HOW MANY DIGITS OF π DO YOU KNOW?

or π = 3.141592653589793238462643...

primes.
..image

*math*NEWS notes:

"Yes, we are aware that the only female in this picture is with the artsie."

9 770705 041004

*look*AHEAD

VPAS Sez

3.151592653589793238462643383279502884197…

Salutations! I am here today to inform you of some of the upcoming events MathSoc is running for you. Firstly, everyone's (or mine, at least) favourite day of the year, Pi Day, is just around the corner. March 15th, 03/15, is Pi Day, the day when mathies young and old gather for free pie and general revelry! Now some pedantic people will complain that Pi Day should be the 14th, but we decided it was better to redefine mathematics to make Pi slightly larger than to hold the event on a Sunday. So, at 1:59 PM on Monday, show up on the third floor of the MC outside of MathSoc for free pi, and of course, the pi reciting contest.

In addition, Pints With Profs this term will be held on the 23rd of March in the Bomber. Invite your favourite Profs to come out and spend a couple of hours talking and eating free food.

Ian Charlesworth
VPAS W2010

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The editor(s): Power, Wisdom, and Courage: John Stevenson, John Baxter, Rami Finkelshtein

*mast*HEAD

Howdy concerned readers!

I was discussing the importance of lineage and blood a few days ago with my friends from psychology. It turns out that a few of them were very much espoused to the nature-centred, or genetic, view of intelligence, which I too find quite attractive, but more for practical reasons, the largest of which being segregation. No, not by race or religion or class or anything like that, but a pure meritocracy, or, as I like to say, "the oppression of those too dumb to realize they are being oppressed." (Being stupid transcends racial barriers!) It's sort of like Aldous Huxley's Brave New World, except with less *SPOILER ALERT* suicide *END SPOILER ALERT* and a little more not fucking up royally on the genetic side like Bernard Marx. (Seriously, this was the future. They must have had some sort of surgical procedure to fix this!)

***mast*HEAD Question:** Who is your daddy and what does he do?

The Answers:

"The y-combinator. Mere mortal wouldn't understand" (Snippet)

"Sharpening the blades…" (Nadz)

"I thought you were … this changes everything!" (prime8)

"I don't know, but I'm sure he's BIGGER, SHARPER & HAS MORE KNIVES" (!case)

"Zory, Devourer of souls/Destroyer of worlds" (Tbor)

"He's the guy with the helmet collecting plasmids." (Big Mak)

"I have two mommies. One is an accountant, the other is an electrical engineer" (!able)

"We don't talk anymore" (cbhllhbc)

"no comment" (perki)

"God, creator of the universe" (Jesus)

"Martin Sheen, Actor" (Emilio Esteuez)

"Hail to the King! Hee's my daddy, ho!" (The Hee Ho)

"Hitler, he liberated Europe!" (Son of Adolf)

"A man. He does my mommy" (RamED)

"A man. He does your mommy"(DaFink)

"A man. A plan. A canal. Panama." (image)

ImpulsED
"My dad is not a spy."

Dramatic Recipes:
Arcadia by Tom Stoppard

Take Fermat's last theorem, iterated algorithms, Newton's laws of force and motion and the Second Law of Thermodynamics. Mix thoroughly with aristocratic characters from the 19th and 20th centuries.

Add a dash of determinism and free will, mix liberally with epistemology, classical horticulture, and romantic literature.

Combine while adding a heaping dose of sex and intrigue. Spice with laughter to taste.

Simmer for approximately two-and-a-half hours on March 11th-13th or 18th-20th at 8:00 PM in the Theatre of the Arts, and enjoy!

Servings are priced as follows:
- $12 General
- $10 Students & Seniors
- Save 10% with a group rate! (of 10 or more)

For More information call the Box Office at 519.888.4908

CSC Flash

Press Z to make your wishes come true!

The following are the talks would be presented during up coming Tuesdays:

- **March 16th, Talk by Elyot Grant:** *Approximation hardness and the Unique Games Conjecture*

 Abstract: The theory of NP-completeness suggests that some problems in CS are inherently hard—that is, there is likely no possible algorithm that can efficiently solve them. Unfortunately, many of these problems are ones that people in the real world genuinely want to solve! How depressing! What can one do when faced with a real-life industrial optimization problem whose solution may save millions of dollars but is probably impossible to compute in a lifetime?

- **March 23rd, Talk by Peter Barfuss:** *Common and Obscure Security Exploits and How to Exploit Them.*

 Abstract: Despite it being 2010, code is still being exploited due to stack overflows, a 40+ year old class of security vulnerabilities. In this talk, I will go over several common methods of program exploitation, both on the stack and on the heap, as well as going over some of the current mitigation techniques (i.e. stack canaries, ASLR, etc.) for these

holes, and similarly, how some of these can be bypassed as well.

What's more?

- **March 12th, 19th, & 26th Code Parties:** Starting at 7PM the CSC will be hosting Code Parties in the MC Comfy Lounge and will be providing energy drinks along with other goodies. Be sure to be there, for this is where you will get to see us "socialize." The party will extend up until the sparrow farts the next morning.

For more details, be sure to check the website. In other news, the CSC has acquired a shiny new refrigerator that has LEDs, *squee*.

Calum T. Dalek
Chairbeing Extraordinaire

Computer
Science
Club

CRO Sez

Can haz prezident?

At the end of this term, the current MathSoc president, Sarah Pidcock, will be graduating. As such, we need a new president for the Fall 2010 term. Do YOU want to be the president? Forms are available outside the MathSoc office (MC3038). Nomination period closes March 12, 2010 at 3:00PM.

Bryanne Pashley
MathSoc CRO

International Olympiad in Informatics

Call for Volunteers

The IOI (International Olympiad in Informatics) will be held August 14-21st at the University of Waterloo. About 400 high school students from around the world will be on campus to compete in this computer science competition. We are looking for volunteers to help us out with many different aspects of the week long event. This is an exciting opportunity to meet people from around the world and give a positive impression of UW, Waterloo, Ontario and Canada.

We are looking for volunteers who can communicate clearly and enjoy working with others and meeting people from around the world. Mathematical and/or technical inclination is not a requirement for most of these volunteer positions. Also, the ability to speak another language is an asset, but not a requirement. Public transportation and meals will be provided for IOI volunteers during the week.

Please visit `www.ioi2010.org` for more information, including the Volunteer Information Sheet and Volunteer Application Form. Volunteer applications are due back to Jen Nissen (`jnissen@uwaterloo.ca`) by Wednesday, March 31st.

Jen Nissen
IOI Volunteer Coordinator

Suggestions for *math*NEWS

Hello everyone, GroovyED here, the latest fool to take on one of the editor positions of *math*NEWS. As I've been on co-op this term, I've been thinking up some new ideas for articles and other things that *math*NEWS could pump out. If you're a writer already, feel free to contribute, and if you're not a writer, still feel free to contribute. All suggestions can go to `mathnews@student.math.uwaterloo.ca`.

The first idea I had was a series of articles called "Better know the system," which would give out information to students that we could all agree needs to be accessible and forthright. Ideas for articles would be How MathSoc works, How student clubs work, How to plan for exams and How FEDS works. I'd be willing to take more ideas for articles and would be more than willing to let other people write articles that are on their area of expertise. I would hope that afterwards we could bind these articles together and attach them to the frosh issue of *math*NEWS to give them a help guide of sorts.

The second idea I had was a series of video interviews with professors. We could talk about their research, where they went, advice for students and interesting tales they wish to tell, and then the best parts could be transcribed and put into articles. I would think that this could be biweekly, but I don't have a list of professors to ask yet and would appreciate if people could send in suggestions.

The final one would be to set up a routine schedule for writing and planning for *math*NEWS In The Morning, possibly on every other Monday that *math*NEWS isn't being published so that we could hopefully get an episode out every four weeks, or three per term (discounting exams). For those who haven't seen it, *math*NEWS In The Morning aims to be a The Onion style news segment, though it isn't limited to that.

So those are my ideas. I'd love to hear other people's comments or contributions to those ideas, as well as other different ideas as I do not want to rule with an iron fist during my stint as editor.

GroovyED

Big Mak's 2010 movie awards

Because the Oscars weren't enough

So the academy awards have come and gone, and with the final results in, I just can't help but feel that the academy has missed the mark on some awards, and neglected to to give prizes for the other awards. In order to correct thier failing, here is my list of the movie awards of 2010:

- Best Animated film : As much as I loved *Up* and thought *Coraline* was absolutely fantastic, this award deservedly goes to *Avatar*. The animation was top-notch, and looked really realistic. So realistic in fact, that the Academy was fooled into thinking that it was a live-action film. I think even *Wall-E* had more live action sequences to be honest.

- The Kanye West Award: *Star Trek* "Hey Zachary Quinto, Imma goin' to let you finish, but Leonard Nimoy was the best Spock of ALL TIME!" ...and that's what they did.

- The Major Major Major Major repetitive name award: Man, it was tempting to give this award to *Julie and Julia*, but *Nine/9* won out. Two films with identical names released within two months of each other was very confusion for moviegoers, and I almost ended up seeing the musical. Bad decision guys.

- The Faking it Like Bela Lugosi Award: Lugosi may be infamous for his post-mortem role in *Plan 9 from Outer Space*, but he has nothing on Heath Ledger and *The Imaginarium of Doctor Parnassus*. Heath Ledger died 22 months before the film was released, and he is *STILL* the main character of the film! Oh, and the film is still GOOD. Impressive, Terry Gilliam, very impressive.

- The "This is how you name something Hideo Kojima, damn it, don't use non-sequitors" award: *Monsters vs Aliens*. The title pretty much tells you the plot of the movie.

- The Best Use of George Clooney award: *Up in the Air* was definitely a good performance, but this year's stand-out film has to be *The Fantastic Mr Fox*. The stop-motion puppet which he voices has more realistic facial expressions than he does.

- The Holy Crap Zack Snyder is Amazing award: This very distinguished honour is given to *The Ugly Truth*, a romantic comedy starring Katherine Heigl and Gerard Butler. For the entirety of the movie, I was expecting Gerard Butler to suddenly turn into King Leonidas and kick Heigl down a bottomless pit. Especially during the romantic parts of the film.

- The Gone With The Wind Box-Office Smasher award: Yes, *Avatar* is the highest-grossing film of all time. Yes, it has earned $2,000,000. But the real award goes to *New Moon*, for doing the unthinkable: it smashed *The Dark Knight*'s box-office record. *Avatar* did beat *New Moon*, but the idea that Edward beat Batman is unthinkable.

- The Big Mak Extra-Juicy award: *Julie and Julia* wins this hands down. The food that they cooked in that movie looked soooooo good. Makes me want to give up my name and call myself "Roast Duk".

Big Mak/Roast Duk

Why you should care about functional programming

Part Three: The World is Going Functional

Ok, if you're still with me, let's get on to point #1. Functional programming is already a really big deal, and it's going to be a bigger deal in the future. The last twenty years have seen a huge surge in the growth of scripting languages for serious development, thanks primarily to the freedom that the web brought us. The moment we were even slightly disturbed from our engineering-based thinking that the only cardinal sin in programming was to waste valuable clock cycles on making programmer's lives a little easier, someone very smart noticed that computers are pretty cheap, and programmers are really expensive. This realization was marked by the ascension of Perl - probably the first language with anything resembling functional capabilities to see the light of the mainstream. Around the same time, an even bigger bombshell dropped. JavaScript became an international standard - mostly by being in the right place (Netscape) at the right time (December of 1995). And JavaScript, despite a large number of language design decisions that I'm sure even Brendan Eich himself admits were pretty boneheaded, is really functional. It kind of tries to hide it in a lot of very clever ways (like the interesting way the "new" operator works), but in fact it stole a lot of really good ideas from the Self and Scheme programming languages. This underlying power has managed to make JavaScript significantly less terrible to develop in in the last few years. It's not an exaggeration to say that functional programming features are what made really nice libraries like JQuery possible to bring some semblance of sanity to JavaScript programming.

Over on the application side, functional paradigms are proliferating as well. Languages like Ruby and Python have taken the Web 2.0 crowd by storm, and they both show a healthy respect for the functional paradigm - one of the things that makes them so pleasant to work with. In an even more surprising turn of events, a bunch of massively popular programming languages for hard-nosed performance-crazy engineering types are sudden converts to the functional ways. C#, the choice language for Windows application development, rolled out support for a number of functional programming features first. Later, the C++0x standards committee started talking very seriously about making functional C++ a little easier, including some nice syntax for lambdas in the new version of C++. C++ has always had a functional side, of course. The STL's functional library is the calling card of the master C++ programmer. Over on the Apple side, things are changing for Mac developers - this summer, Apple announced Grand Central Dispatch at WWDC. One component of this new model made significant changes to Objective C, C++, and C on the Macintosh platform, extending those languages with some preliminary functional language syntax elements like lambdas and closures. Finally, and most recently, it now seems more likely than ever that Java 7 will have some form of functional paradigm support at the syntax level - this following Mark Reinhold's surprise announcement at this November's Devoxx conference that Sun (Oracle?) wanted to add closures, lambdas, and first class functions to the language. While it's not clear what form this support will take in Java 7, it will make for some exciting changes.

If it's not enough to say that functional programming matters because syntax-level support for it will be in every language you care about within ten years, let's not forget the value of applying functional concepts to a language with no such syntactic support. This is an excellent example of what Steve McConnell calls programming "into" a language instead of programming "in" a language in *Code Complete*. Since Mr. McConnell is the author of the world's most revered book on software engineering and software construction, it might be prudent to take his advice. An example should serve to illustrate this point. All true software engineers love design patterns, right? Well, I'd like to argue that someone familiar with functional programming already knows a bunch of design patterns that they can apply to their day-to-day work. If you'd like a real-world example of this, look no further than the Google Collections Java library. If you've had the distinct pleasure of using this open-source library, you're already aware that it's some of the best Java code in the world. The big reason why the Google Collections library is such a pleasure to use is because it was clearly architected by someone who really wanted some nice functional tools in Java. For example, the library sports a whole bunch of shiny immutable collections, forwarding collections, and a Predicate function interface and associated implementations. These are all ideas lifted from the functional world, and some of the best Java programmers in the world are using them - one of the big designers behind Google Collections was Joshua Bloch himself, author of *Effective Java*. One of the world's foremost Java experts, benefiting from an understanding of functional programming, taking design patterns from the functional world and using them in a language with no syntax to support what he wants to do... if this doesn't convince you that it's worth learning a functional language, I don't know what will.

Thor

Ye Olde *math*NEWS Pizza Recypies

Some of you still consume the cardboard-like substance known as Campus Pizza. This is unacceptable, and must change. As such, I am including a recipe for a better form of sustenance, known as Pizza Nova.

You will need the following ingredients:

* money
* phone

Here are the step you need to follow:

1. assert(money>=price[size]);
2. 519-310-3330(toppings, size, &yourself);
3. while(!pizza_is_here){}
4. enjoy;

Here are several sets of toppings approved by 100% genuine *math*NEWS writers

* OMGWTFBBQ chicken and feta
* Cheddar, feta, and mozzarella
* Feta, bacon and spinach
* Ground puppies and powdered kitten extract

!case

News From Off Campus

Here for your amusement is another array of interesting off-campus news stories. If you see any you want mentioned, send me a tweet @mN_InsideR.

Twitter Users Not Laughing after 'LOL' Phishing Attack

A large-scale and sophisticated phishing attack has been underway for the past few weeks, and it is believed to have targeted everyone from the British Energy Minister to the CTV Kitchener newsroom.

The BZPharma attack, as it is commonly known, attempts to collect your Twitter username and password by sending you a direct message (or DM) – from a friend who has already been hacked – with a phrase similar to "LOL Is this you?" and a link to a fake Twitter login page. After entering your login, you reportedly see the proverbial "Fail Whale" – a screen seen more often in Twitter's early days when their servers couldn't handle the user load – before redirecting you to the real Twitter site.

Security blogger Graham Cluley believes that those who fell victim to this attack would then see, in a few days, a tweet from their accounts advertising something called "ViagPure". It doesn't take a rocket scientist to figure out from that name what they were trying to sell.

The URLs for both of these links constantly change domains, making it difficult for spam and phishing filters to detect. Additionally, the use of URL shorteners in these tweets and DMs make it even more difficult for unsuspecting users to detect.

If you see any strange messages coming from your account, you are advised to change your password immediately. (That means put down the *math*NEWS and go change it now.) Additionally, as a general rule, make sure you check the URL of the websites you access before entering confidential information, and don't even consider using a password for important things (like online banking or Quest) on another, less secure website.

Government Changes Its Mind on Changing 'O Canada'

A sentence from last week's Speech from the Throne in Ottawa caught many by surprise and raised many eyebrows.

"Our Government will also ask Parliament to examine the original gender-neutral English wording of the national anthem," Governor General Michaelle Jean told a joint session of parliament last week.

This is referring to the second line of the national anthem, which sings "in all thy sons command." The Government suggested that it wants to revert to the lyrics to an older version, making it sing "thou dost in us command."

While O Canada has only been our national anthem since 1980, the English version of the song was originally written in 1908 by Robert Stanley Weir. They were revised in 1914 to include "in all thy sons command", and again in 1980 to add the phrase "God keep our land."

In a poll conducted on CTV's Talkback Toronto, 93% of respondents said that the government has more important priorities than our national anthem. The government changed its mind three days later because of the public backlash.

The French version of our national anthem does not contain any gender or religious references, and has not changed since being written in 1880.

Federal Government Unveils 2010 Budget

Finance Minister Jim Flaherty has released a budget designed to finish stimulus injection this year and return to surplus in five years.

Part 2 of Canada's Economic Action Plan will continue to invest in numerous infrastructure projects while slowing down growth in other departments to maintain the deficit.

Among big-ticket items include $1 billion this year for infrastructure projects at universities and colleges, which includes the apparent never-ending construction on our campus. $17 million is allocated to Waterloo's Institute for Quantum Computing, and $35 million for graduate scholarships.

Next year, though, the government plans to freeze all salaries for MPs, as well as overall department budgets. Because of the mandated salary increases from union collective agreements, this will likely mean reduced services or layoffs in government departments.

The government believes that freezing spending and eliminating waste will be enough to erase the $50 billion deficit in 5 years. Kevin Page, Canada's independent budget watchdog, disagrees, saying that we will have a $20 billion structural deficit, even as the economic recovery takes hold, unless taxes are raised or services cut.

All three opposition parties have decided that they will not support the budget. Even though they have enough votes to defeat it, it will still be passed to avoid having an election.

The provincial government is expected to release its budget, which has a greater impact on universities and colleges, in late March or early April.

Halloran Delivers State of the City Address

Waterloo mayor Brenda Halloran delivered her annual State of the City Address last week, focusing on what she called the "bigger picture" when it comes to the city.

She touched on the recent opening of the new Waterloo Public Square, as well as the construction taking place in the uptown core and in the old barrel yard. She also praised the provincial and federal governments for their infrastructure funding, for the various recreation complexes and road work along Columbia and Erb (among other streets).

She also noted the challenges in the Northdale neighbourhood, commonly referred to as the "student ghetto". There has been a row between its students and permanent residents, mainly due to irresponsible behaviour from some students. "Unfortunately, it only takes the actions of a few to have a negative impact," she said, and though it will take time to resolve the issues, "I am also pleased that student leaders from both universities are active participants in this process and will play a critical role in any solution."

Finally, she briefly touched on the idea to amalgamate Kitchener and Waterloo. Depending on the response from the Ministry of Municipal Affairs, you may see this question on the municipal election ballot this fall. She would not give her opinion on the matter, saying the decision belonged in the hands of the voters.

InsideR

with files from Sophos Security, CTV News and 570 News

letterED
Letters to the mathNEWS *Editors*

Dear StaticED,

How does someone become a *math*NEWS editor?

*math*NEWS Writer

Dear ImpulsED,

I want to take JAPAN courses at UW. Should I be worried?

Clearly Not As Creative

Dear InsidED,

I think we should write a ScriptED that can automatically lay-out *math*NEWS articles. Then we could start releasing *math*NEWS as a daily publication!

The Big Code

Dear ImpulsED,

What is your opinion on software patents? If I write an algorithm that generates snake leashes, do you think I should patent it?

!ASoftie

Dear CorruptED,

What is love? Do you have anyone you love?

Absolutely Gone

Dear RamED,

Why haven't you written very many articles?

Rain and a Bit of String

Signs that your professor no longer cares

Yes, apathy comes in professor size too!

So, it's that time of term again. Apathy begins to set in as you've survived, or at least facing less, midterms. Exams are just out of reach enough to justify taking a breather. But did you know you're not alone in the "not caring at all right now"? Yes, it's true. Even your profs eventually stop caring. But how can you tell whether your profs no longer care about your classes? Sector Corrupt is here to tell you! Without further ado:

- They stopped using real mathematical notation and started using wingdings and smiley faces
- They tweet more during their classes than all their students combined
- They show up not wearing pants
- They spend 20 minutes of class debating which batman villian is coolest
- The rest of the class is used in their best Christian Bale Batman impresssion
- They start reading their own ProfQuotes out of *math*NEWS and chuckling to themselves
- They stop wearing… a tie.

Has come to a horrible realization
*S*ector Corrupt

Feds Releasing Few Details About Delayed Election Results

When the results of the Federation of Students Elections were announced a month ago, many students noticed that two results were missing. The Senate-at-Large and Arts Council results were not announced until ten days after the planned release date.

Feds VPAF and Chief Returning Officer Chris Neal said in a statement last week that there was an allegation filed against one of the candidates, and that the elections committee decided to delay the election results pending more evidence from the alleger. However, as the alleger failed to return with any substantial evidence, the allegation was ruled as frivolous.

The revelations only came out as Math Councilor Ian Kasper asked for information at February's council meeting. Immediately afterwards, the meeting moved in camera, which ironically means that it entered a confidential session. Math Councilor Ajnu Jacob told me that she believed the meeting went in camera because the incident only involved a single candidate.

The details were only made public after pressure arose from Science Councilor Sam Andrey, who expressed his belief that this incident needed to be documented on the public record, according to Jacob.

While Feds did not release who the allegation was against, Reemah Khalid was the only candidate running in both of the affected races, winning both with a convincing margin. Feds did not reveal any details about the allegation, other than the ruling that it was frivolous.

InsideR
*math*NEWS News Editor
Twitter: @mN_InsideR

A Winter in Scarberia
The long dark work term of the soul.

There has been little communication from the outside world as of late. It feels as if I am trapped, trapped by the hour long bus rides to get downtown, the five dollar charge if I wish to take the GO, trapped out here almost in Pickering.

I admit, I've been lax in my writing and editorial duties, but something in this place saps the energy from you. And yet, as spring comes to the world, I can feel myself waking up again, wanting to walk by the lakeside, and try to ignore the smashed beer bottles from party-goers of yesteryear.

And yet the last two months in isolation have given me a gift, an introspective look at myself and my goals. They let me figure out what I wish to achieve, where I want to go after this and what degree I wish to get.

I'll admit, compared to InsidED I have it easy. Whitehorse seems absolutely terrifying in comparison to this burb of Toronto. And yet this place seems so close to home, yet so far that the isolation from friends has made me appreciate the friends I have, and realize how much we must nurture friendships, lest they decay, dissolve and disappear.

So no matter where you are, I encourage you to look at the things that matter to you the most once in a while. Don't let your everyday life get in the way of your goals, and screw your head back on after it has fallen off.

GroovyED

The Most Ridiculous Patents

thanks, USA, for providing us with this hilarity

- **Snake Walker.** Patent awarded: 2002. Rationale: Snake owners don't tend to take very good care of their pets. Think about it. Think of a snake owner you know. Do they ever take their snakes for a walk, a jog? No. Now they can! Look forward to seeing snakes during your next stroll through the park.

- **Baby Bottom Art.** Patent awarded: 2000. Rationale: The addition of an infant to a family inspires feelings of nostalgia. Which new parent doesn't think the sun shines out of their newborn's ass? Apparently this one didn't. They'd much rather their baby's bottom be covered in paint. Keep in mind, you can still create a baby bottom painting and claim it as your own art. However, getting into the practice of offering the service of taking other people's babies and creating art "with" them is risky business.

- **Motorized Ice Cream Cone.** Patent awarded: 1999. Rationale: Licking one's own ice cream off the cone is a trying and tiresome activity; especially for children. I don't know about you, but I often struggle with the act of eating ice cream. The turning of the wrist, combined with licking of the ice cream out of the cone are oft too much to handle. After 11 years of being patented, no significant progress exists for the manufacturing and sale; still, I remain hopeful.

- **Gerbil Shirt.** Patent awarded: 1999. Rationale: You want to take your gerbils for a walk, but getting those pesky leashes on and off of those tiny collars is far too time consuming. This is essentially comprised of a vest with cylindrical tubes afixed. And perhaps a small hamster wheel in one pocket. This is a great buy for anyone who's ever thought "Gee, I'd really like to take my small rodent out for a walk." Here's to hoping you don't trip.

- **Anti-Gravity Device.** Patent awarded: 2005. Rationale: Really? It's a space vehicle propelled by the pressure of inflationary vacuum state. Patent No. 6960975. You figure it out.

patent pending,
prime8

Brian Drain!

As a mathie, I don't read IW much, however, I did pick up a copy recently, and I do believe they have hit on a very serious point in a recent article on an article that was published a long time ago. The issue of Brian drain is a very serious issue that is still having a serious effect in UW today. There are fewer Brians at UW than there were only two years ago. In 2008, there were 193 Brians as part of the undergraduate program, and 12 as professors in various faculties. Today, there are fewer than 150 in total[1]. We need to encourage more Brians to join UW, perhaps by lowering entrance requirements for people named Brian, or mandatory name change requirements for faculty members.

[1] Statistics based on a pseudorandom number generator.

!case

How to figure out your schedule

So you're looking at the course calendar and realize that you have no idea what you need to take when in order for the dependencies to allow you to take those awesome sounding upper year courses. You could try and draw a graph, but that's a pain unless you can already visualize the whole structure already. Instead there's a nice tool that exists already that can make this problem very easy for you.

The language that is used is called the DOT language. It's a simple language that can then be interpreted by programs like graphviz in order to visualize graphs. It allows for the creation of regular graphs, as well as directed graphs, the more useful type for this problem. You can simply point directed edges from a prerequisite course to each course you wish to take, and it'll produce a basic graph for you, but there is a layout that I used that I thought works very well.

The trick is to create a vertical graph of each term in your university career, and then to pin the courses you've done at the time to each row. Then you can start pinning your future classes into terms as well. You do this with the rank feature, you simply force their ranks to be equal and they will align horizontally.

Another option I suggest is using either colours or shapes to define when a course is offered, using the course calendar as a basic guideline, though confirming it with upper years and professors is your best bet as the course calendar is known for its lies and trickery.

All of this is described in the documentation for graphviz, though there are other interpreters for DOT. I simply suggest graphviz because it's multiplatform and open source thus affordable for people on our budgets.

GroovyED
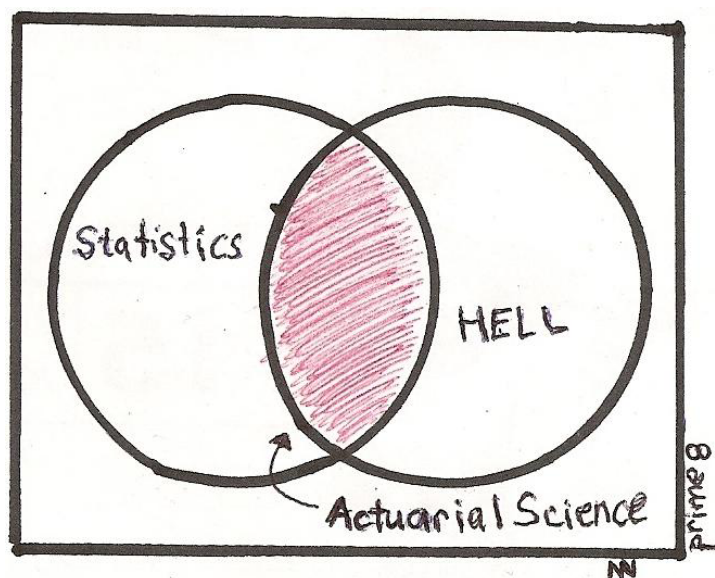
Combinatorics!!!!!

"What's Combinatorics and Optimization?"
"It's about counting, quickly."
"You mean like, 'One two three four five'?"
"No, more like '*Onetwothreefourfive*'."

What Comparisons can we Make from Massively Multiplayer Online Games to the Real World?

For those of you scared for reality, don't read.

On Monday, Cracked.com released an article revealing the psychological exploits of massively multiplayer games, and I realized how powerful these entities have become. There have been several experiments done on World of Warcraft, and different entities are trying to relate the results of these experiments to the real world. Looking at statistics for massively multiplayer online worlds, it becomes apparent that there is a dangerous amount of attention put into these worlds.

Statistic, the first. According to a New York Times article, sales of online items approached 5 billion dollars in 2009. This includes anything from WoW items to Facebook gifts. And America wasn't the only country indulging itself online. South Korea in 2008 was estimated to have spent 880 million on online items. Comparing this to the real world: higher than about 60 other countries including Barbados, French Polynesia, and Liechtenstein. You might say, oh, this is all fine and dandy, but this isn't a real country. The value of these items are purely controlled by the companies creating the website/game.

Example: Back when the Stone of Jordan was sold in bulk in Diablo 2, lets say 20 for $10. Now, Blizzard doesn't like how many SOJs are floating around battlenet, so it makes the stone rarer (i.e. half as hard to find). Now, the price of all of the Stone of Jordans go up, making 20 SOJs for $12. Expand this 20% price gain to the 5 billion shown earlier, and that is 1 billion dollars in growth without any market controlling (assuming there is still demand for SOJs). Alternatively, lets say Facebook chooses to completely remove all gifts purchased from everyone's profile. That equates to making $50 million dollars of value disappear, and that value is completely controlled by a company.

Statistic, the second. World of Warcraft, one of the most popular of MMOs, has 6 million active users, and has gone to more than 11 million. This is 0.1% of the world's population, and between three and four Toronto's worth of population. Comparing it to countries, it has a bigger population than half of the countries of the world, hovering around the populations of Slovakia, Israel, and Denmark. You might say, oh, but those people aren't active all the time. Think how active people are in real life. Especially these people.

Previously, there was a patch on WoW that updated servers to spread an infection, which groups have extrapolated to make conclusions on reality. Now if World of Warcraft is a strong simulation of the reality of infections, think about what other conclusions can be made about the game. With a sample size of 6 million participants, think of all the useful studies Blizzard could do on the populations.

I myself hope they test what happens when World of Warcraft becomes unplayable for a month. This should be done by releasing Diablo 3 in the world of World of Warcraft, making the player's character too busy playing D3 to react to input.

Tbor

Thor's CS Problem of the Fortnight

Marching to the tune of the Computer Science drummer

Last Fortnight's Question: Suppose you are a manager of a company. You have a set of workers, each of whom is capable of doing some subset of the tasks that your company needs to complete. Your job is to assign each of the tasks to a different worker in such a way that your organization is working at maximum efficiency. How would you go about doing this?

Its Answer: This is a classical example of a matching problem on a bipartite graph. Vertices on the graph represent workers and jobs respectively. Edges link workers to the jobs they are assigned to. The desired job assignment is going to be the largest possible edge set where no employee or job is repeated. This is called a matching. Constructing a matching on an unweighted bipartite graph of this nature is a well-understood problem. We proceed in creating the desired matching by constructing an augmenting path (a path that alternates between free vertices and vertices present in the matching). We create the maximum cardinality matching by searching for augmenting paths and stopping when none exist.

This Fortnight's Question: A programmer walks into a singles bar. Spread throughout the bar are tables with eligible single gentlemen. The programmer, like all programmers, is quite lazy, and she settles on the simplest possible algorithm to select an individual to approach. She will simply talk to the person at the closest table. Given a set of points corresponding to the tables, and a point for the programmer's current location, how can you identify which table is closest? What if this query needs to be made efficiently numerous times as the programmer moves around the bar?

Thor

*math*NEWS Koans

- If you meet the RamED, kill him.
- A student asked Master AngelEd "Not even a thought has arisen; is there still an article or not?" AngelEd replied, "Pterodactyl!"
- A writer asked ImpulsEd, "What is *math*NEWS?" ImpulsEd replied, "Three proofs by induction."
- A novice asked PerkiEd, "What is the meaning of the ancestral teacher's coming from the west?" PerkiEd replied, "The egg fountain in front of the MC."

—image

CLUB QUADRATIC NON-RESIDUE²

Sorry. You're not on the list.

Dude! You're such a square!
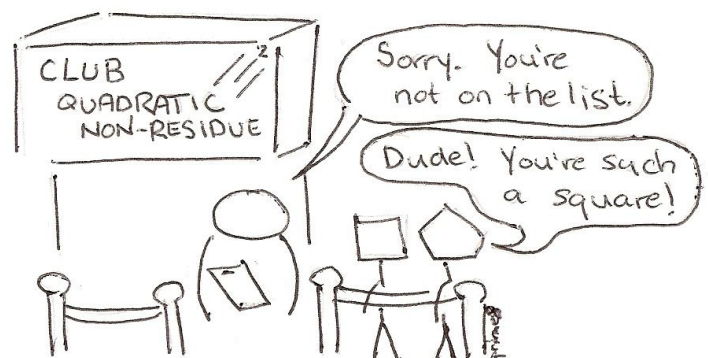
*prof*QUOTES

Come on! I make a fool of myself up here 3 times a week, I think you can for 2 minutes!

Teske-Wilson CO 350

So let's waste some blackboard space and write this down.

Teske-Wilson CO 350

(About Flat-Earth people)
 I want to know what they're smoking and I want LOTS of it.

Hutter CLAS 202

When you're drinking, it always seems like a good idea. And we all have pictures on Facebook that prove that it wasn't.

Hutter CLAS 202

For some people, driving is like sex, so hopefully that will help you remember.

Roche CS 240

I could get hit by a truck today, and it wouldn't matter how I implemented by skip lists.

Roche CS 240

Let's just say, for the point of lying to you, that I invented skip lists...

Roche CS 240

I think I almost wrote "thighs" just then.

Roche CS 240

Maybe one blue screen you got was actually caused by gamma rays from space, and you can't blame Microsoft. I haven't seen any bug reports where the cause is aliens, but it could happen

Roche CS 240

Let me know if this makes no sense whatsoever... actually, don't tell me, that's probably better.

Coons PMATH 340

Who's in AMATH?
(no hands)
Good! None of you are wasting your time! Well, none of you in AMATH are wasting your time.

Coons PMATH 340

Prof: Okay. Depth first search...*writes on board*...go as deep as you can.
Student: That's what she said.

Chan CS 341

Keep in mind the physics infinity is a little less than the math infinity.

O'Donovan PHYS 122

Lesson: this is silly.

Mu Zhu STAT 241

C++ has a number of.. issues.

Prabhakar CS 442

(on vulgarities) To which I would say calmly: this is not bullshit, grasshopper.

Prabhakar CS 442

Okay, I shouldn't raz Microsoft employees: just substitute your favourite IT company.

Prabhakar CS 442

It's okay to get stuff wrong. But I have never seen so many lame-ass errors.

Prabhakar CS 442

I know it's old-fashioned to expect you to read from an assigned text.

Prabhakar CS 442

Occasionally I do something right on the board; but not often.

New AMATH 332

My next hint is to ignore my previous hint.

New AMATH 332

It sucks to be wrong. It sucks even more to be wrong in public.

Eliasmith PHIL 145

I wrote one of the books you use in this class... sorry.

Kenyon PHIL 145

I'll think it's a message from heaven, telling me to purge the city with fire.

Kenyon PHIL 145

It won't just be replaced by Kim Possible.. actually, that would be okay. Hmm. Instead: Simple Plan.

Kenyon PHIL 145

I'm picking on CNN because picking on FOX is like clubbing baby seals.

Kenyon PHIL 145

Once a term, you decide to do your laundry.

Mann CS 251

Diva's are female... umm let's see today's Diva's would be singers such as Madona, Britney Spears, Lady GaGa, that's if we can in fact call her a woman.

Brownell MUSIC 100

Now if you would turn your hymnals to page 204.

Brownell MUSIC 100

And then the hero, who's a tenor, his friend... he's a jerk, guess what! He's a Baritone!!

Brownell MUSIC 100

(Music suddenly stops)
Someone Strangled him!

Brownell MUSIC 100

Recitative, it's a dialogue sung between two people to advance the plot of an Opera, example (starts singing) Where are you going? I'm going to kill someone!!!

Brownell MUSIC 100

More *prof*QUOTES

Michaelangelo, the person not the turtle.

Brownell MUSIC 100

So we started with Windows 95... or was it 96?

Koo MSCI 261

This is important information. I worry about the other students who didn't show up today.

Koo MSCI 261

Every time the students say "The midterm was easy" I look at the marks... and they're not so good.

Koo MSCI 261

(during midterm) The solutions will be posted on ACE tonight. You can check them tonight, or wait until Monday and enjoy your weekend.

Koo MSCI 261

OK, it's time to get started... for the benefit of the people who are actually here. (looks at mostly empty room)

Thistle SE 141

Yes, you're substituting an infinite number of infinite series into an infinite series.

Roh MATH 119

How many people play WoW? Don't be ashamed. This is a class of nerds.

Roh MATH 119

This is probably the simplest example of the most absurd it can get. And I'm sure that'll end up on *prof*QUOTES.

Roh MATH 119

Prof: You should get an answer of 24.
Student: It's 42 backwards!

Roh MATH 119

RSA, pfft. It's so outdated!

Roh MATH 119

So we had x - x nought, and now y - y nought... I don't know why not.

Roh MATH 119

Prof: How can I approximate this?
Student: Use that! (points)
Prof: What, the blackboard? Yeah, I could approximate lots of stuff with a blackboard.

Roh MATH 119

Prof: Ahhh... I hate Mon- what day is it?
Students: Friday.
Prof: Wow, it's been a long week for me.

Roh MATH 119

Keynes is not a classical economist. He would be mad if you called him one!

Fatima ECON 102

Someone needs to receive that information. If not, you might as well set it on fire.

Haxell MATH 135

I am now going to choose two enormous primes, $p = 17$ and $q = 19$.

Haxell MATH 135

If you sent a highly secret message like "Deliver three large pizzas to this address," a digital signature would let the pizza place know it's actually you and not some malicious person who wanted to stick you to the bill.

Haxell MATH 135

This is the magical incantation you've seen in C...

Godfrey CS 138

That seems to be the general C/C++ attitude. "Why use libraries? Write it all yourself!" That's a terrible idea. Always use libraries.

Godfrey CS 138

If it's not OK, you exit. Exit means crash and burn, die, end, etc.

Godfrey CS 138

This is the adult part of the course, because we're going to peek underneath and see all the details and interesting things.

Godfrey CS 138

(over the chatter) Shh shh... obviously some people aren't interested in adult content.

Godfrey CS 138

Now we have to ask ourselves the deeply penetrating question: do we need to clean up?

Godfrey CS 138

(Talking about unexplained, 'just trust me', algebra)
I wave my arms so much I feel like I'm going to fly through the ceiling.

Labahn CS 370

You see sound waves need a medium to travel in. If the air in this room was a vacuum, we would all be dead, but apart from that, we wouldn't be able to talk to each other.

Mann PHYS 444

Particle physics is awesome. You get to travel the world. You can go to Europe and see Europe from 27 storeys underground. Then you can emerge four years later and see what's happened to the world.

Mann PHYS 444

My hints have all the subtlety of lead balloons.

Mann PHYS 444

Unlike Lost, this show will have more answers then questions.

Mann PHYS 444

In the new linear algebra courses we teach lines and vectors and cross-products and all this useless stuff...

Hewitt AMATH 475

Some people think that I should be locked up and shot because I don't believe in the cosmological constant.

Hewitt AMATH 475

Valve announces new special infected for Left 4 Dead 2

Meet the Rager

Valve has announced that there will be a new special infected! It's called the "Rager"!

This is a special infected that will wait until a few of the regular infected are killed, then it gets pissed off and it starts to complain about lag, hax, its team as well as make accusations about the sexual orientation of the other team! After the barrage of stupidity, it will leave the map to go cry in a corner of a dark room, hoping someone will love it one day.

This SI has the ability to completely ruin the game for everyone! The game can have up to 4 Ragers at once. Occasionally they go on voice chats and squeal like twelve-year old boys who were kicked in the nuts too many times. The best part about the Rager is that there is no defence against it! If the Rager appears in your game, it's pretty much over and there's nothing that you can about it except exercise the "heartbeat" command in console as if you were waiting for Godot.

The Rager can look like any other playable special infected and its powers are activated if:

- A Rager Boomer gets killed before vomiting.
- A Rager Smoker misses a survivor.
- A Rager Hunter gets meleed like it's hot.
- A Rager Tank fails.

There are many more, and it's up to you to find out just how many ways the Rager can ruin your gaming experience!

General Ragers are activated by:

- Not starting off as infected.
- The survivors making it to the end of the map.
- Sub par sex life.
- No real friends.

Valve has also released a series of achievements related to the Rager such as

- Cry Some More: make a Rager call "HAX" after killing them legitimately.
- Four of a Kind: make team of four Ragers leave by making it to the end of the map, even if your scores are relatively close.
- Teh Ghey: Stand bewildered at the logic and immaturity of a Rager that is calling you "teh ghey".
- There is no "I" in "FAIL": make a Rager Tank complain about no support from its team.

An interesting fact about the Rager SI is that it was never written into the code, nor in any design documents; it just showed up all on its own! This should be an indication about how welcome the Rager is. Also, expect an update for the Griefer (survivor that is prone to falling off of ledges)!

The Hee Ho

*math*NEWS Cones

- $z^2 = x^2 + y^2$
- $f(x, y) = (x \cos(y), x \sin(y), x)$
- For any topological space X, the space
$CX = (X \times I)/(X \times \{0\})$
- For any vector space V over a field F, any subset C of V such that for all a, b in C and A, B in F, we have
$Aa + Bb$ in C

—image

Lazier

To the tune of Crazier by Taylor Swift

I've never washed dishes, it's true,
Never cooked stew
Just gobbled it up, 'cause I knew
That you would always be near
To fetch me my beer
Living without you is my only fear

I was just trying to survive
But I couldn't just sing
Then you came along
And now you do everything

Chorus
You feed me when you're around
Clean off the ground
You make me lazier, lazier
Wake me up in mornings too
Febreeze up my shoes
You make me lazier,
Lazier, lazier

Watched from a distance as you
Did the laundry,
While you were cooking a dinner for two,
And I wanted to know
My largest fear
Is that you won't be here

You showed me how amazing life can be
With you doing all my hard work for me

Chorus

Baby you showed me what marriage is for
Clearly I don't want to work anymore
Chorus

RamED

Dear Paralympians

Sorry for comparing you to Undeclared

Dear Everyone Else
Sorry you don't write for *math*NEWS, I was too lazy to do horrorscopes this week. Write for *math*NEWS a week Monday.

Tbor

# Orientation Week!

Hey Mathies!

Want a way to meet new people, gain leadership skills, improve your organizational skills, and just be awesome*? Math Orientation 2010 is now taking applications! Apply today at: http://orientation.math.uwaterloo.ca

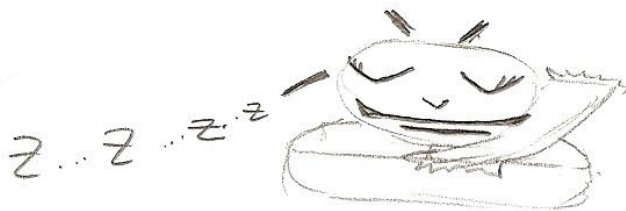We are looking for people just like YOU to make Orientation 2010 the best Orientation week ever!

Have questions? Feel free to email us at orientat@student.math.uwaterloo.ca.

Patrick, Julianne, Abhishek, Maria
Math Orientation Directors
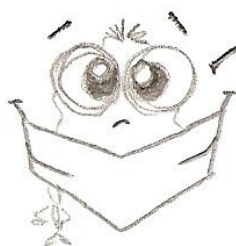orientat@student.math.uwaterloo.ca

How People Handle Midterms
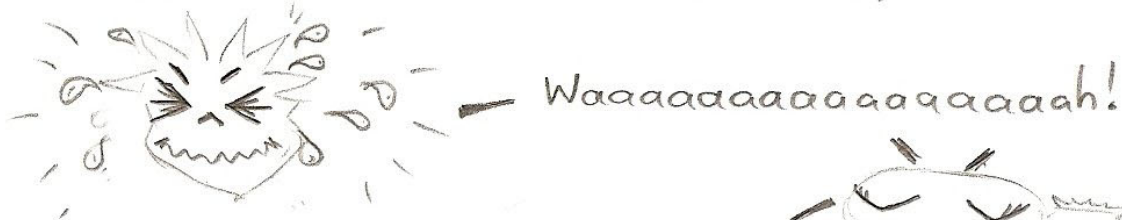
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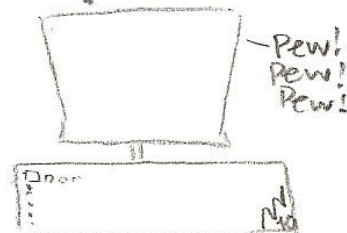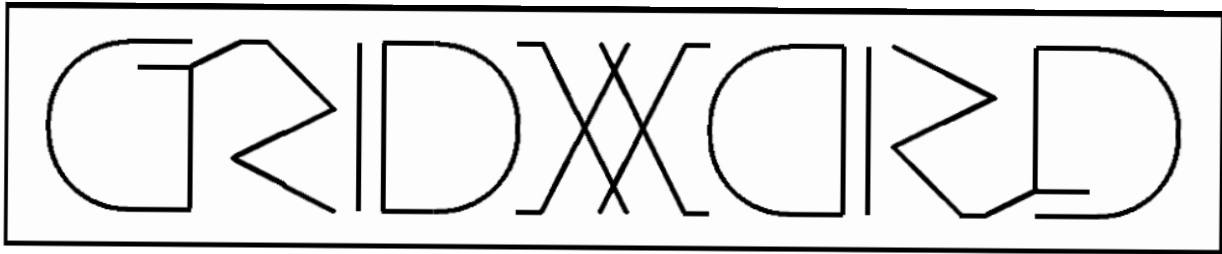
grid**COMMENTS**

The last grid must have been too difficult, because no serious solutions were submitted. So, the prize this week goes to Bryanne and Ian who thought that rapists are orangy-brown or a fruit. Oddly, their favourite colour is "The Royal Canadian Air Force conscripted me." Perhaps the submitter is really just suffering from multiple-personality disorder. Show up at the MathSoc office to get your prize from the nice men in white coats, and don't mind the giant needles that they are trying to hide.

For others, even one correct word would have won you the prize. This week's grid should be easier, so I hope to get more submissions to the BLACK BOX. Since I did not get a satisfactory answer to the *grid*QUESTION, it is the same: "What's your favourite colour?"

perki

Grid Clues

Across

1. Common breaking pitch
4. Relating to meaning
10. Esteem
11. Obviously
12. SI unit of power
13. Winemaking expert
15. Tractable
17. Literary continuation
20. Tighten opposite
21. Transitory things
23. Negate
24. Patronising
27. Because of (2)
28. Italian rice dish
29. Deep and resonant
30. Fertilized egg cell

Down

1. Uncommon breaking pitch
2. Insert
3. Paradise on Earth
5. Money in custody of a third party
6. Device for measuring wind speed
7. Depravity
8. Underground chamber
9. Ornamental tower
14. Weakness with a strong facade (2)
16. Style of speaking
18. Abhorrent
19. Gastronome
22. Gilded brass
25. Proportional relation
26. Glimpse

Solutions: Issue 4

G	R	A	N	I	T	E		F	U	C	H	S	I	A
O		N		R		S	O	O		H		E		D
L	A	I	T	I	E	S		L	E	A	K	A	G	E
D		L		S		E		L		R				L
E	R	I	E		E	N	C	Y	R	T	I	D	E	A
N		N		P		T			R		O		I
	B	E	V	Y		I	N	S	P	E	C	T	E	D
W				R		A		K		U				E
I	M	B	R	O	G	L	I	O		S	T	A	G	
S		A		M			B		E		S		R
T	E	R	R	A	U	M	B	E	R		E	C	R	U
E			N		E		L		A		A		F
R	U	B	R	I	C	A		O	T	R	A	N	T	O
I		U		A		N	S	F		A		I		U
A	P	R	I	C	O	T			F	U	L	V	O	U	S