

math NEWS



**Dean officially endorses the Bruins.
Riots at 11.**

*Volume 116, Issue 4
Friday, June 24th, 2011*



lookAHEAD

mathNEWS

June 24	Issue #4 brings the British
July 4	Writers fight for independent content in Issue #5
July 8	Issue #5 crosses the Delaware

MathSoc

Tuesdays	Games Night in the Comfy at 6:30pm
June 24	WIM Wasaga Beach Trip
July 1	Super-awesome fantastic stuff for Canada Day!

CECS

June 22	Continuous Cycle begins
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Misc

June 27	GRT moves to summer schedule
July 1	Canada Day
July 4	Americans celebrate the rich hating taxes
July 10	Engineers demand to golf
July 13	Harrison Ford, manliest man alive, celebrates his birthday

MathFOC Sez

We so excited!

The day has finally come! Tomorrow, we have the O-Conference where we are looking forward to meeting lots of leaders from the different faculties, as well as getting a chance to wear our super stylish yellow jackets. If you are attending that and aren't sure who we are, we will be the ones dressed in pink under our yellow.

Then, the very next day is Math's own Summer Leader Retreat. Look forward to cracked eggs, epic drawings, and an excellent team adventure. That day is also the day we have all been waiting for - team names will be assigned. Did your team win the epic battle for your name of choice?

We are so excited to see you all this weekend!

<3 MathFOC 2011
Gee, Heather, Jesse

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The Furious Five ready to fend off Tai Lung: Tigress, Monkey, Mantis, Viper and Crane as Michelle Conway, Harrison Gross, William Morrison, Jeff Bain and Sacha Koohgoli.

mastHEAD

Now featuring H4C | <ZORZ

So lately the big buzz on the Interwebz has been LulzSec, the hacker group that has been going around breaking things for their own entertainment. They've managed to target large corporations and even governments without any signs of getting caught anytime soon, so they've been fairly entertaining to watch. It seems they may or may not be a more interesting and active offshoot from everyone's favourite hackers on steroids, Anonymous, so trolling of a similar kind is to be expected.

Of course, the CIA and the like are predictable showing off targets. Sooner or later they'll have to do something properly ridiculous in order to hold our attention. So for this reason we've decided to put the question to our ever creative pranksters at *mathNEWS*. Surely we can choose a more worthy target.

That brings us to this week's *mastHEAD* question, "What do you think LulzSec should hack next?"

prime8 ("Did I even write in this issue?"), Emmanuel Goldstein ("The planet"), waldo@<3.LE-GASP.ca ("Desire2Learn, I wouldn't mind having that go down for a while"), (define this (not cool)) ("Themselves"), horny frosh ("uWaterloo grading system ^.^"), -perki ("The *mathNEWS* production sys#kdsllhfha\cNERROR"), snippet ("The human condition"), Zethar ("Causality"), ConED ("dairy farmers of Ontario"), Concealed ("Jobmine, maybe it'll send a message"), !ED ("Anonymous, for the Lulz"), GroovyED ("Stanton")

CorruptedED ("4chan. You know you want to see it.")

Website Sez

That he is very busy

Hello mathies! I figure I'd update people on what is in the pipeline and just moving slowly with regards to the website. The main priority now is currently migrating the website over from pink-tie to Stanton. Once that migration is done the website should be a bit more reliable and less likely to go down if someone accidentally knocks over the ancient server in the office.

My next priority is getting out a form that will enable councilors to send regrets without having to email the speaker, which should be a slightly more reliable system. I've got a few other suggestions in the pipeline but that doesn't mean I'm not open to more awesome ideas.

With that in mind, I'd like to hear from you! Is there anything about the MathSoc website that annoys you? Anything that you think would be a really good idea? Found a typo? Anything at all, just email me at website@mathsoc.uwaterloo.ca! I want to make sure that I'm making the website as usable as possible for everyone. Either way, hope to hear from you!

Jeff Bain, Website Director

CTRL-A Sez

Here's the info for CTRL-A Show 3. Sorry we didn't have something fun put together.

Club That Really Likes Anime: Show 3 in EIT 1015:
Friday, June 24, 4:30 PM to 10:00 PM
Saturday, June 25, 2:30 PM to 9:00 PM

Liam Asher Segel-Brown

Prez Sez

We want your feedback!

Fellow Mathematics Students,

Last week, the University of Waterloo sent a delegation to the Canadian Undergraduate Math Conference. Earlier this year, Waterloo undergraduates published the first edition of the Waterloo Mathematics Review, a journal for undergraduate students to publish mathematics papers. Waterloo's mathematics program is renowned, and clearly we've got some stuff going on. But how can we make it better? How can we get more students involved in doing real mathematics? Participating in academic extracurricular activities is a terrifically rewarding experience. The Mathematics Society aims to represent you, the student. What do you want to do? How can we help? Let's keep Waterloo strong. Get involved. Send me an email at prez@mathsoc.uwaterloo.ca, and let me know.

Matthew McPherrin
Mathsoc President

VPAS Sez

Well, we're about halfway through the term now, so I hope everyone's surviving midterms! We have some super exciting events coming up that you should check out!

Wasaga Beach Camping Trip: Friday, June 24th - Saturday, June 25th, \$50 for math students and \$60 for non-math students which includes overnight accommodation, food, and transportation. We'll be leaving DC around 5pm, staying overnight at Jell-E Bean Campground, going to the beach all day Saturday, and returning around 8pm. If you're reading this Friday morning or afternoon and still want to come, email wimugrad@gmail.com ASAP!

MathSoc Carnival: Wednesday, June 29th in the DC Quad, FREE for all math students! We'll have a BBQ (FREE), cotton candy (FREE), popcorn (FREE), lots of cool activities, and a BOUNCY CASTLE!! So come check it out!

Canada Day: Volunteer with MathSoc at the children's corner for Canada Day! Sign up at canadaday.uwaterloo.ca and specify "with MathSoc" in the comments. Email canadaday@mathsoc.uwaterloo.ca with questions.

Blood Drive: Don't forget to donate blood in our cross-campus blood drive competition! Donate on-campus or at the clinic at Weber and Bridgeport and don't forget to tell them your faculty!

Finally, don't forget that nominations for Spring and Fall council (class representatives) and Fall VP Academics are open until 4pm on Friday, June 24th (today!) so get those in if you haven't already!

Any questions, comments, concerns, or ideas, feel free to contact me!

Alex Russell
vpas@mathsoc.uwaterloo.ca



FedS Sez

Update on Fed Hall

We have a Fed Hall update! Thanks to everyone who came out to the Board of Governors meeting last week; Math had a great turn-out and we made a big difference! That evening FedS released the following statement:

"The Federation of Students wants to ensure the students who attended today's Board of Governor's meeting know the impact they have had regarding the Federation Hall issue. The Executive wants to sincerely thank all of the students who came today to show their support; you can rest assured that the University recognized your presence.

While we repeatedly requested the opportunity to appear on the June 14 Board of Governor's agenda, we were denied and were told the University felt that the matter was an internal issue, not appropriate for Board. Without your presence it would have been near impossible to address the Board of Governors to inform them of Fed Hall. Because of your presence, Matt Colphon had the opportunity to identify the issue for the University's most powerful, relevant body and this will ensure the Board knows students are concerned and want to be heard.

We received a draft statement from Mr. Walker on June 13, the Federation received the statement and amended it. We received a final, satisfactory statement of understanding from Associate Provost of Student Services, Bud Walker, and President, Dr. Feridun Hamdullahpur at 2:45 p.m. on Tuesday, June 14, 45 minutes before Board of Governors was slated to begin. Because of your presence we were given a statement that puts us in a position to negotiate on behalf of your needs and interests. Because of your presence we have demonstrated students will have a voice in going forward with these negotiations.

Because of your presence we have the University at the table for negotiations.

We will continue to push hard for an agreement that provides access to student space, services and equitable compensation. We will need your continued involvement and presence to make this possible. We want to thank you again for taking the time to be engaged in this process."

The statement of understanding that was received from Mr. Walker and Dr. Hamdullahpur is posted on the FedS website (feds.ca).

We also have a few open math councillor seats on FedS Students' Council and a bi-election will be coming up soon for those seats, so stay tuned or contact us if you're interested!

Jesse McGinnis & Alex Russell
mathcouncillors@gmail.com

C S C F L A S H

The time for for Code is Now! And by "Now" I mean Friday June 24th after about 7PM or so, in the Comfy Lounge. It's yet another CSC Code Party! Come out and hack on your favourite project, solve some puzzles, contribute to the Free Software community, or just get some homework done. We'll be here all night! Also join us in two weeks on July 9th for our picniCS. More details are available on the CSC website, <http://csclub.uwaterloo.ca/>

Matthew McPherrin
CSC Veep

MATH 135 2.0

Beta testing set for fall 2011

As some may already be aware, MATH 135, Algebra for Honours Mathematics, is currently undergoing major changes in both content and method of instruction. Professor Steven Furino was asked by the Associate Dean, Prof. McKinnon, to co-ordinate MATH 135 for Fall 2011, 2012, and 2013 and accepted on the condition that the goals and content of the course be reassessed. As these stand to be the first major revisions in some 35 years, there is no shortage of areas for development. There is much to say on the topic, this article will briefly cover the new course objectives and course delivery. More information and updates will be more frequently available via the Executive Blogs at www.mathsoc.uwaterloo.ca.

Course Objectives

“To develop the vocabulary, techniques and analytical skills associated with reading and writing proofs, and to gain practice in formulating conjectures and discovering proofs. Emphasis will be placed on understanding basic logical structures, recognition and command over common proof techniques, and precision in language.”

Over the years, MATH 135 slowly morphed into “that course in 1A with the Chinese Remainder Theorem and arithmetic over integers modulo some prime p ”, and this is unfortunate. There is a general feeling among faculty members that this course is meant to introduce a solid grounding for future proof techniques and an understanding of rigor/mathematical certainty. The redesign of MATH 135 seeks, in part, to address these concerns.

Course Delivery

The proposed instruction techniques will require a higher commitment from both student and instructor. As many a professor has said, mathematics is not a spectator sport. It is learned by doing. MATH 135 2.0 attempts to teach first-years to reason formally, to communicate reasoning, and to understand the formal reasoning of others. This is hard. To assist in the learning of formal reasoning, the method of course delivery is also being revamped, with much debate. In the proposed structure students will be required to read, observe, complete both electronic and written assignments, a midterm, and a final exam.

Proposed quick electronic assignments are intended to increase the student’s exposure to the material and encourage reading the minimal material assigned. These assignments consist mainly of questions aimed at testing one’s ability to read and understand formal reasoning and proof structure, and are to be administered in the first half of the course. Also included in the course will be written assignments (i.e. traditional assignments) throughout with much greater emphasis in the second half of the course as the e-assignments span the start.

If you have a point of view or an idea you would like brought up in future meetings with faculty members re this course redevelopment please do not hesitate to email vpa@mathsoc.uwaterloo.ca or drop by MC3039. VPA office hours are TTh 2:30-4:00, but let’s be completely honest, I practically live there - so drop by!

Bryanne Pashley
Vice President - Academics

*dean*QUESTIONS

And now a word from the Dean...

mathNEWS: If you could have one super power what would it be and why?

Dean of Mathematics: I think it would be so cool to be able to create Portkeys - avoiding airports and loooooonnnng flights would be fantastic.

mathNEWS: What is your favourite board game? Why?

Dean of Mathematics: When I was a kid I loved Risk, and can remember obsessively playing most of the day on school holidays - it was a safer way for my brothers and me to beat each others brains out than actually wrestling or boxing. Now that I’m (apparently) an adult, I enjoy whichever games I can play competitively with my oldest daughter Jen, now 14. Currently Scrabble and Blokus are favourites - I can usually take her at Scrabble, but she has wicked geometric ability and almost always crushes me like a worm at Blokus.

mathNEWS: What is your opinion on Boston winning the Stanley cup? (If you care about that kind of thing)

Dean of Mathematics: See the cover of this issue.

Get the Dean to answer your questions by sending them to mathnews@student.math.uwaterloo.ca or by dropping them off in the **BLACK BOX** on the third floor of the MC.

LulzSec strikes again

mathNEWS latest victim

Notorious rogue hacking group LulzSec claimed another hit as Waterloo’s bastion of erudite thought had its production system go down. Upon receiving the log files from MFCE it was discovered that LulzSec was behind the attack, instead of the age of the old system, as was previously thought. No writer info has been compromised, but several compromising photos hidden deep in the depths of the hard drives have been made public.

The production system has actually been down for several months now, but only recently has MFCE actually released enough logs to determine the source of the failure. The current speculation is that MFCE is actually part of LulzSec, but doesn’t want its participation to become public knowledge. *mathNEWS* is working to regain its production system, as well as investigating the possibility of joining LulzSec ourselves to get revenge on MFCE. With any luck the system will be back online as a result.

The Editors

N Things to Find in N-Space

Does Waldo even exist in N-Space?

- Material commonly found on linear algebra exams
- Rainbow vomit spanning the normal vector
- The Game Geist
- Larry Niven
- Rapid row reducing rabid rabbits rampaging randomly through the Reals
- Ninjas spanning their projections
- A 90
- Your brain when it’s had too much indulgence in linear algebra

waldo@<3.LE-GASP.ca

Rainbow Mathies 11

Internalized Homophobia 103: Breaking Habits, Making Friends

Hello Mathies! I hope your third (fourth!?) continuous week of midterms is finding you well. I know our writer base has been unfortunately affected by this faculty's incessant need to overload its students. Alas, *mathNEWS* must go on to provide you with your biweekly source of mindless distraction from all of the evil. This article is going to be the last of my series on internalized homophobia, where I talk about how people can recognize their own socialized behaviours and attitudes, and maybe possibly even change them. I have no idea what's going to come next week; have any idea for a queer-themed article you want to see? Especially if it's a lighter or happier kind of topic? Feel free to let me know your ideas. You can e-mail me at dtaleman@uwaterloo.ca.

First off, if you've decided that some of your attitudes are harmful and you want to change them, props to you. It's a huge step in self-awareness and improvement on your part, but I'm not going to lie; It's going to be hard. When we grow up in a society that hammers these kinds of homo-negative ideas at almost every turn, they become so deeply engrained in us that changing them is a true struggle. The first step, and one of the hardest, is starting to recognize how these values materialize themselves in our lives. For example, it's so casual and natural to use the word "gay" as a derogatory expression, but it's one of the easiest things to notice oneself doing, because we actually verbalize ourselves. Most of the more subtle reactions, like the slight twinge of discomfort when we see two same-gendered people kissing, or the lower level of respect we instinctually give to more feminine men or masculine women, are internalized and never actually expressed. Personally, I don't have any tips in making this easier. As I grew up, I found myself more and more sensitive to these kinds of issues, but I never made any effort in doing something to fix this. Some ideas that come to mind are just making steps to make yourself more aware of your day-to-day leanings, doing things like keeping a detailed journal of your day, as well as making more of an effort in consciously thinking about what you're saying or doing. It also helps being able to verbalize to yourself the things you do and say (example: "I call people gay a lot" or "I judge men who have what I feel is 'gay-looking' hair or style more harshly than others" or even things like "I presume that men in math are generally straight but men in fine arts are typically gay") to promote more immediate recognition.

The word "step" is kind of a misnomer, because the word "step" implies that you need to "finish" what you are doing before moving on. In this case, learning to recognize how you express your internalized homophobia *isn't* something that's going to necessarily stop, though it will get easier and feel more natural to do. Once this has become comfortable, the next step is trying to see the ramifications of your actions. This step is much harder for queer individuals, because we as humans don't like thinking about how our own attitudes may be hurting ourselves. Once you have started being able to recognize and verbalize these ideas, it really helps to talk to others about what the effects might be. If you have queer friends, they're a good audience to bounce your thoughts off of. Any other good friends may have some other ideas that you haven't thought of. As a queer individual, if you are struggling with your internalized homophobia, I strongly

suggest discussing these issues with some kind of supportive professional (like a queer-positive counsellor) because they can be very difficult to overcome and very harmful in the long run. Information on resources which can help with this will follow. The final "step" is making steps to changing these attitudes and behaviours, which is such a personal thing to figure out that everyone will have to figure it out in their own way. Trial and error might be the only way to do this for some people, so don't feel too bad if you make a mistake and say or do something you never intended. Stay positive, and look for progress.

Well, that's the end of this series! I hope you enjoyed it, and I hope people found it informative or useful. If you are queer identified, and are looking for someone to talk to or for supportive allies, there are always resources available to you. You can learn more about GLOW and its offerings, including a phone line at www.knowyourglow.ca. Counseling Services is always available to you; their offices are open 8:30-8MTTh and 8:30-4:30WF, located in Needles Hall across from Student Awards and Financial Aid. If you need support and assistance immediately, you can call the Waterloo Crisis Center at 519-745-1166. If you'd feel more comfortable speaking with someone from a queer specific service, please contact the GLBT Youthline at 1-800-268-9688.

Join me next week. I don't know for what, but do it anyway.
(define this (not cool))

Failing Out? Feeling Disconnected?

We want You!

The Faculty is in the process of creating a strategic plan for the next 5 years which include myself, the Dean, as well as other important Faculty personnel. If you are interested in participating in small group discussions about the current state, strategic directions, priorities and future development of the Faculty of Mathematics, please send your name, major program of study, year of study, and email to the attention of Andre Gomes Magalhaes at agmagalh@uwaterloo.ca. Before we plan for the future, it is vital that we get feedback on how we're doing now, as well as suggestions for changes so PLEASE HELP.

Andre Gomes Magalhaes

Strategic Planning Working Group Student Rep

Speaking of Failing, about that Stanley Cup...

I'm now \$5 poorer. Maybe next year.

Sigh...

Interesting Math

Optical Caustics

Look around you. Just look around you. Have you found out what you're looking for yet? That's right, we're looking for light. While at the quantum mechanical level light, like much else, can be counterintuitive, classical optics is a field rich with geometry (there is a certain geometry to quantum mechanics as well, but that isn't what we will be focusing on this time). A mathematically fascinating subject in the geometry of light is the analysis of anomalies and foci of optical elements. From the definition of an ellipse we can show that if we draw two lines F_1 and F_2 from a point on the ellipse to the two foci the tangent at that point will be perpendicular to the bisector (Figure 1). Thus, if we put a lamp at one focus of an elliptical mirror the light from this lamp will arrive at the other (this is in fact where the name focus comes from). In the limiting case, where one focus is at infinity, we get the well known and intuitive application of parabolic mirrors.

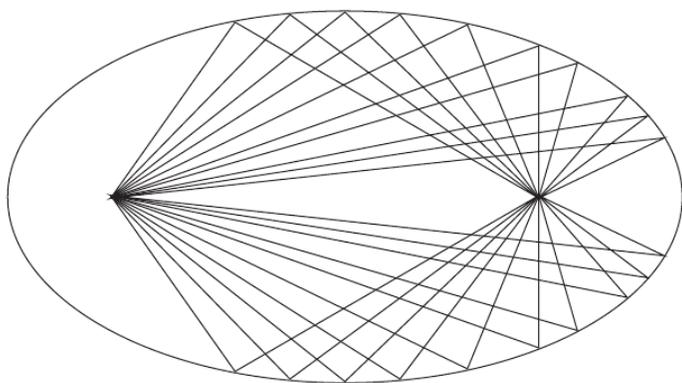


Figure 1: Focusing at an ellipse.

Now, we do not always have a light source at a focus or other mathematically easy to handle point, so it is natural to ask what happens in this case. Consider an arbitrary curve, we may not intuitively expect the light to converge anywhere, to just scatter in all directions. So let us restrict our attention to well understood curves. There is no curve more well understood than the circle, so we will start with it. A circle is the limiting case of an ellipse, with both foci on top of each other. Thus, when we put a light source at the center of a circular mirror the light comes right back (this is just a physical statement of the fact that the radius of a circle is perpendicular to its tangents). If we move the point around inside the circle, the situation is more complicated, and doesn't have short description. So, to simplify further, we ask what happens when a bunch of parallel rays hit a semicircular mirror. If you have a reflective coffee cup you can answer this for yourself by orienting the cup so that a nearby strong light hits the inside of the cup. For those without, we can look to Figure 2. Something interesting has happened, the reflected rays appear to all be tangent to some curve.

Which curve? Well, for those who spend a lot of time considering classical curves, this looks like it might be a cardioid or a nephroid. Both have cusps and bilateral symmetry, which we observe here. Both curves are generated by fixing a point on a circle and rolling it around another, the cardioid occurs when both circles have equal radii, the nephroid when the rolling circle is half of the length of the circle it is rolling around (see

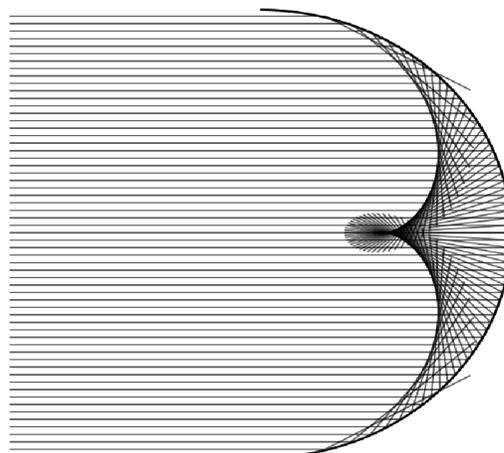


Figure 2: Parallel rays. Adapted from Wikipedia.

Figure 3). But which curve should we consider first? Well, suppose that we had an entire circle for our mirror with a source emitting parallel rays in both directions along the diameter of the circle. This should be our curve reflected over the diameter. Since the cardioid only has one symmetry axis and the nephroid two, we will consider it more closely.

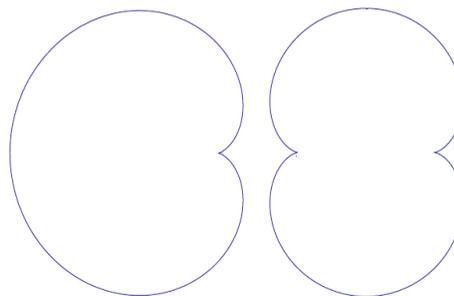


Figure 3: The cardioid and the nephroid. Generated by Mathematica.

So our conjecture is that every reflected ray is the tangent to a nephroid. Suppose we have a ray s reflecting at point R and becoming point t . Then draw a circle around M , the center of our mirror, with half of the radius. It intersects the line MR at its midpoint Q , and we draw another circle with diameter QM . Now we are on track as the reflected ray crosses the second circle, and our circles are of the correct size to generate a nephroid. Thus, to show that t is tangent to the nephroid generated by these circles (with the rotation starting at P , we just have to show that the angle P_1m_1Q is twice the angle PMQ and that t is perpendicular to Q . This is sufficient, as it will show that the intersection point P_1 is on the nephroid if it were touching the inner circle when it started rolling at P and it is a property of the nephroid that its tangents are perpendicular to QP_1 . To see the second claim, note that the triangle $\triangle P_1RQ$ is inscribed in a semicircle, which means that the angle QP_1R is a right angle. Next, since s is parallel to MP the angle s makes with MR is equal to the angle PMR . Since t is the reflection of s over MR the angle P_1RM equals PMR as well. Recalling the relation between chord and arc angles, we see that P_1m_1Q is twice PMQ . So we are done.

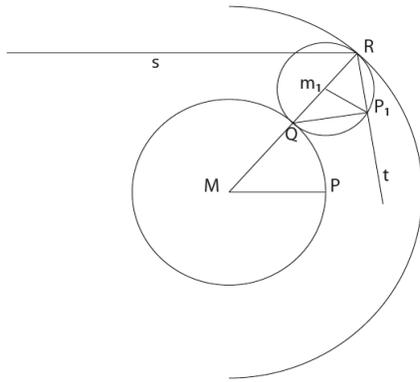


Figure 4: The essence of our proof. Adapted from Hilbert.

You may be wondering why I just went through all of this with you? Well, this purely geometric argument is not often seen these days, with caustic calculations being subsumed into much more general work in differential geometry. The geometric argument requires no such machinery, and there are several other cases worth considering. The nephroid is an epicycloid, generated by rolling one circle around another, however there are many epicycloids possible. Thus we ask: are there any other cases where a caustic gives rise to an epicycloid? I'll give you one answer, but you'll have to prove it yourself: a light source on the circumference of a circle generates a cardioid. We could also vary our mirror: when we have parallel rays hitting a parabola they arrive at the focus giving us a degenerate caustic. Since the parabola and the circle are at opposite extremes of limiting cases of the ellipse, we might expect the caustic of parallel rays striking an ellipse to be an interpolation between the nephroid and the point in some way. Whether or not it does, and what curve you get in between, is the problem of the issue.

Acknowledgements: A discussion of cycloids and their generalizations is found in part five of David Hilbert's classic book *Geometry and the Imagination*. I also must thank Dr. Frederic Gourdeau from the University of Laval for reminding me of Hilbert's book in his keynote at the CUMC this past week. Amongst the many interesting things in his talk he discussed the problem of caustics as well; encouraging all of us to take a look at the intuition and classical cases behind the general frameworks of mathematics we are being taught today.

Edgar A. Bering IV
ebering@uwaterloo.ca

Canadian Undergraduate Drinking Conference

The announcement of a new exciting meeting!

mathNEWS is announcing a new cross-Canada conference for all undergraduate students: the Canadian Undergraduate Drinking Conference. The celebration of alcohol is something that all students around the country can unify in, and as such we believe it would be a boon to the culture of a generation of future alcoholics.

The first one will be held in Happy Valley-Goose Bay on February 30th, 2012. We have heard from the small population of the town and they have stated they wish to welcome us in warm arms. They also mentioned something about coitus or something,

Setting up IPv6

Using the gogoc Tunnel Setup Protocol Client

World IPv6 day happened on June 8th, and brought attention to the need to migrate to IPv6, as IPv4 addresses are nearly depleted. The <http://test-ipv6.com> website provides a way for all Internet users to determine if they're IPv6-ready. To access IPv6-only websites, users need an IPv6 address and be permitted to use IPv6 to communicate on the Internet by any organizational network they are a part of or by their Internet Service Provider. So what if you can't use IPv6? There are IPv4 to IPv6 gateways out there that can help. The one used in this article is freenet6, but there are others out there that are also free, such as tunnelbroker.net.

To access websites and services on the Internet using IPv6, you wrap your IPv6 packets¹ in IPv4 packets (using a client that you install on your computer, such as gogoc) and send them to the service provider. The service provider extracts your IPv6 packets from the IPv4 packets and forwards them to the desired destination. Responses from the other end are wrapped up in IPv4 packets before being returned to you. The client pulls out the IPv4 packet that can then be handled like a normal IPv4 transmission.

To set up IPv6 yourself on Ubuntu, follow these instructions:

- <http://test-ipv6.com/> - use this site from World IPv6 Day to test your connectivity! (Or you could look for the dancing turtle on <http://www.kame.net/>)
- `sudo apt-get install gogoc` (requires universe)
- Sign up for Freenet6 <http://gogonet.gogo6.com/page/freenet6-services>
- Update `/etc/gogoc/gogoc.conf` — server should be set to `montreal.freenet6.net`. Set `log_stderr` to 3.
- `sudo /usr/sbin/gogoc -n` (launch the daemon by hand to populate the server key, then terminate once done.)
- Change `log_stderr` back to 0 in `/etc/gogoc/gogoc.conf`
- `sudo invoke-rc.d gogoc start`
- If you still have issues, disable the server key check in `/etc/default/gogoc` and restart `gogoc`.
- Check test-ipv6.com and voila!
- Optional: Set up servers/daemons to listen on IPv6 as well as IPv4; install IPv6 recursive DNS servers in `/etc/resolv.conf` or `resolvconf`.

¹ Packets are the unit of communication on the internet

!able & snippet

wanting to get a larger population to prevent Labrador from dying completely.

There will be tasting of various beers, wines, and spirits, with drinking contests in the evening. The event will not be bring-your-own-booze, though bringing your own booze will not be discouraged. These phrases aren't contradictory in the slightest (and will be even less so after partaking in a few activities).

Another set of talks we will have will be about distilling and brewing. The experience you gain there could allow you to die from bathtub distillation! So come on out on our BoozeJet. It won't crash in Lake Superior. We promise.

CUDC Committee

In Other News

So what else is news?

In faculty news, lots of fresh, shiny degrees were awarded to new graduates of the Math Faculty at the June convocation last Friday. For the first time in weeks, all those people in suits on campus weren't just waiting for job interviews. The Orange News Team sends warm congratulations to all recent grads who prove that we're not all stuck here forever. Meanwhile, we're still stuck with midterms.

In other UW news, the giant pink tie has been hung on the new Math 3 building, which is to be opened very soon. Everyone's very excited, except for the MC building which has been reported as exceedingly jealous that nobody's paying any attention to it anymore. Older brother syndrome: I know what you're going through, my old, gray, ugly friend.

In Waterloo news, an outbreak of bedbugs has been reported throughout the area, including in some residences if reports are true. Even if you don't have bedbugs, I bet you're itchy just reading about them. Bedbugs bedbugs bedbugs bedbugs. On the bright side, now you have a good excuse to scratch yourself in public.

In crazy-ass Canada news, a riot broke out in Vancouver after the Canucks lost the final game of the Stanley Cup. Stores were looted, windows were smashed, cars were set on fire, a couple of people kissed, other people watched and cheered, you know, the usual. So let it be noted that Torontonians riot while protesting important international political issues while Vancouverites riot when their hockey team loses. Where would *you* rather live?

In international news, after the violent revolutions in Egypt, Yemen, and Libya earlier this year, Syria is joining in too. Now I'm by far no expert in Middle East politics, unlike every other opinion/news writer in the world, but I think I see a pattern here. In other words, let's be glad we're in Canada, where people never riot or act violently for any reason.

In business news, RIM's stock prices are at about, oh, 20% of what they used to be like 3 years ago? So, they're following roughly the same distribution as the average marks of people who were in grade 12 like 3 years ago and are now taking math at Waterloo. Coincidence? Or am I just throwing false statistics into the air?

In entertainment news, one of the most over-hyped movies of the summer, Green Lantern, is getting pretty bad reviews all around. Hey, it ain't easy being green. Personally, this reporter believes that a hero based on power-jewellery whose weakness was the colour yellow should never have held that much appeal to begin with.

In other news, I recently attended an info session for 2012 grads, where I was informed that the UW Alumni job search tool will be available to me (and all other UW alumni) forever. Yes, they literally used the word forever. Which is great news for an immortal part-vampire such as myself. On the other hand, I also have to take my grad photo for the 2012 class composite, which might be difficult for a part-vampire such as myself since we don't actually appear in photos. Nuts.

Well, that's all for In Other News. We appreciate your time, and as always, invite you to send interesting news and other queries to orange.crush.uw@gmail.com. Good night, and good news.

Orange Crush

Because I Can

Things you pick up with Mathies in Montreal

Last week was the Canadian Undergraduate Math Conference. During this event, I had many chances to do things that made people look at me strangely. I even got one "Yes, yes it is" from a carriage driver. However, being exposed to this many mathies resulted in my realizing that a sizeable portion of my seeming strangeness is due to the people around me. Namely, aspects of my personality do not fit properly with the people around me in effectively any context. So, here is a collection of things to do to make you never fit in!

- Loudly make inane statements. The prototypical example is exclaiming "IT'S A KITTY" whenever you see a cat. At the very least, this will get you weird looks from people; at most you will get sarcastic comments in response. Bonus points if you get a reaction more extreme than this.
- Do things that make no sense. Use downtime between classes to practice such things as handstands or roundoffs. Handstands are easier in the math building, but don't get as strange looks. Roundoffs need to be done in nearly empty hallways, however. Bonus points if you have good form.
- Have loud conversations in inappropriate contexts. The key with this one is to make sure that you stop if it is making people overly uncomfortable. It is one thing to embarrass your friends via talking loudly. It is another thing to disturb other people when they have the right to not be disturbed. Bonus points if the only people in the room are you and your friends, and yet they are still embarrassed.
- Spend time solving interesting problems instead of going to class. First step is to find something that is interesting to think about. Next step is to find other people to tell about this, then distract them from going to class by discussing the problem. Bonus points if they don't realize they've missed class until they have.
- Quote things that nobody else has heard of. Prime ideas for these are very culture-specific expressions, or general idioms. When nobody gets what you are referring to, act like it is something that everyone should know. Bonus points if it is a legitimate idiom, just one that people have not heard of.
- Apply math to everything. This only works well when not around mathies. Around mathies, they may just join you instead. So, do this around your friends from other faculties whenever a topic comes up that is vaguely related to math in some way. Personally, I am a fan of applying formal logic to trivial arguments. Bonus points if you confuse mathies with this.
- Spend excessive amounts of time on pointless activities. Such activities include games such as Minecraft, or more "meaningful" activities like tanning. Pretty well any activity that ends up (probably) not making any difference in the long run qualifies. Bonus points if it ends up being meaningful. A typical example of this would be professional gamers.

MeaninglessQuips

Competitive Pokémon Battling: An abridged history

Would you believe it's been over 13 years?

When Pokémon Black and White were released in March, it brought about the fifth generation of what is one of the most popular franchise these days. It seems like all of my friends, especially those who haven't picked up the previous editions, are tripping over themselves to play the new series. Waves of nostalgia hit me, and so I decided to dive into my memory banks and take a look at each of the generations and how it affected competitive battling as we know it. Since it's from my memory banks, there's bound to be a few details that are quite hazy, so please forgive me ahead of time.

Generation 1: Red/Blue/Yellow/Green

When it first came out, competitive battling was restricted to link cabling your friends at school. Exciting business, to be sure, but it was like the toad at the bottom of the well. With the advancing popularity of the internet, people banded together to share their knowledge of Pokémon, leading to the most popular and insightful websites dedicated to the study of Pokémon in its time: Azure Heights Pokémon Laboratory. Brought together by a collection of the most eager and brightest, these founders and contributors were trailblazers. They analyzed code and studied Pokémon battling down to a science. It was then, the first online simulator (Pokémon Battle Simulator, PBS for short) was created. It allowed users to register and create fictional teams, but it didn't restrict the movesets for any of the creatures. Along with a slew of other bugs, it was a usable, but crude first real attempt at online battling.

Somewhere along the time, an individual who went by the online moniker "Fanha" started development on IRC, the main-stream chat medium of its time, a bot that would simulate Pokémon battling. Each user would send their team to the bot, and then direct message it commands each turn while the bot spit out the results. It was the defining masterpiece of its time, and it lasted well into the third generation as the original users swore by this IRC bot. Its name was RBYBot, and it was on this bot that early luminaries of the sport proved their mettle.

It was on the tail end of this generation that I entered the online battling fray. To name drop a bit more, one of these pioneers of Pokémon battling went by the nickname "GolemKong", and he was a Waterloo Math student two years ahead of my time (So probably 2002 onwards). I still regret never having the honour of making his acquaintance when I first arrived.

Generation 2: Gold/Silver/Crystal

The first generation of Pokémon was riddled with glitches: Hyper beam working awfully, amnesia being overpowered, etc. GSC fixed most of these errors and introduced new battling mechanics that changed the landscape of the game. Critical hits were now working properly, as were some bugged moves like Hyper Beam. Special was split into attack and defense (Though interestingly still governed by the same gene), and gender was introduced, although very sexistly. (Gender was based on a Pokémon's physical attack gene, the top were male, and the rest were female, etc). Oh, and the move Heal Bell and Sleep Talk were introduced to counter the vulnerability of a Pokemon in the sleep status.

Fanha followed suit shortly, upgrading RBYbot to the most popular bot, GSbot. GSbot was a massive hit, but it wasn't the only one. In this generation, a random programmer who was a

noted Packers fan called TV's Ian started a program of his own: Netbattle. Netbattle required users to download a client before connecting to battle rooms, but its graphical interface made the game more desirable to play with. Ian's effort attracted another programmer named Masamune who eventually took over most of the programming duties. He also ran the most popular server on Netbattle, with yours truly running the other popular one. Over time, Netbattle's bug fixes finally won over a large number of the GSBot crowd.

The metagame in GSC changed drastically from RBY. With the special defense split, Blissey and Snorlax became even more powerful than their first-gen counterparts. With massive HP and insane special defense, they tanked anything that tried to special attack its way to victory, growtheons be damned. Skarmory was introduced in this generation, and it was to physical attackers what Blissey was to special. Together, SkarmBliss was found in a majority of the early teams as the tandem resisted just about everything. The rules of One-Hit KO attacks changed in this generation, limiting their effectiveness to 30% when both creatures are level 100. Fish, another notable battler from the first generation, was the first to invent the FishTauros, which used Horn Drill, Fissure, Rest and Sleep Talk to tank its way until it connects with its attacks. Meanwhile, White Cat, another researcher, used Whirlpool's ability to trap along with Poliwrath's Mind Reader and Fissure attacks to defeat others. Knightwrath, as it was known, was quickly banned along with other OHKO attacks in the standard metagame.

Somewhere along the way, perhaps quickly, a deadly combination of toxic, spikes and sandstorm was discovered. With spikes damaging creatures on switch-in, and toxic and sandstorm dealing damage every turn (Forcing switches), this deadly combination of attrition became the standard of battling: every team has to find ways to counter it in hopes of survival, be it Starmie's Rapid Spin, or pre-emptively starting with something that uses Fire Blast and Thunderbolt to take out lead-off spikers. A female battler named Celia was noted for using this style to mastery. Of course, as we all know, nothing lasts forever, and so I will continue my chronicles at a later date. In the meantime, have a safe and relaxing Canada Day Weekend!

Old Folk Panda

Pizza Topping Choices Rejected by mathNEWS Writers

Waldo doesn't really eat that much; too busy hiding.

- MathSoc drama
- Difficult *a cappella* compositions
- Improper speling
- Infinite loops
- Jobmine
- Powdered moon rocks
- Rhubarb-shaped rhubarb
- CorruptED
- The *mathNEWS* production system

The Courses UW Should Offer

Recommendations to the course calendar

Hey, it's that time of the semester again. No, I'm not talking about the Party-After-Midterms time. I'm talking about **pre-enrollment**. Yes, that annoying moment when they make you figure out what courses you're going to take before you actually care.

Now, I've gotten a little fed up with filling at least one course override form each semester. So since the university clearly doesn't want me to take any courses I actually like, I have had to make up my own. I present to you the following:

SOC 001 : The Basics of Socializing

An introduction to socializing for those requiring extra help. Covers all environments from group events to dating.

Pre-Req: Open only to Engineering and Math students.

PKMN 101 : How to Be the Very Best, Like No One Ever Was

To catch them is the real test, to train them is the cause.

Pre-Req: 8 Gym Badges

WHY 202 : Hypothetical Situations

What if this course existed? What if you took it? What would you learn?

Pre-Req : Not taking any course and having taken one course.

MC 130 : Navigation for Math Students

Teaches students how to navigate dangerous and confusing locales such as the 6th floor of the MC.

Pre-Req : Must have visited a prof during office hours.

CS 230 : The Study of Internet Memes

Why do some things on the Internet hit over 9000? I can haz viral videos? An in-depth look at how and why things become popular on the internet. This course is never gonna give you up, never gonna let you down, never gonna run around and desert you.

Anti-Req : Any English grammar course.

BlueberryMuffin

Why Do Writers Hate Writing Sometimes?

Will Waldo ever find the right inspiration?

Writer's block is an awful aspect of being a *mathNEWS* writer. Every other week you are plagued with what you should write about, but often you can't think of anything. Even when you ask your fellow writers for inspiration you can't come up with anything because their ideas are not ideally what YOU would want to write. Even when you actually have an article to write you still find yourself asking around for inspiration for your article content. It's ridiculous!

I absolutely HATE going through this virtually every time I write for *mathNEWS*. I bet this is how those in arts courses feel when they have to write an essay or something. Ah well, I'm sure I'll figure out how to conquer writer's block eventually. You will be defeated, you blasted thing!

waldo@<3.LE-GASPCa

Dear MathSoc Council:

Grow Up!

Seriously, as a former MathSoc Councillor, the childish antics that I have seen coming from several members of Council make me ashamed to have any affiliation with the Society.

Over the past month or so, I have seen comments on the mailing list and heard things from various Councillors that make me hang my head in shame. Instead of focusing on reasoned debate on a topic, some members (including both representatives and executives) from both sides of said debate have decided to resort to personal attacks against members who support the other side. What makes this worse is that much of the attack is going towards Society volunteers who have done absolutely nothing to deserve it.

The worst part is that this is far from the first time I have seen this over my many years here.

This was the breaking point for me, and this is all on the public record if you want to see exactly who is involved. When the Speaker had to break a tie in favour of an increase to the volunteer appreciation budget earlier this term (during a meeting that was, as usual, poorly attended by those supposed to be there), a former director made a post to the mailing list saying that the Speaker "ha[s] no conscience" and condemning those who voted for the "appropriation of others' money for [their] selfish amusement". The conversation then went through three or four frivolous topics (depending on how you count), from the definition of private vs. public to whether or not Councillors do their jobs, right up to the next meeting where a MathSoc executive received a censure for essentially calling an individual a bitch in a private e-mail.

A debate as stupid as this has been happening at least once a term since I started at Waterloo, though thankfully some members have the dignity not to reduce themselves to that level. I really don't care what your view is on a given issue; in fact, I encourage you to debate it passionately using reasoned argument. However, to each and every member of MathSoc Council, I want you to ask yourselves one question: if you saw all of the bullshit and personal attacking that has been going on at MathSoc before you started volunteering, would you have started volunteering with the Society?

I don't blame you if you answered no.

A Disgusted Former Volunteer

Anime Crossword Debriefing

Expectations were exceeded this week

Well, I hadn't expect anyone to submit a solution, but a few people did, and dutifully pointed out the mistakes I made with it when I was finishing it up at 3 in the morning. My mistakes would not count against your submission, which included forgetting a clue when numbering over it and giving the wrong clue for one entry (I gave you points for naming the anime for the clue). I vow in the future I shall double check my work and, since the Gridword maker was so appalled at the grid, not make it into a crossword. The solutions are posted online. Note that the correct anime for the incorrect clue was Fruits Basket, and the bow for number 12 has two different characters for Tsukihime and Laputa. Congrats to Melinda for solving it, you can pick up your prize at the MathSoc Office

Zethar

Horrorscopes

Because predictions need more bitterness

ACTSCI: Your professor walks in with a robe and scythe. He starts passing back midterms.

Your lucky number is: 49/100. After the curve.

AHS: You are given assignment 4 for your course, the last one as they don't want to tax your obviously busy schedule. Assignment description is: *chillax*

Your lucky number is: 0, you still have a hangover from assignment 3.

AMATH: You are given a recursive differential equation to solve on your midterm. It is the first of a multi-part question.

Your lucky number is: 8 minutes to solve for part marks.

ARTS: Rankings opened and closed, and you're still unemployed. You overhear engineers complaining how they can't choose between their five offers.

Your lucky number is: 50 rejected applications. To continuous cycle!

CO: You decide to optimize the number of days you can spend enjoying the nice weather. It's still 0 though.

Your lucky number is: 3 more bottles of anti-depressants.

CS: You join Lulzsec. After the successful takedown of the CIA and FBI sites, you realize that your assignment was due half an hour ago. Next target: Marmoset.

Your lucky number is: 1 all-nighter spent doing the wrong thing;

DOUBLE DEGREE: You going out partying with your Laurier compatriots, and wake up next to a goose the next morning. You vow to never go to Phil's again.

Your lucky number is: 9 shots of tequila later and an awkward one night stand.

ENG: It's been a week since your last class, and you have been placed with a job. Unsure about what to do next, you walk around aimlessly through campus experiencing sights of nature that you haven't seen for the last two months.

Your lucky number is: 18 flocks of goslings with pissed-off moms.

ENV: Wait a minute, there's barely anyone here! You go crazy being so alone in classes.

Your lucky number is: Less than half the faculty.

GRAD: Shocked and amazed that you're mentioned in an undergraduate paper, You get up and start dancing. Not looking at where you're dancing however leads you to dance all over your thesis.

Your lucky number is: 10 months work covered in footprints.

MATHPHYS: Midterms are over, so you decide to have a social life. Asking a woman if she wants to see your Higgs Boson does not turn out as well as you had hoped.

Your lucky number is: 4.6L of tears when she isn't looking.

PMATH: Returning from CUMC, you are shocked to be around people who do not share the same fanatical devotion to Math. You attempt to convert them.

Your lucky number is: 17 dead and more converts in sight.

SCI: Your lab has been moved to a part of the Bio building that you haven't seen before. The sign overhead warns that students are responsible to ensure that they do not get eaten by the experiments.

Your lucky number is: 2 labs with strange warnings this term.

STATS: You watch the news about Lulzsec as more and more sites get taken down. You calculate the odds of Jobmine being next.

Your lucky number is: 4%. Jobmine doesn't need any help, but neither did the Minecraft server.

SOFT ENG: You realize that not only does your program not get a midterm week, giving you some time to actually study, it also doesn't have girls. Sucks to be you.

Your lucky number is: 7 girls in your year, a new record high!

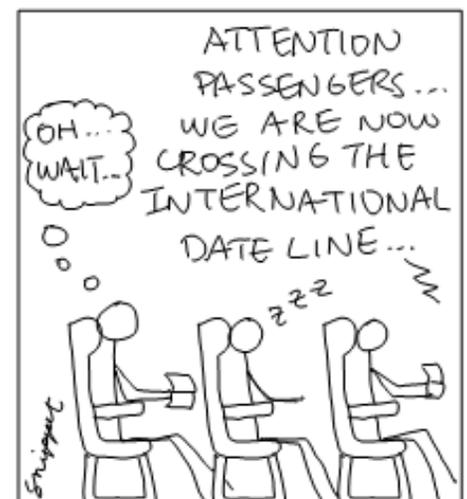
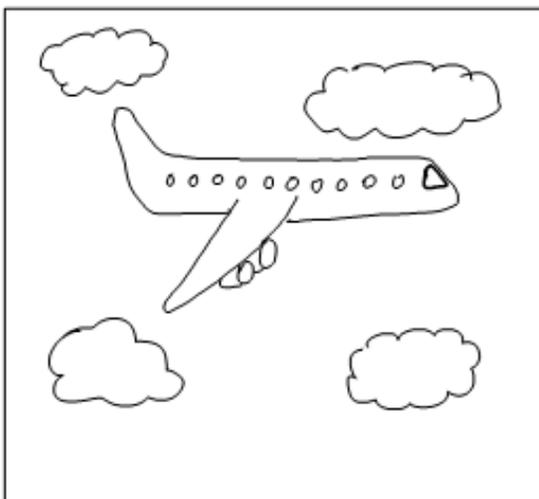
TEACHING: You look towards summer with renewed hope that you might be free of the damnable students for a bit. Then you remember summer school.

Your lucky number is: 14 high school dropouts.

UNDECLARED: You look at the courses being offered next term, and consider whether any of them look interesting enough to make you choose a field. None of them do

Your lucky number is: 5 more courses with no direction.

YESTERDAY



Thanks to Ian Charlesworth for the idea

Orange Philosophy

A message from your local VA association

I think we can all agree that dead people are generally dead for a reason. Either they're really old, or they've been sick, or got shot in the head, or they were trampled to death by 56 tiny goblins wearing lead shoes. So, the fact that they're dead is a good indication that there's something physically wrong with them.

Well if that's the case, then why are we all so worried about a zombie invasion? In all those movies when the zombies rise from the graves they're always scary and they usually manage to kill people and cause mayhem. But if dead people are all sick or old or squished or something, shouldn't it be quite difficult for a zombie to actually do anything productive? Zombies should be old, weak and in pain.

So remember folks, next time your government sends you a brochure about how to deal with a zombie apocalypse, don't panic. We can totally beat them. Zombies suck.

(Disclaimer: this article, written by celebrity part-vampire Orange Crush, has been brought to you by the VA, the Vampire Alliance, dedicated to undoing *Twilight*-related damage and re-establishing vampires as the top fearful monstrous creatures around. To join or contribute to the VA, contact your local Red Cross representative.)

Orange Crush



Ask Michelle

No, not ConED

GooseChaser4328967: After spending hours on OMGUW and slashdot.org, I decided to do some analysis and I came across Littlewood's Three Principles. Are you kidding me? There was a Mathie named "Littlewood"?! That's right up there with "Handcock". So I'm writing to ask...was his anatomy... as his name...you know... suggests?

Dear GooseChaser4328967: In an attempt to supplement the fine eloquence of this week's *mathNEWS*, here is the historical information you requested:

John E. Littlewood was, in fact, little. He was slightly under the average height for a man, but he was very fit and involved in a lot of sports including swimming and rock climbing. Born in 1885, he lived 92 years, and after his first 30, he had already become quite successful. He received some education in South Africa, and returned to his birth country, England, to eventually wind up at Trinity College, Cambridge (Newton went there, too)! Littlewood was working under the tutorage of E. W. Barnes, who decided that since his student had so quickly solved his first research problem, his second would be: "Solve the Riemann hypothesis."

Back in undergrad I decided I would make it my quest to understand the RH, but then one morning my classmate announced that there was a 13 page "proof" of the RH reported on slashdot.org. Good enough for me...

But Littlewood did contribute to RH research, working closely with Hardy, and to other areas of science as well. He helped to refine calculations for trajectory paths in WW1; however, most of his work was done in analysis. Littlewood was an honoured mathematician, receiving multiple awards for his work. He was elected a fellow of the Royal Society in 1915, and became the Cambridge Rouse Ball professor of mathematics in 1928. He certainly seemed to have a very involved personal life, and clinical depression, which also affected Riemann (as well as 25% of the UW population, by the way). According to Hardy, Littlewood was the finest mathematician he knew, with gifts of mathematical "insight, technique and power". According to Hugh Montgomery: "He tried to persuade me to take snuff."

So if you ever find yourself in real analysis, studying Littlewood's Three Principles, at least you'll recall his place in history after making obscene comments about his name.

Michelle

Math-Related Sex Toys

To spice up your minor love life

- The φ eeling
This toy fits everywhere perfectly, and comes with a guarantee to get you off faster than the Pi toy.
- The i Toy
This unnatural and complex toy should only be bought by those who are adventurous and strong-willed. Side effects include never leaving your room or dating ever again. Your D&D friends will assume that you've become a mindflyer's pet.

Horny Frosh

Orange News

Now featuring 22% more made-up statistics

Good afternoon and welcome to another exciting edition of Orange News. It is the sworn duty of the Orange News Team to bring you current, relevant news and information that can and will affect your lives as UW Math students.

This week we bring you an important public service announcement. The completely fictional Waterloo Health Association Thing (WHAT) has released warning statements regarding an epidemic that has been spreading around our faculty over the past few weeks. This medical disaster is a recognized modern type of plague typically affecting young people who attend educational institutions, known in fake medical circles as M1/2T, but more commonly known as Midtermitis.

Midtermitis is a common epidemic that spreads in 3 seasonal clusters per year. This year, the Fall and Winter outbreaks were particularly devastating, which suggests to scientists that the current wave will be between 6% and 106% deadlier than average. Like the common flu, Midtermitis is known to be very contagious, meaning if one person in your class has it, you are very likely to receive second-hand Midtermitis as well. There is no known vaccine for the disease.

Symptoms of Midtermitis include: lack of sleep, headaches, periods of dizziness, shortness of breath, elevated stress levels, a significant decrease in sex drive (particularly in women), and a very specific, sharp pain in the wrist of one's dominant hand. Less typical symptoms include spontaneous combustion, blacking out at random intervals of the day, temporary insanity, and morphing into a Power Ranger.

If you exhibit any of these symptoms, WHAT advises you to take a painkiller, sit in a dark room for half an hour with soothing music, and give your friend Orange Crush \$20. In severe cases of Midtermitis, you should consult Counselling Services or Health Services on campus.

Our news team has gone out to find out what YOU, the real math students at UW, are doing to combat the Midtermitis epidemic.

Tai, a cool and aloof act-sci major, said, "I'm wrapping my head in tin foil."

Anne, a CS student who somehow manages to maintain her positive disposition on life, is planning on "washing my hands every 10 minutes, drinking lots of fluids, and getting my boyfriend to teach me everything I need to know".

An anonymous yet highly-informative pure math prof advised students to "start studying well ahead of time, take lots of breaks, don't cram the night before. Also when I'm sick I always like chicken soup and lots of fluffy pillows".

So there you have it. A quick survey of 3 random people revealed that 67% of Math students are deeply worried about the effects of the Midtermitis outbreak, 33% have already contracted Midtermitis and are on the verge of a complete breakdown, and 18.7% are not very good at percentages or fractions.

WHAT and our faculty are doing their outmost to ensure this cycle of the Midtermtitis epidemic will pass as painlessly as possible. The Orange News Team will be all over campus, risking our lives to bring you the most up-to-date news about the pandemic's spread pattern and the updated death figures. We wish you all a safe and healthy Midtermitis season.

Orange News

orange.crush.uw@gmail.com

profQUOTES

Now with double of last week's!

[Trying to use a marker that doesn't work] This is a great marker for drawing empty sets!

Lhotak, CS 744

[Doing an exercise on the board] I'm not like a cheating undergrad... so I'm not just copying the answer

Lhotak, CS 744

I think reading assignment #2 is due today... that would explain why you've all been sending them to me.

Lhotak, CS 744

[After having a student point out that his broken example would work if CS 343-style multi-level exits were used] So if your program has really weird control flow, or you're Peter Buhr, this might work.

Lhotak, CS 744

This is true... but you shouldn't necessarily trust me.

Lhotak, CS 744

I want to be in a situation where if I try to write the exam, I will pass.

Ben-David, CS 245

If there is anyone here who hasn't raised their hand and said Modus Ponens, now is your chance.

Ben-David, CS 245

The lesson is I can't ask you to invent a proof on the exam, since I can't do it here.

Ben-David, CS 245

If I tell you "it is not the case that you are not smart", I'm trying to give you a compliment, in a very mild way.

Ben-David, CS 245

It is a bit hard to rigourously define a thumb. Mathematically.

New, MATH 245

This is a Pure Math course - we don't care about practical stuff!

New, MATH 245

And "a bunch", <pause> means one or more.

New, MATH 245

When I do it myself, I do it wrong all the time, so it might be worth doing it wrong for you again.

New, MATH 245

We *can* protect ourselves from our own stupidity.

Harmsworth, AMATH 250

I think that they should make it a rule that if you're a Classicist you shouldn't name your children after Classical figures.

Faulkner, CLAS 104

[Talking about upcoming midterm] There won't be a magic little pixie that'll whisper the limit in your year.

Subich, MATH 138

