

**In memory of Michael Brown**  
*and countless others who have lost their lives for being black*

*math* **NEWS**  
Volume 126, Issue 6 *Friday, November 28<sup>th</sup>, 2014*

**lookAHEAD****mathNEWS**

November 28 Issue 6 jingles all the way

**University**

November 28	Wing Night at the Bomber
December 1	Lecture/classes end
December 4–19	On-campus examinations
December 10	Fees due for Winter 2015
December 19	Exams and co-op work term end
December 22	Unofficial grades begin appearing on Quest

**Miscellaneous**

November 28	Black Friday
December 1	Cyber Monday
December 4	Wear Brown Shoes Day
December 8	National Brownie Day
December 13	Ice Cream Day
December 17	National Maple Syrup Day
December 18	Bake Cookies Day
December 25	Christmas
December 26	Boxing Day

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Amy Li (Dasher), Elizabeth Liu (Vixen), Katherine Tu (Rudolph's Red Nose), Rachel Wiens (Comet), Jose-Miguel Velasco (Donner)

**mastHEAD**

*We'll be back to our regularly-scheduled silliness after these messages...*

If you're not angry, you haven't been paying attention. The grand jury in Ferguson has failed to indict police officer Darren Wilson, who murdered 18-year-old Michael Brown back in August. Brown and his friend were jaywalking when they were stopped by Wilson, who told them to get off the street. He drove away but quickly returned, purportedly because Brown was the main suspect of a nearby theft. Witness and police accounts diverge from there: the police say there was a struggle between Brown and Wilson, and that Brown tried to take Wilson's weapon; testimonies claim that Wilson assaulted Brown, and that his final words were, "Hands up! Don't shoot!" The autopsy reveals that Brown was shot six times at close range.

But this is not the only story of its kind. You may remember the case of Trayvon Martin, or maybe you've heard the news of the 12-year-old boy murdered last week, again by police, while sitting on a swing with a BB gun. What's the significance of these events? All victims were black. And they were killed by those who claimed to have been 'protecting' the community, like police officer Wilson or neighbourhood watch volunteer Zimmerman.

Protests have erupted worldwide since Michael Brown's death, especially in Ferguson, Missouri, where he was killed. In retaliation, Ferguson was declared a no-fly zone, and police in Ferguson have been militarized, using tear gas and wooden pellets against protesters and journalists alike.

We do not live in a post-racial world. We do not live in a world where people are not profiled, assaulted, or killed for their race—for being black. The KKK has been thriving since the shooting. Your silence and indifference only perpetuates the hatred of black people, and so do your jokes about afros, black skin, African-American Vernacular English, or looking 'thuggish' or 'gangsta'.

And so we happily end our term, an opportunity not given to Brown, who was about to start his university career before his death. In light of this joyful time of year, we asked our writers, "What's not popular this holiday season?"

Ender Dragon ("Creepers."); WATshaot ("I like trains."); Tubes Jr. ("Fruitcake."); IceNine ("Nine feet of ice."); tesseract("Satan Clause."); psychomath ("Wearing entrails for garters."); lp0on-fire ("The set of all holiday seasons that do not contain themselves... no, wait..."); xoxo ("Harem pants + crocs"); Beyond Meta ("Reasonable spending not brought upon arbitrary traditions perverted by capitalist society"); MuffinED ("Halloween decorations."); Zethar ("Thankfully, Hell. Who knew Mephistopheles was such a chill daemon prince?"); Socially Awkward Individual ("Socially awkward individual."); quiz ("Apparently the feasibility of Shor's Algorithm for RSA Decryption by a third party"); ThatGuy ("Political correctness"); wibbled ("starting work SUPERRRRR early"); dictatED ("Ebola"); Scythe Marshall ("Equality; both social and mathematical.");

bunniED ("Indicting trigger-happy police officers.");

## A Brief Reflection on a Fall Reading Break

Over the course of the term, there has been discussion on the ramifications of having a Fall Reading Break, especially for incoming students. I personally cannot truly speculate what may or may not occur in future, but looking back to my first term at UWaterloo, it was incredibly stressful. I was overwhelmed by school and everything else going on. At times, I felt I had no room to breathe. The Thanksgiving break was a welcome relief, but I definitely felt it was not long enough. Having even two extra days would have definitely made a difference. While I don't know how my schedule, midterms, or Orientation Week may have been affected, I do feel that if I had had more room to breathe, I may have made decisions that may have benefited me more, due to being able to actually THINK instead of panic. I also would have been able to spend more time with my family which, considering the current situation, would have been so important and crucial to me before everything turned in an unexpected direction. Time is a precious commodity that we cannot afford to lose or waste. Unfortunately, since many of us are rushing to get to the next class or assignment, we don't realize that this time is passing us by and before we know it, life will eventually hit us so hard that we will never be able to catch up again because all that time is gone. Any opportunity that can potentially GIVE us time is an important one to consider, but we must think of how that time can be better used as well as abused.

If you have concerns about anything that a Fall Reading Break may bring, please contact [fallbreak@uwaterloo.ca](mailto:fallbreak@uwaterloo.ca). Everyone in the Associate Vice President Academic's office will be more than happy to hear them. Just because the referendum is over doesn't mean the discussion has to end! I encourage you to let your voice be heard.

A Mediocre Kitty

## An Intuitive Explanation of Proof by Infinite Descent

Proof by infinite descent is a sort of proof by contradiction. Many people taking number theory or cryptography courses may already be familiar with this proof method.

1. Ensure that there is some value  $n$  that is in the statement.
2. Find a case that doesn't work with a value  $n$ .
3. Find a case that may work with a greater value  $n$  that looks the same as 1.
4. Show that the case that may work becomes a different case with a smaller  $n$  value that looks the same, so it may work as well.
5. By induction, the value of  $n$  can be lowered infinitely.
6. Contradiction.

Yep, totally makes sense now.

quiz

## So Long, and Thanks for all the Pizza

'Sup punks? I'm leaving. Stepping down as editor. Yeah, I know you'll miss me. It's my time though, I have to go. I'm taking a bloody heavy course load next semester, and after that I'll be graduating. Taking wing into the real world. If you're a good kid and work hard, maybe we'll meet out there someday. Stay strong, it'll be hard but I know you can make it without me. I believe in you. Cry as much as you want, it'll be hard at first but you'll get over it eventually. Make me proud.

Love and kisses,  
MuffinED

## It's over 9000!

If you have a fondness for math, lame jokes, and the mythical promise of snacks, come to the Over 9000 contest on Monday! Classes will be over, so why not?

**Location:** MC 4021

**Time/Date:** 5:30-8:30PM on Monday, December 1<sup>st</sup>

**Content:** Various "standard" math contest questions that have been hacked and reformatted in the format "True or false: X is over 9000!"

**Example:** A sphere of radius 9m is exactly halfway between a point light source and a flat wall, which are 30m apart. (The centre of the sphere is 15m from both the light and the wall). True or false: the area of the sphere's shadow on the wall, multiplied by 6, is over 9000! And so on.

It's fun. So come out!

## CSC Library Has A Mind Of Its Own

The CSC warns that their library has become sentient due to the density of Artificial Intelligence textbooks located on the shelves. It has already migrated into the MathSoc exec office, and is rumoured to be biding its time before it starts eating students.

*mathNEWS* asked around to see how this sort of terrible event affects students lives. "Oh man," said one student, whose terror was obviously apparent in their eyes. "You can't be serious." said the second student interviewed by *mathNEWS*. While *mathNEWS* takes itself very seriously, we have come to expect that others do not.

*mathNEWS* wishes all students stay safe while studying for exams, especially if they're studying in the library or near books.

gigambet

## N Things To Do When Driving

*Texting is not one of them*

These should be no-brainers anywhere, but I feel this list had to be made, especially after it took me four hours to drive from Waterloo to Toronto last Friday (when it should have taken 2–2.5 hours maximum). I guess I should add to the title by saying “on the highway”, but I feel as if these “unspoken rules of the road” should be transferable wherever you go.

- **The left lane is a passing lane.** Going the “highway maximum” and not moving out of the way (preferably to the right) for faster traffic is not only annoying, it actually clogs traffic flow behind you, and is generally not a great experience. Look around you often!
- **Make your intentions clear.** Signaling your intended direction the millisecond before you make a move is generally a good sign that everyone around you has no idea what you’re about to do, and will probably (at some point in your lifetime, should you continue to do this) cause an accident of some sort. Signal early and often if needed; just make sure cars around you know what you’re going to do next. Information like this saves lives!
- **Check your blind spots often.** You probably did this like crazy during your original driving tests, but over time, people (not you, Mathie!) get lazy and stop following habitual instincts. This should be second nature to all highway drivers (especially since you’re moving at high speeds), but on normal roads, it can’t be forgotten!

That’s the /endrant for now, but I have a bad feeling that these obvious points will be forgotten fairly soon. The TL;DR: Just use common sense, and don’t be “that person” on the road that gets honked at or ridiculed because of how inconsiderate someone was when driving.

Hopefully we meet later in life, because my time is done here! Stay awesome, Mathies.

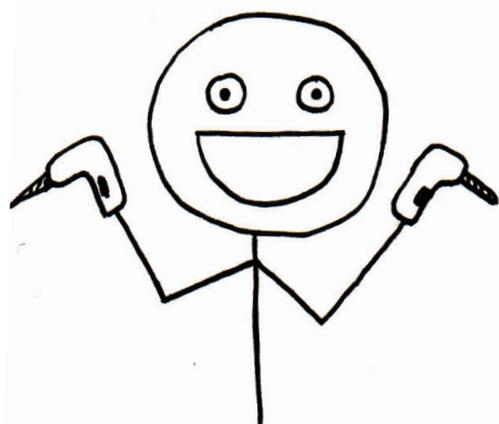
WATshaot

## N Gift Ideas for the Overly Practical

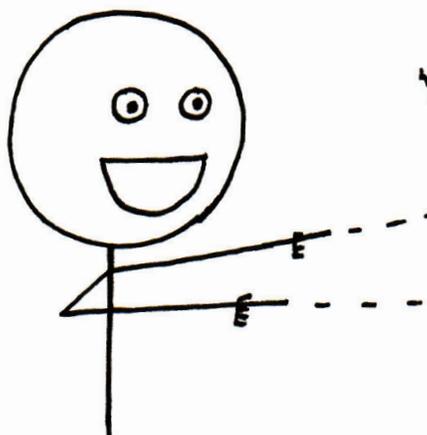
Next week marks the beginning of December, a month of endless anxiety, whether it’s about upcoming finals or Christmas shopping. I can’t help you with your exams (I have my own to worry about), but I can suggest some very practical gift ideas for those of you who don’t want to brave annoyingly cheery stores and an endless loop of Christmas jingles.

- Duct tape. If something is broken, you can probably find a way to fix it with duct tape, so it’s a gift that will always come in handy.
- Textbooks. I’m sure someone in your circle of friends will need that accounting textbook you bought three semesters ago but only opened twice. If it’s out-of-date, they can at least use it as a very sturdy bed-riser.
- Kraft Dinner and ramen. There must be someone you know who subsists almost entirely on these two options. We’re university students, after all.
- Baked goods. Your friends will appreciate both the effort you put in and the food. Who doesn’t stress-eat desserts during finals season? If you can’t bake, a tub of ice cream or a giant chocolate bar will work just as well.
- Aluminum foil. It’s shiny and probably useful in some way or another. But don’t get them Saran wrap; the last thing someone needs during exam season is a ball of uncooperative plastic.
- Lined paper. If they are too high-tech to take notes on paper, they can fold airplanes with it instead. Bending is one thing paper does better than the latest iPhone.
- Kleenex boxes. Flu season is coming, after all. Finals season has also been known to cause stress-induced breakdowns. If you’re going to be there at 2 AM to wipe away their tears, it’s best you do it with something other than your sleeve.
- Bubble wrap. After all, what else is inexpensive but endlessly amusing?
- A copy of *mathNEWS*. This is obvious.

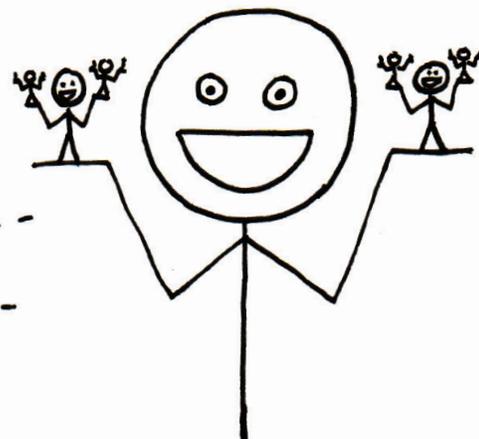
XOXO



FILLER PHIL  
and the  
THRILLER DRILLS



FILLER PHIL  
and the  
KILLER PHALANGES



FILLER PHIL  
and the  
FILLER PHILS

## Meme Reviews: I'm Really Feeling It

The “I’m really feeling it” meme originates from the new Super Smash Brothers by Nintendo. One of the characters in this game, Shulk, who hails from the Xenoblade series, taunts with the words, “I’m really feeling it”.

**Accessibility:** This meme requires some knowledge of the Super Smash Brothers game; in particular, one needs to hear Shulk speak the line in order for the meme to conceptualize in one’s mind. What makes the utterance memorable is that he is voiced with a distinctive Australian accent. When viewed with video, one can observe that Shulk haughtily swings his sword up to his shoulders as he does this, juxtaposing an easy-going motto with an overly-confident demeanour. Since this meme requires a video or the game Super Smash Brothers to understand, it is not an easily-accessible meme.

What makes the phrase “I’m really feeling it” itself amusing? As in Peircean theory, the interpretation of the signifier is fundamental in memes. As a result, its entertainment value likely results from being a signifier with an ambiguous signified, a phrase with a dangling pointer. After all, what is Shulk “feeling”? In the context of Smash and Xenoblade, it is likely the heat of the battle, but it can be interpreted to be a range of things, like the bitter cold of winter, or the giant hammer of Kirby.

**Offensiveness:** The novelty of Shulk’s taunt relies on the exoticism of Australian accents. Furthermore, some Xenoblade Chronicles fans are upset that their main character has turned into a meme.

**Reproducibility:** From videos of Shulk repeating, “I’m really feeling it” in various pitches, speeds, and quantities sprouted images of Shulk photoshopped in various situations, captioned, “I’m really feeling it”. Later came puns, again featuring Shulk photoshopped in different scenes, created with words rhyming with “feeling”, such as “I’m really peeling it” with Shulk holding a banana. With the recent release of Super Smash Brothers Wii U, there came again videos, but of eight Shulks, all taunting with, “I’m really feeling it.”

**Score:** 5/10. This is a rather mediocre meme, as memes go.

bunniED



## Styling Cosplay Wigs

*Applicable only to heat styleable wigs,  
such as those sold by Arda Wigs*

Before you begin, you must ensure that your wig is detangled. To do so, use a wide tooth comb and brush from the bottom of the strands upward. If it is extremely tangled, you can use a detangling spray, or even fabric softener. Simply spray lightly over wig and do not soak, unless you want to dull the shine of the hair.

The most important thing to note is that though these synthetic wigs are styleable with heat, they do not style the same way that real hair does. Simply heating the fibres is not enough — the style holds as the strands cool.

### Method 1: With a Hair Straightener

1. Heat strands with a hair straightener. If you desire a straight look, all that is needed is to lay these strands out flat and let them cool.
2. Wrap strands into rollers or braids for ringlets and crimped waves, respectively.
3. Let cool.
4. Take hair out of rollers/braids and style with fingers. Add hairspray to hold.
5. Voilà!

### Method 2: With Boiling Water (\*recommended)

1. For ringlet curls: Wrap strands of hair around rollers of a size corresponding to the type of curls you want. For tight curls, use small rollers. For large curls or waves, use large rollers. \*Do NOT use foam rollers, as these will soak up water and cause the wig to dry improperly.
2. For waves or a crimped look: Braid the wig hair and tie at ends. For a tight crimped look, use small amounts of hair in each braid. For waves, make large braids.
3. Using tongs (or holding by the bangs if applicable), lower the wig into boiling water. This is only necessary for 10–20 seconds.
4. Transfer the wig to a bowl of ice water to cool.
5. Use towel to pat dry, and let the wig hang until completely dry.
6. Unroll rollers or untie braids and comb with fingers for desired look. Spray with hairspray to hold.
7. Voilà!

Sincerely,  
Your friendly neighbourhood cosplay guru,  
psychomath

## UAC Mental Health Subcommittee News

A COMMITTEE HAS BEEN FORMED! :D

## How To Stop Procrastinating – Part 2

*Or how to do that computing side project without getting side-tracked*

If you haven't read the first part of this article in the issue from a fortnight ago, please do so.

In order to be productive, you need to have a distraction-free environment. This means log off from Facebook and social media, turn off your cell phone, and only check email at the beginning and end of your day.

When can you work on your project? The weekends are a golden opportunity containing large chunks of uninterrupted time, allowing you to concentrate and think at length about concepts in depth. The weekdays are okay, though with classes and work, you cannot realistically do in depth critical thinking and concentration after a long day of back to back classes. Your brain would be fried and only remain activated for frivolous activity consumed in bite sized chunks, such as checking Facebook, texting, and socializing. If you are still not mentally exhausted at the end of the day, at best your mind would only be useful for rigidly defined somewhat menial tasks, like homework assignments. Therefore—and this is hard for many of us to adjust to—the best time to do real work during weekdays is in the early morning, starting at dawn, before the business of the day starts overwhelming you. As a bonus, not many people are up at this time so this is a large distraction-free chunk of quality time. The other side of this equation is sleeping early. To wake up early, you need to sleep early, and make it a habit, especially during weekends.

Once you are in an good distraction-free environment within a sufficient block of time suited to do the tasks of your project, you need to put yourself in the proper mindset to do productive work and ideally achieve flow in your tasks. There are many methods, such as Pomodoro, and other sprint-based time management techniques, designed to help you accomplish the goals of your task. At the start of your work session, before you start the task, even if you have broken it down into a small chunk of your project, you may feel hesitant to start, or even anxious.

You may think you need to feel sufficiently motivated in order to start. But this is not how the science of motivation works, and in the back of your mind, you know that this is yet another excuse for procrastination. You need to dip your toes in and do small bits of the task, little by little, five minutes, and then ten minutes in, and assess how you feel. You will often feel a small sense of accomplishment that you have started and done some work, even if a little, that you will feel sufficiently motivated to continue. Often the act of doing precedes the feeling of motiva-

tion, so you need to give yourself a ten minute “test” start on the task, to see how you're doing and feeling. You will probably not achieve flow by this stage, but your natural curiosity and interest in your task of your project—which by now you are in the middle of—will lead you to accomplish more and more in the chunk of uninterrupted time you have allocated for your tasks.

Divide the work of your tasks into sprints, such that you work for half an hour, then take a five minute break to reward yourself. Get up and walk around to get some physical activity going and then stretch. We're often hunched at our desks on our computers in bad postures. After you've accomplished three of these sprints take a longer fifteen minutes break. Get yourself a (healthy) snack while you're at it! Take a couple of minutes to review what you've completed during this past set of sprints.

Note in your to do list or log how long the task(s) took and compare this to your estimate. Was it longer or shorter? You might need to adjust your estimates, and now would also be a good time to perhaps reprioritize your tasks, if you feel the need to. During this time you can also read from your list of useful things to read for the long term goals of your project, or even consume items to read from your list of pleasurable things to enjoy, if you have the time. You must stay off email, social media, and keep your phone shut down though. No distractions!

Once you have gotten the hang of 30 minute blocks of your sprints, you might wish to extend their time to 40 or 50 minutes. If you find your mind wanders after a while and you feel agitated in the need for distraction, then you can also shorten their time back as well. On the other hand, if you have achieved flow in your current sprint then time doesn't matter anymore, so by all means continue in your task however long you're in the zone, and do not take the requisite five minute break, or this will break your concentration. Once you drift out of the zone, however many minutes or hours later, then take a long break, because you have earned it. As a bonus you'll feel greatly accomplished!

At the end of the day, no matter how much time you think about your project, or how many articles you've read on how to get started on your project, it all comes down to you. No one else can tell you to do it, or push you towards it, you have to have the sense of urgency and the will to do it. No one else can give you this sense. You have to long for it. You have to be hungry for it.

Now stop commiserating and go out there and do it!

TRK

**Send us your articles, *prof*QUOTES, grid solutions, and glittery holiday cards to [mathnews@gmail.com](mailto:mathnews@gmail.com). or to the **BLACK BOX** on the third floor of the MC!**

## Your Friendly Winter-is-Coming PSA!

Hey there, readers! There isn't currently a PSA for this, but if you noticed the snow this past weekend, you'll know that it is probably overdue!

Firstly, **be careful outside**. The temperatures dipped below -15 degrees Celsius last weekend, and without a really thick coat, you can get frostbite pretty quickly! Just be cognizant of the temperature, and be prepared to cover yourself up when necessary.

Secondly, **check the weather!** Nothing is worse than expecting it to be bright, sunny, and beautiful (like Monday, before it started raining), then getting snow, falling temperatures, and a nasty wind chill. Plus, there's always data available; you can use any of the labs in MC, your smartphone, or any other Internet-enabled device to check the weather quickly and efficiently!

Thirdly, **expect the worst**. It snowed in November, and then all of a sudden, all of it melted, and it was a nice 15 degrees Celsius. Sure, there was rain, but wouldn't you rather not freeze to death in November? Snow should only happen during the holiday season, not during American Thanksgiving!

Here's a quick checklist of "things to do" to be proactive about the coming winter (insert "Winter is Coming" meme here).

- **Take indoor routes when possible:** If you haven't already noticed, most buildings inside of Ring Road are connected. Using shortcuts indoors is a good way to stay out of the

### N Things that have Changed at UW

I've been here for a long time. Like a LOOOOOOOONG time. Too long. So since this is my last week on campus ever, here are some things that have changed since "back in my day":

- MathSoc has been renovated (2011).
- Comfy Lounge got new (currently "old") couches (2010).
- Biology 2 lost its green space (2008), replaced by the QNC (2012).
- The Math faculty has a 3<sup>rd</sup> building (2011).
- The WatCard became a form of bus fare (2007).
- The WatCard design changed (2007, then again in 2013).
- The Cove (UW's campus arcade) closed (2007). It was replaced by a place filled with much less dancing: the Campus Dentist (2011).
- Clubs lost their offices; the former clubs offices became student study space (2009).
- **mathNEWS** almost got sued (2010).
- CASA, the largest club on campus, was forcibly shut down (2010).
- The iXpress expanded from 1 to 3 routes (2011, 2013).

I'm sure there's more stuff that happened, but this is all I can think of for now.

cold, the rain, or any other abnormalities outside that would otherwise mess with your day! Refer to the campus map if you need to figure out how to get from building to building, or, if you have a smartphone, download Mappe-dIn or a similar maps program to find detailed layouts.

- **Get winter boots / thick socks:** The thing about the snow is that it is brutal, and it is relentless. Making sure your feet stay warm is of paramount importance! Also, getting boots with tracks on the bottom is a surefire way to stay safe from the curse of the black ice—that stuff is painful when you fall on it, and it's never a good sign when you get injured off of something like that before exams.
- **Cover everything!** Make sure you wear a hat (toque), gloves, a jacket, and thick legwear – you don't want to expose skin and get a nasty case of frostbite! Wearing multiple layers when it could possibly get colder through a day is really good too—it's easier to remove layers when it gets warmer than summon clothing from thin air when it starts snowing again.

It should go without saying that using common sense when it comes to the winter is important—never underestimate wind chill, and remember: it's probably safer to stay warm than risk frostbite or catching a bad cold, especially close to the exam season. By the way—good luck on your exams, Mathies!

Signing off forever,  
WATshaot

### N Things to Do While Neopets is Down

*Waldo found this happening more and more frequently than desired*

- Write a **mathNEWS** article
- Wonder when it'll ever come back up
- Google, "Is Neopets down right now?" hoping for a "No"
- Art... maybe
- Talk to friends on Skype
- Peruse other websites to try and fill the void
- Panic
- Cry
- Twitch incessantly
- Post a status update about it
- Look through old print screens of all your Neopets' accomplishments and reminisce about the good times
- Check the official Neopets Facebook page and see all the other people complaining about the site being down
- Check the official Neopets Twitter to see if they posted an update about the site
- Realize you're very attached to a website nine years after you first started playing
- Fall asleep at the computer and dream about all the adventures to be had... on the site

**profQUOTES**

- “Somebody shat scientific gold when they discovered E. coli K12.”  
Neufeld, BIOL 240
- “This orbital in particular – that one. [*Throws whiteboard marker up at screen.*] Sorry, I didn’t have a pointing stick.”  
Sciaini, CHEM 120
- “There’s no tutorial this afternoon. I can’t tell you how disappointed I am.”  
Drekic, STAT 230
- “You’re wrong. You’ve fallen into the trap. Someone had to fall into the trap because I would have waited it out.”  
Roegiest, CS 246
- “Well, two and a half months, because we went over all that crap about shell scripting that no one will ever use.”  
Roegiest, CS 246
- “Your partner just had an idea and you want to tell them [...] that it’s a bad idea and that they should feel bad.”  
Roegiest, CS 246
- “It’s okay, I’m funny in my head and that’s all that counts.”  
Swanson, BIOL 150
- “I have to leave the room, so don’t do anything nefarious.”  
Swanson, BIOL 150
- “Did I ever tell you concurrency was hard?”  
Buhr, CS 343
- “[The keyword] `volatile` is witchcraft.”  
Buhr, CS 343
- “I’ve never had a real job.”  
Brecht, CS 854
- “I guess the big thing for you is to memorize the normal [distribution] table [for the test]. [*Class laughs.*] Did I say something funny?”  
Drekic, STAT 230
- “Run this bit of code, and if it stops, blow up the operating system.”  
Buss, CS 245
- “This is a warm-up question. It’s started getting cold, right?”  
Krividonova, AMATH 442
- “My old boss works at NASA. I ask her how she knows her code is right. The answer is, ‘You don’t.’”  
Krividonova, AMATH 442
- “Euler wrote more than 238 papers after his death. Most people don’t write that many during their life. There’s something to aspire to.”  
Krividonova, AMATH 442
- “If you get into a field early enough, even the most trivial idea gets your name in the history books.”  
Krividonova, AMATH 442
- “The aim of calculus is to quickly and efficiently solve problems you have no interest in. This prepares you for working life.”  
Krividonova, AMATH 442
- “You guys are so grades-oriented, just like my kids are candy-oriented.”  
Krividonova, AMATH 442
- “If my grad students were as dedicated to research as my kids are to candy...”  
Krividonova, AMATH 442
- “They are largely garbage. I’m going to say it politely: numerical noise.”  
Krividonova, AMATH 442
- “What happens to them? Since I am so cheerful today, they die.”  
Krividonova, AMATH 442
- “They used this for atomic bombs. They were doing very sophisticated things. I went back and read it in Russian. Wow! Huge impress.”  
Krividonova, AMATH 442
- “We assume the world is a happy place. No kids are dying. At least not kids of anybody we like.”  
Krividonova, AMATH 442
- “You learn where you can abuse the physics. It’s like speeding: 10 over is acceptable. 30, and you get a ticket.”  
Krividonova, AMATH 442
- “People usually abuse notation here. That’s exactly what we are doing.”  
Krividonova, AMATH 442
- “My daughter asked this morning ‘What is an abortion?’ That was a difficult question. To which I mustered the response ‘Eat your breakfast, you’re late for school.’ Compared to that, this is easy.”  
Krividonova, AMATH 442
- “Could you just play something short and by the time they come we’ll have it put away and we’ll say, ‘Noise? What noise?’”  
Morris, AMATH 390
- [*Announcing a talk.*] “I believe that, for those of you fighting scurvy, we’ll have fruit.”  
Statsna, AMATH 463
- “They don’t lie to you completely in PDE courses; they’re just restrictive.”  
Statsna, AMATH 463
- “We give you the impression that a bunch of formulas someone derived 200 years ago are where it’s at.”  
Statsna, AMATH 463
- “If I’m a figure skater and I spread out, I spin slower. Also my butt drags on the ground, but that’s not in the model.”  
Statsna, AMATH 463

# Subscriptions!

“You make this assumption as a first approximation, with the intention to come back and make a second approximation. Then you spend your whole career on the first model, and then you die.”

Statsna, AMATH 463

“If it really mattered what all the details were, we’d all be studying something else.”

Statsna, AMATH 463

“What ‘physics’ is is determined by the powerful people in your department.”

Statsna, AMATH 463

“Beat someone to the ground with ingenious algebra.”

Statsna, AMATH 463

“In my final year, I had two good courses, and 3 that were varying degrees of absolute garbage.”

Statsna, AMATH 463

“If we approximate this man as a sphere...”

Ha, PHYS 225

“That’s why we don’t diffuse to go home.”

Ha, PHYS 225

“If the grass grows faster than the spherical cow, the cow doesn’t have to move.”

Ha, PHYS 225

“I will help you prepare for the final exam, so everyone gets 90 plus or minus alpha. Alpha ranges from 0 to 100.”

Ha, PHYS 225

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## Last Week's gridSOLUTION

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

## This Week's gridSOLUTION

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

## Awesome Games Done Quick 2015: lp0onfire's picks

Awesome Games Done Quick 2015 is coming up very soon! It will be airing all week from January 4 to January 10, 2015. Awesome Games Done Quick is a charity video game marathon featuring high-level play by members of the speedrunning community. All donations go towards charities such as the Prevent Cancer Foundation and Doctors Without Borders (although the charity to be supported at this marathon has yet to be announced, it's speculated to be PCF). Last year, AGDQ 2014 raised over \$1 million, and this year's marathon promises to be even bigger.

The draft schedule for the marathon has been posted online. If you're new to speedrunning or want some suggestions about what to watch, look for these runs on the schedule:

- **Banjo-Kazooie, played by Stivitybobo (January 4).** Stivity is an amazing B-K runner, and this run promises to show off some interesting glitches with the Bee transformation.
- **TASbot demonstration (January 4).** The TASbot demo last year was pretty mind-blowing, featuring an amazing Super Mario World arbitrary code exploit demonstrated on a real console. Look forward to this one, which might include a special Family Feud demo, "I BATHED KEANU REEVES".
- **Super Monkey Ball, played by Barhunga (January 5).** Super Monkey Ball runs are fast-paced and super intense, with lots of tight tricks and speed tech. Good run for viewers unfamiliar with speedrunning.
- **Anything in the F-Zero block (January 5).** F-Zero is another incredible speed game and some of the tricks must be seen to be believed. Watch these runs.
- **Battletoads co-op, played by jc583 and TheMexicanRunner (January 6).** Watch one of the hardest NES games get demolished before your eyes! Remember to donate for the warpluss run, which will show off all levels and is arguably more interesting than the warps run.
- **Gimmick!, played by Cyghfer (January 6).** Obscure NES title that makes for a very technical speedrun. Donations for best ending, which involves several very tricky sequences to get all the required items.

## N Reasons I Haven't Written for *mathNEWS* this Term

*Waldo has found it very difficult to write in general. Gah... What a term!*

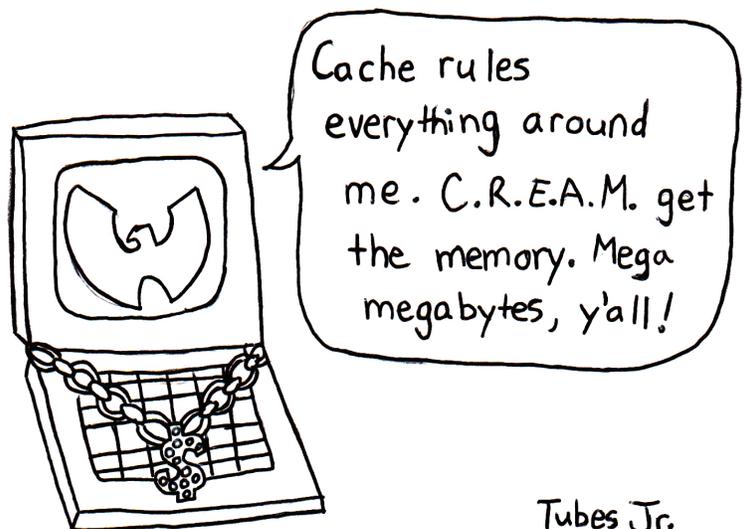
- Neopets
- Life in general
- Co-op
- Being in Toronto because of co-op
- Other projects that I really should get back to working on
- Lack of patience
- Lack of remembering those article ideas that I REAAAALLY should've written down
- It's been nice to take a proper break and not think about Waterloo for a while, even though I still miss it

waldo@<3.LE-GASP.ca

- **Tetris Grandmaster exhibition, played by Qlex and friends (January 7).** All the description says is "this will blow your mind" and considering the skill level present at this marathon, this demo shouldn't disappoint.
- **Mega Man 1 race, played by adefgames, coolkid, and dxtr (January 7).** Some very impressive tech in this game. Although not recommended for unfamiliar players, this should be a good race if you have seen any Mega Man runs before.
- **Town With No Name, played by Brossentia (January 8).** Sure to be the highlight of the "Awful Games Done Quick" block. Run includes the best cutscenes from this very unique game.
- **Mike Tyson's Punch-Out!!, played by sinister1 (January 8).** Go and watch sinister1's blindfolded run of this game from Summer Games Done Quick 2014. It is incredible. (This run is "vision%" but sinister1 will still put on a great show.)
- **Castlevania: Symphony of the Night, played by romscout, Benauton, Dragonblitz, and Epicly Epic (January 8).** This might be a race — I'm not sure — but the estimate is given to be a 20 minute run, so it might be a "luck%" run, which is frankly quite confusing for unfamiliar viewers since it involves an arbitrary code execution glitch that is impossible to follow on-screen. This still might be worth keeping an eye out for in case this ends up being a "real" race.
- **Portal, played by Blizik and/or Noircat (January 8).** This might be a race depending on the availability of the runners, but either way Portal is a great speedgame. Might be hard to follow for unfamiliar viewers, although the description says "in-bounds" so it might be a bit better than the faster OOB run.
- **Goldeneye 007 four-way race (January 10).** The runners are not named but rumour has it that RWhiteGoose might be participating, and if that's true you should watch this run just to hear his voice. Either way, get hype.

The marathon is livestreamed free online at <http://www.twitch.tv/gamesdonequick>. Let's make this one the biggest GDQ ever!

lp0onfire



Tubes Jr.

## Reflections on Being a TA

*Am I bitter and cynical? Really? I hadn't noticed.*

As part of graduate school, one is either required or subtly pushed towards doing TA work for the department, depending on where you go and what your funding package looks like. Some departments have you in front of a class right off the bat, because they need instructors for tutorials or labs; others will require you to first prove that you are capable of working diligently in this capacity by marking and working in a drop-in tutoring center or similar. Some departments will also hire undergraduate students to do TA work, including running tutorials or labs if there is a demand and a lack of grads to do it.

During my undergraduate degree at UWaterloo, I worked in the Math Tutorial Centre for five terms, which was a fabulous experience. Unfortunately, unless you request and somehow obtain some sort of chronicled observation of your work, this will mean literally nothing at all to external universities. So I started from scratch at UVic, marking for two courses. I merely marked for a 400-level dynamical systems course (similar to AMATH 451), and I marked and wrote solutions for a 300-level advanced calculus class (MATH 247 with a bit of AMATH 231). Notice that both are upper-level; this might seem odd for a first-year grad student —until you realise that if you don't study that area, you lose competence in the area very quickly. Therefore, students who are still capable of marking for high-level classes are very much in demand.

They may also be in demand because marking for such classes is challenging; trying to stay within your allocated hours for the term while still marking well is stupidly hard, and marking is, in general, soul-crushing. I haven't marked since Winter 2014, where I marked two 300-level analysis courses (kind of like 247 again but without vector calculus, and introductory to topology) and a 'calculus for biology and social sciences' course, which was horribly painful, since I'm not used to that level of calculus. Marking is just one of those things which you can only stand if the situation is right, or if you have the right perspective on things. Admittedly, it **is** one of those character-building tasks.

That term, however, I did get to try my hand at UVic's Math/Stats Assistance Centre, which is analogous to UWaterloo's Math Tutorial Centre. The fun part is that I get to help with literally every course, instead of focusing on just one. I even help with stats! So I tend to look forward to my AC shifts, just like before. The fun part is that the interview to do AC work involves helping with first-year calculus, and seeing as I hadn't touched that level of calculus either at UVic or UWaterloo, I had no idea. Thankfully they still hired me.

For the past two terms, I've been running tutorials for second-year calculus courses: intro to multivariable calculus (MATH 237) and intro DEs (kind of like AMATH 250). As my first tuto-

rial experience, these have been quite interesting. The main difference from what I experienced at UWaterloo was that the goal is to get students working, thinking, and trying to work on the problems themselves, rather than having the instructor going through problems on the board. To this end, I've given out handouts or put the questions up via document camera, and let them work for half the class, or work for five minutes and talk for five, etc.

Unfortunately, the most frustrating thing about running tutorials is that, often, you are stuck presenting whatever the instructor gives you for material. When the instructor is good, this is not a problem at all, but when the tutorial material is boring or unimaginative or unstimulating or tedious or useless or repetitive, it becomes very hard to convince the students (or worse, yourself) that they should spend some time working on it. Sometimes you'd rather the class of 110 drop down to a class of 30 or 40, though that will happen regardless of the material, especially if you drew the short straw and have tutorial starting at 3:30 pm on a Friday.

This may all sound pretty terrible. In reality, I probably complain far too often about this stuff, and for most people, TA work isn't that much of a pain, and is decently enjoyable. Quite fairly, there are, at the very least, the students who always come to tutorial ready and are eager to learn, who stop by and get some drop-in help regarding something that isn't actually an assignment question, or who actually pick up their marked homework. These students are the ones who 1. make TA-ing worth doing and much less painful than it could be, and 2. will benefit from your TA work. That's meaningful.

One last note is that sometimes you do get thrown into the fire while TA-ing, but there should be resources for you to use to help improve your TA-ing ability and related skills. I've gone to an almost-weekly workshop at UVic aimed at becoming a better math TA, and there are many more workshops which I haven't attended about TA-ing in general. You may also have a specific person in your department whose job it is to advise and mentor TAs, and your fellow graduate students are great people off whom you may bounce ideas. This means if you're like me, and you ran into the "Help, I can't do this marking thing, emotionally!" problem, there are many avenues down which you may find help.

TA-ing has been pretty neat so far, with ups and downs, but I think I appreciate doing it. Soon I might get to even teach a course! Then all hell breaks loose, but I guess there's time until then.

Scythe Marshall

## IceNine Reviews: October/November Games

This past month and a half has been amazing for gaming; there have been so many news games but so little time. I picked up a bunch of games and DLC over the last month. Here's what I thought of them:

### **SUPER SMASH BROS. FOR WII U:**

Smash for Wii U has all the same characters as the 3DS version yet it somehow feels much more right. For one, the graphics are bright and clear. I got a chance to play eight-player mode and it was a blast. The event matches, stage varieties, and mini-games are good. The things I'm disappointed in are the lack of an Adventure Mode, tournaments being patched in later, as well as the lack of certain characters I wish had returned (Ice Climbers and Lucas in particular). Overall, Smash 4 plays a lot faster than Brawl, feels like a blend between Brawl and Melee and seems like a solid new game.

**Verdict:** Thumbs up

### **POKÉMON OMEGA RUBY/ALPHA SAPPHIRE:**

The remakes of Pokemon Ruby/Sapphire were released by Nintendo last Friday. The core mechanics are the same: catch and train Pokémon, beat eight Gym Leaders, stomp the Elite Four and become the Champion. However, it's the quality-of-life improvements that makes this entry really shine. First is the DexNav card for the PokéNav, which lets you know if you've found all the Pokémon in the route. It also allows you to identify 'mons you can sneak up on that appear in the overworld, so that you can find monsters with strange abilities, moves, or items. So far it has made "catching 'em all" much more enjoyable. Besides that, Super Training and all of the online features are returning from X and Y, which makes competitive battling far less of a grind.

I do have some gripes though. First, unlike in the original games, the overworld is segmented and needs to load between routes. I really enjoyed the old seamless transitions from before the DS entries and this irritates me a little. Second, the Game Corner is gone, so no more promoting gambling through a product aimed at children. Third, Pokémon Bank, the application which lets you transfer your critters between games doesn't let you transfer items, and takes quite a while to get certain good battle items. Fourth, they gated away a large amount of content behind an Eon Ticket which we have to wait for a Streetpass chain to get. Finally, you still need THREE water type HMs to finish the game. It's just such a waste of moveslots. Game Freak, please, just make them Key Items in the future, or make the moves not suck please. Cut and Rock Smash are not competitive moves. Despite these issues, I am largely enjoying the game, and would definitely recommend it to old and new players alike.

**Verdict:** Thumbs up

### **Picross e5:**

This game is the fifth picross eShop game Nintendo has released for the 3DS. Generally, it follows the same formula of the previous titles in the series, in that it's picross; you can control with the buttons or the stylus to solves puzzles to make

cute pictures. In comparison with Picross DS, also by Jupiter, it has many of the same features, but lacking in the themes of the puzzles in that game. As a nice bonus, if you have save data from previous games, you get a few free puzzles, which is sort of cool. Also my picross addiction is unhealthy. It is now 3:15 AM on Tuesday morning and my article still isn't done. If you want to know what kind of puzzles picross are, search for "nonagrams", "pic-a-pix", or "picross" and you should find many websites with free ones to get a taste.

**Verdict:** Twitching tired thumbs up

### **EUROPA UNIVERSALIS IV THE ART OF WAR DLC:**

In comparison, the EUIV team at Paradox has their shit together. Art of War introduces a number of new mechanics. The foremost is the new Christian Reformation and 30 Years War systems, with Catholic and Protestant Leagues forming in the Holy Roman Empire leading to a massive Europe-spanning war, reflecting the historical bloody nature of that conflict. It allows for upgrading of fleets, declaring war in support of rebels, setting objectives for allies, determining strategies for your vassals, creating client states and marches, as well as a host of other quality-of-life improvements. As usual with Paradox games, the DLC comes alongside a patch with a certain amount of free content, the most important being 100 new playable countries in the rest of the world, with 900 new provinces, making the world more than just Europe's stomping ground. I have thoroughly enjoyed the games I have played of it so far. The German Hanseatic League shall rule North America!

**Verdict:** Thumbs up

### **CRUSADER KINGS II CHARLEMAGNE DLC:**

This DLC pushes the start date of Crusader Kings back to 768, to the time of Charles Magnus, or Charlemagne, the second of the Karling line. It gives you the start date, the ability to assign viceroys who you get titles back from upon their death, one new religion to play as, a chronicle system, and a bunch of events. The price is \$15 USD. Sounds good right? Not really. There were a lot of bugs when this came out, leading to an Abbasid deathblob that conquered the world in most games. Decadence for Muslim realms still hasn't been fixed, and the new events are quite limited in scope. Furthermore, the new cultures almost never have the "melting pot" events happen, leading to historically incorrect outcomes like Visigoths ruling all of Germany and France in the 1200s. Don't buy it until the next set of patches fix that start date.

**Verdict:** Thumbs down

### **MARIO KART 8 DLC PACK 1:**

Nintendo too has begun getting in on the DLC train. The first Mario Kart 8 DLC pack gives you three new characters, four new karts, and eight new tracks to play with, for \$8 (\$6 if you buy both DLC packs). Themes seem to be cashing in on nostalgia, there is an F-Zero level, an Excitebike level, a Zelda level, and a remake of Rainbow Road from Super Mario Kart. The novelty of playing as Link wears off fast though and the non-nostalgia

tracks are not memorable. While the price is certainly right, \$6 for eight courses compared to \$60 for thirty-two in the main game, I can't in good conscious recommend this to any but the most die-hard karters.

**Verdict:** Thumbs sideways

#### THE BINDING OF ISAAC REBIRTH:

This game is literally filled with poop. It's a fun rogue-like Zelda 1 knockoff that has really compelling core gameplay. The only detriment the remake has over the original is the soundtrack isn't quite as good. Other than that, this is the definitive version, with twice the content of the original + DLC, it is pretty much a sequel. Highly recommended.

**Verdict:** Thumbs up at 5 AM. Sleep now.

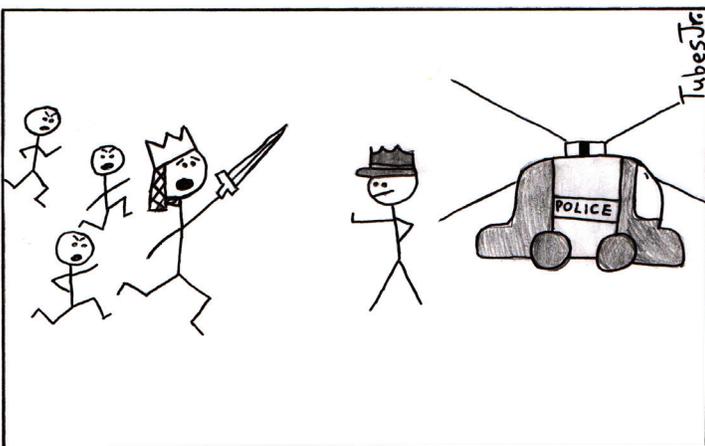
IceNine



## Monty Python in Python

### *The End of the Holy Grail*

```
def theCastleAaaagh(distance):
    police = False;
    print "CHARGE!"
    while (police != True):
        distance -= 1;
        if (distance == 0):
            police = True;
    print "*police silren* \n Come on. Anybody
armed must go too."
```



## Meme Reviews: Is Hold

The "Is Hold" meme, not to be confused with "Why can't I hold all these limes" and "Hold my flower" memes, is a relatively new meme, but I believe it will certainly become a timeless treasure.

**Accessibility:** "Is Hold" is very accessible. It originated from the what-the-fuck-deviant-art Tumblr blog as a screenshot of two comments on the art-sharing site DeviantArt, and became a very popular post with a note count of over 150,000 as of writing this article.

The simplicity of the "Is Hold" meme is what makes it so great. Actions on the Internet are written like stage directions in scripts, usually in third person with the omission of the pronoun, surrounded by asterisks (occasionally it can be found delimited instead by brackets or parentheses, but asterisks remain the most widely used delimiter). The first commenter writes of their action with ease, and we can assume from that the first commenter is the significant other of the second commenter. The second commenter then makes an attempt to respond to this loving action, but fails to properly transform "hold" into its past participle, "held".

The conciseness and simplicity of the phrase "is hold" is what makes it so great; in a mere two words, we are thrust into an ungrammatical and inane world. Anyone who understands basic English verbal transformations is able to appreciate "Is Hold".

**Offensiveness:** Despite originating from a Tumblr blog that is somewhat offensive, as it puts the spotlight on certain works of art or users, allowing for the possibility of harassment, the "Is Hold" meme is censored for anonymity. Furthermore, it is altogether a very inoffensive meme, relying neither on sexism nor racism to be funny, only an absent-minded conjugation error.

**Reproducibility:** It was a long time after the spread of the original "Is Hold" screenshot that variations on it began to arise. But because of the accessible nature of "Is Hold", it can be recognised immediately in its various forms. Most reproductions of the meme are remarkably clever. Among my favourite "Is Hold" variations are the following:

**operator:** please hold for assistance

**me:** \*is hold\*

(by Tumblr user imreallycoolandfriendly)

**phoenix wright:** HOLD IT

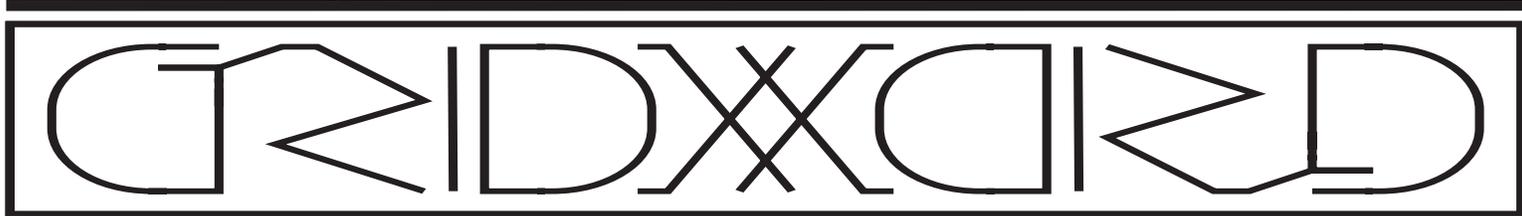
**court:** \*is hold\*

(by Tumblr user enemy-stand)

Because the "Is Hold" meme requires "\*is hold\*" to be the punchline, and also requires that instances of the meme be short like the original, reproductions have little flexibility in format. However, this means that all reproductions of the meme are to-the-point and very clever.

**Score:** 10/10. I love this meme.

bunniED



## gridCOMMENTS

*Hiemal calamity*

This puzzle marks two years of me writing crosswords for *mathNEWS*.

Four out of six submissions were perfect; the giant cactus is a SAGUARO and the pause in poetry is a CAESURA. Also, the IMAC, not the ISAC, is the colourful computer (though both the consequent SOOT and MOOT can be seen as "up in the air")—sorry Sarah! Last issue's *gridQUESTION* was "What should you not do with snow?"; I was hoping we'd have a little more snow by now. Ed perplexingly advised against building snowmen (why not?) while Micca offered the age-old adage "never eat yellow snow". Kyle and Kate said not to sing Snow's song "Informer" but I can't find anything relevant in the lyrics. Finally, "Double Ds" warned against dying while shoveling snow, a common problem for "sedentary over-55s" (according to the BBC). By random draw, the winner is Ed! Congratulations, Ed! You may pick up your prize at MathSoc.

Good luck on exams and—it sounds strange to say it so early—happy holidays! See you in 2015!

Cheers,  
unit

## This Week's Grid:

1	2	3	4	5	6	7	8	9	10	11	12	13
14				15					16			
17				18					19			
20				21		22			23		24	
			25		26				27	28		
29	30	31		32			33	34				
35				36			37	38		39	40	41
42			43	44			45		46			
47				48		49			50	51		
			52			53	54			55		
56	57	58			59	60			61			
62				63	64			65		66	67	68
69			70	71			72			73		
74				75						76		
77				78						79		

## gridCLUES

*Across:*

1. Not quite closed
5. From the top
10. Ratchet click
14. Glows on watch dials
15. French river
16. Do as directed
17. Off to the side (var.)
18. Pestled basil and pine nuts
19. Not that
20. Ice cream treat
22. Glasses piece
24. Bauxite to aluminum
25. Scuttled, foundered
27. A leaping ten?
29. Rouse or run
32. The Sports Network
33. Ruled Russia
35. Stray?
36. Fetor
38. On some ladies' legs
42. Scoot!
44. Dangerous virus
46. Way out
47. Triangular savoury pastry
49. Serve tables
51. Live laboriously (with "out")
52. Fastness strongly held
54. Bullfighting cheer
55. Very recent
56. Commenced
59. Bother
62. Conger, e.g.
63. British big house
65. Spanish man
69. Greek god of love
71. Walks down 7D
73. Pea or corn go-with
74. Havoc in the streets
75. Biblical tower
76. Listeners
77. Smallest unit of meaning
78. Anatomical term of location
79. Revered plant

*Down:*

1. Alack and \_\_\_\_
2. Superstitious power
3. Hymn end
4. Swamp stalks
5. Their airy cages quelled in leaves the leaping sun
6. \_\_\_\_ whiz
7. "Window" alternative
8. Purpose
9. Vegas gas?
10. Pan pal
11. "You, my creator, \_\_\_\_ me"
12. Supernal
13. Cellular breakdowns
21. Selfish prefix?
23. Do in (e.g. a dragon)
26. Rounded protuberance
28. Thin inner border (heraldry)
29. New Girl Day
30. Black-and-white killer
31. Better than a damn
34. Gastropod's garb
37. Clash
39. Yoked yaks
40. Formerly Blue Ribbon Sports
41. Suffer (in your own juice)
43. Vegan staple
45. Its capital is Vientiane
48. Doctor's wife, River
50. End (e.g. mitotic)
53. Insect midsection
56. Brewskis
57. Spectral
58. Oddish evolved
60. "Elsewhere" excuse
61. Ancient ant
64. Swedish stars
66. Type of hug
67. Nintendo partner
68. After if and elif
70. Sault \_\_\_\_ Marie
72. Crack cops