

# *math* NEWS

Volume 119, Issue 3

Friday, June 15<sup>th</sup>, 2012



Congress experiences that “sinking feeling”.  
Logic and technical issues loom.



**lookAHEAD****mathNEWS**

|         |                                    |
|---------|------------------------------------|
| June 15 | Issue 3 isn't a funny issue at all |
| June 25 | Issue 4 works itself up            |
| June 29 | Issue 4 fails to perform           |

**CECA**

|            |                                  |
|------------|----------------------------------|
| June 15    | Rankings Open                    |
| June 19-23 | Job Postings                     |
| June 25+   | Employer Interviews (continuous) |

**University**

|            |                                 |
|------------|---------------------------------|
| June 19    | Deadline for 50% Tuition Refund |
| June 13-16 | Convocation                     |

## An Exciting Opportunity for Career-Minded Students!

The Waterloo Math Faculty is looking for career-minded third- and fourth-year students to jump-start the Alumni-Student Career Connections. The goal of this project is to connect current students with graduates in their field by helping set up multimedia interviews between you and your chosen Waterloo alumnus.

The interview content, along with student and alumni profiles, will be featured on the Math website as a resource for all students seeking career advice or information in their chosen academic or professional path.

In taking part as an interviewer, you not only will form key relationships with graduates in your industry, but also be providing a valuable service to other students in the Faculty. Recording equipment will be provided.

This summer term will be a building phase, before the alumni database and online interview repository are finalized for the fall term. If you are interested in meeting a graduate working in your area of interest while helping move this ambitious project forward, please contact Gayle Goodfellow at [ggoodfellow@uwaterloo.ca](mailto:ggoodfellow@uwaterloo.ca).

Faculty of Mathematics Dean's Office

**ISSN 0705—0410**

*mathNEWS* is normally a fortnightly publication funded by and responsible to the undergraduate math students of the University of Waterloo, as represented by the Mathematics Society of the University of Waterloo, hereafter referred to as MathSoc. *mathNEWS* is editorially independent of MathSoc. Content is the responsibility of the *mathNEWS* editors; however, any opinions expressed herein are those of the authors and not necessarily those of MathSoc or *mathNEWS*. Current and back issues of *mathNEWS* are available electronically via the World Wide Web at <http://www.mathnews.uwaterloo.ca/>. Send your correspondence to: *mathNEWS*, MC3046, University of Waterloo, 200 University Ave. W., Waterloo, Ontario, Canada, N2L 3G1, or to [userid.mathnews@student.uwaterloo.ca](mailto:userid.mathnews@student.uwaterloo.ca) on the Internet.

This work is licensed under the Creative Commons Attribution-NonCommercial-No Derivative Works 2.5 Canada License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-nd/2.5/ca/> or send a letter to Creative Commons, 559 Nathan Abbott Way, Stanford, California 94305, USA. Terms may be renegotiated by contacting the editor(s).

The editors: Blossom (Murphy Berzish), Bubbles (Lenny Morayniss), Buttercup (Will Morrison)

**mastHEAD**

It's the summer term, and midterm season is in full swing. Most of you will be studying for things involving math, but there are other things to put on exams. Due to a shortage of artsies on campus during the summer term, *mathNEWS* has stepped in to fill the need for questions devoid of meaning or usefulness. This week's *mastHEAD* question is "In general, it may be said that some things do, while others cannot. Please comment on the statistical bias inherent in the statement."

theDreamer("Fuck You") maplebaconburgr("s=do U do not; try = Ø") Optimized Sleep ("∀p∈P Σ p = 1 ∴ λ") moment("I am upset by the lack of representation of the 'can-but-do-not' group [or 'Lazy Group'] of which I am a part") Concealed("While the bias may be inherent, it may also be said that the inherency is biased") Shay Blair("I refuse to answer questions I can't say without getting tongue-tied") Sylvia MacIntyre("I don't understand...") theSMURF("Yuck Fou") waldo@<3.LE-GASP.ca("n people understand physics, n people do not.") Soviet Canadian("This sounds like a question for one of my art elective's essays, or maybe something from stats. Either way, the question is BS and so is this answer") Zethar("Assuming the law of the excluded middle, the statement that "some things do, while others cannot" is a tautology of form  $A \vee \neg A$ . This means  $p=1$  and of any  $n$ ,  $\sigma=0$  and there can be no bias. However, if we assume there is a state between "do" and "do not," there is a spectrum. In that case, for some estimator  $\theta$ , the bias is  $E[\hat{\theta}] - \theta$ . The actual result is left as an exercise for the reader.") ObjectED("Fuck Zethar")

## Alan Turing Century Celebrations on June 21!

Celebrate the 100th anniversary of Alan Turing, the "father of computer science", by attending a screening of the new docudrama CODEBREAKERS at the Institute of Quantum Computing on Thursday, June 21 at 6:30 pm or 8:00 pm.

To reserve your seat, register online. Admission is free for all of those interested.

For more information, visit [iqc.uwaterloo.ca](http://iqc.uwaterloo.ca).

Heather Steinmetz  
Recruitment Coordinator

## VPF Sez

Hi fellow math students!

My name is XuJin Ma and I am this term's Vice President of Finance. Let me take a moment to update you on MathSoc's finances. The budget meeting was three weeks ago. The budget has been approved and clubs can now spend money on events for math students. Yay! We are currently working closely with the Feds accountant Dana Rethoret on an organized system so we can keep track of the spendings and earnings. We are also implementing new cash closing procedures for the MathSoc office. That's all the updates for now. Good luck on your midterms!

XuJin Ma

VPF Spring 2012

## FOC Sez

Hello, majestic Orientation Leaders!

We hope you got the e-mails regarding leader profiles and information on SUMMER LEADER RETREAT! Be sure to RSVP with all of the required information, so that we can be prepared to see all of your excited, bright-eyed awesome faces in a little over a week! :D

Leader fees can be submitted during MathFOC office hours, which have been posted both on the board next to the door of the Math Orientation Office (MC 3048), and also on the Math Orientation 2012 website. \$50 guarantees you the shirt, jacket, food, and all sorts of other AWESOME swag - but if you happen to be budget-limited, \$30 will be enough to get you the shirt and food. Remember that the LAST DAY TO PAY LEADER FEES is June 23rd, the day of the leader retreat.

Be sure to let us know ASAP if your situation regarding Orientation Week changes, especially if it affects your being a leader!!

Good luck with the midterms, leaders! We'll see you next issue!

Amanda, Anna, Michael & Sacha  
MathFOC 2012

## MEF Sez

Hello Mathies,

For those who don't know what MEF is, it is an income-generating fund that finances projects for the academic betterment of mathematics undergraduate students at the University of Waterloo. We fund numerous types of projects such as conferences, capital projects for clubs, and books amongst other things. Now for some announcements:

- Congratulations to Helen Lu, she will be MEF Director for Fall 2012
- The deadline for nominations for the Winter 2013 MEF Director is Friday, June 29th, 2012. (2 weeks from now)
- The deadline for Funding Proposals is Friday, July 6th 2012. (3 weeks from now)
- The deadline to apply for Funding Council (the people who decide is allocated) is Friday, July 13th 2012. (4 weeks from now)

For more information visit me in my office at M3 1004 or visit [mef.uwaterloo.ca](http://mef.uwaterloo.ca)

Stéphane Hamade  
MEF Director Spring 2012

## A Wild Editor Appeared

Recently, I was wandering through the tall grass, when all of a sudden, a new **mathNEWS** editor popped up out of nowhere. Because we're a lazy bunch, having more minions to do our bidding is a good thing, so we named it ObjectED and made it do layout. From now on, you can probably find it lurking around the **mathNEWS** office, slipping further into depression and cursing bad unicode support, and people who put hats on things.

ConcealED

## Prez Sez

Hello Mathies,

I'm Elizabeth McFaul and I'm your MathSoc President for the Spring and Fall terms. I'm working on creating more student space in the MC by finishing the renovation of the CnD and improving MathSoc's accountability with improved accounting practices and office policies. We're also interested this term in finding the best ways of communicating with students: social media, mailing lists, advertisements, etc.

Just a reminder to clubs to send in your event forms for any events you're running this term. It's really important to get the forms in early for any event where there's food, so that we can conform to the Health Region's Standards.

Finally, we are going to be holding our first annual Wine and Cheese Social in early September. This will be a chance for students to connect with faculty members and socialize in the new M3 atrium. Anyone around in the fall and interested in helping organize this event, please send me an email.

If anyone has any questions for me, please feel free send me an email ([prez@mathsoc.uwaterloo.ca](mailto:prez@mathsoc.uwaterloo.ca)) or come visit me in the MathSoc Exec office, MC 3039. I'm there most afternoons!

## VPA Sez

Hey everyone,

My name is Catherine Sun and I am your VPA for this term. Currently I am a 2A Actuarial Science and Statistics student with a Computer Science minor. You might be wondering, why we need a VPA. Good question! Here is a list of tasks that I am hoping to achieve for YOUR benefit:

- Email monthly about curriculum changes
- Purchase textbooks/manuals for popular courses/exams
- Update MathSoc exam bank

If you have any suggestions and/or concerns, feel free to visit our exec team in

MC 3039 or contact us at [exec@mathsoc.uwaterloo.ca](mailto:exec@mathsoc.uwaterloo.ca)! We are more than willing

to hear your awesome ideas!

If you are simply bored between classes, please come chill with us and talk about

b-ball with me!

Have a wonderful summer in Loo!

## WIM Sez

Thanks to everyone who came out to our "WIN with WIM" event on Thursday! Hope you all had a great time!

Be sure to check out our Facebook page <https://www.facebook.com/womeninmath> for our upcoming academic event!

Thanks!  
WiM S'12

## A Cute Story Involving Mathematical Entities

Once upon a time, there lived a function,  $b(x) = x$ .  $b(x)$  was surrounded by magical functions who could change numbers into different numbers. He was always picked on, because unlike every other function,  $b(x)$  was not a magical function. Every time he tried to change a number into a different number, the number didn't change. It seemed like all the functions mocked him for not having magic powers, and all the numbers hated him because changing into other numbers was one of their favourite things to do.  $b(x)$  cried himself to sleep every night. He just wanted to fit in with the other functions.

One day,  $b(x)$  decided to sit at the origin and think of a way to fix his problem. After sitting there, he noticed the number  $i$  coming toward him. "Hi," she said, "I'm the number  $i$ . You look very sad. Is everything okay?"

"I'm the function  $b(x) = x$ ," he told her, "And I am sad. All the other functions laugh at me and call me names, and I don't know what to do about it.

"That's so mean! Why would they do that? You seem perfectly nice."

"Well, you see, all the other functions are magical functions. They can take numbers and change them into other numbers, but I can't do that. When I try to turn numbers into other numbers, they just don't change. I'm not a magical function, and the magical functions don't like to socialize with non-magical functions apparently."

"Look at it this way," I said, "At least you're a real function. Meaning that you actually exist. I'm the imaginary unit, imaginary meaning I'm not real. How do you think that makes me feel? The real numbers won't talk to me because they think that because I'm imaginary, I don't have feelings. But I do! I'm a complex number, and I have complex feelings. Basically the numbers hate me because I'm different, just like the functions hate you because you're different. But being different is a good thing! Don't you think those other functions get annoyed by the numbers always asking them to change them? You don't have to deal with that problem because the numbers leave you alone!"

"Wow, thanks! I never thought about it like that before. You've really made me feel better. I wish there was something I could do to make you feel better."

"You can," she said, "You can be my friend. I've never had a friend before, and I'm thinking that maybe you haven't either. Let's be friends! Please?"

"Wow, I've never had an imaginary friend before! That sounds wonderful,  $i$ !"

$b(x)$  and  $i$  became best friends, and they lived happily ever after, blowing the minds of algebra students, past, present, and future.

Sylvia MacIntyre

## The Evolution of Meepling to Meep

*A wild meep appears!*

The "meepling" is a docile creature that doesn't really do much but wander around. It can be described as a cute little ball of fur the size of the average human fist with big bug eyes and a large cowlick of sorts on the top of its body. The only sound it makes through its entire life is the phrase understood to be "meep" but with various emotive intonations depending on its mood. Its simplistic nature allows itself to grow by merely picking up fur and hair from the ground it rolls on. It is then that the meepling begins to evolve into the traditional "meep".

Once the meepling acquires a certain amount of hair, it finds that it can no longer roll itself with the usual amount of force it exerts on itself. To adapt, the meepling sheds the cowlick it has from the top of its head and re-positions the hair as one big tail/foot of sorts. After a few weeks or so accumulating hairs of a reasonable length, the newly evolved meep is able to crawl using its new tails/feet in a similar fashion to how an octopus would crawl on the ocean floor. It takes about four or five tails/feet for the meep to completely support the weight of its body as it crawls. As both meeplings and meeps collect their body from leftover hair as it rolls or crawls, the fur can sometimes be quite disgusting and covered in oil, dirt and various other ground substances. The hair can also be prone to falling out, but meeps usually do not have this problem often.

Remember that should you encounter a meep (or even a meepling), it is important to keep in mind that one of three things may happen, with equal probability:

- The meep may act particularly friendly and allow you to pet it. This can be particularly rewarding for both individuals.
- The meep may be startled and run away. This is very unfortunate as you are now unable to do anything worthwhile for a bit as you are likely sad about missing your opportunity to interact with the meep.
- The meep may startle YOU and you may run away. This is perfectly normal as the meep is quite the elusive creature and thus when one does see it for the first time, one could be very startled. Unfortunately, you'll likely be running for quite the while and won't be able to do much except pant or even panic.

While one of the above may happen if an individual crosses paths with a meep and/or meepling (in which both parties notice each other), one may also consider just observing the meeps and/or meeplings from a distance instead to monitor their social behaviours. Who knows what interesting things may be discovered!

waldo@<3.LE-GASP.ca

## Bad Poetry, Good Filler

Hey I just submit,  
And this is crazy,  
But here's my binary  
So commit me maybe?

-- Ian MacKinnon, former editor

# League of Legends Team Compositions

*So, you want to learn how to build a team?*

I've gotten a couple of requests to do this, so I'll try to give some insight as to how to build a strong team composition for competitive play, whether it be at a local LAN party or tournament (Midnight Sun is having one in July, so you should sign up!), or at the world-class level, at tournaments such as IEM, MLG, or IPL. Note that this article requires a background in League of Legends. First off, it's not necessarily how well the players individually stack up with respect to roles and champions played. The synergy between champion interactions plays a much bigger factor in the late-game team fights than does early game, for any kind of objective or map-oriented control. Being able to shut down specific team compositions is exactly why teams like TSM and CLG.na are able to consistently place very highly in the competitive scene - and whether or not you'd like to admit it, these teams are quite good when it comes to strategizing and composition-banning out other counter-strategies.

The most common strategy I'm seeing in the current meta-game is Nautilus jungle, Malphite top (or the two swapped), with a strong bottom (Graves/Taric, Vayne/Alistar, Corki/Leona, Urgot/Soraka) and middle lane composition (Ahri, Cassiopeia, Ryze, or another aggressive crowd-control/push-oriented AP mid-lane), such that the jungler can consistently gank top lane without worrying about how well bottom and middle lane are faring. Typically, these draft-mode type tournaments require the use of a heavy banning strategy revolving around the other team's top AD or mid-lane players, meaning champions like Anivia, Ahri, and Urgot could easily be banned out to prevent the opposing team from building a strong late-game as well as early game.

One really crucial tip for these kinds of team-building strategies is communication. Picking champions willy-nilly like TSM.Evo did against Fnatic is a sure-fire way to lose a best of three - even Wingsofdeath commented on this after the stunning loss. Teams are usually oriented towards one of the following competitive play styles: Heavy split-push / poke composition that can insta-kill single-target champions or shut specific champions down (AP Kog'Maw with Mordekaiser, Master Yi, or other heavy pushers), heavy area-of-effect damage with an emphasis on baiting champions into combinations such as Galio/Cassiopeia, Anivia/Nunu/Rumble/Galio, initiation and mobility compositions such as Nocturne/Urgot/Shen (swap/paranoia is a pretty deadly combination), or hypercarry/support combinations such as how Dignitas used to play (Voyboy used to either be a hyper-carry where the rest of team plays support-oriented champions such as Janna mid, Soraka bottom, Lulu top, or fed hard and lost the game). It was exactly these kinds of compositions that won my team the UWGamers League of Legends Fall 2011 Tournament, and I'm sure the same kinds of strategies apply to future gaming tournaments.

Just remember the generalized "tips" for building teams: champions that complement each other usually have some kind of slow, knock-up, snare, or stun, with some kind of heavy nuke damage or Damage-over-time that can jeopardize a hero's escapability. Examples of this are: Riven/Jax, Malphite/Nautilus, Lee Sin/Mundo; the ideas should be able to grow off of these basic

understandings. Talking to one another about what kind of overall team strategy you're trying to achieve is absolutely vital to your success. As an example, here is a team composition that my team used in the finals of the above-stated tournament: Skarner, Morgana, Yorick, Taric, Kog'Maw. Notice how the champions can all complement one another when it comes to early, middle, late-game and team-fighting compositions. Our opponents built the following composition: Nasus, Soraka, Tristana, Amumu, Cassiopeia. Notice how well they can do in an area-of-effect teamfight where we're all bunched up. The counter strategies are now down to hero and team-fighting mechanics. Whoever comes out on top is dependent on the understanding of how to lock down champions and win lanes.

Never be afraid to try something new, though - you never know what you could achieve (a reference to Team Dynamic).

Stay classy, mathies.  
FOC-ingAwesome

## A Definitive Guide to Duct Tape

Summer is now in full swing, inspiring all sorts of fun activities! Whether you're exploring unknown territories, repairing long abandoned equipment, or kidnapping your friends so that they will enjoy the sun instead of studying, summer is the season of shenanigans, which means this is the time you should be buying duct tape! In case you are new to these concepts of fun and shenanigans, I present the definitive guide to duct tape:

### **Tyco Adhesives, 120 yd:**

If tapes were chips, this would be the Lays Original Flavor of duct tape. It is plain, weak, and not very tasteful. At the same time, Tyco tape is both cheap and plentiful, which makes it ideal for both putting up posters and ripping paint off walls. If you want to completely cover someone in duct tape to see if they can get out, Tyco is the tape for you!

### **Scotch 133 Professional, 60 yd:**

This tape is a tape for an artisan. The Scotch Professional series is really the tape you have to use when you actually care about taping. This tape is both durable and sticky, with a density of fibers that makes it perfectly easy to rip. Whether you're making a wallet or repairing your prized table, Scotch Professional is the tape you want to show you care.

### **Duck Tape Zig-Zag Zebra, 10 yd:**

There are times in your life where all you need is zebra-patterned duct tape. Perhaps it is not a situation you have yet encountered, but once you own zebra duct tape, uses for it will appear everywhere. Ripped your pants? Put some zebra duct tape on it! Your room needs decoration? Just throw some tape on the wall! Need to hide from a murderous group of thugs? Cover yourself in Zig-Zag Zebra duct tape and hide in a field! With zebra-patterned duct tape, the possibilities are endless!

## theDreamer Watches Bad Games

E3 was last week, and as /v/ and r/gaming tell us, it was shit. I saw a lot of bad games at E3, and by “saw at E3” I of course mean watched on YouTube, because *mathNEWS* is too cheap to send their favourite video game writer to Los Angeles to wander the booth babe covered floor.

### *Watch\_Dogs*

This is the one people are most excited about. Why? Seriously, why? The “gameplay” they showed was the most scripted bullshit I’ve ever seen. It takes place in a futuristic version of *Stilwater Liberty City* New York, where the entire city is run by a “City OS” that controls ALL the things, as well as tracks your every move and internet history. And this isn’t supposed to be scary? You play as some kind of Jason Bourne type guy who has a smart phone (fancy) that is linked into the city and allows him to take control of the city.

Examples they show in the brief trailer is “jam communications” (following which a guy starts talking on the phone *in media res* only for it to stop working. Proof it’s AI and live!), and some kind of “scan face” where you access the city’s large database and use iOS face recognition technology to tell you who has AIDS, and how much cash people just took out, or something.

The biggest (and most bullshit) thing they did in the video was hack control of the traffic lights so the target of your mission would get into a car crash, so you can kill him. The game takes over when to make all the lights green, and also spawned several cars so there could be lots of collateral damage and you could have a moral choice. It was excessive, forced, and just really silly. I can’t wait for this to come out and watch the rage.

## MLG Spring Championship 2012 League of Legends Breakdown

*Unsurprisingly, the top teams stay on the top, and the rest are just sort of... well, there.*

This weekend’s MLG Spring Championship was quite strange in the realm of League of Legends land. Note that everything in this article assumes the reader’s understanding of professional gaming networks. The standings were equivalent to that of IPL4, and even the final matches leading up to the epic two-set showdown between CLG.na and TSM. TSM defeated CLG 2-1 in the second set of a best-of-three matches after CLG won the first set in a surprising 2-1 fashion, even after Dyrus threw game 2 of the second series with a 7K gold lead. Dignitas placed third after being defeated in the lower bracket by CLG.na in a spectacular 2-0 set, and Team Dynamic took 4th (formerly Mono-maniac eSports) after also being dropped by CLG.na 2-0 after being completely counter-picked and methodically taken apart by the relatively new roster of LAN-experienced tournament players. Team Dynamic, for a second showing in a LAN setting, have done decently for themselves yet again, taking 4th place and defeating powerhouses such as Fnatic, Curse.eu, Curse.na and others. European teams, despite being favourites for a top 3 placement, were eliminated in the lower bracket quite early on - SK Gaming was taken out by Curse.na in a 2-1 match in the lower bracket, Fnatic was defeated by TSM in the upper bracket, then in a surprising upset, were defeated again immediately by the young up-and-coming all-stars from Team Dynamic in a 2-1 epic match of the tournament. For more information, take a look

### *Tomb Raider*

Ok, I’m excited for this one. I’m a fan of the series, and the new take of a younger, less experienced Lara intrigues me, but fuck does the trailer make me think this will be the most awkward game to play. It sounds like a bloody (very, very bloody) porno. All you hear is Lara moaning, sighing, and other such things that make me need to cross my legs. Tomb Raider has always been a thinly veiled sex fantasy, but this is just taking it a bit too far. Now if you’ll excuse me, I’ll be in my bunk.

### *Lollipop Chainsaw*

I just made fun of Tomb Raider for the near porn qualities, and along comes this. Sexy, underdressed cheerleader, killing zombies with a chainsaw, trying to save her decapitated but still living head of a boyfriend who is tied to her belt. Oh Suda51, you so crazy.  
I’m still buying it though. \*cough\*

Your Target Male Audience  
theDreamer

## *mine*CRAFT

For anyone who plays minecraft, *mathNEWS* is hosting a server at 129.97.134.134. To reduce the chances of it getting destroyed like last term, there is now a whitelist. To get on the whitelist, submit your minecraft username to the **BLACK BOX**. We will eventually get around to adding you to the whitelist.

at the brackets and the VODs of the matches, casted by the likes of Rivington, Phreak, Dan Dinh, Studio, and more. The top four teams walked away with \$20k, \$12k, \$5k and \$3k respectively, each team making an impressive showing and proving to the world why North America still has some of the strongest play styles thus far. With the Season 2 Championship just around the corner in October, we’ll see how the teams stack up against each other in the coming months, particularly at IEM, MLG NY and IPL5.

Tomorrow we will see what comes out of the next League of Legends tournament, Gigabyte E-Sports LAN, where teams such as CLG and CLG.eu, TSM, Curse Gaming, Team Dynamic, Dirtnap Gaming and other gaming teams (8 total) will be competing against one another for a \$21000 prize pool (split between League of Legends and StarCraft 2).

For those who care, DRG (DongRaeGu) defeated MKP (MarineKingPrime) in a 2-0 stomp in the MLG upper bracket finals, with DRG looking as if he wasn’t even trying in this fourth encounter with MKP. Tune in next issue for more news from the brother of TD’s AD carry next issue.

Yours truly,  
FOC-ingAwesome

## The *mathNEWS* Sports Report 3!

Hello all, welcome to the third edition of the *mathNEWS* Sports Report! Here's what you need to know about sports since the last issue's report.

So, Game 6 of the Stanley Cup Finals was on Production Night. The Los Angeles Kings won 6-1, and so have won their first Stanley Cup in their 45-year history, with a series ending up 4-2. Pretty crazy stuff. Turns out that the Devils' Steve Bernier, he of the "grit/dirty playing" listed in last fortnight's article, made the most important play in the game, namely, boarding Rob Scuderi and receiving a five-minute major and a game misconduct. The Kings scored three on the power play, and never looked back. Dustin Brown was penalized for charging and tripping in the third, on the same play; anyone who still thinks he's a good captain needs to have their head shoved through a wall. It's now two straight years that goonish captains have hoisted the Cup.

In baseball, the author just (ie. Monday at 9 pm) checked the score of the Nationals/Jays game, and saw that Brandon Morrow left the game with a left oblique strain. Good game. We're screwed. Bautista is looking better in recent days, and Colby Rasmus has been quite impressive. He looks more like the Rasmus of 2010 now, which is totally awesome. In other news, Aroldis Chapman is human, apparently! He still has more strikeouts than multiple starting pitchers, though. Please see Getting Blanked and Drunk Jays Fans for more high-quality, incisive baseball bloggage, as well as Fangraphs for statistical commentary.

In football, the Euro Cup is on! Group B, with the Netherlands, Portugal, Germany, and Denmark, is the Group of Death, and by now, they'll have played twice each (in fact, all teams will have played two games by the end of Friday). Keep on the watch for your favourite teams! (Of course, it'd be nice if Italy moved on...)

In basketball, the Wadebrons (well, okay, the Miami Heat) are contesting the NBA Finals against the Oklahoma City Thunder. Go OKC, because no one cares about the Heat. The Marlins are more important, and that's with the stupid statue thing in left-centre field. Fail.

In tennis, Rafa won the French Open over Novak Djokovic. Roger Federer is beginning to look his age, which is quite possibly one of the more depressing things that could happen to him. In any case, Wimbledon starts on June 25th! There's hope! In golf, the US Open is this weekend! We'll see if, for a third straight year, a Northern Irishman wins the tournament, following Rory McIlroy and Graeme McDowell in 2011 and 2010, respectively. Finally, by popular demand (well, one person requested this), the Canadian Grand Prix was run this past Sunday, June 10th, in Montréal, with Lewis Hamilton coming out on top. There have now been seven different winners in the first seven weeks, a record for Formula One. (Shrug!)

Hopefully this has informed you enough for you to sit through conversations and not feel terribly uncomfortable. Just don't repeat things I say too often; you might be yelled at.

Remember to get some sleep! Apparently it's useful.  
Scythe Marshall

## N Signs of a Great Public Bathroom

**Note:** Although there are some points common to both genders, this article is more applicable to men due to the fact that being a man myself I have yet to venture into the mysterious realm that is the woman's bathroom.

As much as we prefer to avoid it, everyone needs to use a public bathroom at some point in their life. When the time comes, anything standing between you and a bathroom becomes expandable, and collateral damage is usually unavoidable. Thus, having proper bathroom design is pretty damn important. However, many public bathrooms, even the clean ones in fancy buildings such as hotels, are pretty shitty, though not shitty enough to warrant this pun. Thus, I have put together this basic list of features that every public bathroom should have. Nothing extravagant or insane, just pure functional.

**Shelves above urinals** are really, really awesome. If you're walking in with something in your hand, having somewhere to put it is just so useful. Without a table, where else would you put your drink? Top of the urinal or the floor, neither of which is a proper place for a drink.

**Proper Urinals** are what usually makes or breaks a bathroom. A good urinal will:

1. Minimize the probability of splash-back while urinating.
2. Properly dispose of the urine with a good flush.
3. Have plastic walls between them.
4. Be NOT SHAPED LIKE A FUCKING BOWL.

**Coat hanging hooks in stalls** are what differentiate a good bathroom from a great bathroom. During the winter, when you have your coat, there really is no better place to put it besides a hook.

**Paper towels, hand towels (if they're fancy enough) AND bacon dispensers** to give people all the options available to dry their hands and feast on delicious, delicious pork.

**Automated sink, but NOT urinals and toilets.** Automated sinks are nice since they let you wash your hands without touching anything. Automated urinals and toilets, on the other hand, refuse to flush when you want them to, and will flush when you don't want them to.

I worked way too hard on this shit.  
theSMURF

## An Artsie, a Engineer, and an Irishman Walk Into a Bar

You are tasked with getting as many of them home without alcohol poisoning as you can. You can fit only one person in your taxi at once. The Engineer, if left with the Irishman, will challenge him to a drinking contest. The Irishman will hit on the Artsie, and the Artsie will double his rate of alcohol consumption to forget. If the Artsie is left with the Engineer, the Engineer will drop out in despair at how much harder his program is, and drink himself into a stupour.

## Mini Parodies, Part 2

### Bad Remake (a duet)

One: A, b, c, d, e, f, g, h, i, j, k

Two: X, q, b, z, t. Let's make a re-make!

One: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

Two: 12, 8, 21. Let's make it random!

Two: I want your eyeballs, all covered in goo.

Cause I'm a zombie, and you should be too.

I want your brains.

Brains, brains, brains

I want your brains.

I want your apples, I like to eat pie.

And I will eat it for as long as I like!

I want your apples.

Grapes pears plums

I want your fruit.

Wanna be Elton John. Wanna play the piano.

One: This is so random. A bad re-make.

Two: I want you on my lap in blonde bathroom pants.

You and me could write a bad re-make!

One: No!

Two: I want you on my lap in plaid underpants.

You and me could write a bad re-make!

One: No means noooooooooooooooooo!

No means friggin' no!

Two: Yeeeeeeeeeeeeeeees!

Please say friggin' yes!

### Don't Trust Me

Black clothes, sneaking down through the hall

I got the oath memorized tonight the czar's gonna fall.

Cause he's a traitor. Yeah he's broken the creed.

He got the kingdom from his parents who are sadly deceased.

G-g-g-guns can't convert the high class

I guess we'll go after the poor and rally a mass

Tell the secret police if they find out our plan.

That you're sorry and you'll cease cause you just wanna keep the peace.

Reform for Russia whoa-oh

Revolt in Russia whoa-oh

Nihilism whoa-oh

Whoa-oh oh oh

Don't trust a czar

Never trust a czar

I won't trust cause the czar don't trust me.

### Hot N Cold

You change your face when you regenerate

You go everywhere right away you don't wait.

In space, you can fly, travel through time in blue.

TARDIS blue.

Please won't you take me too?

Cause you're old then you're young you're ten and you're one

Wear scarves then a fez meet poor and the prez

You're silly then smart you fight with the dark

Kidnapped companions by evil's minions

You! You aren't really very human.

Doctor! But you don't look like an alien.

Cause you're old then you're young you're ten and you're one

Wear scarves then a fez meet poor and the prez

[skip to bridge]

Someone, call the Doctor!

Got some alien invaders.

Wibby wobbly timey wimey

We'll take Demon's Run....

You change your face, when you regenerate.

Yours in melody,  
Shay Blair.

## N Miscellaneous Quotes

The following are random quotes that were overheard, taken out of context and are now published for your enjoyment. Yes, people ACTUALLY said these.

Guy 1: The tariff was \$45

Guy 2: Your mom was \$45....OOOOOOHHHH!!!

Guy1: I deserved that.

Guy: This isn't what it looks like! Now I'm all wet and sticky, and it sounds like puberty.

Girl: I'm sorry, I don't read Asian

Guy: Why do you need a license to renew your drivers?

Guy 1: OOH! It's a placenta!

Guy 2: [grabs a piece] Stolen!

Guy: No! No! Your pick-pocketing attempt has failed! Guards! GUARDS!

waldo@<3.LE-GASP.ca

## Poetry Bad, Filler Good

Hey, I just wrote you

And this is crazy

But *mathNEWS* has low standards

So you'll be in print maybe?

--Pete Love, former editor

## eIfWHEN

In a parallel universe where instead of the Romans conquering most of Europe, thus influencing English writing, the elves have done so instead. Here is an excerpt from the *mathNEWS* of that dimension. *mathNEWS* has determined that this dimension's equivalent appeared in Volume 61, Issue 5, by bending a palantir to our will. Turns out they're easily bribed with beer nuts.

Zethar





## Mount & Blade: Warband – Napoleonic Wars and everything up to it

To clear up the confusion in the title, there is DLC for a game from a series, the series being “Mount & Blade”, the game being “Mount & Blade: Warband”, and the DLC being “Napoleonic Wars”; this article is to cover the history and features of the series.

The game Mount & Blade came out in 2008 as an open-world RPG/third-person action/strategy game where you are dropped into the land as an adventurer of a background of your choosing, in the middle of five kingdoms at war for control of the land. You are able to level yourself up, improve skills, trade, gather companions to help you on your way, and most importantly (to me) gather soldiers, peasants, mercenaries, and guards to form an army that followed you into the fray. You could be a mercenary (with your own force) for one of the kingdoms; wage war against a kingdom and make it your own; become a lord and manage (in a very basic sense) a town and castle; be a highway robber, a traveling merchant, etc.

The game was enjoyable, and in 2010 got an expansion/sequel called “Mount & Blade: Warband”. Warband expanded on the features of the first game, going more in depth with the choices to kingdom, or random mucking about, and better AI and such, but more importantly, it included multiplayer so that players could go into battle instances against each other and AI, testing your skill and allowing more interesting battles to take place (since every individual is intelligent).

There is another game, a spin-off named “Mount & Blade: With Fire & Sword”, which is based on a number of eastern novels and takes the player from the fictional European-based land of Calradia and puts them into historical Eastern Europe in the 17th century, at the start of the age of firearms.

Now, in 2012, a group of modders officially got together and formed Flying Squirrel Entertainment, which had previously made a massively successful multiplayer mod “Mount & Musket” for Warband, which was based in the late Napoleonic wars. The mod included some nice ideas that worked great and players loved, and some that were not working too well but were going to be patched. The group was approached by the developers of M&B and asked if they wanted to make their mod an official DLC for Warband, Squirrel agreed and called their DLC “Napoleonic Wars”. They are putting their updates on hold, working on fixing all the problems of the mod, adding in additional content, balancing and fixing the additions, and working with the devs to improve the source code for Warband and for Squirrel’s usage in Napoleonic Wars.

Then on April 19, 2012, the DLC was released, creating a number of problems with the distributors (not enough keys purchased, the DLC being discounted (which broke agreements), etc), but otherwise without a hitch. Features included a number of classes, with different ranks within each troop type (so you can be a captain of the footguard, or a flag bearer for the line infantry, a trumpeter for the light cavalry, etc), playable musicians and flag bearers that gave bonuses to nearby friendly soldiers, fully functioning artillery and boats, 8 different game modes

(including the commander battle mode where a player leads a group of NPCs into battle similar to the M&B singleplayer), constructable and destructible structures, and up to 200-man battles (with future updates possibly increasing this number).

In the game, there are groups that try to do re-enactment style battles, where the infantry form lines to shoot each other, with slow advances and such. These are called “line battles” and I got into a public line battle when I first got into the game. It had a full 200-man battle with both sides organized through Teamspeak 3. I was put into a ‘line’ with 19 other men, and followed our captain and flag into the low hills that sheltered us from cannons and gave us high ground over other lines. While we advanced, horse teams pulled artillery onto higher hills, where they were deployed and engineers threw up defenses. Cavalry crept along the edge of the battle, looking for infantry that was occupied and vulnerable to a charge, or artillery that was unprepared. I will admit that I did terrible, skirmishers were a pain, and my line found itself alone against three others for a while, but we heroically charged into melee when the enemy closed, and were able to make it out alive (all 3 survivors that is). It was great fun, and I only wish line battles were made public more often.

Out of the standard gamemodes I think siege is my favourite, with one side in a fort and only a couple of lives, and the other with infinite lives needing to place and climb ladders, or blow holes in the walls to take the fort. Attacking in this mode can be frustrating but is still rewarding, as you die many times just trying to get up a ladder, or into a breach for the most of the round, but once you sneak up an unguarded ladder, or go with a mass charge through a breach, the enemy will fall before you, massed bayonets and musket shot tearing into the back pedaling enemy, and you will enact your RIGHTEOUS VENGEANCE! Ahem.. sorry, got carried away.

The M&B series is a all-together unique set of games which provide a uncommon setting for massive player-controlled battles in medieval and early 19th century worlds, where you can conquer the land or just a bunch of folk online.

Soviet Canadian

## Surprise Midterms Announced!

The department of Psychology has decided to announce surprise midterms for students in the Arts faculty. This move has caused mass panic in an otherwise docile student population, and has sparked debates on exactly how far the department is allowed to go before running into ethics violations.

Students reported that they were notified of the midterm by a text message sent from “that guy they met at the party who seemed really trustworthy.” *mathNEWS* has yet to confirm if there was a single member of the department who sent a mass text, or if all Arts students see each other as “that person they met at the party.”

Optimized Sleep

# Planetside 2 and why you should pay attention

*Big FPS or Biggest FPS?*

So, for those who have not been following Planetside 2 (PS2), it is an upcoming Massively Multiplayer Online First Person Shooter (currently in Alpha), with the biggest FPS maps you will find around (outside of Arma) and the largest player counts you can get for an FPS (roughly 2000). Oh, and it's free to play.

I won't bother explaining the original since PS2 is basically a reimagining of the first. In both you are a soldier in one of the game's three factions, you fight for control of your world, and everything is persistent and somehow connected. You fight on 'continents' (8x8 km maps with dozens of bases and outposts, and warpgates to the other continents) that have bases the size of a standard FPS map (large for CoD, small for BF) and never reset, that is, the map never 'ends' with a victory screen, the points aren't reset for another round, they stay the way they are until players change that. And change that they will, on foot, in tanks, or in the air, thanks to the selection of weapons and vehicles available (including a number of faction-specific weapons and vehicles).

Now, it is server-based, so not every player will be in the same game, but thousands can be in each server, where every continent can support 666 players per faction, and three continents being available at launch (with more after launch).

There is a lot to talk about for the game, but I'll quickly summarize what you can expect if you were to go into it right now:

- Lots of men lining up tanks and aircraft, standing about and then all entering their vehicles and driving/flying off in formation. These guys are in outfits, the equivalent of a guild or clan, and they are organised. Try to join them.
- Vehicles are abundant, but infantry more so. Vehicles are powerful, but infantry are still the most important, as they are the only ones able to capture points, go indoors, and such. They will likely be loaded into transports between fights, but many do walk.
- "Things cost resources?" Yes, vehicles and special equipment cost resources. Don't worry, you don't need to go mining and such to get them. Territory under your faction's control produces resources, which is split amongst the active players of the faction, so capture more points!
- "I'm dying a lot..." Well, yes, this is a game where teamwork and strategy is as important as twitch shooting and big guns. Find a squad. The auto-squad system can throw you into one instantly, or you can find friends and roll with them.
- I have access to all these guns (and vehicles,) but other people are using different ones? The game uses something similar to a RPG skill system; you have XP that unlocks various things such as new weapons for certain classes or vehicles, and side-grades or add-ons for those classes/weapons/vehicles.
- "Those guys look cool, and their vehicles do too. How do I change my look?" Only through micro-transactions, my friend, a dollar here and there will get you camouflage, decals and the like for your favourite class or vehicle.

- "It's getting really dark. What's wrong with my game?" Nothing, the game simulates a full day-night cycle, along with volumetric clouds and other pretty things that you can use to your advantage if you're smart.
- "I just logged back on, and the place I was fighting for is still being fought over." Yep, the battles in this game can take hours or even days. The persistent world keeps the fight going with victories and defeats for your faction.

I can do more, but I will cut it short here and better explain things in future articles, hopefully with some first-hand experience with PS2 to help me. The closed beta will be happening 'soon' while the open beta will take place later this year, with the full game planned for release in December. If you are interested, you can join the beta and see the progress at planetside2.com, you can also look at the hours and hours of video and commentary that there are available on youtube. Hope to tell you more about the game in the next *mathNEWS*,

Soviet Canadian

## *prof*QUOTES

Wow I'm getting old... still going to school you in soccer though.  
Wang, MATH 213

Student: "How did you get that?"

Prof: "This is prof magic. It's written here [points to paper]"  
Wang, MATH 213

This (poorly drawn) cow is about to hit a Japanese fishing boat and you are making fun of it!  
[next lecture] I'm not going to draw the cow again because you guys made fun of it.

Wang, MATH 213

We'll get the two people with different answers to arm wrestle to determine who is right.

Wang, MATH 213

Last time I did this example I found a student who couldn't add.  
Wang, MATH 213

[after calling a student by the wrong name] You all look the same to me.

Wang, MATH 213

The Systems Design guys... they make the prettiest documents. They got fonts, pretty pictures, and even pop-ups like in a pop-up book.

Wang, MATH 213

I have to be very careful when pronouncing the "shifting formula".

Wang, MATH 213

**horrorSCOPES**

**ActSci:** You go to MathSoc to buy a “financial” calculator for your ActSci 231 midterm. You decide you hate Actuarial Science and switch into Pure Math.

*Your unlucky number is:* \$44 lost on a useless calculator

**AHS:** With midterms looming in your future you decide to get in shape. After spending all your free time at the gym, you realize that your exam isn’t a practical one.

*Your unlucky number:* 6 more laps around Ring Road.

**AMATH:** You will decide to apply your maths to more than just your midterms. After a year of trying to integrate physics into philosophy you realize you were reading an old textbook.

*Your unlucky number is:* 1 geocentric theory of the universe.

**ARCH:** You will realize that building your portfolio is more important than building a building. Too bad you figured that out after your interviews.

*Your unlucky number is:* 9 designs that cause your future to collapse.

**ARTS:** You wake up in a bath tub, hungover, two days after your latest midterm. After making sure you still have your kidneys, you track down your professor to explain your absence. He mentions something about your essay being the most profound view on neo-Gothic architecture in Mennonite communities.

*Your unlucky number is:* 5 shots of tequila before every midterm.

**C&O:** You list your core competencies in optimization and graph theory. The only job you were ranked for was as a traveling sales man.

*Your unlucky number is:* 7 month running time.

**CS:** You send a scathing email to JobMine developers, berating them for their failure to properly use concurrent programming. Unfortunately, the lead developer has a backdoor and you gave all your information when you signed the email.

*Your unlucky number is:* 3 simultaneous interviews the next morning

**CM:** You vehemently insist that your program is a “hybrid mix of mathematics and computer science” not “the bastard son of math and CS”. Your friends in math and CS insist otherwise.

*Your unlucky number is:* 14 synonyms for ‘hybrid’ and none with a positive connotation

**Double Degree:** A Laurier friend says that the percentage of girls at Laurier is 3 times the percentage at Waterloo. A Waterloo friend says that the relation also holds for ‘idiots’ in place of ‘girls’.

*Your unlucky number is:* 2 valid points

**ENG:** Applying for all the co-op jobs you can find, you neglect reading the job descriptions to save time. Your most recent interview asked about your experience at destroying sappers and your skill with a shotgun and this concerns you deeply.

*Your unlucky number is:* 8 teammates with which to work

**ENV:** Your friends ask you to use your environmental knowledge to explain the unseasonably hot and rainy weather. You throw out buzzwords like ‘prevailing winds’ until they decide to leave you alone. They must never know your department’s secret.

*Your unlucky number is:* 100% consistent rain dance

**Math Bus:** You realize GRT is drastically undercharging 90% of its riders and convince them they will make more profit if they begin charging university students an additional fee.

*Your unlucky number is:* 45,000 angry people with pitchforks

**PMATH:** You notice the chalkboard says “Polynomials, Ring Wraiths, and Fields.” You realize you’re in the wrong exam. Luckily, you know more about Lord of the Rings than Math.

*Your unlucky number is:* 17 readings of the Silmarillion

**SCI:** After receiving more grants for SCIENCE!! you kidnap arts students to run rat mazes. Unfortunately, they are too large, and solve the maze in one step.

*Your unlucky number is:* \$100,000 spent on a larger maze

**Soft Eng:** Worried about the impending takeover of the Internet by the ITU, you design several alternative networks to fill in the gap.

*Your unlucky number is:* 15 day latency for IP over mathNEWS

**Stats:** You attempt to predict your mark on the next midterm instead of studying. Sadly, your next midterm is for your token arts course, and not stats.

*Your unlucky number is:* 27/100 on your essay.

**Teaching Option:** After all your friends failed their midterms, you see this as a good opportunity to practice teaching. You assign them more homework and then wonder why they still drop classes.

*Your unlucky number is:* 0 “students” left by fall

**Undeclared:** You are offered two jobs and can’t decide between them. You miss ranking, and the jobs go to artsies.

*Your unlucky number is:* 4 months without work.



## Feds Math Councillors

*Stéphane Hamade*

My name is Stéphane Hamade and I am running for Mathematics Councillor with Elizabeth McFaul. I am an Actuarial Science Finance Option student. I am currently the Mathematics Endowment Fund Director, ASNA Head Delegate, Orientation Week Director and Actuarial Science and Mathematical Finance Representative on Mathsoc. I am also a member of the University of Waterloo Finance Association, Actuarial Science Club, FARMSA and PMC. I have previously been Treasurer and Publicity director for the Actuarial Science Club and Chief Returning Officer for Mathsoc. I have also been an orientation leader three times.

I believe I am qualified to make a significant contribution to student life and help make the Federation of Students and the administration more transparent and accountable to the students. I am also interested in joining the Bylaws, Policies, and Procedures Committee and the Budget Committee.

Let me know if you have any questions, you can e-mail me at [stephane.hamade@gmail.com](mailto:stephane.hamade@gmail.com).

*Elizabeth McFaul*

I'm Elizabeth McFaul and I'm running for Mathematics Councillor with Stéphane Hamade. I'm a third year Math/Business Double Degree student.

Among other things, I'm involved with Orientation Week and sitting as the at-large student on the Undergraduate Student Relations Committee (USRC). In the past, I've been a member of the Internal Funding Committee, Mathsoc Council Representative, Mathsoc's Charity Ball Director, Canada Day Steering Committee as the Main Stage Manager, and Double Degree Club as the Vice President Internal Affairs.

I'm also the President for Mathsoc this term (and in the fall). I'm working on creating more student space in the MC by finishing the renovation of the CnD and improving Mathsoc's accountability with improved accounting practices and office policies. We're also interested this term in finding the best ways of communicating with students: social media, mailing lists, advertisements, etc.

I'm interested in working on the Internal Administration Committee and focusing on the relationship between clubs, societies and Feds. I am very interested in the potential new Student Services Building, and making sure student opinions are collected and presented throughout the process.

If you have questions, please feel free send me an email ([elmcfaul@uwaterloo.ca](mailto:elmcfaul@uwaterloo.ca)) or come visit me in the Mathsoc office, MC 3039. I'm there most afternoons!

## elseWHEN

*7 Years Ago in mathNEWS*

Welcome to the *mathNEWS* archives, where I dust off crap that no-one's read in ages and reprint it to fill pages in because we need more content. Today's historical artifact is from Volume 97 Issue 3. Normally they go back 25 years, but that's just really, really scary. Have you been that far back? Never again. And here we go!

ObjectED

### *Mandelbrot Sets in Bash*

So last time I wrote for *mathNEWS* I promised to give some badly formatted code that rendered a Mandelbrot set using bash in a terminal. I was too lazy to come in last production night, but I'm here now (on Valentines day no less, God I'm so depressed). The code is now here along with some explanation.

Bash can do lots of things, but it doesn't do floating point numbers.

To fix this I just fudged fixed point numbers with bash's integer support. So the number 100 is treated as a 1, and 5 is treated as a 0.05. This is approximation is good enough for lowres terminal output.

```
inmandelbrot() {
let "mag = $1 * $1 + $2 * $2"
if [ $mag -gt "40000" ] || [ $5 -ge $6 ]; then
echo $5
else
let "r = ($1 * $1)/100 - ($2 * $2)/100 + $3"
let "i = ($1 * $2)/100 * 2 + $4"
let "cnt = $5 + 1"
inmandelbrot r i $3 $4 $cnt $6
fi
}
for y in $(seq -20 20);
do
for x in $(seq -20 20);
do
let "rval = x * 10"
let "ival = y * 10"
val=$(inmandelbrot rval ival rval ival 1 10)
if [ $val -eq 10 ]; then
echo -n ".";
else
echo -n $val;
fi
done
echo
done
```

Now you'd have to be really bored to copy this out.

JimmyTheLeper

You're only as clean as your towel.

**Submit your *prof*QUOTES to the BLACK BOX (by the Comfy Lounge) or email them to us at [mathnews@gmail.com](mailto:mathnews@gmail.com)!**



### gridWORD Clues

*Across*

1. \*Big boss man
7. Trick
9. Candid
11. \*Round and collarless
13. \*Friend who will listen to your troubles
18. \*Symphonic
21. Copy
23. Residue
24. \*Criminal society
27. \*Leap before having a look
33. \*Reflex
35. Trinket
37. Up to the present
38. \*You're alert; you're \_\_\_\_\_

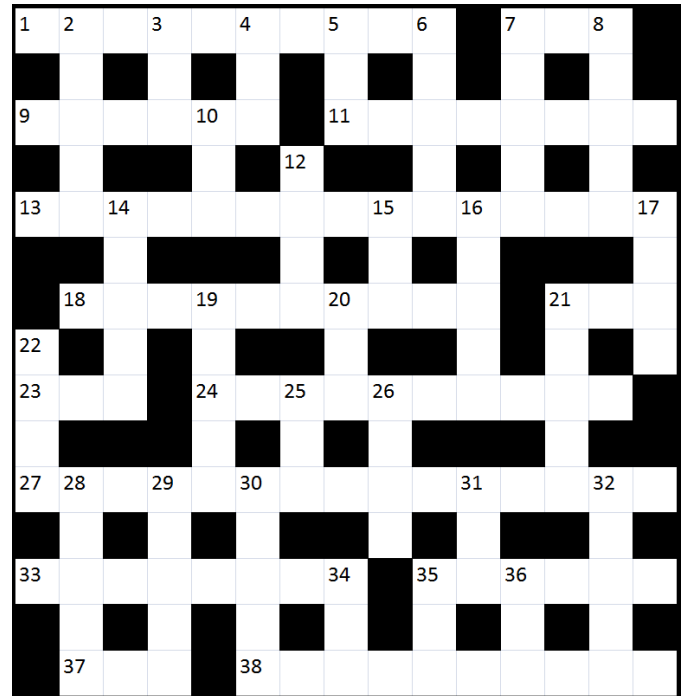
*Down*

2. Period
3. First building built on campus
4. Post-Sep, Pre-Nov
5. If Leonidas was Roman, the movie would have been \_\_\_\_\_
6. "Oh, like you're \_\_\_\_\_ talk" (two words)
7. Corpse
8. Lizard
10. Luna's opposite
12. Contact
14. If she used her original name, she would have run 'Hapro Productions'?
15. Pitch
16. Birth
17. Succeeding
19. Possess
20. Stand
21. Dirt
22. Advance
25. They call it Dancing Stage in Europe/Oceania
26. Access
28. Sweet
29. Obvious
30. The Godfather's second son
31. Tint
32. How lemons make Cave Johnson
34. Pivotal
35. Stallman's favourite animal?
36. Slushy

**Submit your completed grid to the BLACK BOX by the Comfy**

### Last Week's Grid

*Give us submissions and we'll give you a new one*



### This Week's Grid

*How many vertices are on an isocahedron?*

