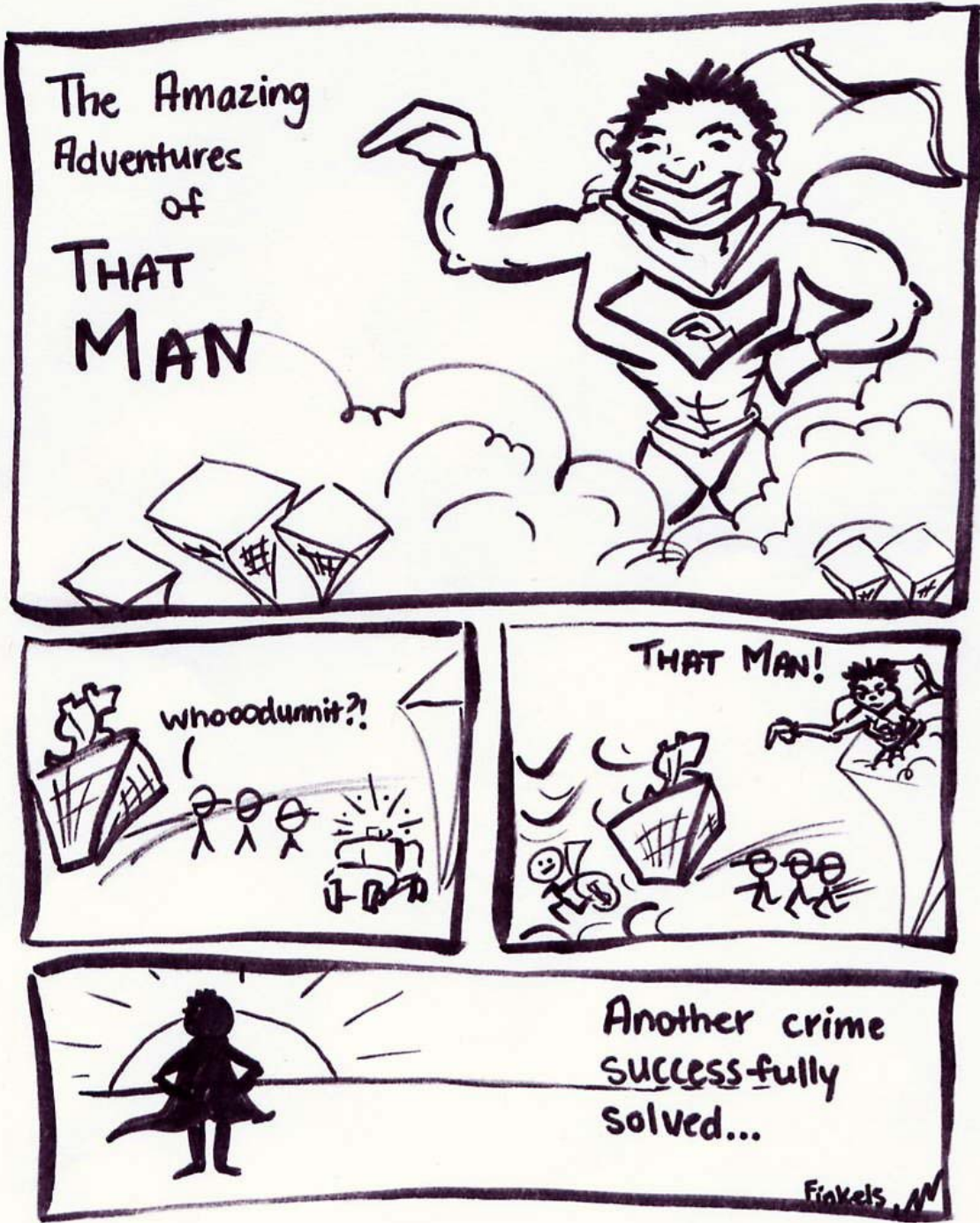


# math

# NEWS

Volume 107, Issue 1

Friday, May 30th, 2008



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**lookAHEAD****mathNEWS**

May 30	Issue #1 discovers unbelievable powers
June 9	Production Night #2 6:30 PM Meet at the MathSoc office
June 13	Issue #2 rises to destroy Issue #1

**MathSoc**

Wednesdays	Games Night!
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**Math Faculty**

Questions about some of these? See an academic advisor!

June 4	CS Info Session in DC1302
June 20	Last day for 50% tuition refund
June 27	Last day to WD from a course
July 30	Lectures end

**CECS**

June 2-20	Employer Interviews (main group)
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see [www.cecs.uwaterloo.ca/students/datesS08.php](http://www.cecs.uwaterloo.ca/students/datesS08.php) for details

**Student Awards & Financial Aid**

June 4	OSAP Application Deadline for Spring term
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**Feds**

see [feds.ca/events](http://feds.ca/events) for details

**Miscellaneous**

May 26	National Blueberry Cheesecake Day
May 27	National Grape Popsicle Day
June 1	Oscar the Grouch's birthday
June 4	Cheese Day
June 8	1 <sup>st</sup> indoor swimming pool built

**Computer Science info session***Upper year courses*

On Wednesday June 4<sup>th</sup> there will be an info session held for all students taking optional third-year and all fourth-year CS courses. The session will be happening from 4:00 until 6:00 and will feature the instructors teaching the courses speaking on them. The location is DC 1302. Be sure to go and take advantage of this great opportunity to learn more about your program! Refreshments will be provided.

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Jormungand: Michaelangelo Finistauri

**mastHEAD**

With a nice and slow start to the term, I begin to regret running *mathNEWS* and not taking the money with me on a trip to the local skin bar. My lamentations aside, we submit to you another incredibly whatever issue of *mathNEWS*! Where insanity meets paper and all that should be censored irritates any one of the drones from the PC party.

No good production staff goes unrewarded, though. They have a tough job: putting up with an editor like me so they got pizza! Much to my dismay, steak wasn't a readily available topping for pizza, but nobody complained and survived. Apparently they were out of cat too. Oh well. To make up for the lack of exotic ingredients, I sought to find the easiest way to frighten my staff into writing without being fed. Fear is a powerful tool. Here is "What haunts your dreams?" in C-minor: Insider "The Single Guy + Angelo's mother", Way-too-old-to-be-here Mathie "Censored to save your innocent, young eyes", Niner "Imprint in Impact font", Nadz "Supercalifragilisticexpaladocious...ness", Lich "Vampires", Thor "Proprietary image compression formats", ARandomStringofCharacters "Forgetfulness", Megaton Panda "Sailor Jynx", snippet "Thor's right eyebrow", mar<sup>2</sup> "Flying, shitting creatures", Da Fink "Being eaten when the *mathNEWS* pizza runs out", The Producers "Penguins with teeth", MJB "Jail-bait cosplayers"; *mathEYE* "The future is coming! THE FUTURE IS COMING!" I also sold their internal organs on the black market because I'm such a nice guy.

Where would we be without witnesses? Since there are none... anymore—I would like to thank graphics for their secret recipe for fried chicken. More thanks goes out to Captain Planet and the Planteers for teaching me that I can be environmentally conscious and incredibly racist at the same time. Mortal Kombat for showing me how to beat the ever-loving hell out of someone only to turn around and prove my friendship to them afterward. Special thanks go to my "carpet cleaners", you guys remove even the most human-like stains out of any carpet and crack den! Until next time.

Michaelangelo 'AngeLED' Finistauri "The beating of that infernal heart!"

**Interested in transferring into Math/Financial Analysis and Risk Management?**

As of Fall 2008, the Math/Financial Analysis and Risk Management program will be admitting its inaugural class. This is a restricted-enrollment program so if you are interested you have to meet certain criteria:

- Cumulative GPA must be at least 75%
- Other grade averages may be considered (i.e. 75% is not necessarily sufficient)
- Students from any year can transfer in this year only, but you must be on campus long enough to meet degree requirements

If you are interested, then please contact Brent Matheson, the program director, at [bmatheson@uwaterloo.ca](mailto:bmatheson@uwaterloo.ca) and indicate your interest in being considered. You have until June 13<sup>th</sup>, 2008 to be considered. All inquiries will receive correspondence by June 30<sup>th</sup>, 2008.

## Prez Sez

*We're under new management*

Hello Mathies, and (a very belated) welcome back! My name is Clare, and I've just made my official *mathNEWS* debut with this article you're reading right now.

I would first like to thank everyone that came and cast a vote for our new VPF. We started the term with only two execs, and now we have all four! Things have been slow at MathSoc for the first month, but now we are ready to roll for sure.

On that note, MathSoc still wants you! Our lively office welcomes volunteers, new or experienced. Meet other friendly mathies, help us continue to provide services (staples, cheap photocopying, novelties, and much more), and also feel productive during that one hour gap between classes! If this doesn't sound like your cup of tea, there are more ways to get involved... you can write for *mathNEWS*, join a club or two, or come and help out on Canada Day or Student Life 101!

In academic news, a new program called "Mathematical Studies" will be introduced potentially in Fall 2009 (more details will follow). This will replace the existing "Mathematical Sciences" and 3-Year General programs, and aims to allow a more broad approach to mathematics. As a result of the creation of this program, some new core math courses will also be introduced.

Also coming up is a seminar by this year's Graham Medal award winner, Eric Veach. The title of his talk is "Searching the world with Google Maps". More details can be found on <http://www.math.uwaterloo.ca/navigation/Alumni/receptions.shtml>.

This is all from me for this issue. If you have any comments or questions, please feel free to drop by Mathsoc during my office hours or send me an email!

Clare Park  
MathSoc President, S08  
[prez@mathsoc.uwaterloo.ca](mailto:prez@mathsoc.uwaterloo.ca)

## Attention all

*You have just won the game*

Unless you did not come to Games Night this past Wednesday at 6:30. Then you have lost the game.

To win next time, come Wednesday night. There will be games, and food. And you will win. That is all.

## mathNEWS wants YOU!

*Write some stuff, win some money*

*mathNEWS* works entirely on submissions from undergrads and some alumni. We're constantly looking for new writers in order to reduce dependency on said alumni. Thus, the "best" submission to each issue this term will win a \$25 Gift Certificate to HMV. Anyone is eligible! Faculty, alumni, staff, and especially students!

We're not particularly choosy here at *mathNEWS*. Our criteria for publishing material is pretty simple: your article should be informative, interesting, insightful or funny. Long, rambling, pointless material is out. So are in-jokes, rants, and particularly libelous material.

If you have a modicum of writing skill, feel free to submit. You have many options: Write it down on some paper and shove it in the **BLACK BOX**, conveniently located on the 3rd floor of the MC between the C&D and the Comfy Lounge. If you type up your article and print it off and then put it in there, we will be very upset, because you should... Email it to [mathnews@student.math.uwaterloo.ca](mailto:mathnews@student.math.uwaterloo.ca) with the word "article" in the subject line. You can also drop by Production Night! Write an article, and while you're there, help us with the proofreading of the issue. All are welcome! The date of the next production night is given in the *lookAHEAD* of every issue.

See, isn't that simple? So, in summary, write for *mathNEWS*, win \$25 to HMV!

## VPAS Sez

My name is Ammar Naseer and I am your new Vice President, Activity & Services for the Spring 2008 term. For this term, we have a full roster of directors so expect a lot of events to happen. Currently, we're still in transition as the VPF election was last Wednesday and Thursday.

One of the things that you can volunteer for is UW Canada Day where MathSoc will be running an event for children, where water will be involved. Just fill in your name in the sign-up sheets outside the Exec Office or in the MathSoc office. If you have other commitments for Canada Day, you can volunteer for lots of other activities by talking to the new social director, Gagandeep Pabla.

Other than that, have a fun term and remember that spring is the time for flowers, romance and MathSoc activities to bloom.

Ammar Naseer  
Math Soc VPAS, S08



## PMAMC&O Club Corner

*Brought to you by the Finite Field Construction Company!*

Welcome to Spring Term, from your friendly neighbourhood Pure Math, Applied Math and Combinatorics and Optimization Club! We're up and running for this term and new members are always welcome. The membership fee is \$2 and the best time to come sign up is 2:30–3:30pm or e-mail us at [pmclub@gmail.com](mailto:pmclub@gmail.com). Your membership gets you added to our mailing list, which we use to inform members of upcoming events, access to our textbook library, 50 cent pop (in whatever flavours our VP of Pop feels like getting), a cool group of people to play frisbee with and dodgeball fun (random hours in the gym with a couple of bouncy yellow balls and other PMClubbers). Stay tuned for more information about events we have planned for this term, which include a bake sale, talks by professors, Short Attention Span Math Seminars (SASMS) and a possible visit to the always ultra-cool Perimeter Institute.

Sarah<sup>2</sup>, your Spring 2008 PMC Presidents

Article too long  
Editors curse framemaker  
This is not whitespace

Quantum building looms  
When its waveform colapses  
Goodbye frisbee field

Thesaurus.com  
Is freind of the hiaku scribe  
Unless you are trying to say way too much in one line

Play games all day long  
UW gamers have much fun  
All courses are failed

Budget meetings fail  
Mathsoc council is corrupt  
Student politics awesome

Way too old to be writing for *mathNEWS*

## Interesting Math

*Graham's Number*

The largest finite number...in a sense. That is, it's the largest finite number ever to have been used in a serious proof. Let's examine the question first: Connect every pair of vertices in an  $n$ -dimensional hypercube to form a complete graph on  $2^n$  vertices. Using only two colours, colour each edge of this graph. What is the smallest value for  $n$  such that every possible colouring contains a complete subgraph on four vertices of a single colour, with coplanar vertices? Geoff Exoo of Indiana State showed in 2003 that the lower bound for this number is 11. Graham and Rothschild in 1971 showed Graham's number is an upper bound.

To get an idea of how big this number is, we should introduce some notation. Knuth's up-arrow notation helps us out here; I'll use  $*$  to signify an up-arrow; since we can't seem to find a way to actually use the up-arrow symbol or even a caret symbol in this system. For the single up-arrow: we define  $a^*b$  to be  $a^b$ . For the double arrow,  $a^{**}b = a^*a^*\dots^*a$ , where there are  $b$  copies of  $a$ . As an example,  $3^{**}2 = 3^*3 = 27$ . We can continue this process to a triple arrow,  $a^{***}b = a^{**}a^{**}\dots^{**}a$ , with  $b$  copies of  $a$ , and even an  $n$ -arrow,  $a^{*...*}b = a^*...^*a^*...^*a...^*a^*...^*a$ , where  $*...*$  denotes  $n$  up arrows and  $*...*$  denotes  $n-1$  up-arrows, and where there are  $b$  copies of  $a$ .

Let's consider a concrete example:

$$3^{**}3 = 3^*3^*3 = 3^{27} = 7\,625\,597\,484\,987$$

$3^{***}3 = 3^{**}3^{**}3 = 3^*3^*\dots^*3$  where there are 7 625 597 484 987 copies of 3.

$3^{****}3 = \dots$  let's not go there.

We define  $g_1 = 3^{****}3$ . Already,  $g_1$  is much larger than the number of particles in the observable universe, as the previous calculation indicates. Define  $g_n = 3^*...^*3$  where there are  $g_{n-1}$  up-arrows. Graham's number is  $g_{64}$ . It's inconceivable how many times larger it is that other large numbers such as a googolplex or even Moser's number — and that's the tightest upper bound found thus far for the problem stated earlier;  $n$  must be between 11 and  $g_{64}$ . As Graham and Rothschild wrote, "Clearly, there is some room for improvement here". I invite you to try to improve the lower bound at least; it was long believed the answer should be  $n = 6$ , until Exoo wrote a computer program to find a counter example. He has already shown strong experimental evidence that the lower bound should be even larger than 11, so there's hope yet. A word of advice though: I wouldn't attempt to lower the upper bound by means of brute force.

Vince Chan

## UW Gamers Spring Term Madness

Once again, UW Gamers is here to keep you from passing your courses. We've got a whole suite of events coming up this term, so let's get right to business:

- **July 18:** *Mario Kart of the Ages*. An event dedicated to the many iterations of the series! Tournaments and prizes! (Hopefully—we're still working out details, so they're subject to change)
- **June 25:** *Game On / Don't Study Event*. Random gaming! Try new games, play with others, bring out your portable systems and get some wi-fi action going!
- **July 9:** *Hardcore Super Smash Bros Brawl Tournament!* Smashboards-esque rules for top competitive play!

- **July 23:** *Game On / Don't Study Event*.
- **August 1:** *Rock Band Battle of the Bands!* Form up a band and compete to be the best! Judging based on both score *and* style! Prize for the winning band!

All events are 5pm-11pm in the SLC Great Hall, and are free to participate in (except tournaments with prizes). Also, we're planning on having weekly **TeamFortress 2** nights. Join the 'UW Gamers' Steam community for more details!

As usual, keep tabs on us through the term at [www.uwgamers.org](http://www.uwgamers.org), and be sure to check out the forums while you're there.

UW Gamers Dude

## profQUOTES

Now that you know what an assembly language is, does anyone know where I left my blue marker?

Lhoták CS241

You can call me by “Doctor”, “Professor”, or by first name. No “Mr.”—that’s what they call me when I get spam.

Lhoták CS241

When you’re 25, television doesn’t do it for you so you go out and buy a motorcycle and drive at 150 down the highway and your mortality rate goes through the roof!

Till, ACTSC232

If you think this [question] is insulting to your intelligence then raise your hand. (One student raises hand.) Only one?

Till, ACTSC232

If you’re 130 years old and you walk into a doctor’s office, what are they going to say? You’re going to drop in a few moments.

Till, ACTSC232

That’s a morbid prediction. Let’s change that to an engineering class of a similar size.

Till, ACTSC232

I don’t want to explain it, it’s a pain. That’s why we use survival functions.

Till, ACTSC232

(Few students raise hands in poll) That puts the sample size of the class at about 5.

(After more than 5 five people raise their hands) That’s better. Population is growing

Till, ACTSC232

I don’t care if you ask stupid questions, by the way.

Nelson, MATH239 TUT

I’m not going to do the assignment questions! I did them years ago, now you guys have to do it. That’s the way it works.

Nelson, MATH239 TUT

The nice thing about MATH239 is that nobody cares whether series converge or not.

Godsil, MATH239

Learn Unix now. Don’t use Windows for your assignments.

Lhoták, CS241

American Thanksgiving is later than Canadian Thanksgiving because they need more time to find something to be thankful for.

Celmins, CO380

We’re in a symmetric situation here: almost all of you have not taken CS251 before, and I have not taught CS251 before.

Cowan, CS251

Oh yes, I’m the model professor that’s supposed to have come in early and put this on the board. Not today. It’s too close to the long weekend.

Cowan, CS251

Prof: Don’t they teach anything in first year?

Student: No.

Cowan CS251

My washing machine wants to be connected to the Internet. I think this has gone too far. My washing machine does not have an Ethernet cable, and it doesn’t have an IP address.

Cowan, CS251

In order to get what I’m doing now, you have to sit through the last half hour. This is because my lecture is not random access. My lecture is sequential access.

Cowan, CS251

The university has a thick book of regulations. Fortunately, they change often enough that you don’t need to read them.

Cowan, CS251

I hope you’ve found what I’ve said interesting so far, because I’ve run out of interesting stuff.

Cowan, CS251

Here’s something they teach you at politician school: My opponent is a slimy bastard.

Cowan, CS251

Prof: 49 choose 6 is equal to 13,983,816.

Student: Did you memorize that number?

Prof: Sadly, yes.

Chisholm, STAT230

I will prove to you that a McDonalds cheeseburger is better than true love.

Shai, CS245

So, solution! ... Wait, solution? I need a problem!

Wolczuk, MATH237

And if it’s not continuous... you find a grad student to do it for you.

Wolczuk, MATH237

I seem like such a normal person, don’t I... until I start talking.

Metzger, STAT230

So you take me, put me in a meat grinder, then I’ll be normal.

Metzger, STAT230

I know this is a bit vague, but it’s good to be confused.

Chang, MATH119

Let me repeat your statement to see if I misinterpreted it correctly.

Ng, MATH146

Linearly independent means that this set should not be too fat.

Ng, MATH146

*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 3<sup>rd</sup> floor, between the Comfy and the C&D).*

## Szabo's Underdog Movies of the Biweek

*You can watch what I watch.*

I'm not going to describe the movies, but I'll leave the setting that they would work in. That way you can experience the plot developing without having any scenes ruined for you.

### **Judge Dredd** (cyberpunk)

Full attention not required; perhaps a candidate for ambiance at a party.

### **Capricorn One** (thriller)

Best watched sober, possibly alone. Well selected plot.

Szabo <tyler.szabo@gmail.com>

## The horrible truth

The pink tie is made of people! People!

## Beyond my wildest imagination

*No, really*

I was minding my own business one day, meandering down the halls of the MC, when I suddenly thought of something. Astute readers will undoubtedly have heard many a story, some from *mathNEWS* itself, of the so-called seventh floor. A place no man has ever gone to and returned, a place rumoured to be so maze-like, that not even the sixth floor compares. Some say it is in stairwell above the sixth floor, and some say it is to be found in the middle somewhere. However, I could not recall anyone ever pointing below.

Think about it. If you wanted to hide a floor from someone, where else could work but below ground level? Anywhere else, and you leave noticeable evidence. in the form a floor you can see from outside or with doors in the stairwell. Because someone has to be able to get into or out of there.

Below ground; however, there is only the question of stair access. And anyone who's looked at the northeast corner of this building had an opportunity to locate stairs extending below the first floor. Those who have inquired were told that the shaft leads to the access tunnels, a network connecting all the buildings on campus. But has anyone ever been there?

Thus began my quest. The door at the bottom was the easy part, just a bit of careful locksmithing and I was through. Closing the door behind me was the next natural task, as I did not want my trail betrayed. Beyond that door was a place so grimy and dark from apparent disuse, that after a bit of stumbling around, I finally found a trap door leading further in.

As I landed on a large boulder, and rolled off, I found myself in a place with much improved illumination, reminding me of the rest of the MC during a power outage. A rather large lobby with a pair of elevators (leading up, go figure), led down to a what appeared to be an extensive maze. At long last, I had found the secret seventh floor. Of course, room numbers began with 0, not seven; with an emphasis on math and CS, I'm surprised nobody noticed the apparent lack of this zeroth floor.

I wandered along the ground that had not been touched in decades in awe as I entered the first hallway. As I went from

## The Hee Ho's Half-Assed Music Review

*The Sleepy Jackson - Lovers*

For those of you unaware, which is probably all of you, The Sleepy Jackson is a musical group from Australia with a very distinct sound similar to the psychedelic phase of the Beatles and definitely one worth obtaining "perfectly legal copies". Their debut album *Lovers*, released in 2003, is a pleasantly relaxing mix of different styles all on one ice-cream flavoured disc. From country to light rock the album has something to calm even the most angsty of death metal punks without the aid of elephant tranquilizers. For anyone who's a fan of strange international movies, the track "Morning Bird" from this album was featured in the French film *Le Clan* (or *Three Dancing Slaves* in North America) and with good cause—it's a good song. This may be a hard album to find, but if you can get your hands on it, its worth the money. Mostly because it doesn't really go for a lot, but that's beside the point.

The Hee Ho

winding passage to winding passage, past ever more dangerous tricks and traps, I realized that I, too, was lost. Following the left wall was unsuccessful, same with the right: both led me in circles. Stumbling about randomly, I eventually found myself in front of room 0080.

Vaguely, I remembered what I learned back during frosh week, about the original 80 foot tie. Reportedly, it was stolen, but I was told by a few leaders that this was not the entire story. For, you see, the tie was made from sacred materials, harvested from the breath of the Math Gods themselves, trimmed in the hairs of every major math and computer science figure through to the building's construction; truly a marvelous feat, and the reason why the Mathematicus tribe took it for an idol of logic, order, and arithmetic. It was so enshrined, I was told, in the room whose number bore its length, and so here I was in front of its very room. I took a step inside. Behold, I had discovered the original pink tie!

As I reached out and took, the ground began to vibrate, and soon massive chasms appeared. I ran for the back door as 8.53 pies went flying at me. I managed to catch a couple of them, and quickly wolfed them down, diving into the hallway. I ran and ran, finally making it back to the lobby (without figuring out how) as a giant boulder of tangential and derivative works crossed my path, blocking the stairs leading back up.

Thinking fast, I ran to the elevators, chased by the boulder. As a chasm opened up in front of them, a loose wire fell down, losing its hyperbolic shape to assume that of a line. I reached out, grabbing it to swing across the gap to the open elevator doors as more floor crumbled around me. As the doors closed and brought me back to the Brutalist structure above (that is the architectural style, you know), I realized I had forgotten my one piece of proof of the whole ordeal. Guess I'll need to try again later.

Niner

# Whatever Happened To:

## *The Original Power Rangers?*

For a lot of us, the original Mighty Morphin Power Rangers was a truly memorable classic. Remember the first five rangers? Jason, Billy, Zack, Trini and Kimberly, and later that season, Tommy. Their inaugural season in 1993 was a smashing success, and the characters became household names. Now, 15 years later, where are the cast of the original team and how are they doing?

- **Jason Lee Scott (Red Ranger - Played by Austin St. John):** In the original series, he was the leader of the rangers and wielded the Power Sword. He was a jock type character who was outgoing, friendly and was proficient in martial arts. In the midst of the second season, he left the show along with Trini and Zack for a conference in Switzerland. He did return for a bit in Power Rangers: Zeo, the Power Rangers Turbo movie, and also in the Power Rangers: Wild Force episode "Forever Red".

**Where is he now?** Since Austin left the show, he was in a movie called Expose and another called Footsteps. He maintained a close friendship with Walter Jones (Zack) and both appeared at the first Power Rangers Convention in LA (June 2007). Today, he is a paramedic in the Washington DC suburbs of Northern Virginia.

- **Zack Taylor (Black Ranger - Played by Walter Jones):** The fun, dance-loving guy of the group, he fought with a mix of his martial arts and dance moves. Like Jason, he left the show in the second season apparently to attend a peace conference in Switzerland. His Power Axe-Wielding, Black Ranger persona ignited controversy due to the actual actor also being black, leading Fox to not cast another black actor for the part until 13 years later.

**Where is he now?:** After leaving the show, he went back to his passion of dancing. He attended the Power Rangers Convention with St. John in 2007, and is now a salsa instructor (amongst other things) in LA.

- **Trini Kwan (Yellow Ranger - Played by Thuy Trang):** The intelligent yet compassionate ranger often fought with a "mind over matter" style. She was intelligent enough to translate Billy's techno-gibberish for the rest of the team. Her Power Daggers and Sabre-Tooth Tiger zord both made formidable weapons against her the enemies. Just like Zack and Jason, she too left for a peace conference and passed her power on.

**Where is she now?** After leaving the show, she went on to

act in a few movies, most notably the lead villain in The Crow: City of Angels. Unfortunately, on Sept 3, 2001, she was involved in a car accident that tragically took her life at the age of 27.

- **Kimberly Hart (Pink Ranger - Played by Amy Jo Johnson):** The proficient gymnast who was the pink ranger was a typical valley girl who often made witty jabs at others. She dated Tommy until she left the rangers team and eventually broke up with Tommy via a letter. Her Power Bow proved extremely useful in combat, for example against TerrorToad.

**Where is she now?** Amy Jo Johnson returned briefly in the Power Rangers Turbo movie, and has guest starred in various other shows (ie Saved by the Bell). She went on to play Julie on Felicity in 1998. Between her occasional TV roles, she has released two musical albums as well.

- **Billy Cranston (Blue Ranger - Played by David Yost):** Billy was the stereotypical nerd for the rangers and worked with most of the technical stuff. He was the second longest staying rangers, lasting all the way until Power Rangers Zeo. He left the rangers when suffering from accelerated aging and he travelled to the planet Aquitar for a cure. He decided to then remain there with a female Aquitian with whom he fell in love with.

**Where is he now?:** Yost went on to various minor TV roles and TV movies. He performed in a benefit play called Fallen Guardian Angels in 2002 and raised over \$25,000 for the Children's Hospitals AIDS Center. He currently resides in Roseville California.

- **Tommy Oliver (Green/White Ranger - Played by Jason David Frank):** Tommy joined the team in the middle of the first season after being mind controlled by Rita and became the Green Ranger. Tommy later switched to the White Ranger, and eventually went on to become the White Ninja Ranger, Red Zeo Ranger, Red Turbo Ranger and eventually the Black Dino Ranger, where he was a paleontologist who mentored a new breed of Dino Rangers.

**Where is he now?** Jason is a martial artist at heart. Since leaving the show, he has gone back to being a Martial Arts Instructor. He has his own dojo: Rising Sun Karate which is in Houston, Texas.

Megaton Panda

## We live in chaos

There is a theory in quantum physics called the "many worlds" theory, in which for every random "choice", a new universe is created for each possible outcome. This gives rise to the possibility of a universe in which a truly random event has the same outcome each time, simply because it is the universe which is following the probability path that has continually repeating occurrences of that event.

Occupants of said universe would then have no way of telling if that process was truly random, or if it was actually repeatedly having the same outcome because there was an underlying order. This makes me wonder, what if there are actually no physical laws, and any that we think we've observed are just the result of a cosmic lucky streak, a string of repeated results from a random

process?

Of course, this is a fairly difficult claim to believe, and impossible to prove. In particular, the fact that so many of our natural laws fit into a cohesive system argues strongly against my hypothesis; however, this is explainable by the possibility that the whole physical system is a result of a lot of repeated random choices. The fact is, the universe could actually be completely random and chaotic, with only an illusion of order. Additionally, this universe could be one of the ones that don't continue to have repetitive outcomes. So don't say I didn't warn you when gravity stops working or the colour blue ceases to exist.

ARandomStringOfCharacters

# Horrorscopes

*Like watching The Ring through a lense*

## ACC

Now that the tax season is in the past you're probably breathing a sign of relief and you've forgotten all your worries and are playing Frisbee in the B2 Green, but unlike the construction process time flies by faster when you're having fun and it won't be long before the next tax season sneaks up on you.

Your lucky number is 335 days until the end of the next tax season.

## ACTSCI

The Macaulay duration of your assets is not matching that of your liabilities leaving you unable to immunize your cash position and leaving you with a huge hole in your budget. With your luck, your next co-op job pays just barely enough to leave you a Ye's sushi short of duration-matching.

Your lucky number is \$19.99 with a 10% tip.

## AMATH

Your interest in the mathematics of falling objects is reignited by an incident where avian feces succeeds in landing on your head. Be afraid of it happening again.

Your lucky number is 48 videos of this on Google video.

## BBA/BMATH

Romance will strike you hard in the near future, but it will be at Laurier and with someone who will never be in the city at the same time as you.

Your lucky number is \$15 a month in long-distance cell phone charges.

## CM

You'll find a new balance in your life after you lose 20% of your left half. Getting a new center of balance will be the easy part, the harder part will be the keeping the right half from doing the same thing. It's not better to let go in this situation.

Your lucky number is 2 fractions of your former self.

## C&O

One pill makes you small, and the other makes your organs bleed, but don't blame the door-mouth for being a douche as it just comes naturally to some people. The changes you face will no doubt be difficult to get through, but you'll readjust and beat that door down.

Your lucky number is an abstraction of an acid trip. Dood!

## CS

Your code will not compile and debugging is not working. The world is not working in your favour and you may die a violent death.

Your lucky number is 14 continuous hours spent debugging.

## MATH/BUS

Your Laurier classes are now sausagefests as the only people enrolled in them are UW students. On the plus side, you've never had as many other Math/Bus students in your class.

Your lucky number is an infinite guy/girl ratio.

## MATHEMATICAL SCIENCES

As the moon floats into Gemini, you will face intense choices which will forever decide the fate of your academic career. Make haste in all you do.

Your lucky number is 3-15 months until your program dies.

## OR

As the moon floats into your house, you will face intense, rib-crushing pain. It won't last forever because the sun will knock the moon off in some twisted, game of galactic Bacci Ball.

Your lucky number is 4 planets close to Earth.

## PMATH

When a pepperoni pizza bests you at feeding a family—don't despair! There are always opportunities to claim a government grant for your studies. Just don't be surprised when the pepperoni pizza receives more funding than you do.

Your lucky number is 1 grumbling tummy.

## SE

A voice rings inside your head telling you that your friendship with those around you is getting stronger! The voice tells you other things, but you need to recognize when to listen and where to hide the bodies. The voice may or may not be a ham radio.

Your lucky number is ten pigs with antennae.

## STAT

Oh, so you're taking Forecasting this term, are you? You think you can do what I can do? I'd like to see you try! The movement of the Major Degrees and Minor Faculties is not something to be toyed with!

Your lucky number is a negative variance! Eat that!

## UNDECLARED

Declare now or face a wrath of mosquitoes biting you to death and giving you West Nile, as you struggle to face the challenges of not belonging.

Your lucky number is 12,324 mosquito bites all over your body.

## AHS

The secret of eternal life will be revealed to you during your studies. Keep on eating healthily and exercising and you'll still die miserably like everyone else! Except you'll have the false pretenses of being more "in tune" with your body.

Your lucky number is nothing! Just like your major!

## ARTS

You enjoy the finer beers in life. You enjoy them every day. They say a beer a day keeps a doctor away, and at the rate you're going you'll never get to see a doctor again! Some would call you lucky.

Your lucky number is 421,023 days before a doctor will touch you.

## ENG

You don't have a Load Saved State in life, so you'll have use everything you learned from previous play-throughs in life. A lot of the time just mashing X will get you where you want to go, but don't forget about O/strafe. Very useful.

Your lucky number is 3<sup>rd</sup> time through life with all secrets unlocked.

## ES

Tye-dye your perspective on the world with a rainbow of liberation. After the drugs wear off, trudge yourself to the local grocery store and bag my groceries.

Your lucky number is \$40,000 for a sheet of nothing.

## SCI

You may have been born a pirate in a previous life. Expect to meet the reborn parrot who clung to your shoulder and secretly slept with your mistress. There will be some misgivings as your past lives try to conclude themselves.

Your lucky number is fifteen men on a dead man's chest.

mar<sup>2</sup> & AngeLED



## Anime North

*The terrifying first impressions of a long since recovered anime-addict*

Back in high school, like most Math-majors-to-be, I was a huge nerd. [Was? — *AngeLED*] And with the nerd territory back in the early 2000's came obsessive anime watching. The appearance of broadband internet had just opened the floodgates for dozens of new shows, and I got on the anime rocket as it was leaving the launch pad. However, when I entered university, a combination of factors (beer, broads, bandwidth caps) ended my addiction in a rather cold-turkey fashion.

Fast forward 5 years to this past Sunday. I found myself in Toronto, hanging out with a friend of mine who was heading to Anime North. I'd never been to an anime convention before, or any convention for anything, for that matter (*except E3 2001, but that's another story*), so I decided to tag along. As a 24-year old, I've felt the opportunity to go slowly slipping away with every year I age, so it would be better now than later. I had no idea what was coming...

As we approached the convention center, I saw what I was getting into: it was terrifying. On the lawn out front was a sea of high school-aged people, with a very large proportion cosplaying. And oh dear god, the cat ears. They were everywhere! I died inside every time I saw another pair! For the love of god, one guy was wearing two pairs! There was some particularly frightening cosplay too, most notably Bridget from Guilty Gear. Yes, Bridget is a man, but that doesn't mean men should cosplay as "him"! Thankfully, there was some class. Several girls obviously took the opportunity to wear their best goth gear, and pulled it off quite well.

I saw one girl dressed as Card Captor Sakura. Back in 2001, I was a bit of a CCS addict. I was blown away by this costume. When I considered how, in the show, her costumes would be made by her 11 year old friend, so the outfit this girl was wear-

ing was probably more accurate than most, imperfections and all. Only problem is, she must have been like 14! I felt guilty even looking at her general direction!

Last friday, at Cheese Club, I was asked if I felt weird hanging out on campus still, despite being several years older than most people, and... technically graduated. I answered that I didn't really feel weird about it at all. I'll tell you what does feel weird; Hanging out at Anime North, with all those teenagers. With the median age there looking to be roughly 16, even though I don't think I'm old enough to qualify for "creepy old guy", I sure felt like it.

As for the content of the con itself, I realize that going on Sunday meant that I missed most of the interesting panels. I missed fellow alum from my high school, Ryan North of Dinosaur Comics fame. The gaming area in the hotel across the highway was only a DDR arcade machine better than the average UW Gamers event. As for the Dealer room, it was quite amazing the large selection of anime and Japanese related goods, but I couldn't help but be completely uninterested in any of it. The booths that I found myself most interested in were the video game booths!

Ultimately, while I still watch a little anime here and there, I think I can say that I really don't care that much about the stuff anymore. All that merch, and the only things I bought were non-anime. The only thing japanophile I bought was a present for my sis. However, don't take this as an outright condemnation of Anime North! I wouldn't put out the prospect of returning one day, but I wouldn't be the instigator of such a trip.

And I would have to be in a cosplay group to make it worthwhile.

MJB

## The Base 10 Conspiracy

If you've ever wondered why the number base we most commonly use is base 10, as opposed to base 9, or 12, or something else, then you may have also heard the common explanation, which is that we have 10 fingers. On first encounter, this makes sense, 10 fingers for 10 digits, right? Wrong.

Try this: start counting to ten on your fingers. Up to (and including) 9, everything goes fine, one numeric digit for each finger. But then you get to the tenth finger, and all of a sudden you have a two-digit number. Does that make sense? I don't think it does. If our number system were really based on how many fingers we had, I think it would be in base 11, a single digit for each finger, plus the zero digit.

So what's the point, you ask frantically? The point is that anthropologists don't actually know anything, and just spout half-baked theories in the hopes that they sound like they know what they're talking about. Of course, they're still a step above computational linguists.

ARandomStringOfCharacters

## Thor's Top Ten

*Top Ten SciFi Novels*

If you haven't read my ten favorite SciFi novels, you're a bad person. You're pretty much the scum of the Earth. I'd suggest falling on your knees and praying for immediate salvation. [Or *continue having a life, whichever suits you better.* — *AngeLED*]

1. American Gods by Neil Gaiman
2. Dune by Frank Herbert
3. I, Robot by Isaac Asimov
4. The Fountains of Paradise by Arthur C. Clarke
5. Stranger in a Strange Land by Robert Heinlein
6. Ender's Game by Orson Scott Card
7. Neuromancer by William Ford Gibson
8. Ringworld by Larry Niven
9. The Left Hand of Darkness by Ursula K. Le Guin
10. The Forever War by Joe Haldeman

Thor

**Those who cannot laugh at  
the past are doomed to  
repeat it with a frown...**

## Refunds are ready!

Your refund checks will be ready and waiting in the MathSoc office effective Monday. Tell the worker that you read this in *mathNEWS* for a special treat. Please remember to show your student card!

*mathEYE*, VPF Q09

## New Mathies or walking, talking paperweights?

Hello Mathies, I come to you as a concerned Mathie to inform you that the state of all Mathiehood is in grave danger of Mathietude proportion.

Ok now that I've managed to use the word 'Mathie' four times into a single sentence we can begin the seriousness. So it has come to my attention that the future of mathematics in Ontario is in grave danger. Essentially all those great courses that prepared you for all the trials and tribulations are... gone.

Geometry and Discreet Mathematics—gone! Advanced Functions and Introduction to Calculus, well it's now two courses. Wannabe functions and absolutly no calculus. And Data Managment? Yes, it still there... yes, it still sucks, but now it sucks MORE (I know, I didn't think it was possible either).

It sickens me to write this because, honestly, the students are not to blame! It's the old stupid government that has decided to play lowest common denominator with the students. You know, why stop at math classes? Lets reduce every class to a lowest

common denominator!

Physics: Why do we teach people about gravity? Lets start calling it the 'pushy down force'. And we can make the force of gravity approximately 10 m/s<sup>2</sup>, right? No one will mind if we change it permanently to that.

Chemistry: The periodic table of elements? Who ever needed that thing? Instead we should go back to the Captain Planet education system that the world is made of Earth, Fire, Wind, Water, and of course the all important Heart (without heart nothing in this planet can survive). [*Thank you, Hippocrates! — AngelED*]

Psychology: ... honestly, I don't think you can dumb this down. It's arts, I mean, really...

Honestly, leave math alone. It never hurt you (unless you got a brain aneurysm from doing math), so please give us our math back. We don't want too many more useless students.

Because I can  
DaFinkel

## Persona 3:FES

*Have you shot yourself in the face today?*

I know I said that I wasn't going to talk about Persona 3, being a fan of the series and all, but this is the PS2's RPG Persona 3: FES. Atlus' expansion. Retailing for \$30 in local stores, the hard-to-find game contains the original plus a new adventure. While the original game remains mostly unchanged, the new game features Aigis, the robo-chick as the main character with a new, whiny robo-chick assistant. A brief review for each game follows:

**Persona 3**— You are ENTER NAME, a Japanese high school student who just transferred to Gekkoukan High School. In no time you join a club called SEES, a squad dedicated to eliminating the Dark Hour. The Dark Hour is a time that exists between midnight and one second after midnight. Only a few people are aware of this hour, while everyone else is turned into a coffin temporarily. During the Dark Hour shadows appear. These are little bastards that you have to kill. Also your school turns into a 270-something story building called Tartarus with randomly generated floors. Now, what really makes Persona 3 shine is the gameplay.

Every Shin Megami Tensei game (which Persona 3 is a spinoff of) involves demons in some form or another. In this game you have MPD (multiple-persona disorder) where your 200-ish personas are all invariably deities, demons, war heroes or fictional characters who come to your aid in battle. The only way to summon these creatures is to take a gun-shaped tool, point it to your head and pull the trigger. Yeah, I know. You have up to four people in your battle party at any time; however, you only control the main character, but you can give your other characters general commands. This can be problematic because the scripts that control your characters don't work terribly well. Although, the battles are fun, your characters' AI can lead to very frustrating situations. For example: when you get hit by a critical attack or something you are weak to, you will be knocked down. During this time you cannot move for one turn. If you're not careful, you can be knocked down until you die and your allies will do nothing to help you.

Outside of the Dark Hour, you are a regular high school stu-

dent. You go to class, and you hang out with people afterward. In fact, you get some advantages the more you build your social links with your friends. The funny thing about the social link system is that every person you meet will spill their heart to you at every opportunity. And when your link strengthens, there's a loud, jarring noise of glass breaking. The best part is, that you end up dating pretty much every girl you meet and right after they fall in love with you move on to the next girl without so much as a complaint from your other sweethearts. Also, as a student, you have to study, write tests and join clubs to pass the time. All in all, it's very addictive so only play this game if you have ample time on your hands. And I mean ample.

**Persona 3:FES**— The FES stands for FEStival. This story picks up at the end of the regular game, and starts off with a 30-minute cut scene of your party repeating the last day of the previous game over and over. Except now the main character is permanently unconscious and the robo-chick you get in your party is the new lead. So after realizing that the last day of your lives is repeating and that you can't leave your dorm, another robo-chick busts in and decides that killing everyone is the best way to save Aigis (the new lead). The gameplay is pretty much exactly the same with less elements (like stores, and going to school ever). Despite a few sad cutscenes, most of the game is just a lot of talking about nothing or feelings, I can't tell the difference.

The art style is a new twist for the series. Most other SMT games tend to look good, while the usual artist (Kazuma Kaneko) was replaced with the lackluster Shigenori Soejima. Most of the monsters look dumb, the new personas are really ugly and tacky, and the design of Tartarus is akin to taking a heavy hit of shrooms. Kaneko's old art is still used for the personas, but Soejima's style (and his obsession with ridiculously huge forearms) clash to make the game seem disjoint. Best viewed drunk.

All in all, the game is more than worth the \$30. Especially since the original game alone is over 70 hours of gameplay. Oh, and if you weren't sure if you wanted buy the game take a gander at the persona called 'Mara' online (make sure you're 18+ as it contains strong adult content).

AngelED

# MathCooks!

Today, a hamburger!

As university students, we may not always eat the healthiest. For students on the go, it's not uncommon to find freezers filled with frozen fast food, like the crappy burgers from supermarket storage. However, the hamburger is a very easy thing to prepare, so why not do your own? You can then decide the portion size and exactly what goes into it! Here are some ideas and general guidelines:

**You will need:**

- Ground meat: This can be anything you like. Beef is easy and cheap, Turkey is also good.
- An egg: It sort of sticks the meat together after you shape your patties
- Seasoning: Salt, pepper, etc.

To make your burger truly special, infuse with whatever optionals you want. Some suggestions:

- BBQ Sauce, Tomato Sauce or Ketchup
- Chopped Mushrooms
- Random herbs and spices. (Chilli powder my favorite)



## The gridWORD is not here...

Because we don't have anyone making it! So if you are incredibly creative, enjoy a challenge or know how to summon little gremlin-doods to do your bidding, then boy do we have the task for you! You could be earning copious amounts of free pizza every 2 weeks! All for making a crossword puzzle and printing it in every mathie's favourite *mathNEWS*!

You also get to make your own *gridQUESTION* and select the winners! You are actually given the power to reward people with awesome awards! Otherwise, they all just go to the editors. Which makes everyone sad... So make people happy! Make a *gridWORD*!

- Chopped Onions and other chopped veggies

To make your hamburger, it's extremely easy! Just dump your ground meat into a big bowl, and mix in the egg and any of the seasonings you want (Note: You don't want to put too much of the sizable optionals as you might lose the density of the meat, causing your burger to fall apart more easily). Season as you need and shape the patties with your hands. You can pan fry, bake or even grill immediately, and store the leftover patties in the freezer for a better burger every time! Enjoy!

Curious Chef Panda

## Wanted: Someone who likes PD

I am searching for someone who likes WatPD. Don't worry I won't hurt you... I just want to know that you exist!

Confused Soul

## dissedCONNECTIONS

I saw you eating lunch in the C&D the other day, and I don't know what you were eating, but what I saw was scrumptious. Let's meet sometime so that we could share your delicacies.

Hungry for Humans

You stared at me at the library, and so I sat down right beside you. Were you so chicken that you had to stare without talking? Next time, talk to me, for Cupid's sake!

The Harpy

We met at Bomber last week, and after a few drinks, we made our way to my oasis. I haven't seen you since. Was it that bad? Please, tell me what went wrong!

Vin Diesel

By the InsiderR

## Sudoku

1			5	2			9	3
3	6		7				1	
		9					8	
			4					
9	5	6				7	4	8
					9			
	7					9		
	9				6		5	4
5	1			8	3			6

5	3	9	4						
					2	5	4	9	
4									
	1		3	4	8	6			
		4	6	5	7		3		
								4	
9	2	5	8						
						1	7	5	2

# mathHELP

I'm back...

**Dear InsiderR** – I had a sweet job last term, especially because I didn't have to go to work until 11. Now that I'm back to school, though, I can't seem to stay awake in my 8:30 classes. I'm afraid that this will hurt my chances of passing. What can I do to stay awake?

Late Riser

**Dear Riser** – Having had to be on the subway at 7 every morning last term, I can conclude that the reason you are not surviving your mornings is because of the habits you got into on your work term. Now is the time to reverse these habits. Set an earlier bedtime than what you've been doing, and try to wake up at the same time each morning. You really don't need to play WoW past 2am, and so you can ditch it (at least, for now).

InsiderR

**Dear InsiderR** – I'm thinking of applying for co-op jobs abroad. Seeing as you've done it yourself, is this a good idea?

Overseas Seeker

**Dear Seeker** – Co-op jobs abroad are a great experience, but will require more administrivia to plow through. This will include obtaining visas, becoming a "documented worker" (equivalent to getting a SIN in Canada), getting a new bank account in that country, and worrying about taxes both here and there. CECS is very helpful with all of this. But once all of that is out of the way, it's really great to experience other cultures and lifestyles outside of Canada, and my experience last term was truly rewarding.

InsiderR

**Dear Insider** – FOO!

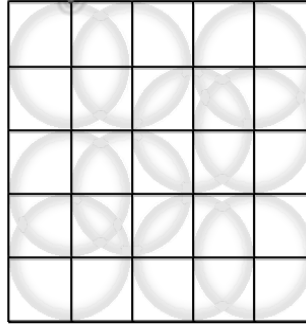
A Nutter

**Dear Nutter** – You, sir, are a waste of my time and inbox space. You submit a word that only you think is funny, expecting a funny response in return. No. Even worse is that you spelled my name wrong! It's an upper-case R for goodness sake!

InsiderR

mathNEWS\_InsideR@hotmail.com

## Umbrellas



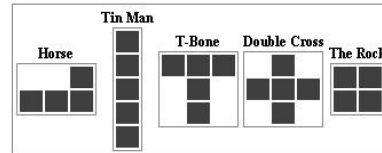
Place the following 10 squares on the 10 circles so that the overlapping numbers match up.

58	52	93	24
00	84	84	06
62	20	12	46
52	21	50	65
54	84	eurica	
86	05		

## SIGHT

The precious 10x8 grid that we call home has been infiltrated. Signals intelligence tells us that the following agents are somewhere nearby, all they can tell us about their locations is

- How many squares in a row or column are occupied
- They've been ordered to disperse so they aren't touching, not even diagonally.
- Remember: they can rotate.



									1
									1
									1
									3
									2
									1
									1
									5
									3
									0
0	1	4	1	3	0	7	2		

## Drywall

"Listen up. Our client isn't picky, as long as each square has the right number of walls surrounding it. Sounds a little tricky, but we didn't get to be the #3 drywall outfit in town by being lazy."

Also:

- There's a wall around the outside
- They want exactly 14 rooms

2	2	3	3	2	2	2	1	2	3
2	2	1	1	1	1	2	1	1	2
3	1	0	0	0	0	1	1	1	2
3	1	0	0	0	0	1	2	1	2
2	1	0	0	0	0	1	3	3	3
2	1	0	0	0	0	1	2	2	2
2	2	1	1	1	1	2	2	1	1
3	4	2	1	1	2	4	2	2	2
3	3	2	1	1	2	2	1	3	3
3	3	3	2	2	2	1	2	3	3

### Time to Waste Time

### MY HOBBY: APPLYING THE PORTAL SONG TO EVERYDAY SITUATIONS

