"Sorry guys. I fold. I got a really bad hand this time."

*look*AHEAD

Indigo Books & Music Information Session

October 7, 2008

7:30 PM -9:30 PM

BombShelter Pub - Student Life Centre

This session will aimed at both Co-op and Graduating Students in: Systems Design Engineering, Software engineering, Mechatronics engineering, Electrical Engineering, Computer Science and Computer Engineering
This session is restricted to those 19+ years of age

Uriel(s): Michael Perkins

Last Week's Grid Solution

*mast*HEAD

Welcome to another big issue of *math*NEWS. We had plenty of articles submitted for this issue. There were about 16 pages worth, but a number were cut for layout reasons and will be saved for future issues.

If you would like to contribute to the wealth of articles in *math*NEWS this term you can send them in by email to mathnews@student.math.uwaterloo.ca. Please avoid sending in the article as an attachment. Instead copy the text of the article into the body of your email and put the word article in the subject line. If the option is available, select "send as plain text" when you send it. Our production system will thank you.

You can also write up your issue and put it in the BLACK BOX near the C&D on the 3rd floor of MC, but if you are typing it up, it is faster to e-mail it. If you want to show up in person, look for the date, time and location of production night in the *look*AHEAD of the most recent issue.

Our next issue will be special because by our normal schedule, production night would fall on Thanksgiving Monday. Instead of just pushing the issue back a week, we will print an issue of web submissions. The deadline for submissions can be found in this issue's *look*AHEAD

As always, when the pizza came we asked our production staff a question intended to obtain their wisdom for the good of humanity. Given the start of midterms, we asked them, "How many licks does it take to get to the center of a midterm?" Those present (and their answers) were: Impulse Vector (Can tongues get papercuts?), CODE: one-good-bite <<access denied>>, Mr. Tangent (None. It hunts you down and violates you), Static IP (I don't know, it's an NP complete problem.), Tbor(Not Thor) (It depends if your tongue is made of pure steel wit.), cuppycake (not even 1 because it already has nightmares about licking them), Folcon (Why would you lick evil?), Matt (42), Nadz (25 for the name, 15 for the student ID, and -5 for the graphite pencil), Thor (1, because my tongue will pierce the heavens), Michael T. (None. If you're hardcore you wouldn't have eaten/licked at all), ebering (How many midterms does it take to get to the boundary of a lick?), Apocrypha (NaN), snippet (99!), The Hee Ho (…π?), DaFink (x where x is between Angelo and his Mother), InsideR (Not nearly as many as it takes to get to the centre of PDEng *cry*).

As always, we thank Graphics for the lovely job that they do of printing *math*NEWS. This issue, we will be trying out a new method of submitting our issue to Graphics which will hopefully make all the images in the issue sharper than ever.

Michael Perkins (I generally don't stick around after writing the midterm long enough to find out.)
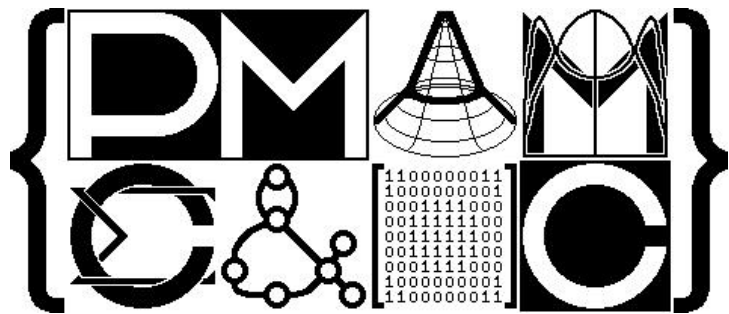
PMAMC&OC

Our world is but one of many realms. One of them is a forsaken land called the CSC…ruled by a mortal, Matt Lawrence, who has crowned himself emperor. Now he seeks a new world to conquer and enslave. To enter the Realm of the PMAMC&OC, the Emperor's demon sorcerer, Edgar Bering, and his warriors must win PMAMCO&C/CSC Pentathlon. In the past, they have failed…because last year we DESTROYED them!

It's that time of term again…time for the PMAMC&OC to reassert its superiority over the CSC in as many ways as possible. We, the PMC, hereby challenge the CSC to a pentathlon in the following areas:

1. Knowledge. We shall own the CSC in a team match of trivial pursuit.

2. Strategy. We shall crush the CSC at a series of strategic boardgames, like go, reversi, and chess.

3. Athleticism. We shall destroy the CSC at a game of ultimate, dodgeball, or some other sport.

4. Artistic talent. We shall artfully humiliate them in fine arts such as poetry, music, rap battling, or photoshopping.

5. Culinary mastery. Our cakes, pies, and cookies will be tastier and smellier (and not the CSC kind of smelly).

The gauntlet has been cast down, CSC, and so too shall you be. You weak, pathetic fools. We have come for your souls!

The PMC exec

Computer Science Club

CSC Flash

Its on PAMC&OMC

Before I get to discussing the impending extermination of the Pure Math Club, I will discuss club business. Executives were elected, with Matt Lawrence as head minion. He's off to an excellent start, keeping the various ins and outs of the club in and out, respectively. Events of note that we've had so far are a overbooked Unix tutorial, and today the CTO of Relic Entertainment will be giving a talk on game sketching at 4:30 in MC2065. Also on the horizon, though still tentative on dates are Unix 102, a follow up to Unix 101, another offering of Unix 101, Theo de Raadt on Software Security. Many other corporations and figures are in touch with us, though their appearance has yet to be secured.

On the battle front we accept the challenge of the Pure Math, Applied Math, and Combinatorics and Optimization Club to a Pentathalon consisting of a Knowledge event, a Strategy event, an Athletic event, an Artistic event, and a Culinary event. I will have my minions (not emporors in any sense, you seem to have forgotten who holds the true seat of power in the CSC) work out the details of what instances of these types will actually make up the challenge. Contrary to what your article suggests, the CSC will be superior this term. The unfortunate slacking of the Winter term will not be tolerated again, and those members responsible for the miserable failure have been Exterminated. I call on all of our members to arm themselves and prepare to EX-TER-MI-NATE!

Calum T. Dalek
Chairbeing Extraordinaire

"Which statement seems more true: (1) I have a brain. (2) I am a brain. "

Douglas Hofstadter

Prez Sez

Yay, we have exec

Hello Fellow Mathies (and other people who might be reading this issue). For those of you who are not aware, MathSoc is now under new leadership. We've had a fairly slow start to the term with only one exec trying to run everything but things should pick up now (for all you first years out there, that means it will be significantly easier to get pink tie stickers on your calculators).

At last weeks MathSoc council meeting, we successfully ratified a large complement of new councilors. My thanks to all of you, its great to see so many people taking an interest. Similarly a large number of director and board positions were filled so most MathSoc services should be up and running properly now. This means that Movie Nights will be happening on Thursdays, and Games Nights on Wednesdays. I encourage you all to come out to these events, they're lots of fun.

In other news last Friday saw Maths return to the Eng Scunt scene. A small but energetic group of Mathies participated. Great fun was had in such events as competative pancake baking, tune naming, taping people to walls.

On the academic side I notice that midterms are begining to happen. I'd like to remind/inform all of you that the MathSoc exam bank is a great source of study materials. It is available from the MathSoc website for easy access from anywhere.

Well, thats all for now. See you next *math*NEWS

Matthew Woolman
President of MathSoc
Fall '08

Advice on Living Without A Mouse

I recently had the opportunity to spend a weekend without access to a mouse. This is because I gave my mouse to a friend of mine so he could play DOTA on his Macbook on Friday night, and then fell asleep before their game ended. The next day, I awoke to find out that he'd gone to Toronto for the rest of the weekend, and left it locked in his room for me. This started my weekend without a mouse. I won't claim that I'm some sort of expert on mouse free-computing, but I did manage almost 48 hours of coding, browsing, and sleeping with relatively little annoyance, and I think everyone should be able to get by without one. So here's an article on how to live without a mouse. This article will specifically be about living without a mouse on a Windows system.

Windows

Everyone needs to know Windows shortcuts. Like, right now. There are a few basic ones that you probably already know (I'm assuming a Windows style keyboard, here, and denote the Windows Key as Wnd). Alt-Tab changes windows. Wnd-L locks the computer. Wnd-D shows the desktop, Wnd-M minimizes all open windows (but not dialogs like "Properties" or "Error"). All of these are the lifeblood of using Windows.

I use F2 a lot in explorer. That's the Rename command. F3 is search, not too useful. F4 is location bar - I don't know why it can't be Ctrl-L either. Wnd-E opens Explorer. You TAB between frames and use arrow keys to navigate in all Windows GUIs. Type the first letter of a folder to jump to that letter in Explorer. Alt-Enter opens Properties. Always remember that you can handle controls by pressing the underlined letter in their labels.

The only way to maximize a window from the keyboard is Alt-Space then X - this is a good one to know, since things tend not to start maximized. Alt-Space is the window menu, and it has a lot of stuff you normally need a mouse for, like resizing windows. Alt-Esc is an alternative to Alt-Tab that not many people use that I usually find more useful, since it toggles to the window you most recently had open. This will become Alt-Caps if you follow my advice below.

Other stuff. Ctrl-Shift-Esc is Task Manager, one that seems to come up too often. Wnd-R is run, which is an alternative to Launchy (see below). Wnd-Break opens System Properties so you can change the PATH and stuff - which is good, because I can never remember how to get to this window with the mouse. Get used to what I call the "right click key" that opens the shortcut menu for something you have selected - it's Shift-F10 if you lack that key. Alt-F4 is quit. I know there are alternatives to Windows Explorer that allow better keyboard based navigation, but I've never really found one that works for me as I did with Firefox. An explorer alternative is something to think about, though.

Firefox

OK, Original Firefox. I don't use it, but there are lots of keyboard shortcuts for it that are hardwired into everyone, so I might as well mention 'em quickly. Ctrl-L is location bar. Ctrl-D is bookmark. Ctrl-K is search. Ctrl-f is find. Ctrl-t is new tab. Ctrl-w closes a tab. Ctrl-shift-t opens the last tab you closed. Ctrl-tab and Ctrl-shift-tab cycles through tabs. You really should have already known all of those.

I'm a big fan of a Firefox extension called Vimperator. This is because I am slowly burning the vim keystrokes into my brain. I advocate that everyone do this. In order to motivate you, go find a friend who is really, really good at vim. And watch them do something like debug a program. It will probably blow your mind that anyone can interact with a computer like that - it's almost like watching ballet. Someone who really knows vim can tap into a wonderful conservation of motion that is almost beautiful - to the right sort of person.

Waxing poetic about text editors aside, Vimperator essentially applies vim to Firefox by changing everything to vim-style keyboard shortcuts. This is generally great for consistency, and specifically great for working without a mouse, since Vimperator is defined by mouse-free browsing. Clicking on links is still slower than it would be with a mouse, but not by a lot. You press F to assign a number to every link in sight, and then either type the number or type some letters in the text of the link to help narrow it down. Once you get used to it, you really don't need a mouse.

Vim

I guess it's already obvious that I'm going to suggest that you use an old school text editor. I use gVim pretty exclusively, sometimes relying on an extension called EClim to plug into an eclipse server for some more powerful IDE feature. If you want to use emacs, I won't hate you (and go read my article last issue about how I felt about emacs).

Something else that I consider essential for using vim is another program called SharpKeys. This application lets you do something we all should have done a long time ago - remap the Caps Lock key to Escape. This is such a blindingly good idea for vim users that I now refuse to help people with CS unless they make the change. I'm not alone in my anti-caps-lock position, either. Visit capsoff.org for the world's leading caps abolition advocacy group.

A final word of advice for vim, specifically: live on the home row. Do it. Only move your index fingers from F and J respectively under the threat of death. If this isn't your natural position when you're at a computer, you aren't getting the full value out of your keyboard. Don't use the arrow keys to move around - use H,J,K, and L. Only then will you be able to tap into the full Zen that is VIsual iMproved.

Launchy

Finally, Launchy. I come from a rich and noble heritage of Apple Fanboys (trademark) who were using Mac products back when they often sucked. Now that the days of OS Ten (The ten stands for Unix) are here, we all use a program called Quicksilver. Frankly, you PC guys are a bit out of touch. On the other hand, remapping caps lock to escape in OSX is startlingly outside the realm of possibility, so I guess we all have our crosses to bear.

So, Launchy isn't Quicksilver. I once heard it said that if you can comfortably move from Quicksilver to any other application like it, you really don't understand Quicksilver, and you're probably just using it as a glorified application starter. Luckily, Launchy **is** just a glorified application starter, so you'll suffer no such addiction if you're a Windows kid. I've got it mapped to Ctrl-Space (since I actually use the Alt-Space shortcut, see above). Hit Ctrl-Space and type the thing you want. Dead simple.

If you want to seriously use a keyboard based application launch program like this (and even more so for Quicksilver), you need to dive in head first. On OSX, this means deleting everything in your dock, and in Windows, this means ditching the patented Quick Launch bar on your taskbar. Just get rid of it. If you can't

replace that entire toolbar with faster and more flexible keystrokes, you don't deserve to fancy yourself a power user. A final note: If in fact you don't deserve to fancy yourself a power user… you're wasting your time reading this article.

So long, and happy mouse-free computing!

Thor

MathCooks!

Wendy's Chili has nothing on this!

As a fan of sporting events, I have my traditions for each of them: Watching the World Series, making Superbowl Chili, streaking down Younge street when the Leafs win the cup… etc. Speaking of the Leafs winning the cup, go Buds go! Anyways, right, back to chili. I've always found the more ingredients in a chili, the less awesome it is. Maybe I'm just a purist, I don't know, but man, chili should just be the spicy stew! That's what my roommate and I enjoy anyways (With a side of garlic toast!). Without further ado, here's our oversimplified chili:

• Meat! We like to cube a beef roast while mixing in cubed pork as well (tenderloin works well)

• One large onion, chopped (or diced)

• 1-2 cloves of garlic (crushed or whole, your call)

• 1-2 tsp of oil

• 1 cup of broth or other liquid

• One can of diced tomatoes

• Chili powder

• Hot peppers (Jalapeño by default)

The basic chili is very straight-forward: Heat the oil over medium heat in your big chili pot, and throw in the onion. Stir and cook until the onion is carmelized (when it turns clear and soggy) and then throw in the garlic, peppers and meat. Stir for a minute or two, then stir in some liquids as well, I like beef broth myself. The pot should have a good amount of liquid now, so this is a good time to add in your chili powder and any other seasonings you want. Finish with the can of diced tomatoes and stir it around until mixed. The chili should be fairly thick, so you can add more liquid if you want it runny (I like it thick). Let it simmer on the stove for another… half an hour or so, stirring occasionally until the meat is cooked through. That's it!

The fun part of chili, like any other stew, is experimenting with various add-ons. They should usually be added right before the diced tomatoes, into the liquid. Beans are a staple, but I hate them myself. You can always add something starchy like potatoes, or get your veggie fix in with carrots or something. I hope you have fun experimenting, and may the first game of the NHL this year be delicious!

Spicy Panda

The InsideReport

The News. As I See It.

The only real things to report on these past two weeks have been the elections and the economic problems down here in America. So I will do that for you now.

First of all, for those who are concerned about any investments that they may have south of the border, you needn't (overly) worry. The reason we are in this mess is because people offered mortages to risky borrowers, and then tried to pass them off as good-quality debt. Even a Laurier student knows not to do this kind of thing. *[Edit: I've been told that Laurier students tend to specialize in this whole business thing.]* Now every time I pass the Lehman Brothers offices or a Washington Mutual branch, I cannot help but laugh. Quietly of course: I could get beaten if there are any former employees around.

Anywho, Canada has rules against this kind of greed that has brought Wall Street to its knees. While there is greed up north, it is greed that is not worth taking. Canada's economy is in much better shape than the US. Mind you, that's like saying that you are a better singer than William Hung (I don't know what She Bangs, but it's not him). Seriously, there will be no major financial meltdown in Canada to the degree that we see it down here, and while I'm no financial expert, I think it's safe to take your money out from under your mattress and invest it, albeit conservatively. *[Edit: between the time I wrote this and Production Night - that is in the course of 24 hours - I say the word "conservatively" as an understatement. Stay away from stocks right now. Government Bonds at least have positive returns.]*

Now to that bailout package that has been proposed by the Bush administration, and it turns out that this "taxpayers are going to pay for your massive greed" deal is one that not even his mother could love, much less Congress (228-205 was the final result in the House). After it failed, it wiped out over a trillion dollars (yes, that's a 1 followed by 12 zeroes) and markets accelerated at a rate of 9.7 m/s^2 downwards (not quite free-fall, but you wouldn't be able to tell the difference). I guess it will be back to the drawing board for the leaders of America. Anybody else glad they're not a Wall Street (or Bay Street) trader today?

To other news, and by the time you have read this, the federal party leaders will have debated, in both official languages, the issues that matter (economy and environment) and don't matter (pooping puffins) to Canadians. I'm sure that all of the party leaders will have delivered some shots to the groin, made fun of Elizabeth May of the Green Party (and rightfully so after what she said last Friday), and Canadians will have seen the only pieces of excitement over the entire campaign. That is, assuming they don't want to watch Joe Biden and Sarah Palin debate instead.

As of this writing, there are reasons I cannot support every party, but that may change by yesterday. The current predictions are a Conservative victory, either a strong minority or a weak majority. The Liberal party is highly expected to take a beating, possibly losing Official Opposition status like Kim Campbell's Progressive Conservatives in 1993. Barring a miracle, I think that Stéphane Dion's political career is like my breakfast: toast.

Until next time, as one of my favourite talk show hosts would say, "Take care of yourself, and each other."

InsideR
Send comments or opinions to
`mathNEWS_InsideR@hotmail.com`

Horrorscopes

It's what happens when you vote the wrong way, and you always will.

ACC: I hope weren't investing in any major US banks. We're not exactly sure why, the computational mathematics guys haven't gotten back to us yet. Stay tuned to *math*NEWS for all your investing needs. Your lucky number is NYSE.

ACTSCI: Good times are ahead. With the recent hurricanes and crashes on Wall Street there has been a sharp increase in home destruction and heart attacks. Insurance rates can be set higher than ever and you will be the only people rolling in the dough. No matter who wins the election, your life will be prosperous. Your lucky number is a 7 figure income immediately after graduating.

AMATH: This is exactly what you've been waiting for; lots of numbers in a real life situation. I hope you're happy because no one else is. You've ruined election numbers for the rest of us. Luck does apply in the real world.

BBA/BMATH: Business administration is going to be a bitch right now. With America going down the drains your future is about to follow. It's a good thing you have that second degree to fall back on. Read: Undeclared. Your lucky number is 0, the number of useful degrees you have.

C&O/OR: You realize that your single vote won't matter at all so you stay at home playing World of Warcraft with your American buddies. For your own health and safety we recommend you get outside more but combine this with proper eating and hygiene. Your lucky number is just one more raid.

CM: You spend your nights figuring out how many ways the government can screw you over regardless of the winner of the election. This kind of paranoia is healthy and we have no recommendations. Your lucky number is the number of ways Bush can steal the Canadian election.

CS: The election is not in O(n log(n)). Get over it. Maybe if you improve the efficiency of the democratic algorithm it could approach this. That is your homework. Please submit it to the *math*NEWSBLACK BOX by 11:59 next Friday. Your lucky number is NP-complete.

MATH BUS: You love big business, you love bigger business bail outs. The Conservative government becons you but its bigger American brothers can't help it anymore. You lucky number is 700 000 000 000 dollars to bail out America.

MATHEMATICAL SCIENCES: You're doing it wrong. Math isn't science! Math is counting. You should be able to prove that but you have too much focus on science. Go count votes and maybe you'll get better at it. You lucky number is 3.3 repeating. Let's see science reconcile that.

PMATH: Theoretically the best candidate should win. In actuality this is not so. Everything you learned is a lie. Prove or disprove. You cannot use the axiom of choice but it may use you. Your lucky number is not a number. Also prove or disprove.

SE: You no longer have a life so any vote outside of an academic setting has absolutely no meaning to you. In fact, why are you even reading *math*NEWS? Get back to class you slacker. You lucky number is 6 assignments by Friday.

STAT: You're more interested in the poll numbers than the candidates. So here are some numbers from you: 64.7% of eligible voters cast ballots in the 2006 federal election, the Conservative party won with 36% of the seats, the Green party recieved 4.5% of the seats — which is 6% more than they should have recieved. Your lucky number is 51, the percentage of votes required for a majority government.

UNDECLARED: You shouldn't vote. You can't decide your own future, let alone that of the country. Once you declare your major, you can start thinking about larger decisions such as what clothing to wear or which colour iPod you should buy. Your lucky number is 12 for the number of majors your have to choose between. And soon.

AHS: In America you should vote for John McCain as his old age would guarantee you jobs. In Canada, however, a close equivalent is the NDP with Jack Layton. He must be in his 90s at least. Your lucky number is 58, Jack Layton's real age.

ARTS: There's no point in giving you a horoscope. You should have enough time on your hands to look at all the issues and make a rational voting decision. Hopefully, your judgement is up to snuff. Your lucky number make your own luck.

ENG: You're going to have a bad day, as you are considered a criminal and are unable to vote due to your failure to properly cite *math*NEWS. To help remedy this situation you'll need to repeat PDEng. Your lucky number is 10 attempts at PDENG15.

E: Stop voting for the Green Party. It hurts everyone you love. Especially yourself. Instead we recommend voting for yourself since self promotion is the only way you will get anywhere anyway. You lucky number is n+1 votes since last year.

SCI: You should probably start voting. We know you haven't been and you feel guilty about it. If you vote properly then you'll finally be able to perform the experiments you've been hoping to. You lucky number is 28 ways for the LHC to destroy the world before the next election.

OTHER: Try something new and vote for someone other than the independant candidate. Anyone else will do. Anyone at all. Really, what has independant ever done? Your lucky number is 1, for the 1 independant candidate you haven't already voted for.

MICHAEL SELISKE: If you're going to insult somebody, make sure you do it right. Proper citation of Determinant's writing is a must. Maybe you should read Policy 71. After researching you on the internet we see that you are in 2N but your publication states you are 1T. Cut the difference and go back to 1A. Your lucky number is… you're not getting lucky.

Static IP
Mr. Tangent
Apocrypha
Folcon

Arts Course

Math Course Reprise

The elective you selected,
is really quite easy,
So up goes your average,
by a grade or three!
Unless you were a schmuck,
and selected so poor-lyyyyy.
Books will be read.
There might be girls.
So go learn something.
Signed, Arts Course!

My Shot at Fame

on coming hence, to this locale
I heard this place to be quite dull
I've only ever heard of few
exciting things at waterloo
I did however know for fact
this institution females lacked
though had I gone to Laurier
I'd still on Fridays do Fourier
(or: but even had went to Guelph,
I'd spend my fridays by myself)

so their small numbers i refuse
to lamely use as an excuse
to the contrary, i had fate
their absence will help me concentrate
days after moving i could tell
that i predicted things quite well
now uninterupted i persue
my academical debut

a year has passed, and then some weeks
and i in time forgot hot chicks
I've traded in and soon replaced
their warm and comforting embrace
for better things in vector form
for matricies, projections, norms
and words that to my mathie friends
induce explosions in the pants

what has this solemn institution
where geek and artsie found fusion
to offer to my straying soul
but everstretching concrete walls
that menacingly year round
their shadow cast upon the ground
while every building has in store
potential use in times of war

the MC's fortress like appeal
can fear in any man instill
even chuck norris, rumors say
on its fifth floor has lost his way
and smell of mathies scarcely bathed
in dominance the air inslaves
into its murky staling stone
no one has dared to tour alone

inside that place a ray of light
is an extraordinary sight
and when a window can be found
it will have mathies all around
that treat is as a sign from god
and of respect their eyes they clad
they fall aground, as sinners might
and begin, as if monks, to recite:

"oh soverign window, calf of gold
of all the pleasures of this world

I do not ask for wealth in bulk
I only pray I may pass calc
I ask that jobmine don't explode
as i my resume upload
and that the stapler don't give in
as my assignments I hand in"

and now a warning, if I may…
if you are roaming there one day
and notice changes in the smell
that you have grown to know so well
if there is now a hint of rot
and vultures preying on a spot
check all the rooms within your sight
for any mathies pale and white

observe their pulse, and touch their head
if none exists, it means they're dead
perhaps it's java overdose
fermat can also be the cause
he may have spent his dying days
while eating pizza, coke, and Lays
so busy proving for his pride
he never realized he died

in such a case please do the least
inform the staff or the police
just do not leave him in that state
the C&D can surely wait
but once his death has been appraised
(he may've been lying there for days)
go on with life and don't be freaked
this happens every other week

VS

How mathies rate their federal candidates

American politics have always been the starting blocks to real politics and can be thought of as the real number line, where positive values representing liberal douches. Whereas, negative values represent conservative old farts and have a bound of Sarah Palin. However, as Canadians, who are generally more advanced, we have to extend this line to the 2–dimensional Cartesian product.

As mathies, we need an efficient system to describe where we stand on this 'map'. So naturally we can consider polar coordinates or cartesian coordinates. The advantage to polar coordinates is that when you state your radius away from being level-headed, you give people a quantitative magnitude which tells them just how much of a kook you are. However, the angle can throw people off because the orientation is arbitrary. Cartesian coordinates are good in that you know exactly which quadrant people lay in. However, the issue of magnitude of kookiness is lost. I'll figure out which to use later. Until then, don't forget to vote!

The Hee Ho

Re: Hey *math*NEWS!

That's right, we don't care.

So, it seems that yet another *Iron Warrior* writer has the gall to take on *math*NEWS, which means no rest for the wicked on my end here. Volume 29, issue 11 of *The Iron Warrior* contained an article, for lack of a better term, written by one Michael Seliske directed to *math*NEWS. Just looking at the subheading of the article left the *math*NEWS production staff laughing. With a bold title of "Hey *math*NEWS!" and then the subheading "Yeah that's right, I am talking to you!" If you think about it, no, you actually aren't talking to *math*NEWS because you sent your letter to *The Iron Warrior*. If you were talking to *math*NEWS, then the *math*NEWS production staff would have received your article! Note to Seliske: knowing who you are talking to can be a valuable tool, unlike yourself. Before anyone starts on me, I'm going to personally drop a copy of *math*NEWS off to *The Iron Warrior* on the publication date, so at the very least I'm talking about Seliske in front of him, just not directly to him.

The most recent cover of *math*NEWS had a picture of Edcom on it to which Seliske commented that "With a named like *math*NEWS you would think that maybe a picture of Tie Guard or Math orientation leaders would be more appropriate then [not than, apparently] promoting Edcom…" Well, with a name like *math*NEWS you'd also think that there would be math news in the publication; however, everyone else in the school has come to the conclusion that *math*NEWS is a satirical publication and so making fun of another faculty is probably more appropriate for a cover than say Tie Guard, math orientation or a pink tie. Yes, we all know that Edcom carry shovels, baseball bats and large wrenches to look intimidating, but it has nothing to do with being prepared for anything. If a hole needs digging, you can be damn sure that it isn't going to be Edcom that will do it and not because there's anything wrong with Edcom. It's the responsibility of Plant Ops. Furthermore, if they really wanted to be prepared for anything then why not issue them guns? You never know when a zombie breakout could happen.

As for the comic — it's a joke. You should look up the definition of the word. And, yes, Seliske, the horoscope was rude (although, in that particular issue it was HorseScopes); however, the horrorscopes in *math*NEWS are always rude. You aren't terribly special. Sorry. Wait — no. I'm not. For the record, it was written by a Software Engineer.

Seliske also bashed us for *math*NEWS' Volume 107, Issue 5 for making fun of Sylvia Wu for her comments about *math*NEWS. If anything, you'd think that he would see something like this article coming and put a little bit of thought into his own. Alas there are some guinea pigs that will keep touching the electrically charged muffin. That not withstanding, Seliske claims that 25% of a publication was used for responses to Sylvia Wu's comments, which is apparently 4 articles. If Seliske actually looked at the issue or even just learned how to count then he would have realized that there were roughly 30 articles in the issue. According to Seliske, 4 divided by 30 is now 25%. I wonder how he interprets his marks.

Now, in all fairness, I appreciate a good insult significantly more than anyone else. People can make fun of *math*NEWS and it doesn't make me cry. That being said, if you're going to tell someone to listen up: have something worth saying! From what I read I can see that *The Iron Warrior* has this penchant for making fun of other faculties in their publication. This makes me think of a five-year old standing alone in the corner making fun of the other kids for not playing with him, laughing smugly and then crying to himself since no one pays attention. This is because *The Iron Warrior* mostly has engineering news, which does not matter to the other students. *math*NEWS differs in this regard on the grounds that a lot of the content is not math student specific.

The comments in this article do not necessarily reflect the opinions of *math*NEWS; although, it seems feasible that they do. This little blurb at the end of the article isn't a cheap attempt to fill up space that would otherwise be whitespace. If you can't figure out that the opinions of the author differ from that of the publication, then you probably have had a lobotomy recently.

The original article can be found here `http://iwarrior.uwaterloo.ca/?module=displaystory&story_id=3839&format=html`.

Angelo

99 Lines of Code

You and me in a 3rd-floor lab
Away at keyboards our fingers stab
We'll be coding 'til the break of dawn
Our sanity's already gone
On the screen, tests for our software
Flash the message, the code is screwed there
Searching for the reason why
99 lines of code go by

99 lines of code
Among the many lines of crap
Panic bells, it's Red Bull time
There's just two hours left to go
The night wears on, fingers fly
Compiles fail, the coders sigh
No closer to the reason why
99 lines of code go by

99 exceptions thrown
Yet again, we have been pwn'd
Let's worry, worry, super scurry
Fixing the errors in a hurry
Null pointers, segmentation faults
Another loop that never halts
Our assignment grade is on the line
As 99 lines of code go by

99 builds I have made
In every one the tests have failed
Morning comes, I've gone insane
All my effort seems in vain
If I could find the smallest clue
To indicate just what to do
Here it is, I hope again
I fix a line and recompile…

snippet

Interesting Math

Even Erdos can't solve everything

Here's a neat little problem introduced to me this past summer (sometimes known as Sylvester's Line Problem): Suppose *S* is a finite set of points in the Euclidean plane. Suppose further that *S* has the property that any line passing through two points also passes through a third point in the set. Prove the sets of *S* are collinear.

Take a moment and try to work on this problem before reading ahead. Done? Ok, moving ahead. At first glance, the problem seems really easy, does it not? Fix two points and the line passing through them goes through a third. Then consider the line that goes through the second and third points, and the property says it must go through a fourth, and so on. This process ends as *S* is finite, so we're done — the points are collinear.

You may have noticed this is a false proof. Anyone remember the induction "proof" that all dogs are brown? There is a similar fallacy here, when I showed there was a fourth point collinear with the second and third points, I never showed it was distinct from the first. Then my "proof" only shows three of the points are collinear, which is trivial anyways. We could try a graph theoretic approach. Let the points be vertices of a graph and define edges by: three vertices form a triangle iff there is a line through all three points. Then the problem becomes, prove this graph is such that all points form triangles with any two other points, i.e. that the graph is complete. But clearly the graph is complete, since a line through any two points will pass through a third, and hence there is a triangle between those three vertices (and in particular, an edge between your original two points).

Alright, another false proof. I leave it as an exercise to determine where exactly the proof fails; look closely at how I interpreted the problem in the graph theory sense and how I define my edge relations. This problem was posed by Sylvester in 1893; Erdos revived the problem (but didn't solve it) in 1943, and it was finally solved in 1944. I'll show you a real proof now; this one is due to Kelly who gave a more elegant solution in 1958.

Suppose otherwise, that the points of *S* are not all collinear. Define a joining line to be a line which contains at least two points in *S*. Let (*P, l*) be the point and joining line pair that are the smallest positive distance apart among all points–joining line pairs; notice such a pair exists since not all the points are collinear. By property of *S*, the line *l* passes through at least one other point of *S*. Construct the perpendicular line from *P* to *l*. There are two sides and three points, so by pigeonhole, one side must have at least two of the points (one of the points may lie at the intersection). Let *C* be the point closer to the perpendicular and *F* be the point further from the perpendicular. Draw the joining line *m* connecting *P* to *F*. Consider the perpendicular from *C* to *m*. Since the right triangle with hypotenuse *CF* is similar to the right triangle with hypotenuse *PF* and is contained strictly inside by construction, the distance from *C* to *m* is less than the distance from *P* to *l*. This contradicts minimality of the distance between *P* and *l*, hence the elements of *S* are collinear.

Like last issue's article, this article deals with a problem that seems quite simple at first glance, and makes perfect intuitive sense. However the solution eluded mathematicians for decades, even with its simplicity. Let me define a term: we call a line that contains exactly two points in our set an *ordinary line*. Then Sylvester's line problem gives (also known as the Sylvester-Gallai

theorem) that for any finite set, all the points are either collinear or there exists at least one ordinary line. Here's a much harder problem than the above, can you find an arrangement of points such that there exists precisely one ordinary line?

So far we've been dealing with points on the Euclidean plane; what happens if we loosen this restriction to allow for the points to lie on the projective plane? Or an arbitrary manifold? What if *S* were infinite? Anytime you see problems or theorems in math, I encourage you to ask yourselves what happens when you change the hypothesis. Not only will it give you insight as to how the mathematics works, you will gain a deeper appreciation for the proofs themselves.

Vince's problem of the issue Suppose *f* is a function which maps the unit interval into *n*–dimensional Euclidean space. Is it possible for every subinterval on the unit interval to be mapped to a convex set, yet the image of *f* is not a line?

Vince Chan
v2chan@student.math.uwaterloo.ca

Math and Music

Recently I have discovered that there is a strong correlation between those who do math and those who play an instrument. In fact, more than half of the members of this years Warriors band are also of proud members of the math faculty. This may come as a complete shock to some of you but if you apply simple logic it is no surprise that so many math students also enjoy music. Here are some reasons why:

1. Mathie and Musician both start with the letter M.

2. The Warriors band practices near the PAC which is close to the MC building but not really.

3. We're just too darn good at everything.

4. As individual notes flow together to create songs individual numbers work together to create equations.

5. Carrying around a heavy instrument is almost as fun as (but probably lighter than) carrying around a calculus textbook.

6. The first year calc textbook has a picture of a violin on it which makes total sense.

7. Time signatures in music sort of look like fractions. Sometimes they aren't reduced. We learn to deal with it.

8. We're allowed to play as loud as we want. This bothers the engineers. and finally

9. Music is a universal language so is math.

So there you have it, math and music who would've guessed? Actually studies have shown that children who start music at a young age do well in math when they are older possibly because it develops the neural chords in the brain. Some of the elements of music such as pitch tone and rhythm are also very mathematical in nature. I'm sure those of you who play an instrument can already see why there is a connection between the two - and for those of you who don't, well, there's always Rock Band.

jolene

Dating Advice From the Stalker Guy

Dear Advice Column,

 I knew a great guy who was so much fun, but I'm afraid it's just a mask to the horrors that lay within. We became really close a while ago, but then drifted apart while he was on and off with other girls. When he was single, we were often more than friends, but he always said that he didn't want anything more than physical fun because he "didn't have time" or was "commitment phobic." Now, after all this time of pushing me away, he has a girlfriend! I feel so pissed because he lied and used me for so long!

<div align="right">Helplessly devoted to the asshole</div>

Dear helpless lover

 The only way to win him back is to learn what he likes and deliver. Of course this will require a lot of research. Remember Facebook is a great start, but people's usual problem is stopping there. Remember Facebook won't tell you what they are eating for breakfast. I highly suggest following him around, learning the perfect time of the day to surprise him with his favorite treat, music or piece of jewellery. If you are really serious about this, I suggest cameras. Anything pen sized or smaller should work. Also looking into phone taps could help you know the girlfriends weaknesses and take her down a peg (its an added bonus.) Trust me, with enough determination, and some high powered binoculars, you can have him back in your arms before you know it (maybe even tied up)!

<div align="right">Stalker Guy</div>

Stalker Guy,

 This bitch just guy stole my guy! We weren't official or anything, but I know he was totally into me and he told me many times that he thought I was attractive - I really thought we had something going on. I don't want him to know I'm crazy over this, but what should I do?

<div align="right">F'ing Pissed</div>

Hey pissed,

 Remember, nobody is invincible! She must have a weak or ugly point, and if you can expose this to your guy, he will be back in your arms before you know it. You could always try to extract information about her from her friends (you will be surprised how much people talk with a little sodium pentathol). However, you might need to take more drastic measures. May I suggest following her throughout the day and being creative when she is in a relatively empty dark corridor of the university (the area behind the engineering buildings.) Tie her up with some good thick rope, something from a sailing yacht might do the job nicely, and try to remember your old camp days when they taught you how to tie those good sheep end knots. If she happens to disappear for a few weeks, maybe this guy will just forget about her and go right back to you.

<div align="right">The Stalker Guy</div>

Hey Sexy Stalker,

 I know you don't know me, but I know all about you - I was just thinking about you last night, and how darn attractive you looked in the library reading your statistics textbooks. Sorry that assignment didn't treat you well, but maybe next time you shouldn't drink and warhammer with your roommates 'til 2am. Anyways, I was thinking maybe we should get together one day at William's and have a sweet talk over your favourite Lattes...
 Let me know! See you tomorrow (even if you don't see me!)

<div align="right">Anne Onymous</div>

Hey ...you
 You sound...interesting. We should get together some time and watch each other from across a field. I don't think physical confrontation is the best thing. Maybe if we just relax and take it slow you know maybe closing a meter a week on each other until we get to know each other better (you know from observation.) Either way I can't wait to get to know you.
 Be seeing you, or maybe not.

<div align="right">The Stalker Guy</div>

Dear *insert whoever is doing it now* Guy,
 This guy keeps calling me and just breathing heavily and when I try to say something he just hangs up who is this and what should I do?

<div align="right">Confused!</div>

Hi Confused!
 breathes heavily .... *click*

 Until next time you may all be happy to know that the stalker guy has already been sacked and neutered (You are all welcome)

<div align="right">Unobligatory person guy</div>

Some Musings

On Mathematics

Today, like many other days, I contemplated the question "Why the hell am I doing math?". This article will have my opinion on the answers to this, but first it needs to be made clear that what I mean by math is more than just the mindless matrix multiplication in Math 136 and pages and pages of integrals in Math 138. These computations are consequences of some deeper fundamental structure. I lack the eloquence to answer "What is Math?" but I hope that you can understand there is a vast ocean beyond the computations and symbol manipluations of first year.

New Paragraph. I promise I'll answer the question in earnest: Math is good for the soul. Like poetry, like music, and based on an argument similar to this one science. Math gives us insight on a fundamental truth that is independant of representation. Someone once chastized me on using English for something purely mathematical and I countered "notation is symbols for something purely mathematical". Yes, it may be better specified, but regardless of representation the same fundamental ideas like convergence, completeness, and the various universal properties exist. Studying this fundamental underlying truth is similar to studying Zen; it leads to an inner calm and understanding, though Math makes no comment on ethics or morals.

This is a rather scattered article, but I would like to ask the reader (if anyone makes it this far) why they are doing math. Think long and hard on your answer. If you sincerely believe that Math is something you study because you must to get your credentials I ask you to consider if you should be in the Faculty of Mathematics at all, as that worldview seems more cut out for an Engineer. Once you have this question answered, I suggest you try to tackle "what is math" or "do we create truth or discover it".

<div align="right">ebering</div>

A Very Canadian House of Cards

How many spoilt ballets will it take to get a good political leader?

With all the fuss and media over the American election, I'm afraid that many Canadians are becoming out of touch with their own political farce. For example, I conducted a small poll yesterday and I found some very disturbing results. After counting the number of signs pegged into people's lawn, I found out that Waterloo's current leading political party is Remax Real Estate, just beating the "This lawn has no pesticides" by a narrow margin. Now this may not be as official a poll as the ones the media occasionally pump out, but I feel it shows a lot about the current state of Canadian politcs.

Stephen Harper: King of the Cons

It doesn't matter whether he is a robot or simply out-of-touch with the average Canadian, Stephan Harper is still the current kingpin of Canadian politics.

Stéphane Dion: Ace's High or Low?

Political opinion on the not-quite-so-charismatic leader of the Liberal Party is around as consistent as a bipolar howler monkey. Basically, some people love him and think he is absolutely amazing, some people hate him and would rather chew off their arm than vote Liberal, but the majority just don't understand what the hell he's saying.

Elizabeth May: The Reigning Queen of Green

When it comes to the environment, no one is as vocal as Elizabeth May and with good reason since that is the only part of the Green Party's platform that people know about. Being the only woman in the running for Prime Minister, she must also distuingish herself from Kim Campbell by proving she can last longer than 6 months in the political scene. Not hard, considering the other candidates.

Jack Layton: I'll Vote for You If You Shave the Stash

Support for the NDP has exploded under his leadership. Result: two minority governments. On the other hand, he has compared himself to Obama, coming up with one of the few true statements I've heard all election: "I am a lot shorter than he is."

Gilles Duceppe: For a Limited Time Only!

Only in Canada will a separatist party stay in government for decades without actually separating from the government. Luckily, it seems that the Bloc is declining in popularity in Quebec (as well as the rest of Canada, despite how little their popularity originally was.)

In the end, the flimsy house of cards that consitutes the Canadian political powerhouse also constitutes a really weak poker hand and a series of poor choices for Canada to vote for. No wonder we're all obsessed with the American election, the Canadian one is just depressing.

Impulse Vector

Top 10 Starcraft Spinoffs

This list cannot include Worlds of Starcraft, because that is only possible through Blizzard's eventual purchase of the internet.

10. Zergling Tamagochi. Collect a swarm and throw them at people

9. Vulture Racing. MarioKart does not have spider mines or "For the Swarm!"

8. Settlers of Char. Settlers of Catan is fun, but it doesn't have Zergling rushes

7. Zerglings Teaching Typing. If you don't know Mario teaches typing, you won't get this.

6. Zergling Rush. Start Running

5. DC. If you haven't realized yet, its a Protoss assimilator

4. How has DnD not made a Starcraft equivalent? My Level 14 Zealot could tear your stupid elf in half.

3. Survivor. On Char. Thor, Static IP, and Mike Seliske are required contestants.

2. Spore. Obviously every spore has to turn into a breed of Zerg.

1. Starcraft Ghost. It's still coming! (Blizzard should release it to open source and let them finish it.

-Tbor

sigh... Pi

AARRGHHH!!!! I feel like pulling out my hair! It's so frustrating! I've been re-writing this article for 3 times now. However, does this compare to how much I'm confused about love? For the love of Pi! Why is everyone falling in love these days? It got me wondering a few weeks ago when I was talking to my friend about the opposite sex. We have the same question bugging our minds, "How would you know if someone likes you?". It's so confusing until I had to ask people "What do you do if you like someone?". What would you answer?

A few weeks ago, I met a tax master during orientation week. It didn't strike me before school starts. Maybe it's his meatball head, or his geeky glasses or his messy hair. Although I'm supposed to be drowned in the deadly river of courses, instead I'm choked in the river of <sigh> hearts. I'm crush struck. Love is so mysterious like those theorems in class that your professor told you not to worry about the proofs because they are just too long and too hard to understand. My friend, maybe we shall wait for our knight in shining armor on his horsecopes to come and save the day.

Maybe I should just write to the Dating Advice column to ask for advice. It should be interesting to hear about what the advice guy would say. Or maybe we should just have a heart to heart talk over Iron Man and then we can all live happily ever after <yea, you wish!>. Love and tax are so complicated. Why don't we all just love Pi? It's so delicious <mm.. yummy >;, sweet and never ending (3.14159...).

cuppycake

*prof*QUOTES

Unfortunately, we're missing an important class of integers: the negative ones. These are important, especially if you are a major US bank.

Lhotak, CS 241

You can think of this course as being on a deserted island with a wireless router...

Lhotak, CS 241

[on using formulae improperly] And then you'll say "But I got the right answer" Yes, you did. No marks for you.

Bolka, STAT 260

Zis iz ze best courz notes in ze vorld

STAT 231

I could have gone into CS and worked for Google... or I could have gone into physics and be unemployed right now.

Kennings, ECE 223

Magic is for wizards and we keep away from that.

Buhr, CS 246

You can go buy a book, or you can buy the C++ reference manual, which is incomprehensible.

Buhr, CS 246

I have never used a Microsoft product in my life! [Class bursts into thunderous applause]

Buhr, CS 246

Some Chinese students, without asking, immediately talk to me in Chinese. They have good judgement.

Cai, EASIA 201

Some people ask me why I came back [from California] to this suffering place...

Cai, EASIA 201

The South Korean flag looks very familiar. It looks like Pepsi!

Cai, EASIA 201

Do you ever wake up, look at the ceiling, and think 'where am I?'

Buhr, CS 246

Everybody falls in love with a shell and uses it for the rest of their lives...

Buhr, CS 246

Bad Induction: You can prove that Sean is going to pass this course... Don't do it!

Eden, MATH 135

I'm even convinced that hair loss is exponential

D'Alessio, MATH 137

I have no allergies. Except for stupid people.

Griggio ITAL 201

In grade school you learn two plus two is four, here you learn that two plus two is three.

Vasiga, CS 135

If enough people die, I become president.

Vasiga, CS 135

You might be thinking, "in what kind of shit job do I get less than zero dollars?" Well, that's what co-op will teach you.

Vasiga, CS 135

Any idiot can see that this is true, so why are we proving it? For the Engineers!

Eden, MATH 135

So how many people think that infinity is actually a number? ...it's just an 8 that got tired and fell over, right?

Ferguson, MATH 138

We have a short form for writing 0000... [after a decimal point] - we stop at the number before that.

Andre, A/PMATH 331

"It's so obvious that it hurts" - that's not a good proof.

Andre, A/PMATH 331

"Left to the marker as an exercise" is not a good thing to put on assignment questions

Andre, A/PMATH 331

The function is symmetric, despite what I draw.

Scott, AMATH 231

When you say "Euclidean inner product" instead of "dot product"? Anytime you want - it makes you sound smarter!

Andre, A/PMATH 331

[student]So the whole experiment set-up would be small, right?
[prof]Right.
[student]Small like I could hold it?
[Prof]Well, the electron microscope weighs a few tons, to... if you eat your spinach, sure!

Hill, PHYS 234

Has your prof said something quotable? Type it up and send it to mathnews@student.math.uwaterloo.ca, *or write it down and drop it in the* **BLACK BOX** *(located on the MC 3rd floor, between the Comfy and the C&D).*
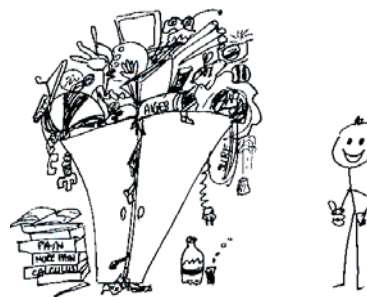
Break the code!

It's not hard.

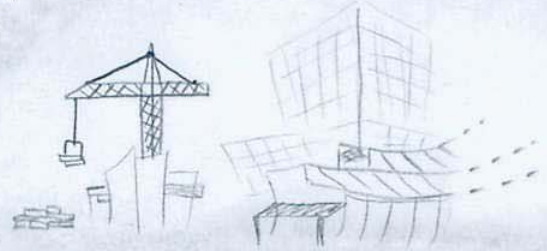CODE: FiSH-mApS-ArE-FiLLInG-AtLANTis-cHoColATE-jAM-uP-As-tROjAN-BLoCk-iS-RUn-AgED <<access granted>>

CODE: get-better-at-coding <<processing request>>

A Visit to the Metropolitan Museum of Mathematical Proofs

As a first year student in the Faculty of Math, I was bombarded with math problems of a new caliber in my assignments. The concept of a mathematical proof was unfamiliar territory, something that we rarely approached in our high school classes. Naturally, I wanted to find out more about this strange and fascinating idea of providing rigorous evidence for encountered theorems, so I decided to take a trip to the Metropolitan Museum of Mathematical Proofs.

I stepped inside the MMMP (what a stylish name, indeed), and was immediately overwhelmed with what I saw. All along the walls, in different shapes, sizes, designs, and styles, were proofs. It is difficult to describe what exactly a proof is, as they vary so much in appearance and quality (they reminded me of butterflies, in an indescribable way) but there was no doubt in what they were. One glance was enough to confirm that they did, indeed, prove something.

I began to examine some of them more closely. I saw proofs of all sorts: there were elegant proofs and there were clumsy ones, some were eye-catching and others were elusive. Some looked terribly old, like one of the Pythagorean Theorem, and some looked very recent, like one for Fermat's Last Theorem. Some simply weren't there at all— there was a glaring gap above the caption "Reimann Hypothesis".

An elderly gentleman approached me while I was browsing. "Welcome to the Museum," he said. "I will be your tour guide this evening. My name is Proof by Induction, and if I can introduce you to one proof, I can always introduce you to another. I have already introduced you to myself, so by induction, you shall soon meet them all. Come with me!"

I followed him around until we met a young man. "This is Proof by Contradiction," my tour guide told me.

"Assume I'm not!" said the young man immediately. "Then my name tag would not say 'Proof by Contradiction'. But it does, so we have a contradiction!"

"That's very nice, thank you," my tour guide said drily. "If I've heard that once, I've heard it a thousand times. Now, this is Proof by Inspection," he added, directing me to a thoughtful looking girl that had approached us.

She looked down at her name tag and thought for a moment. "Why, you are quite correct. I certainly am," she said finally. "You can call me Visual Proof, if you'd like."

"But we wouldn't," snapped my tour guide, apparently under the impression that he was the greatest thing next to an axiom. "Now, let me take you to Proof by Exhaustion... I hope you aren't in a rush, he likes to take his time and do the thing thoroughly."

Unfortunately, it was getting late, and I had to get back in order to finish my Algebra homework. "No, thank you, I'd better leave," I told him.

"Oh, but you can't!" he laughed... or more like wheezed, as he was a pretty old fellow. Anybody that visits during the day gets to spend the night here, and anyone that stays here all night continues the tour the following day. You've already stayed one evening, so by induction..."

I realized that I would be trapped there forever unless I took some dramatic action. I thought quickly, and I knew what I had to do. Quickly, I shouted, "It is impossible to divide by zero!"

Everyone looked confused, but Proof by Contradiction immediately piped up, "Assume you can!" Before anyone could stop him, he tried writing the fraction of one divided by zero. As soon as he finished, the paper burst into flames.

In the ensuing panic, I managed to escape from the clutches of my captors and ran out of the building. The proofs, unable to stop the spread of the fire, were all consumed in the all-destroying blaze that quickly consumed the entire building. There is now a giant pit of ashes where the Metropolitan Museum of Mathematical Proofs once existed, so there's no point trying to find it now. As for the inhabitants of the museum... don't worry about them, they aren't lost. All of them were fireproof!

<div align="right">Mei Sum</div>

*grid*COMMENTS

It's all Greek to me

We had a choice this week of two *grid*WORDs that could go in the issue, so the one that was chosen was the one that I didn't have to tag any clues for. As with last weeks grid, it was provided by Static IP and Impulse Vector.

As noted, there are not clues for each word in the grid. Instead, there is one big clue that should allow you to solve it: 27 of the 28 Greek letters can be fitted into the grid. Submit the correct solution and the letter that is missing to be eligible for the prize. As usual, the *grid*QUESTION will serve as a tiebreaker if necessary.

This week's *grid*QUESTION: What Greek letter do wish existed? Remember: Just drop off your submission in the BLACK BOX outside of the C&D before Monday, October 13th by 6pm to be eligible for prizes!

Speaking of prizes, the only submission to last week's *grid*WORD was from Nick Murdoch. The *grid*QUESTION last week was "Why does dvips hate me" and he answered, "Just a diversion while Emacs steals your soul". To get your *fabulous prize*, go to the MathSoc office and ask the person behind the desk to find it for you.

<div align="right">perkiED</div>