argh! reduced to spouting Monty Python! Actually, now that I've regained control of the masthead, I am suddenly confronted with the plain truth: I haven't got a single thing to say, so I'll turn it back over to wjj. (he's been tranquilized now - he should be OK) -dwtThe Phantom is not the Phantom of a few years ago--he's new! Hmm. I'm out of ~~my~~ space--thanks for nothing, Dave! Good-night. WJJ.