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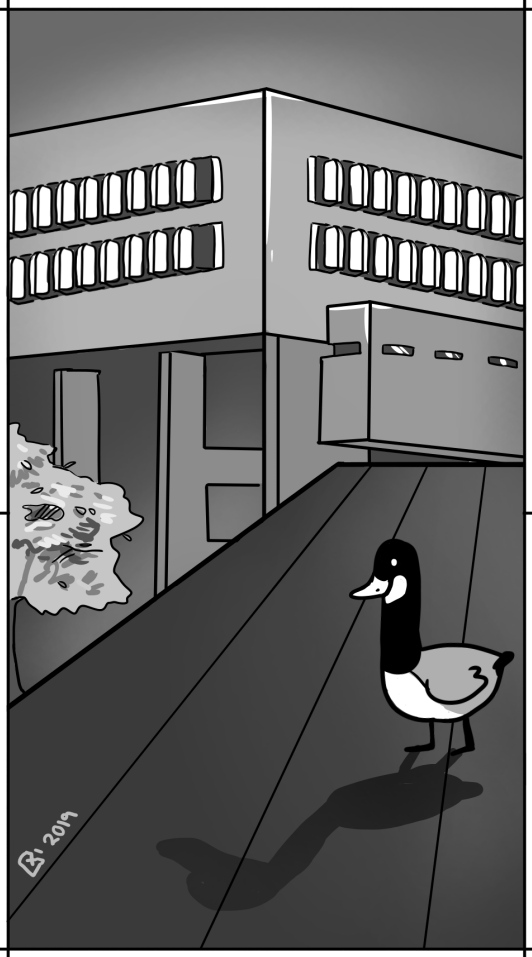
5		4
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"WHAT FLAVOUR OF PIE WOULD YOU LIKE TO INVENT?"

Hello dear readers, and welcome back to your favourite fortnightly publication.

Have you considered how that word no longer means what it does in the current day and age? Middle schoolers would probably be elated to hear that they could read about Fortnite. My friend recently told me they witnessed a mother begging her kids to stop flossing. I was in awe for a moment about the youngest generation's dedication to dental health, until I remembered the existence of the acursed game. I imagine that kids these days are cursed, like in the fariy tale with the red shoes, to continue Fortnite dancing until someone relieves them of their feet. Truly, it is a tough life for them.

We have the kindly lecturer Blake Madill for this issue, and he has provided us with many insights on his own life. Fun fact: staplED has a class with him this term! Another fun fact: she has not revealed her identity to him yet, in fear that he might dock her marks for publishing libel on him in **mathNEWS**. Just kidding! That was a lie. No such libel exists.

There are considerably more articles in this issue than the last, a fact which the editors attribute to the lack of a first-year math course midterm held at the exact time as this past Monday's production night. Special shoutout to Finchey, License2Derive and Sandwich Expert for being machines. These three writers contributed about a third of the contents of this issue! That's actually ridiculous. Finchey, please write slightly shorter articles, your piece on St. Patrick's Day is great but also fucked up layout way more than any other article by virtue of length alone.

Our dear beloved staplED also fixed her **gridWORD** from i2 for this issue, so you readers had better attempt to do it! I want staplED to receive so many submissions as to be overwhelmed by the sheer volume of them all, and to accept that she can create **gridWORDS** after all. If we receive none, I am single-handedly punishing the entire **mathNEWS** readership, some way or another. I'll figure it out. And also staplED will be sad. So please submit something.

In any case, I have a class to go to in ten minutes. Peace out!

itorED
Editor, **mathNEWS**

License2Derive	Irrational flavour.
πllow Princess	Boys-in-berry.
Sandwich Expert	Pizza.
Finchey	Cucumber dish soap. Light 'n' refreshing!
UW Unprint	Humble Pie — sponsored by Kendrick Lamar.
Wolfram Beta	Canadian.
Daisy the Dog	Dog food. Dogs need love too.
water	Shepherd flavour.
Samwise Gamgee	Lembas.
an editor in disguise	**mathNEWS**.
Various Pseudonyms	The sudden and irrevocable realization that grandma is kind of racist.
Theodore Bear	Salmon.
Beyond Meta	Victory. Sweet, sweet victory.
whatifOS	Cake is the only acceptable form of pie.
Zethar	Maybe I'll actually get empyrial ichor and stygian ambrosia as pie toppings...
Gordon Ramsay	Idiot sandwich.
Dawdling	An inexpressible flavour.
Epsilon Screwn	Raspberry pi.
quantum goose	Humans, when they get too close to my super-positioned nests.
confusED	Cheesecake flavoured pie.
itorED	**mathNEWS** editor.
staplED	Water flavoured.
terrifiED	~~Vodka~~ Wholesome, flavourful, potato juice.

ARTICLE OF THE ISSUE

This fortnight's article of the issue goes to UW Unprint for their article, *Proof You Wrote in Last 5 Minutes of Midterm Wins Fields Medal*. Congrats!

Reading this article inspired a variety of feelings in our rather mathematically-challenged editors, and more than a single tear was shed. Thanks for reminding us all that we're not meant for grad school!

itorED

We eat on Pi Day so we may regurgitate upon Pi Night.

MICHELLE ZHU, mathNEWS EDITOR FOR WINTER 2019
ALONG WITH ESTHER AHN, JAMIE ANDERSON, TERRY CHEN

mathASKS 139.4

FEATURING LECTURER BLAKE MADILL

DAWDLING: WHERE DO THE SYLLABLES IN YOUR SURNAME SPLIT?

Ma-Dill. My last name does NOT rhyme with paddle. Mad-ill is my weekend rapper name.

QUANTUM GOOSE: WOULD YOU RATHER FIGHT ONE MANITOBAN SIZED GOOSE, OR A HUNDRED GOOSE-SIZED MANITOBANS?

Fantastic question! Someone from "Friendly Manitoba" (actual provincial slogan, Google it!) would never actually fight me, regardless of their size! Whereas even a PEI-sized goose is terrifying. I choose the tiny 'Tobans.

ZETHAR: WHAT IS A MOTIVATING PIECE OF MATH FROM A COURSE YOU TEACH THAT CAN CONVINCE SOMEONE WHO WOULD HAVE NOT TAKEN THE COURSE TO CHANGE THEIR MIND?

The Fundamental Theorem of Galois Theory. After studying and working hard to understand Abstract Algebra for nearly a year, this result ties together finite group theory, polynomial ring theory, and field theory in such a beautiful way. By understanding this one result (and its proof, of course), it is a lovely confirmation that one has really understood a large chunk of Abstract Algebra, opposed to just scattered fragments of crazy algebra facts.

FRUITBOY: DO YOU HAVE A FAVOURITE MATH QUESTION?

I don't think I have a favourite question, but I have a favourite proof! The proof that the power set of a set X has cardinality strictly bigger than that of X makes me tear up a little. I am a big fan and over-user of a proof by contradiction. However, this proof method finally gets its time in the spotlight in this proof! What a trick! Check it out!

CC: HAS A STUDENT EVER COMPLETELY SHIFTED YOUR PERSPECTIVE ON SOMETHING?

Goodness, yes. I have many examples, but here is one I would really like to share. As a graduate student here at Waterloo, I was once assigned to TA PMATH 351, Real Analysis. This job consisted mostly of grading the weekly assignments. As a young, naïve, first-year Ph.D. student, I was often very critical, and borderline rude, in my comments on a not-so-fantastic proof. About half-way through the course, I had a student from 351 visit my TA office hours. This student expressed the discouragement and anxiety my comments had caused, and we had a long chat about the challenges of learning mathematics. At the time, I thought my harsh comments were "helping" the students. Learning from this conversation, and now as a Lecturer, creating a positive and encouraging classroom atmosphere is VERY important to me. When my students are comfortable in lecture, I believe they learn best. Moreover, it is important to foster an atmosphere where the students feel comfortable asking for help! Above all, it is important that we all be kind to others!

VESICA PISCES: IF YOU COULD CHOOSE THE COURSE CODES FOR YOUR CLASSES, WHAT VALUES WOULD YOU USE?

PMATH p, where p is any three-digit prime. Therefore, at least in my algebra classes, I could make the students work modulo that large prime in EVERY SINGLE ASSIGNMENT (I'm kidding…). It was too bad PMATH 331 was an analysis class….

TOTALLY-NOT-A-TRAITOR: WHAT IS THE MOST EVIL MATH SIN?

The dreadful, the terrible, arcsin. That's how you pronounce that, right?

CIX: WHAT'S YOUR FAVOURITE HOBBY?

I will keep this one non-mathematical. I am not sure if I have one clear favourite, but spending time with my family/friends, trying new foods, retrying foods I have already eaten, and watching curling are definitely up there on the list.

WHATIFOS: SUPPOSE A SLICE IS A PORTION CREATED WITH A SINGLE CUT, AND A PIECE IS CREATED BY ANY VIABLE MEANS. NOW SUPPOSE I HAVE A CAKE OF ARBITRARY RADIUS, WHICH I PROCEED TO MUTILATE BY DRAGGING A KNIFE FROM THE EDGE TO THE CENTRE, TURNING π/6 RADIANS, AND DRAGGING THE KNIFE BACK OUT TOWARDS THE EDGE OF THE CAKE. IS THIS A SINGLE CUT, IMPLYING THE FREED PORTION IS A SLICE, OR TWO CUTS, IMPLYING THE PORTION IS A PIECE?

Great, now I'm craving a DQ ice cream cake of arbitrary radius! While I am no geometer, I am definitely a cake expert. It is clear from the definitions that every slice is a piece. However, a single cut implicitly assumes one downwards cutting motion. This dragging process you have described therefore disqualifies this piece from being a slice. More importantly, if you turn the knife around by pi/4 radians, you will get a bigger PIECE of cake. Peace.

EPSILON SCREWN: WHAT ARE YOUR THOUGHTS ON STOMPIN' TOM CONNOR'S SONG 'MANITOBA'?

YES. Thank you for reminding me of this national gem. Interestingly enough, Stompin' Tom is actually from New Brunswick. I am soooooo (Manitoba accent, so) glad to hear he enjoyed his time in Manitoba so much. To answer your question, I love it. I really encourage people reading this to visit and explore the beauty of the more rural side of Manitoba. It's beautiful! And if it's really the prairie crocus you are interested in, you're going to want to stop by a little town called Arden, Manitoba. Now I'm homesick…

THEODORE BEAR: WHAT IS YOUR FAVOURITE WAY TO PURIFY MATH? BOILING? OR DO YOU PREFER SOME OTHER METHOD?

I only study Pure Math in the first place. ☺

TERRIFIED: WHAT'S YOUR FAVOURITE MATH JOKE?

After a long reflection, I realize now that I don't like any of them. And I'm ok with that.

GETTING THE MOST OUT OF YOUR B. MATH

profTHOUGHTS *139.4*

As a Lecturer in the Department of Pure Mathematics, I often spend just as much time, if not more, thinking about the quality of a student's learning experience as I do thinking about mathematics. The following blurb outlines some advice I would give all my students. Of course, I am sure many will disagree with me, but I would like to give my opinions nevertheless.

Disclaimer: Most of my examples will come from courses in PMATH, but please generalize wildly as you see fit.

UWaterloo undoubtedly has some of the strongest mathematics undergrads of any university. So what mistakes could you smarty-pants be making? I think there is a couple.

One of my favourite parts of teaching at UWaterloo is the drive, determination, and enthusiasm of the students with respect to learning new mathematics. While I hope my students never lose this attitude, I think extreme enthusiasm can be blinding, and it's important to be careful. What am I getting at here? Well, the biggest piece of advice I would like to give you all is — *Don't try learning too much, too quickly*. A solid mathematical foundation outweighs an extensive collection of random scraps from a billion courses, any day. Routinely, at the beginning of every semester, I have students wishing for me to sign them into a course because they want to take a 7th course or they want to expedite their degree or bypass important prerequisites. Depending on the course and the situation of the student, sometimes I sign these…and sometimes I don't. And here is why I sometimes say no…

To those in first or second year: A shaky understanding of calculus, linear algebra, proofs, statistics, or intro programming, will haunt you for the rest of your mathematical career. So instead, take the time to learn these courses' material, and try to obtain as deep of understanding as you can. Especially if you are taking the advanced classes, this course-load should keep you more than entertained. There is no need to take Commutative Algebra or Functional Analysis in 1B. Don't you worry, you'll get there eventually, and it will be fantastic!

When I was a new graduate student, here at UWaterloo, I attempted the algebra comprehensive exam in my Master's degree. My knowledge of groups, rings, and fields served me quite well for this exam. However, I quickly realized that the area I was shakiest on was linear algebra. I believe there was one big reason for this — I learned all of my linear algebra in my first two years of undergrad, when I was still learning how I learn. I truly believe that if you try to take too much too early on, the less prepared you will be for future courses. So take your time, enjoy your degree, and focus on the basics.

To those in third or fourth year: While there are probably exceptions, trying to bypass prerequisites usually is not a great idea. Really clever people have assigned these prerequisites, and usually for good reason. Mathematics is beautiful, and things have a way of developing and growing from previously learned materials. Yes, you SHOULD carefully learn about metric spaces before taking Functional Analysis. Yes, you SHOULD adore Group Theory before attempting Galois Theory. Yes, you SHOULD finish your linear algebra and calculus streams before moving on to Differential Geometry. These are just a few examples. If you follow the natural learning paths, you will learn better, and you will learn well (*assuming you work really hard*).

Now, I know what you all are probably thinking: "But if I don't take PMATH 4xy in 1B, I'll have to wait until 4B to take it, and then I won't have time to take PMATH 4mn?!?!?" Here's the good news! If you are a student who is that excited to learn mathematics, it sounds like you are going to grad school! There will be lots of time to learn about everything you missed in undergrad, during the first couple years of your graduate studies. More importantly, as a graduate student you will be a more mature learner, who has really figured out studying, practicing, and how to get the most out of a lecture. As long as you have the basics down, you will learn the more advanced materials better later on. No need to rush.

Besides, limiting yourself at 5 courses, as opposed to taking 7, will really help you enjoy the learning experience more. It is important to (*be able to*) take breaks, enjoy life outside of school, and to do things that make you happy. Join that sports team! Meet up with those new friends! Go to that concert! Go get McDonald's for breakfast!

As one last piece of advice, as I need to go make assignment solutions (shout out to 334/348!), don't worry about how smart that person in the front row sounds. You do you, Scooby-Doo. I speak from personal experience when I say you don't have to be the smartest person in the class to enjoy the beauty of mathematics. As long as you work hard, you will succeed. It doesn't matter how slow or how quick you are to understand something, as long as you love what you are studying and look forward to the next challenge.

I hope you find a few words in the above that resonate with you…even if it is just the part about McDonalds. Be happy, be safe, learn math, take your time, love what you do, and let epsilon be greater than zero.

Peace.

Blake Madill

Send more profQUOTES.

THE ENTIRE mathNEWS READERSHIP

WHY IS THIS SO DIFFICULT?

The University of Waterloo is a school of advanced technology. In 1967, the university received the IBM 360 Model 75, the most powerful computer in Canada at the time. This legacy of innovation continues to the present day, where the Model 75 now runs eduroam for the entire campus.

However, there is one technology this school has not yet mastered: electronic mail, or as some experts call it, email.

Look no further than the end of rankings for the main round of co-op, where students all over received this email:

> *Congratulations! You've been matched with a job for the upcoming work term.*

This email had only one minor flaw: it wasn't true. Yes, it turned out that for some people, "a job" meant "WaterlooWorks", and "the upcoming work term" meant "next Thursday at 2:00 AM". Of course, "Congratuations!" still meant "Congratulations!". It's important to keep a positive attitude.

Luckily, CECA swooped in to save the day, first with an apology:

> *Hello,*
>
> *You received an email in error today regarding the match. Please disregard and good luck on your future interviews.*
>
> *Thank you*

And following up that apology with a finishing move, the "apology there wasn't enough apology in the last apology" apology:

The brief apology note was written in haste to seek to remedy the confusion and as a result it unfortunately came across as lacking sincerity and for that, I sincerely apologise.

which is understandable. The first note had all the deep care and sincerity of a tornado warning.

> *Hello,*
>
> *You received a warning today regarding the tornado.*
>
> *Please regard and good luck not dying.*
>
> *Thank you*

But, they probably shouldn't have brought it up. After all, it's CECA that says not to bring up your weaknesses in an interview.

It's a little mysterious. This school won the Nobel Prize for Physics, and then won the Nobel Prize for giant posters about your Nobel Prize. We send our graduates around the world to build advanced software, even if they all want to be in California. But, somehow, we can't figure out what "reply" and "all" mean if they're on the same button.

Maybe we need more research. Donna Strickland's finished her laser work, after all. Perhaps its time for her to uncover the real mystery: how to send emails, or more accurately, how to not send emails to people that shouldn't get them.

Or maybe we can invent some kind of course to train people on how to use email. You know, develop their skills, professionally. We can call it PD.

Just don't announce the course using email. Donna Strickland's still working on it.

UW Unprint

N THINGS TO GIFT PEOPLE FOR THEIR BIRTHDAY

I always struggle to figure out what to buy people for their birthdays and this month, I can think of six birthdays off the top of my head. Realistically, I only care about three of them.

- A cake (if they were born on the 14th, Pie)
- A book (gotta stay educated)
- This issue of **mathNEWS** *[Editor's note: <3 <3]*
- Not a gift card
- A nice key chain
- Stuffed animals (not real ones tho)
- A meal (because who doesn't like food)
- Crisp high five
- A vegetable or fruit (because you care)
- A hug
- A personalized sound cloud playlist
- Fake Yeezy Boosts
- Apple AirPods (off of Wish)
- Gucci Slides
- Nothing.
- A dog
- A cat
- Your Netflix password
- Your Crunchyroll account
- Your Prime Account
- Your credit card number, mother's maiden name, and SIN
- A good time (like going out to the movies)
- Bubble tea (Coco only tho)

A Cute Angle

HOW YOU, TOO, CAN HAVE A SPLENDID ST. PATRICK'S DAY THIS SUNDAY

IF YOU BUY OVERPRICED GUINNESS AT MOLLY BLOOM'S, AT LEAST FINISH IT.

It looms on the horizon, just beyond the point of no return. Can you see it? Do you feel it? The green. A most MULTITUDINOUS sea of viridian is soon to be unleashed upon us, and to resist is futile folly. The sickly yet sweet smell of cheap beer, displaced in spacetime, permeates the air, foreshadowing what events are to transpire this March weekend. In the lonely death of silence, you can hear it, too — echoes of drunken, joyous revelry, whispers so quiet that they might as well be mistaken for the sweep of the late winter wind. "Kiss me, I'm Irish."

The day for mirth and merrymaking is in merely two days. Are you ready to take advantage of it? It only occurs once every year, after all. The time is ripe — verging on overripe, even, like a banana with a pristine golden-yellow peel that nevertheless threatens to break out in unsightly brown spots as soon as you avert your gaze. If you don't understand what I mean by my fruity fancies: this year will be the last year for quite a while where St. Patrick's Day falls on a "nice" day. Next year it'll be on a Tuesday. The year after that, Wednesday. And then Thursday. For many of us undergrads, this'll be the last chance to get totally fucking wasted on St. Paddy's. OUR LAST CHANCE! DO YOU NOT REALIZE WHAT THIS MEANS?

St. Patrick's Day encompasses not just a day, my friend, but a way of life. A zeitgeist. It's part of the "quintessential" UW/WLU student experience, for heaven's sake. It would be remiss to not even consider the possibility of joining in on the fun, at least once in your time here.

Sure, getting piss drunk on a freaking Sunday may not be everyone's cup of Irish cream. If you've thought about it long and hard, doing some real-ass soul-searching along the way, and still don't want to partake in the festivities — all the more power to you. I really do mean it. This article isn't for you though — I wanna reach out to those who are still on the fence about the whole thing, and those who'd like to join in on the fun, but just don't know how. If what I just said describes YOU, however, do us a favour and read on...

EZRA? MORE LIKE EZYEAH!

Just in case you've been living under a rock your whole life (don't worry, happens to the best of us), the heart and soul of the St. Patrick's Day scene is, has been, and always will be Ezra Street. The two go hand in hand like mashed potatoes and corned beef, or Smirnoff Ice and Jello mix. Ezra is love, Ezra is life. Ezra is eternal.

For 364 days of the year, Ezra's just the same as any other street in the student-housing wastelands. Hardly worth noticing at all. But, this Sunday, it shall rise again from the ashes, marvelous and awesome like a phoenix, to host the greatest street party this small, semi-suburban municipality has ever seen. What the hell, it's better than Oktoberfest. And believe me, the locals here go fucking APESHIT for Oktoberfest! You know why it's better? Because the Ezra party is grassroots: it's by the students, for the students. Not a corporate sponsor in sight. It's homegrown, genuine; based in thousands, no, millions of years of folk tradition. Doesn't it just make the anarcho-communist in you sing with joy?

Ezra is the modern-day Mecca of Ontarian university students. Over the course of St. Patrick's Day, a number of people exceeding the population of Owen Sound will flock to the little side street, having made their journey from all corners of the Earth, from Western to Queens. Finding your way there will be as easy as pecan pie — step outside on Sunday and simply follow behind your peers, dressed head to toe in emerald tones, as they complete the last stretch of their magnificent journey.

So how are you gonna maximize your St. Paddy's fun? It's gonna be what you make of it. First, you have to be in the right mindset — if you just look at the Ezra street party as a big, uncomfortable gathering of a bunch of drunkards standing around and spilling beer on each other, all the while being under the disdainful eye of forty cops (the City of Waterloo usually has to bring in extra help for St. Patrick's Day. It's no fun, I know) who'll spare no time in slapping you with a $300 bylaw fine as soon as you stumble off the lawn of some rando's frat party you're crashing and onto the street — then OF COURSE you're gonna have a shitty time! Geez, it ain't rocket science. Ever heard of the Law of Attraction? Anyway, if you're gonna party at Ezra, you need to have an open mindset. No expectations. For when you relish the moment as it plays out in present time, it becomes all the more sweeter. Take joy in the joy of others, and let your happiness be their happiness; allow yourself to blend into the hive of green, and experience the merging of minds, consciousnesses, fears, dreams, and passions as you've never imagined. You become Ezra. Ezra becomes you. It's the reconciliation of the Self, Shadow, and Collective Unconscious that ol' Carl Jung could only DREAM about (on a side note, doesn't Jung just seem like the kind of person who'd go all out on St. Paddy's? He would totally be a frat WLU Chad; on the other hand, Freud would definitely be a UW student. You can't change my mind, bitches).

Oh yeah, pre-drinking will probably help with all of this. Hurry up and hit up the LCBO while you have the chance before they literally sell out all their stock this weekend. Ideally, you'll wanna buy a six-pack you can chug in its entirety before heading out on Sunday morning. This is a very necessary step. No one's gonna give you free beer, my friend. Not even on St. Paddy's.

STAVE OFF THE GLOOM AT MOLLY BLOOM'S

Okay, okay, so maybe you're not up for Ezra. Maybe it's just a little too much, and you're not quite sure if you can psych

yourself up for it this late in the game. Or maybe you're looking to celebrate St. Paddy's later in the evening — after all, Ezra's a whole-day affair, and I can understand that not everyone has the boundless energy to tackle it head-on. Ah, ain't youth wasted on the young? This one's for all you old souls out there — why not go the traditional route and hit up a pub?

I recommend Molly Bloom's Irish Pub, 'cause it's in the UW plaza and is the closest pub to campus (R.I.P. Bombshelter). Not to mention it's the only pub in the Waterloo with "Irish" in the name. But, if you're looking to explore and branch out from the student scene, and even wanna try mingling with some locals, try out Duke of Wellington on Erb, or either Beertown or Chainsaw on King (although Chainsaw tends to attract the "collegiate" crowd in any case... They DO have karaoke though. And if the prospect of belting out offkey Celtic folk tunes in front of a bunch of strangers doesn't absolutely entice you, eat my entire ass).

Not much to say here. You visit your pub of choice. Either with your friends, or alone (hey, no shame if you fall into the latter category). It's super busy and loud — of course it is, it's freaking St. Patrick's Day, you fuckwit. Did you expect anything different? It's so packed inside you can hardly move, so dimly lit you can hardly see, and the clamour of drunken voices makes it hard to hear your own thoughts. You can feel yourself getting claustrophobic — look, the walls seem to be closing in on you. Closer, closer, ever closer. Fuck. And you thought you were going to escape the crowd of people at Ezra by going out to a pub. Guess you thought wrong. Why does everything you ever try go to absolute shit? Your trachea is closing up, like it's in the chokehold of a cold, metal claw that continues to tighten 'round your neck with each passing second. Let's get out of here. Where the fuck's the door? Someone, help me! But no one can hear you. No one even notices you — a waiter hasn't come to check up on you yet. What are you supposed to do? Head to the bar?

Your legs weigh as heavy as lead, but you manage to trudge yourself over to a barstool with concerted effort. The movement comes to you automatically — a compulsion you are unable to resist despite an overwhelming feeling of dread in your heart.

A cute ginger bartender glances at you and gives you an acknowledging nod before going back to attending to another customer. The Clancy Brothers' 1995 rendition of The Boys of Wexford blasts over the shitty Dolby stereo speakers from the back corner of the pub — not that'd you know, you're not exactly a fan of Irish folk music. You're not even Irish.

Your phone flashes brightly with a Snapchat notification — it's from your old high school friend who goes to Western. Oh, *man* . You guys were inseparable back in the day, but after you both graduated, you slowly yet surely grew apart. The last time you saw your old friend was over winter break, and you were surprised yet again at how much they'd changed since high school; meanwhile, you felt like you hadn't changed at all. Now, you can't help but feel a wave of sadness and self-pity as you watch their snap, a shaky seven-second video of them playing beer pong at a house party, surrounded by a sea of people dressed in green hats and other St. Paddy's paraphernalia. The crowd cheers wildly when your friend sinks the white ping pong ball into the single, remaining solo cup. When you finish watching the snap, you turn off your phone and shove it into your coat pocket, out of sight.

"An féidir liom rud ar bith a fháil?" the bartender asks you, catching you by surprise. What the fuck. Is this fucking Gaelic?

"A-ah, um, just a Guinness, please," you mumble clumsily. Miraculously, the bartender seems to have heard your order in the awful din, and goes to the tap to pour you your drink. With a freckled hand, they set the glass in front of you and flash you a hospitable smile.

"Cad a thugann tú anseo inniu?" they ask, as you take a swig of the creamy-tasting, amber liquid. You blink, and not just because they're talking in Gaelic for whatever fucking reason. It's been a while since someone's tried to make conversation with you, as pathetic as that sounds. Not that you've made much of an effort on your part in any case. But recently you've been feeling as if you've been letting your youth slip by without taking full advantage of it. For one, you don't even feel young anymore. You're always tired and weary. Your uni years were supposed to be the best time of your life, so they all said. But you were too restrained, too foreclosed, to engage in typical youthful exploration. When was the last time you allowed yourself to do something recklessly, without a care in the wind? You were always chasing after something else, something lofty, something noble — your "future". But that wasn't enough. In fact, it was never enough. And you always knew this in your heart. But you were too cowardly to confront the facts, too chicken to change. The months, years you've been in university — you hate yourself for wasting it all.

You take another sip before you answer the bartender. "Honestly, I don't even really know why I'm here. I'm not much of a drinker, to start. But it's St. Patrick's Day, right, and I don't know what came over me earlier today, but I wanted to do something to celebrate it for a change. Didn't feel like going to Ezra though. Maybe that's why I'm here." You look up at the bartender, who nods along to your words with an inscrutable expression. Oh shit, they don't really care about what you have to say, right? It's a bartender's fucking job to make you feel good and pretend to listen to you, goddamn it. Great. Now you've made yourself feel even more like shit. A raging headache pounds against your skull to the beat of the Irish ballads playing over the speakers. A wave of vertigo washes over you. You have to get out of here. Fast.

"Sorry, I don't feel so good, I'm going home," you tell the bartender, as you rise up from your seat to make your way out of the pub. But something grabs your hand before you can leave. You turn around to take a look; before you, a pair of freckled hands cradle your own. You look up at the bartender and into their eyes — they're an astonishing shade of inhuman emerald, strikingly beautiful and piercing in their

stare. A tiny, almost inaudible gasp escapes from your mouth. How weren't you able to notice those eyes before? Your heart thuds with anticipation and you force yourself to swallow the newly-formed lump in your throat. The bartender leans in close to your face, and you think you can smell something sweet — citrus? They're only a few inches away from you: it might just be the smell of their hair, a beautiful, fiery red under the incandescent glow of the bar lamp. You wonder what kind of shampoo they use. It's welcome relief from the pungent smell of alcohol.

They open their mouth to say something. This is it. This is what life was made for — magic, unreal moments like these. Your heart's hammering, and you're acutely aware of the tremble of your hands, the stillness of your breath, and the flow of adrenaline through your veins. And yet, at the same time, the outside world seems to completely fade away. The voices of the other patrons grow dim, and the walls push away in retreat; there's nothing left in the world but you and the bartender. This sense of uncertainty, the anticipation of adventure — it's thrilling. You realize you've never felt more alive in your life. You can't take your eyes off the bartender's lips. What's to happen next? What does this mysterious stranger have in mind? Where will this all lead—

"$4.50, íoc dom an chéad uair," the bartender says in a flat voice. Then, sighing, they repeat in completely unaccented English: "That'll be $4.50." They look at you exasperatedly, only breaking away eye contact once to welcome a group of newcomers to the pub with a shiny smile.

The half-empty glass of Guinness rests in front of you, the amber liquid as still as ice. "Oh. Yes, right," you manage to stutter out. The bartender lets go of your hand, and you fumble for some coins from your wallet. Machine-like, you lay the money beside your unfinished drink, and get up from the bar stool. Retracing your steps, you make your way to the back to the exit, thoughtlessly and puppet-like, as if there were invisible strings pulling at your joints and limbs.

Once you're out of the pub, you take a deep breath of the icy, late-winter air. Your body shudders with nausea, and you quickly stifle the urge to puke on the sidewalk. God damn, when's it going to get warmer, you wonder? Your apartment's on Columbia — too far to walk. You take out your phone from your pocket to look up the bus schedule. No notifications. You sigh, as if the weight of the world were on your shoulders. It's late on a Sunday night, and you're very, very tired.

Finchey

DICKS!!

A USER'S GUIDE TO PENISES

[Editor's note: much of the language used in this article (which parodies another) assumes that all men have penises, and that the only possessors of them are male. It has been left intact for the purpose of retaining the original article's feel.]

Penises can be a touchy subject. But we fear there are too many girls (and possibly guys) out there touching them incorrectly. Here are some useful tips on how to get the most out of you and your partner's penis touching experience.

1. We'll start with the underwear. We know that sometimes removing it can be a daunting task. Asking the guy to remove his underwear after an unsuccessful attempt is a better idea than fumbling around for 5 minutes and ruining the mood. We suggest practice! Borrow the underwear of your brother, a close male friend, or your dad (preferably not while they are wearing it). *[Editor's note: We do not condone such incestuous behaviour.]*

2. Don't steal ideas from porn. Those guys are paid to pretend they enjoy it. Go off of what your guy seems to like, not what some porn star did. If his face looks like he's in pain, he probably is.

3. A gentle, full handed caress is usually a better way to start than a violent squeeze. Some guys may enjoy a rougher touch but starting off soft and working up slowly you can judge what he enjoys.

4. The head is not the only part of the penis that deserves attention. Touching of the shaft should be integrated into a whole penis stimulation plan.

5. Your hands are not the only body part that can pleasure a man's penis. Your tongue is an awesome choice as it is a gentle and well-lubricated appendage. If your man prefers it a little rougher. gentle biting can be incorporated. Find out what he likes and keep it up.

In summary, take queues from your man friend. If he says no or looks like he's in pain, then back off. Most importantly, don't grab without permission. Happy fondling. ;)

Sandwich Expert & Finchey

I wrote for mathNEWS → I get free pizza

A mathNEWS EDITOR WITH SOMETHING TO PROVE

profQUOTES 139.4

CO353: CHAITANYA SWAMY

❝ [On the board: NP = P] ... a $1,000,000 exercise.

❝ This is left as an exercise.

CS 246: ROB HACKMAN

❝ Aquaman is a bullshit hero! He talks to fish, who cares?

CS 246: SPENCER WHITEHEAD, TA

❝ In real life, a friendship is mutual. If you are my friend, I am your friend… hmm, maybe not. Maybe the C++ friend is a painfully accurate model of real-life friendships.

CS 860: JEFFREY SHALLIT

❝ I don't speak Dutch fluently at all.

❝ You may enjoy looking at this if you speak Maple.

❝ I promise not to do any [proofs] as bad as that again.

❝ Erdős wrote a paper about it, so naturally, it's been well-studied. If you want to get your research area studied, get someone famous to write about it it, then it won't matter how weird it is.

❝ There exists such a walk with no more than $5^{11} + 1$ colinear points, which is well over 48 million. The true number is probably 4 or 5, but no one knows how to prove it, so $5^{11} + 1$ will have to do for now.

❝ Warning: this argument is bogus. But sometimes bogus arguments are useful!

❝ And now, for our monthly reminder on Hungarian pronunciation.

MATH 136: DAN WOLCUK

❝ Do not think this is a bird course.

❝ You can be a vector! I know you've always wanted to be a vector.

❝ Prof: You'll see how it's defined in practice problem six.
Student: I don't wanna know.
Prof: No, you *do* wanna know.

PMATH 334 : BLAKE MADILL

❝ I, Blake Madill, promise to make the average at least 75%. You can quote me on this.

❝ At least you know I'm not an anti-vaxxer!

MATH 146: ROSS WILLARD

❝ I did this lecture 3 hours ago. It was a disaster. I plan to do the exact same thing now.

❝ This is good for us. It builds character, lowers my teaching evaluation...

❝ It would be easier to remember your names if I had a brain.

❝ The next ten minutes will be sheer boredom as I, before your eyes, transform this matrix.

❝ This example was meant to be tedious — I think I've accomplished that.

❝ Let A be the following matrix, hooked up for your viewing pleasure...

❝ Prof: What's your name?
Student: Peter.
Prof: Really?

❝ I'm an artist.

MATH 146: JUSTIN LAVERDURE, TA

❝ Oh man, look at this showoff kid. I'm going to mark them hard because they're being a twerp.

MATH 148: LAURENT MARCOUX

❝ Everybody loves Zach... heck, even his parole officer loves him.

❝ Please don't quote me on this.

❝ Maybe you should quote me on this. Maybe I'll get famous for inventing the term. What a lousy way to get famous.

❝ Shady's back!

MATH 148: ZACH CRAMER, TA

❝ [Marcoux] was born from the collision of two ancient comets.

❝ Dr. Marcoux will beat me if I get the numbering wrong.

PMATH 352: MICHAEL RUBINSTEIN

❝ Ignore the 'PMATH 340' on the first page of the exam. This is just from a template that I made.

STAT 332: SAMUEL WONG

❝ Well, I can't let the TA have all the fun, right?

❝ I should get back to work.

MY EXPERIENCE WITH UPPER YEARS AND MENTORSHIP

We're pretty near the end of the first year of school for most first year students like myself, and in my experience, there have been times where I've been quite lost in terms of school, co-op, or a few other things. I always thought that upper year students would have some very useful advice, and recently, I had the good fortune to find some upper year mentors. In this article, I'll recount some of my experiences.

Last term, I received an email asking me to sign up for a mentorship program that would supposedly match me up with an upper year in my program. At the time, reading through the email espousing me to make a profile to be matched up with a mentor, I breathed a quiet sigh of annoyance and typed in my personal information, supposing that one more party owning my data was an acceptable price to pay for the opportunity. I honestly wasn't expecting too much to come from it.

Time for a small aside: I'm not sure about you, but I find upper year students a little intimidating. They've been through way more classes and accrued more knowledge doing so than I could ever fathom, co-op'd at places that first years dream of and high schoolers couldn't imagine, and just generally seem too important and busy to really meet with. I suppose the idea that I'll one day be an upper year student escapes me now, much like it did in my freshman years in grade school.

It was about four months before I heard back from the program. I was about midway through the second semester by that point, and I had mostly given up on being paired with a mentor. I was pretty excited when the emails arrived, and not just a little nervous. In the end, I had been granted not one, but *two* mentors: one in second year, and the other in fourth.

It was a decently scary experience reaching out. I'm not the type of person who regularly writes cold emails to recruiters, and even though my mentors were mentors who had signed up for mentoring, it was still a foreign experience. The mentorship program hadn't actually told us what to do, exactly, when we were actually matched with our mentors. I sent a short email introducing myself and attached a short question about co-op to perhaps provide a conversation topic. I received replies back fairly quickly, and in those replies, my mentors had offered to meet in person!

I ended up meeting both my mentors at various food locations in the plaza. I think meals are a good place to meet with people if you plan on talking with focus, as opposed to going to some more interactive event, like a sports game or something. I worried that my mentors would find the conversation boring, and had internally expected the meet up to last about half an hour, but I ended up talking to both my mentors for more than double that.

And the stories and knowledge they had! I asked them their opinions on all sorts of things, from finding a place to live during the work term, to their favourite music. I listened to what they thought about various courses and strategies for job finding and interviews. It was still a little nerve-wracking, but I definitely learned a lot, and set up some weekly meetings to follow up.

One of my classmates recently asked about how one talks to upper years without having the conversation sound like an interview. In my experience, I find that a lot of questions that you can ask an upper year student are fairly one sided; you won't have too much to say about a fourth year CS course, for example, or your own work term experiences if you haven't had one yet! Instead, I found that questions that relate to topics that you have at least some expertise in spark the most dynamic conversations. Ask about sports if you like sports, or music if you like music. Even though mentors might seem like their purpose is to provide advice about school and your purpose is to absorb said advice, it's still great fun to talk about other things that your mentor has a mutual interest in.

I suppose that I've been very lucky to have access to a mentorship program that required no searching for a mentor on my part. Nevertheless, I believe that many upper years, if asked, would be happy to meet with a first year student every week or two, and pass on their experience. I know that I certainly will be!

CC

N REASONS TO DATE MATH PEOPLE

- The ones who don't smell are generally good people
- They will rightly push you off a cliff if you say $-1/12$ is the sum of the naturals, but if you say it's $\zeta(-1)$, that's fine
- They will ensure things are well-defined if you don't define them well
- Mathies have the highest average co-op salary, and thus the most money to take you on dates
- Their entire field is based on clear communication of ideas
- They base their entire life on explaining and proving things clearly and unambigously
- They write for **mathNEWS** which keeps them well-fed and healthy
- They will constantly make the same math jokes for years

Sandwich Expert

UW ALUMNI HOPES TO ONE DAY DISCOVER WHAT HIS COMPANY DOES

SAN FRANCISCO — Arthur Chen, a UWaterloo alumni, hopes to one day discover what his company does, sources report. Chen has been working at the startup Werk for three years. Werk employees confirm that Chen, despite having been responsible for 37% of Werk's codebase, still has no idea what Werk actually does, or how it makes any money.

"The job application just said 'looking for rockstar programmers who work hard and play hard'", Chen said. "I thought someone would tell me when I got there, and no one did. All I know is that we're disrupting the omnichannel, or something."

Upon reflection, Chen realized, it was entirely possible he was laundering money, or writing code for the Iranian nuclear program. "I think there'd be at least one code review if we were committing crimes. Right?"

Attempts to reach Werk's CEO were stymied when he replied to every email and phone call with the word "blockchain".

At press time, Werk had been sold for 2.7 billion USD.

UW Unprint

REVIEW OF TERRIBLEHACK XIII

3.00/π WOULD DO AGAIN

It all started on a frosty February day when the founders of TerribleHack roped me into their pyramid scheme with their sweet lies and honeyed promises. I was so innocent, so naive. Where have the days gone? Now — cue the record scratch, freeze frame, and me wondering how I got myself in this situation. Yes, dear reader, I did the **unthinkable** — I went to TerribleHack.

To cut to the chase, I'm temporarily lowering my authorial standards to write a listicle about the experience. Just so you know, it's late on Sunday night and I'm dreading the MATH 136 quiz tomorrow which I haven't studied for AT ALL (Professor Wolczuk, I'm praying, please, PLEASE have mercy!). Guys, I just wanna spit out this article while I still have the motivation and residual energy from the forty-seven free chocolate chip cookies I ate today. Anyway, here goes:

- They accepted everyone who applied. Even someone like me who doesn't even know how to code, let alone operate a fucking computer (it's no big deal, just part of the package deal that comes with being raised by coyotes from the age of four years in the wilderness of the Yukon). So that's neat of them.
- I've never been to a hackathon before. Apparently it's just you just sitting still in a big room with few dozen other people for ten hours straight, getting up only to eat and shit? I mean, I already do that on most Sundays anyway (minus the being with other people), so it wasn't that bad.
- At least two people came to TerribleHack from Toronto. That's over a five hour commute both ways. That's dedication. Maybe TerribleHack really is something special? I arrived twenty minutes late because I slept in though. Daylight savings is a bitch.
- I didn't actually *do* anything the entire time. Like I said, I literally have no idea how to code. I probably could've done some assignments or whatever, but eh. I did get to finish writing *How You, Too, Can Have A Splendid St. Patrick's Day This Sunday* for this issue of **mathNEWS** though, so not all was lost.
- (Holy fuck I spent so long on that article. It's like 2.6k words or something. I don't even know if the editors will print it. Now if only I cared a *tenth* as much for my PD assignments...)
- Free food, man. What can I say? And it wasn't pizza, which was welcome relief. I'm actually so fucking tired of pizza. (I'll stand by those words. Wanna fight? I'll fight you, bitch. Meet me in the DC green, 7pm next Monday.)
- To the dudes who were messing with the music playlist and kept trying to play "Fireflies" by Owl City — you were doing God's work. If you're reading this, I hope you all have a blessed day today.
- Lots of big chungus memes. Whether that's a pro or a con is still up for debate.
- The projects people made were pretty funny. I was tickled pink. They were all truly terrible, indeed, but they were all so bad they horseshoed back around to being good. The circle of life.

Conclusion: Despite the fact that it's a literal Ponzi scheme, TerribleHack was a pretty decent way to spend a Sunday. 3.00 out of pi. It restored my faith in the sense of humor of UW math students at least. What more can a man ask?

You won't wanna miss TerribleHack XIV in all of its racuous glory and memes-du-jour, whenever it is this summer. Yu Chen Hou is definitely *not* holding a knife to my throat right now and I can assure you that I am certainly not reading off of some signs being held oh-God-they've-caught-onto-me —

Finchey

[LEAK] MATH ORIENTATION THEME FALL '19

Theme: Math Gone Wild

Tagline: "Who will be the Sexiest Prime?"

Teams: Calculust, Clitorisk Analysis, Convergence Testicles, Coq, Cumbinatorics, Dickscrete, Orthoganal, Plussy, Pythagoral Theorem, S&∅, Sexponents, Statitstics

Events: Creampie Your Leaders, Chain Rules and Whips, N + 1 Pegged Race, Aerial Porno, Leather and LaTeX, Waterlube Ninja Warrior, Cocaine or Dildo, Strip Nerf Wars, Information Session

Math Dance Song: CupcakKe — *Deepthroat*

Leader Attire: leather harness, strap-on, dry-fit t-shirt (as requested), pants optional

Frosh Swag: pink tie key-chain, condom with lube packet, dental dam, MathSoc sticker, blindfold, MEF clipboard, gently used ball gag, water bottle, anal douche, Sweet Dreams coupons, LoveShop coupon

Not a Tie Guard

N NAMES TERRIFIED HAS CALLED ME

- Chris
- Christopher
- Cris
- Chrys
- Kris
- Khris
- Krys
- Khrys

Not Chris

Once, we got pizza with a charcoal-infused crust for Production Night.

Just the once, though.

A mathNEWS PIZZA CONNOISSEUR

TURTLENECKS: A MANIFESTO

A couple weeks ago, I was given a hand-me-down turtleneck sweater from a family friend. It's a beautiful, buttery white colour, and the knit is thick and soft without being overly warm or itchy. It's the sweater that a person can only DREAM of seeing, let alone *owning*.

For the uninformed out there: turtlenecks are *objectively* the best-looking kind of cold-weather top that exists on this planet. I'm so dead-ass serious right now I could kill a man. The person who invented turtlenecks was doing the Lord's work; if Jesus was alive right now, he'd be wearing a turtleneck. Everyone looks good in a turtleneck. *Everyone*. It's fucking science. Their slim fit is revealing, and yet they somehow manage to leave *just enough* to the imagination. They accentuate and elongate the neck — one of the most sensual and beautiful areas of the human body — as well as draw attention to the face. This is just from my own personal observation, but as soon as anyone dons a turtleneck, they become AT LEAST 1.13x hotter. Both temperature- and aesthetic-wise,

Lastly, they're a timeless and classic item that you never have to worry about going out of style. No more looking back on pictures of you from seven years ago and going, *Oh my God, what was I even thinking of when I was wearing that*! Instead, you'll be admiring what a sexy beast you were in your youth. Maybe once when you're dead and gone, one of your ancestors will post your photo to r/OldSchoolCool and it'll hit the front page on whatever the Reddit-equivalent is a hundred years from now!

"But turtlenecks make me look like a skier/pretentious hipster/my friend's great-uncle circa 1975," as some well-intentioned but ill-informed opponents of the turtleneck will protest. Indeed, it's unfortunate that the turtleneck has come to be associated with some unsavory archetypes over its centuries-long history, but we have to be the change we want to see in the world. We have the POWER to change those associations ourselves. No more shall the turtleneck be restricted to the domain of snobbish film majors or Steve Jobs — it's 2019. The democratization of the turtleneck is here, and I am proud to be one of its heralds.

Admittedly, turtlenecks aren't made for everyone, such as those with sensory sensitivities. Hell, if it's been a long while since you've worn a turtleneck, you might have a rough time of re-acclimating to it, especially if you're ticklish 'round the neck. Like, right now I'm wearing my white turtleneck and although I love it to pieces, I've been DYING the whole day. I haven't worn a turtleneck since I was nine years old — our reunion's been long in the making. But I'm powering through the discomfort, the sensation of being choked,

Finchey

CALL ME BACK WHEN YOU GET THE CHANCE

Hey Jane, it's Stan. Looks like you haven't made it home yet, but I just wanted to say that I had a really good time tonight. We definitely clicked and I'd love to get together again some time. Give me a call when you get the chance. I'll talk to you soon. FRIDAY 11:56 PM. TO REPEAT THIS MESSAGE PRESS 7, TO DELETE, PRESS 9.

Hey again, it's Stan. I'm not sure if you heard my last message, but I wanted meet up again for dinner. Let me know if you're free this week. I'm a little busy on Monday and Tuesday, but I should be free from Wednesday onwards. There's this really beautiful Italian restaurant called Giovanni's that I want to check out. I think it's right in your area so you might have been there before, but anyway, let me know. SUNDAY 4:25 PM. END OF FINAL MESSAGE

Hey it's me again. Just calling about the dinner plans I want to set up this week. I'm not sure if your phone isn't working or if you're super busy at the moment, but I thought I'd try again anyways. I had a good time on Friday and I was hoping we could do that again sometime soon. I miss you. Give me a call when you get the chance. TUESDAY 6:38 PM. TO REPEAT THIS MESSAGE PRESS 7, TO DELETE IT PRESS 9.

Hello Jane. Sorry to be calling so late, but there was something I can't get off my mind. I stopped by your place today. I was eating dinner in the area and was curious to know if you wanted to join. Knocked on the door, but no answer. It's okay, your loss; Giovanni's was absolutely delicious. Anyway, as I was knocking on your door I noticed a plant in your window, a beautiful red geranium. The exact plant my mother used to grow. When I was a kid, she would always have one on the windowsill. There was nothing more welcoming than a beautiful young geranium, she would say. Anyway, I thought you might find that funny since you seem to have similar tastes. And when you get the chance, don't forget to call me back. I'll be waiting. FRIDAY 1:06 AM. END OF FINAL MESSAGE

I saw you through the window today. You might have thought that you slipped into the kitchen unnoticed but I saw you. It's funny what women will do these days. You take them out to a beautiful restaurant. You compliment her on her dress and you sit there and listen to her stupid fucking stories about her time in university. And to end it all, you pay the bill for the night, 85 dollars in total. And what do I get in return for this lovely evening that I treated you to? Tell me Jane, what the fuck do I get in return? Missed calls and dodged encounters. I don't understand how I get myself involved with self-entitled bitches. And you always play the same game, pretend to be oh so innocent and caring, meanwhile all you give a fuck about is yourself. Well, I hope you're happy. Good luck finding anyone half as good as myself, you ungrateful whore. FRIDAY 10:53 PM. END OF FINAL MESSAGE.

Hey Jane... it's me. I think we left off on a bad note last time. I lost it a bit and said some things I shouldn't have. I don't want you to think that I'm a bad guy. I'm only frustrated that I cannot see you after such a wonderful first date. I really think that there is something special between us, and I want to see you again. Please call me back when you get the chance. SATURDAY 2:02 PM. END OF FINAL MESSAGE.

grandma's chocolate chip cookies

WHICH FPTP GOVERNMENT IS MOST LIKELY TO GO BELLY UP THIS YEAR?

2019 has been a rough year so far for all three remaining Western democratic countries which still use the horribly outdated first-past-the-post electoral system (FPTP is stable, my ass). So, out of Canada, the United States, and the United Kingdom, which is most likely to have a new leader *before* the next election?

Right now, Justin Trudeau is having some... issues. It seems like he may have fucked up his chances at reelection, but Andrew Scheer is working his ass off to make sure that doesn't happen, by fucking up even harder. Funnily enough, Trudeau would be in a much better situation right now had his government followed through on their promise to enact electoral reform, and implemented proportional representation. In fact, I've personally spoken to an MP in his cabinet who told me they were disappointed by Trudeau's decision to bail on his electoral reform promise. Maybe they'll be the next to resign? I personally doubt it. It's looking like Trudeau will make it to the next election. I give him a 90% chance of doing so.

The United States is a fucking mess and has been since January 20, 2017. There are rumours that the Mueller investigation is almost finished, but Republicans are unlikely to care, even if Trump is implicated with treason. However, it's possible that his party bails on him if they see their polling numbers really start to tank. I give Trump a 60% chance of making it to the next election.

The United Kingdom is currently barrelling towards a cliff an refusing to hit the brakes with Brexit. Brexit is only a few weeks away. I say there's a 95% change that Theresa May will no longer be Prime Minister by the end of the month.

mathNEWS *Political Expert*

A LOOK AT UW'S LATEST INNOVATIONS

LIVE FROM TERRIBLEHACK XIII

Greetings, ladies and gentlemen. This is **mathNEWS**'s tech reporter Theodore Bear speaking. I'm live on the floor of Terrible Hack XIII, where our university's greatest innovators are showing off their latest technologies sure to disrupt the current paradigms of software and computing. Here at TerribleHack XII, we are literally witnessing technology that's going to change the world in its infancy. Here are some of the highlights from the show:

KEYVAL.AI

One of the biggest innovations we at **mathNEWS** saw on the floor was keyval.ai, a new technology that's sure to change the way we code and use computers. Current databases are built based on models and ways of thinking developed in the 1960s and 70s, but keyval.ai takes a sledgehammer to those paradigms, promising O(1) value lookup by using machine learning to toss aside the assumptions we make about key-value relationships. Ideas like having a key distinguish a certain value held computer science back for decades, but keyval.ai is sure to to I N N O V A T E and D I S R U P T.

RECIPE GENERATOR

Have you ran into the problem where you want to eat, and don't know what to cook? That was the question Recipe Generator's creator, tech innovator Sophie Twardus, posed to us before revealing her solution. Recipe Generator generates recipes with random quantities of random ingredients, with randomized instructions as well. Twardus made sure to warn us that not all recipes generated by her creations were going to be good, or even edible, but her new technology is poised to solve a problem plaguing millions, including this intrepid tech journalist.

ABACUS CALCULATOR

In different fields, the arrival of new technologies have always brought great change. But with that arrival always comes the same problem: how to convert from the old technology to the new. For example, the music industry is being shaken up by the introduction of vinyl (pronounced "vi-nell"), a new way to listen to music. How are people going to convert their CDs and MP3s to vinyl? This is similarly happening in math with use of the abacus set to replace the calculator, but unlike with music on vinyl, Abacus Calculator offers a way to convert from base 10 numbers to abacus representation. Incredible!

SORTR.AI

Sorting algorithms have been formally proven to have a lower bound of n log n, which is all the more incredible, that sortr.ai manages to break that bound and offer O(1) sources. sortr.ai's amazing technology works through the power of crowd-sharing. When a list of numbers is submitted to the website, it is sorted manually by a human and then returned, sorted. Of course, if there is no human to perform the sort, or they take too long, the numbers will be returned in a random order. The human performing the sort, for their help, gets paid in V-bucks*.

FURRS FUR CHRIST

Christian Furries may be one of the biggest untapped groups in the dating app market. Furrs Fur Christ, the first Christian Furry dating app, promises to remedy that, finally offering Christian Furries a way to mingle and meet online.

OSJS

When we hear the word OS, a couple other words come to mind. They are systems that run on our own machines that provide security and, as OsJs's creator states, are usually written in older, obsolete languages like C that unable to break any paradigms or disrupt. OsJs is the world's first OS written in JavaScript, already supporting several common Linux commands, like "cat", which instead of showing you the contents of a file, prints "MEOW". OsJs is cloud-based and offers no security, which would be a problem if it didn't have live chat built in, allowing to spam the person who overwrote your files (and everyone else using OsJs) with your favourite text memes.

FLAT EARTH SPACE PROGRAM

Space sims like Kerbal Space Program, while fun games to play, have one major problem: they aren't based on actual science, presenting our Earth as being round. Flat Earth Space Program is the first space simulator video game that properly portrays the Earth as flat, as it has to be, considering that none of us have fallen off. Players attempt to launch "satellites" into space with the physics of a flat Earth, trying to use the moon to get them into a stable orbit. This reporter commends FESP's designer by not bowing down to the demands of the Moon Truthers to remove the moon, to them an obvious government fiction, from the game. Tech involves believing in real science, so Moon Truthers have no place here. However, this incredibly detailed simulation has inexplicably revealed the government conspiracy behind satellites. I managed to get one to make a couple orbits around Earth, but none of them were stable, which means that NASA is constantly sending new satellites into space to replace the old ones when they crash to Earth. *[Editor's note: We at mathNEWS don't support all our writers' views and don't stand by that last sentence. We offer only support to the Old Ones.]*

Those were the highlights of this year's TerribleHack. Some other technologies on display included GooseSpeak, a tool that translates English text into Goose text (the language used to communicate by geese) and back. Siloed, which changes pictures to show the millennial lifestyle by adding bubble tea, Air Pods, and Canada Goose emblems. Terrible Summarizer, a Chrome extension that accurately summarizes long articles, working by giving you every eighth word. Lastly,

there is VideoMasher, which recreates inputted text using clips from the Youtube channels of Sesame Street and the White House. We can't wait to see how each of these products evolve and manage to transform the computing landscape through innovation and disruption. Several of these startups are looking for investors. All of them have signed waivers assuring they are not Ponzi schemes.

Signing off from Waterloo, Ontario. This has been Theodore Bear, reporting live on TerribleHack XIII.

Theodore Bear

* There is no promise that V-bucks earned will be paid out.

THE HORROR OF GETTING INTERNSHIPS WITHOUT CO-OP

Hey guys,

So I'm cool enough to be in CS here, but unfortunately not cool enough to be invited to the exclusive co-op part. I soon realized how this is kinda of a massive cuck to anyone trying to get internships without co-op.

The real issue is we would have to apply to jobs externally only. For example, sites like Glassdoor and LinkedIn. This reduces the job pool significantly as many jobs require that you're registered in a co-op program to qualify. Now you could try to lie about this but that wouldn't work when they check your enrolment or transcripts.

Now the next suggestion is to attend network events. From my experience so far, this has proven to work really well but only for full time jobs apparently. I went up to every booth at P4E and asked about spring co-op opportunities and it appeared nearly everyone was either not allowed to hire students or they are hiring through universities only, though I met this cool guy at Oracle that actually went out of his way to figure out how I could apply externally.

So given this hideous situation. I try to mass apply jobs for most of the term. I ended up with 200 applications last year and about 5 interviews. It did result in a job offer in the end, however, so I guess this is the best approach. Keep in mind that was my first job with just a few sad side projects. This round, it's a lot better as I've had four interviews already.

TL;DR get into co-op if you want a co-op job.

Feelsbadman,

BMONEY

DREAMS? WHO DAT

I dreamt about math last night. I don't know whether to be amazed at my subconscious' ability to problem-solve or disappointed at myself for dreaming about something so mundane. But, you ask, what happened in this dream? Honestly, I don't remember. Something about a math question.

I used to keep a journal where I would write down my dreams if I remember them after waking up. I haven't written in it for a long time though. Reason: I don't remember my dreams anymore. Every morning, my alarm wakes me up, and by the time I hit snooze for the fifth time and stumble out of bed, any dreaming I've done the previous night has long been forgotten. What if I became the CEO for a start-up? What if WaterlooWorks never crashes in my dreams? What if I walked around a Waterloo free of geese? All impossible things in real life but I probably would have enjoyed the imagined experience, if I could remember it.

My reasoning for this forgetfulness: ???

Maybe I don't actually have dreams anymore. Perhaps I sleep so little that my brain's simply too tired to think. That's definitely a possibility, albeit a sad one. Maybe I'm destined to remember only the dreams that involve math. That possibility would suck (no offense).

But who knows? My dreams in the past have never been life-changing, so I'm not exactly missing out on anything important. I have to say, however, that I would really appreciate it if my mind could be at least a little more reasonable about the things I want it to remember.

See you later,

syzhou

N WAYS TO SAY YEEHAW

- Haw of yee
- Yeah how
- Waheey
- /'ji?.ha:/
- Yeet haw
- Yeezy hawz
- Air pods (the southern flex)
- Yahoo (to spite Google and the rejection you got when you applied)

and lastly, the intellectual way:

- Stan red velvet

Happy hawing,

Herbie

THE RANDOM BALLOT: GERRYMANDERING

In my last article, I examined the democratic principle that each person's vote should count equally (and shouldn't count for zero), and how no system other than the random ballot, or another non-deterministic system, can achieve this ideal. This section is on gerrymandering, which is the primary way that political parties abuse this characteristic of deterministic voting systems.

Gerrymandering is when the body responsible for drawing electoral districts does so in a way that is advantageous for a particular candidate or party. The mechanism for this is apparent in last section's examples; to recap, consider the following example.

Consider 2 parties, A and B, running for control of a nation with 12 voters, divided into four districts of three voters each. Support for the two parties is evenly balanced in the population. Before the election, a scheduled redistricting occurs, and the committee responsible for this process favours party A. The committee therefore decides to create one district containing 3 B supporters, leaving the other 3 districts voting 2-1 in favour of A, giving party A majority control of the government. In effect, the committee, not the people as a whole, has decided the result of the election.

Consider now what happens if the random ballot is used instead. Each of the 2-1 districts provides A with an expected value of 2 3rds of a seat, while the 0-3 district is guaranteed to give a seat to B; the outcome is then, in expectation, 2 seats for A and 2 for B; exactly proportional. Given districts $1, 2, \ldots, n$ each of population P, a party A with supporters split arbitrarily among the districts with a_i being the number of A supporters in district i and $a = a_1 + a_2 + \ldots + a_n$, then party A wins, in expectation, $a_1/P + a_2/P + \ldots + a_n/P = a/(P)$ seats — this is exactly proportional. Thus all that needs to be done to prevent gerrymandering in random ballot is to ensure each district has the same population. In fact, if the districts each have distinct population P_i instead, then each contributes $a_i \cdot P_i$ to the sum, so we get good results as long as the districts are all close in size.

Octopodes

INCORRUPTIBLE PARENTS

Gave my 'rents some "goods"

Dad felt nil, mom was flying

"Sorry, none for us"

Your myopic degenerate

AN ADDICTION TO N

Another production night at **mathNEWS**. Another night of blankly staring at my screen with no ideas. Another minute of waiting for the pizza — until suddenly, *the* N pops into my head. The letter that saves my night, gives me something to write about, makes life worth living. The one that feeds me because I could say that I have contributed to **mathNEWS** after submitting that "N-ways" listicle.

A friend has told me to go see a listicle therapy, but I'm emotionally attached to N at this point. Because N has been my friend outside of **mathNEWS** too. During my calculus exams, I always remember to tackle all those continuity problems by picking that large N. So that all those little $n \geq N$ bow down to it, as N is the first number to make my expression less than ε. N is the arbitrary variable that's always there for me to choose on my algebra assignments.

I'm always going to be an N junkie, and I don't care what will happen to me when I run out of N.

License2Derive

N PROPOSALS TO REPLACE THE ICLICKER

Recently, in CS 136 Section 3, the professor's iClicker software has been constantly crashing mid-nerve-racking-pop-questions, making us students have to resubmit our answers while second-guessing ourselves because the crash could possibly be a sign from Mr. Goose and then having to anxiously wait longer for the professor to reveal the answer. To relieve ourselves from further unnecessary stress and also save $50 for the broke first-years, I propose some alternatives to replace iClicker.

- Kahoot.it. An obvious contender. Plus, you get to flex your score on the big screen if you make it within the top 5.
- Submitting it to Marmoset with the integrity section filled out. Checks if your answer passes the basic tests.
- Creating a Crowdmark folder and having each individual student type their one letter answer on individual Word documents and submitting them. Then each student gets individual feedback on the iClicker questions.
- Betting style. Each student bets $1 on the answer they choose, and the group of students that get it correct win the pool and divide it among themselves.

License2Derive

THE STRUGGLE OUTSIDE OF CO-OP

A lot of my friends have been lamenting about all the stress from the co-op season this term, talking about CECA, interview conflicts, rankings, failing PD1, etc. However, for me, and maybe other Sequence 3 or non-coop students, I only wish I could be complaining about the same things.

Hunting for internships on my own without WaterlooWorks feels absolutely hopeless. Not just because I am getting zero replies and zero rejections, but also because there are barely any internships out there. I hear my friends using up all 50 of their applications during the main round, but I could barely even find 10 internships on the Web, and most of these wanted 3rd or 4th years. I wouldn't even mind "failing interviews" as all my friends have said, because it would add to the 0 interview experience I currently have.

I have talked to my other first year friends at other universities like UBC and U of T, and they have also said how they've heard nothing back from their applications and are likely not going to get an internship at this point. Despite all the flak co-op gets, I think UWaterloo does have something really special. It's incredible how UWaterloo's co-op manages to get so many first years employed, even if it takes longer and takes most of them into continuous.

To clarify, I'm not trying to discredit my fellow first-years' struggle with co-op. The stress is definitely real and interview scheduling conflicts seem like a real pain. I just want to motivate you all by saying that you've been given a great opportunity that not just the non-coop first-years, but nearly all first-years at other universities in Canada and US, don't get to have. Co-op is stressful, but I think it's the right kind of stress, and seeing all those jobs posted in continuous is something I could only dream of seeing on Google at this point.

I wish all of you in continuous the best of luck (the kind of luck that comes from thanking Mr. Goose), and hope your stress this term is rewarded with a precious job experience next term and get the most out of this summer!

License2Derive

I'm not a mathematician, I'm a statistician, which is better.

PROF. MICHAEL WALLACE

DAYLIGHT SAVINGS TIME IS DESTROYING OUR ENVIRONMENT

Daylight Savings Time started yesterday and for another year, I recognized all the destruction it was causing our environment. Hence, I thought I should write in **mathNEWS** to convince students to support ending this destructive part of our culture.

By extending daylight by an hour, the Earth receives more heat from the Sun, and by getting this extra hour of sunlight for each day during the DST period, the heat adds up, contributing a significant amount to global warming.

Please help stop this ecological disaster that is melting our ice cappuccinos by refusing to set your clocks ahead one hour. Be part of the growing movement of blocking the clock on March 10 and refusing to heat up the Earth. If you end up showing up late to a class, or a meeting, or a date (oops, forgot this was **mathNEWS**) from doing this, justify yourself by explaining that while they are carelessly going about their lives, you are part of a movement that is saving the environment. And our sleep.

License2Derive

PROOF YOU WROTE IN LAST 5 MINUTES OF MIDTERM WINS FIELDS MEDAL

WATERLOO — The Fields Medal committee announced today that the proof you scribbled in the last five minutes of your midterm has won the Fields Medal. Onlookers were shocked when your answer to a question that was right in the textbook somehow won mathematics' highest honor.

The committee explained, "This proof shows stunning creativity. Only a true genius would use two pages for a three line proof." The committee also noted that on your way to solve a problem the professor went over three times in lecture, you answered several unsolved questions in mathematics, and provided new insight into dozens more. "The theorems proved during those five minutes," said the committee, "will change math for generations to come."

After being told that you had another midterm in three days that you barely studied for, the committee declared you one of the most promising young mathematicians in the world.

UW Unprint

WHY DOES THE HEAD OF CECA MAKE SO MUCH MONEY WHEN ALL CECA DOES IS FUCK OVER STUDENTS?

After CECA fucked up by telling everyone they got a job when they didn't, Ross Johnston, the executive director of CECA sent out an email to everyone apologizing for the human error (i.e. incompetence) I decided to look up how much money Ross Johnston makes. Turns out he's on the Sunshine List, which means his salary is publicly available information. Here is his salary for 2011 — 2018.

YEAR	POSITION	SALARY
2018	Executive Director, Co-operative Education	177,472.52
2017	Director, Employment Relations	168,930.24
2016	Director, Employment Relations	162,984.88
2015	Director, Employment Relations	156,554.28
2014	Director, Employment Relations, Cooperative Education & Career Action	148,087.48
2013	Director Employer Relations — Core Accounts Cooperative Education & Career Action	134,119.80
2012	Director, Employer Relations, Core Accounts, Cooperative Education & Career Services	129,195.30
2011	Director, Employment Relations: Core Accounts	126,255.40

Of course, nearly all co-op students believe that CECA is not there to help students (try searching for CECA on /r/uwaterloo), and indeed sometimes stands in the way of students achieving their goals. So, Feridun, what does Ross Johnston do in one year that's worth $177,472.52?

Convince us, the student body, that our tuition and fees are being properly spent.

The purpose of a university is academic progress. While employer relations may be important, why does Ross Johnston make more money than some professors here, when professors actually give students the skills needed to succeed in the workplace? You might (if you aren't a student) argue that CECA helps students prepare for work through their PD courses. But if you talk to anyone who's actually gone through the PD courses and has a few co-op terms on their belt, they'll all tell you the same thing: whatever PD says to do, do the opposite.

It's time that the University of Waterloo takes a long look at how money is being spent at CECA, and on the co-op system in general.

Stranded by CECA

BOOST YOUR CAV WITH THESE THREE EASY STEPS

Is your CAV too low? Worried about being put on academic probation? Try these three quick tips to boost your average!

1. Major in PMath! People think you have to be smart to do PMath, but you really just need to make the poor decision to sacrifice your social life and sleep for mediocre career prospects (this is why almost every PMath major has a second major as well). That's why the courses are curved so much! As long as you don't get Prof. Marcoux, you're golden. If you do get Marcoux, prepare to be fucked hard. It's a pleasant fucking though. Lots of fun, 10/10 would recommend.

2. Do a double major! If the faculty comes after you for having low grades, you can cite the extreme difficulty of your course load as an extenuating circumstance which negatively affected your performance.

3. If all else fails, just sign up for these bird courses:
   - PMATH 340, an actually easy PMATH course.
   - PMATH 450, since finance kids have to take it, this course is curved to the point that getting a high grade is trivial.
   - Any AMATH course. Everyone knows that dirty applied mathematics (as applied mathematician David Jao would say) isn't really math, and therefore it can't really be challenging.
   - Take SMF 216!

SMF 216 LEC 0.50 Course ID: 015160
Sexual Pleasure
This course offers a theoretical and empirical examination of the pleasurable and recreational aspects of human sexuality. Topics may include optimal sexuality, romantic passion, sexual techniques, sex toys, BDSM, and sexual role-playing. A range of pleasure discourses and practices (beyond those focused on the genitalia) are addressed.
Offered at St. Jerome's University

Sandwich Expert

LAST MONTH OF LECTURES GOT YOU ILL?

HAVE NO FEAR, FOR I AM HERE (TO GIVE YOU FANFIC PROMPTS)

Hey all.

It's that time of the semester where things are starting to wind down. Or maybe they're picking up. But surely, whether you're busy or not, we're all tired and need a quick breather. Well, look no further, for you've stumbled upon the perfect article to ease your pains (even if it's only for a second).

So, judgment aside, I think fanfiction is a beautiful thing. People can come up with some really creative stuff, whether it be a crackfic crossover between two vastly different fandoms or a serious piece that has thousands of words and seems like it was written by the next author of our generation. Either way, they're usually pretty interesting and give me a good laugh (or a good cry — thank you angsty tumblr teens). In hopes that it gives others the same amount of entertainment, and maybe this can serve as inspiration for those who are aspiring to write more, I'll list a few fanfiction prompts below. Enjoy!

- It's your first day at UWaterloo. Geese are honking in abundance. Students are all walking with their heads down, the depression practically palpable. You're on your way to MC, but the second you enter the building it's... *different*. The bleak, yellow prison walls are no more, and are replaced with intricately painted murals of rare pepes. Everyone is carrying leather-bound books and wearing long, black cloaks. You look to the end of the hallway and read the sign above the threshold of a classroom: "Normie Hunting 101". Someone bumps into you, and as you steady your stance you realized you're also holding the same books everyone is carrying around. Flipping open the cover, you read the first page. It reads...

- Y/N isn't like other UW students. It's always Alberta or bust and chanting a mantra of "Kill Mr. Goose". Y/N was determined to change the world, one unfinished assignment at a time.

- It's the morning of the first day of lectures, and Y/N puts on their UofT shirt as they brush their teeth. After drinking a kale protein shake, they head out for their first 8:30AM class. On their way, the bump into something on the sidewalk — looking down, they see a goose staring up right at them. Y/N is about to spit at it, but the the goose's deep gaze catches Y/N's attention. Something bubbles up within Y/N, something they've never felt before...
- And then they realize. Y/N... is a Furry.

- You wake up, and it's like any other normal day. It's 1:00PM on a Tuesday, and it's almost time for you to head to campus for your first class. You head to your lecture and something seems... off. The air is significantly less heavy, almost as if the cult of sadboi students has been eradicated. People walk around laughing, with smiles on their faces. It is then you realize: you're not on UWaterloo's campus anymore. You're somewhere else, at a different UW... you're at UWindsor.

Grab a nice seat, sit back with your favourite snack, and play along, folks. Get those creative juices flowing. And maybe, just *maybe,* you'll find a passion you never knew you had. Or maybe you'll tear this article out of the issue. Whichever gives you the most pleasure!

Until the next prompt hits me,

Herbie

APPLY TO GET AN ANIME-LOVING GF

My friend, who goes by the anonymous name of Eggplant Dildo is looking for a boyfriend. Eggplant Dildo has the following qualitites:

- Knows the first 430 digits of π
- Does not know how to write a dating ad, so we are writing one for her
- Asian
- Does not know how to write a cover letter
- Fears Satanic rituals
- Watches anime
- Makes good curry
- Watches competitive League of Legends tournaments at 2:00am

Please apply if you fulfill any of the following qualifications.

- You love anime
- You play League of Legends
- You're looking for a girl who loves anime
- You're looking for a girl to boost you in League of Legends
- You're a weeb, but only a little bit of a weeb
- You want to get pegged with a big fuchsia dildo

Come to the next **mathNEWS** production night to apply!

Sandwich Expert & πllow Princess

POKEMON GO FIRST SERIOUS CONTENDER

It's been almost 3 years since Pokemon Go's explosive debut. The game that was pretty bare bones at launch has definitely evolved into a much better and fully fledged game. During that time there have been many attempts to try to capitalize on the profit that PoGo showed was there. These have all been met with a varying degree of success.

There has been everything from the most blatant of clones of Draconius Go, where all the game play mechanics are copied and just resigned with a lesser known IP, to Follow JC Go, a game where you follow in Jesus Christ's footsteps, collect biblical figures and saints. Then there's stuff like Selfie Go which is Pokemon Go meets Instagram meets reddit karma meets block chain cryptocurrency, an app that you have never heard of because despite the ridiculous premise it has not been very successful and the game has disappeared into obscurity. Or by the same company Clash and Go, a combination of AR geo games with Clash games. I tried it out to find out that I hate Clash games; they are nothing but slightly more sophisticated clicker games. GhostBusters World did have a fair amount of features however I didn't find them to be super fun. Capturing a ghost takes like 3 minutes and just kills your phone's battery. It's just not suited to actually playing the game on the go. I am sure there are some people who enjoy this game, but for me it was just a tedious slog.

The only I can sort of recommend I can give is Jurassic World Alive, and even that one comes with a heck of a lot of caveats. The combat system definitely had a lot more strategic depth than Pokemon Go and was pretty fun but the pay to win aspects of the battle system were a major turn off that resulted in me abandoning the game.

However this week Niantic has revealed comprehensive information about their upcoming game Harry Potter Wizards Unite and I can say it looks hype. While there are definitely parallels to Pokemon Go in that it's a game that encourages people to walk around and explore the world, it's also obvious that the game isn't trying to be Pokemon Go but its own thing. There are no teams but instead you can pick between the three classes of Professor, Auror and Magizoologist. The game has a stronger storytelling focus than it's predecessor. If you want more information I strongly recommend looking at the IGN article. The release date for the game hasn't been announced yet but there have been some hints that they are planning for a summer release. I for one await this game eagerly.

Beyond Meta

FUCK CECA'S UNPROFESSIONALISM

Hello,

Congratulations! You've been matched with a job for the upcoming work term.

View your Work Term Record which contains details about your upcoming work term including contact information for your new employer.

- Contact the employer to acknowledge your employment and verify details such as start date, hours of work and salary as soon as possible.
- View your Employment Details for any additional information.
- If you've attempted to reach your employer by email and phone with no response, contact your Work Term Support (WTS) shown on your dashboard.

If you require an accommodation, please contact your employer to make arrangements. If you're not sure that you require accommodation, or unsure how to speak with your employer about your needs related to your disabilities, contact AccessAbility Services.

Thank you,

CECA to literally everyone, even my friend who went for Cali in 1B and busted with zero interviews

MY EXPERIENCE WITH GOOGLE ANALYTICS

What the **hell** Google you're telling me ***you*** can't even come up with a **working product**? You're pushing `gtag.js` and all that schnazz claiming *"oh it lets you receive updates faster than our old products"* well **guess *WHAT*** you can't even set a CORS header ***for your life*** I mean ***seriously*** I try using your product and the headers are for your own pretty little `googletag-manager.com` not ***MY OWN DOMAIN THAT I'M TRYING TO USE*** so please *please* ***please please*** fix this and oh also try making `analytics.js` a bit easier to set up? kthxbai.

Disenchanted Developer

This blackBOX was here all along, I swear.

A mathNEWS EDITOR WITH NOTHING TO HIDE

PLEASE DON'T BURN DOWN THE COMFY

The evening of March 10, I returned to Southwest Columbia Lake Village to discover a dumpster on fire. Fortunately, it was only the dumpster. The fire was promptly extinguished by Waterloo Fire Rescue before it was able to trigger the early spring that Wiarton Willie promised (lied) to us.

Let's talk about fires. The Office of the Fire Marshal and Emergency Management outlines in its latest report that electrical distribution equipment is the second highest cause of accidental fires in Ontario. Over 3100 fires were started in the 2012-2016 period by things in this category, including electrical outlets. For example, leaving a plug halfway in the socket.

- The reduced surface area between the contacts is inversely proportional to both the resistance along the connection, and the heat it produces. Why this is a problem is left as an exercise to the reader.
- Things that get stuck between the contacts can short circuit the connection and catch fire.
- It's an electrocution hazard if you accidentally touch the exposed half of the contacts.
- Needless to say, please make sure that your plugs are in all the way, if they are supposed to be plugged in at all. (Also make sure your smoke detectors are working.) And check up on them every now and then, because plugs do sometimes fall out. Just like people, plugs are imperfect. As CECA recently demonstrated, most fires start with human error. Every now and then I catch a power bar in the Comfy that isn't plugged in all the way. Many of the plugs that chronically hang out are also missing ground pins, which are great for your devices and for providing enough friction to hold the plugs in. As we all know,
- "Fire alarms in the Comfy are not loud enough to wake you up in the case of a fire. For your safety, [MathSoc] advise that you do not sleep in here." — Comfy Etiquette Committee

Every day, tens of brave men and women lay down (a few hours of) their lives for some shut-eye in the Comfy. The least we can do to help them is to not burn down the place in their presence. Or in their absence. Just don't burn down the Comfy — it's not worth it, no matter how much you'd like to see M4 built in its place. Think about all the lost man-hours we'd spend attending lectures in the inferior engineering buildings.

water

N REASONS TO PUT A NIGHTCLUB ON THE 10TH FLOOR OF M4

Instead of a opening a bar in C&D, MathSoc should open up a nightclub in M4 once it's built, on the top floor. This nightclub should take up the entirety of the 10th floor of M4. Also, M4 should have 10 floors.

- A nightclub will bring in revenue to fund the construction of M5
- A nightclub that spans the entire 10th floor will be able to be much larger, and thus bigger, than a bar in C&D
- We can sell math-themed drinks
- Better use of money than digital locks
- Our faculty can be the first nightclub on campus
- "If profs went, it would be entertaining" — Epsilon Screwn
- Better venue for party with profs
- It can provide study space during the day

Sandwich Expert

N WAYS I WOULD HAVE PREPARED DIFFERENTLY FOR MIDTERMS

Our midterm season concluded last week for us mathies, and no, engineers, it was not easier than your supposed "Heaven Week," which conveniently places all your midterms (featuring pointers and loops) side by side so that they all fall down like dominoes in a single week.

Anyway, after being knocked flat by those midterms, I thought of all the things I could have done differently, and here they are:

- At least glanced at the practice midterms
- Went to bed before the day of the exam
- Read during Reading Week
- Read the room and seat location before I left for the exam
- Made a sacrifice to Mr. Goose
- Raided the top floors of MC to see a copy of the midterms before the actual day of the exam to demonstrate to the professors how much of an eager and keen student I am
- Done the CIF exercises meant to up my math game that was published two issues ago

License2Derive

WHAT COUNTS AS A SLICE?

RANDALL MUNROE STILL WON'T ANSWER MY EMAILS.

добры дзень, my dear friends — comrade whatifOS back reporting for duty! It's been quite a while since we last touched base, hasn't it? Well, if you've been missing me, I'm back with my Central Committee-given duty to answer *your* deepest questions! And today, we're going to answer one of your dearest, most philosophical questions, an inquiry so poetic that when I read it aloud the winds cease, birds sing, and trumpets shout from heaven above. (At least I think they're trumpets. They make a rather electronic F, I have to say.) Presenting, the moment you've been waiting for...

GUYS RANDOM Q
IS IT A SLICE OF CAKE
OR A PIECE OF CAKE

Well if Lenin ain't real, I don't know how to answer that. You see, etymology is linguistics, and linguistics is pretty much history, and I flunked history, so this is *way*, ***way***, ***way*** out of my scope. Also, I haven't seen a cake in seven years. So like any good student has been taught to do, we turn to the great Proletariat Oracle of Google. A cursory search of "which is correct slice of cake or piece of cake" yields us a result from Quora, the greatest resource of knowledge since the Library of Alexander, mark my words. This result must be of some usefulness[1]...

Which is correct - “slice of cake” or “piece of cake”?

4 Answers

Ananya Iyer, Fooooooddddiieee !!!!!!!!!
Answered Jun 7 2018

Seriously? Use google.

2.7k Views

Uhh, hmm, don't worry, the end is *not* nigh, let's try something different...ah! Someone asked "What is the difference between piece and slice?" This time, the answer is *actually* useful! Hurrah! Let's take a closer look at what our saviour Rob Weir, Aphorist, has to say[2]:

> *A slice is a piece, but a piece is not necessarily a slice. A slice involves a knife which slices off a piece from the whole.*
>
> *So you slice a piece with a knife. But you break a chocolate bar into pieces.*
>
> *You can also use "slice" to refer to anything shaped like what you would typically get when cutting a pie. For example, a segment of an orange might be called a "slice" even though it is not cut with a knife. But it has a similar shape to a pie slice.*

Okay, so a slice is always a piece but a piece isn't always a slice and a slice involves a knife which does a slice and makes a piece except when it doesn't because a knife isn't always used for a slice. ***What?!***

Quora has failed us. Begone, capitalist thot.

Alright, that ***clearly*** didn't work out as we wanted it to, it's fine, failure is fine, at least MC isn't on fire and the means of production have been seized...where were we? Right, trying to determine the correctness of "slice of cake" versus "piece of cake". But if Quora is out of the question, what **can** we use?

Oh right, we're math students. We have a power no other faculty has. ***The power of Stack Exchange***.

You read that right, you sons of rooty-tooty-point-n-shooties. We're dialing the time machine back to the early 2010's and harnessing the collective knowledge of the world's largest professional Q&A site. And by the motherland do we have an answer! Oh yes golly gee we do! I'm so happy I could turn lemons into extra sugar and vodka rations. Straight from the English Language & Usage Stack Exchange, Hellion gives us the explanation we've been dying for[3]:

> *A slice is always a piece, but a piece is not always a slice.*
>
> *In general, a slice is a portion created with a single cut, and either it is wedge-shaped, or it is relatively thin in one of its dimensions because it is a cross-sectional cut of a much longer object; while a piece is a portion created by any means at all (cutting, tearing, shattering, biting, etc.), and of any shape or size.*

Eurekaaaaaa! Fellow comrades, the mystery has been solved; let us now pack our bags and proceed to work. Except not yet. *We **need** to go **deeper.***

wait if a slice is a single cut
say i drag my knife halfway through the cake, turn it around 30 degrees, and drag it back out
is that a single cut, and ergo a slice, or two cuts, and ergo a piece?

First off, let's see what others have to say[4]:

two cuts

Wait no I **strongly** disagree there's no way in ***hell*** that that counts as two cuts, I swear by the name of Stalin it can be expressed as a **single continuous** motion and—

maybe you can explore this for your next mathnews article 👀

This is normally the point where I investigate the definition of a cut and its impacts on society, and summarize my findings in a 2200-word long article that makes the **mathNEWS** editors cry in pain. *[Editor's note: damn you and your layout-ruining essays.]*

Unfortunately, my pleas to Google were unanswered this time, so we will be forced to resort to cold, hard, rational analysis.

On one hand, let us feast upon the definition for the idiom "slice of the pie" (or cake) [5]:

> *A portion of the money or profits that are being shared by everyone involved in generating them.*

And the definition for "piece of the pie" (or cake) [6]:

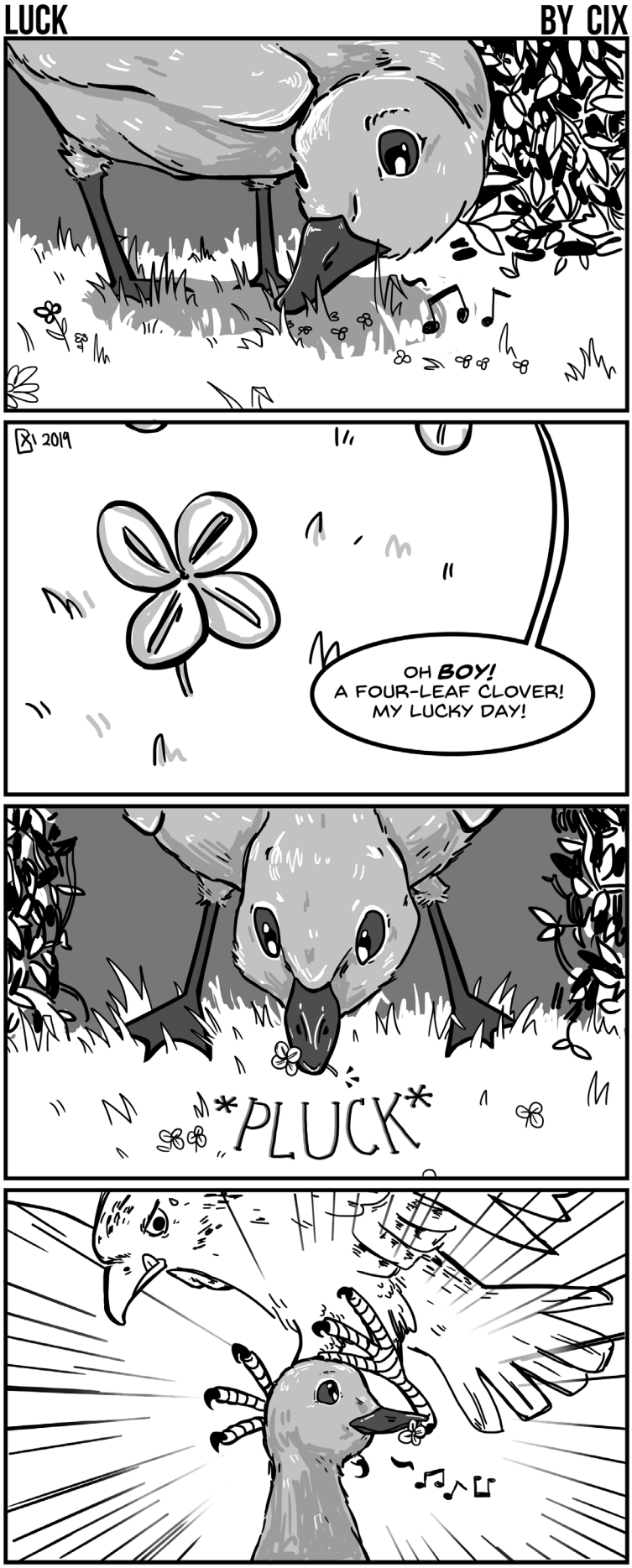
> *A share or part of something.*

My simplistic, minimalist side roots for the latter, probably 'cuz I've been waiting in line for my mother's birthday cake since 1991. However, my ~~bosses~~ comrades from the Politburo have *strongly* encouraged me to side with the former. And not that I can blame them. As mathematicians, we are drawn to collaboration and sharing the fruit of our collective efforts. Paul Erdős was famous for working with others; it's why Erdős numbers are so prevalent. It only makes sense that we should pay tribute to collaboration in our everyday speech as well.

So, dear reader, I implore you: don't call it a piece of cake. Join the revolution and call it what it deserves to be called. A *slice*.

whatifOS

1. https://bit.ly/2Cj3tDX
2. https://bit.ly/2HimR88
3. https://english.stackexchange.com/a/202825
4. Hello, everyone in FC who just figured who I am. 'Sup? ☜(ﾟヮﾟ☜)
5. https://idioms.thefreedictionary.com/slice+of+the+pie
6. https://idioms.thefreedictionary.com/piece+of+the+pie



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UW'S BASTION OF ERUDITE THOUGHT SINCE 1973

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GRIDXGRID

3.14159265358979323846264338...

gridCOMMENT *139.4*

Hello everyone! I've been told that the editors are bound by geas to reprint staplED's grid from issue 2 this issue, so it would seem that (a) I am off the hook making a new grid this issue, and (b) you all have to try and solve staplED's grid. Good luck, I guess.

As for the last issue's grid, I am glad to inform there were three submissions for the grid. Of those, there are two correct submissions made by Mary Chen and Laindon Burnett, whose answers to last issue's **gridQUESTION**, what would you do with an army of frozen undead at your beck and call?, were "Make love, not war." and "Sent them to invade Needles Hall and get us another snow day.", respectively. I prefer the second answer of the two, so Laindon, please drop by the **mathNEWS** office, MC 3030 at your leisure and badger the editors for your prize.

In addition, the third submission we submitted had a drawing of a sheep, which is included for everyone's viewing leisure.

Any brave aspiring solvers of staplED's monstrous grid should make a submission either physically to the **BLACK BOX** or by email to mathnews@gmail.com by 6PM on March 25th, 2019 with your name, and optionally a moniker which you would like to be credited by. In the event of a tie for most correct, the tiebreaker shall be my favourite answer to this issue's **gridQUESTION**, "What is the best mathematical dessert recipe?

Zethar

P.S. staplED here: for 35 across, I made a spelling error, so the answer has one less vowel before the consonant than there should be. Sry. Everything else is fixed, however.

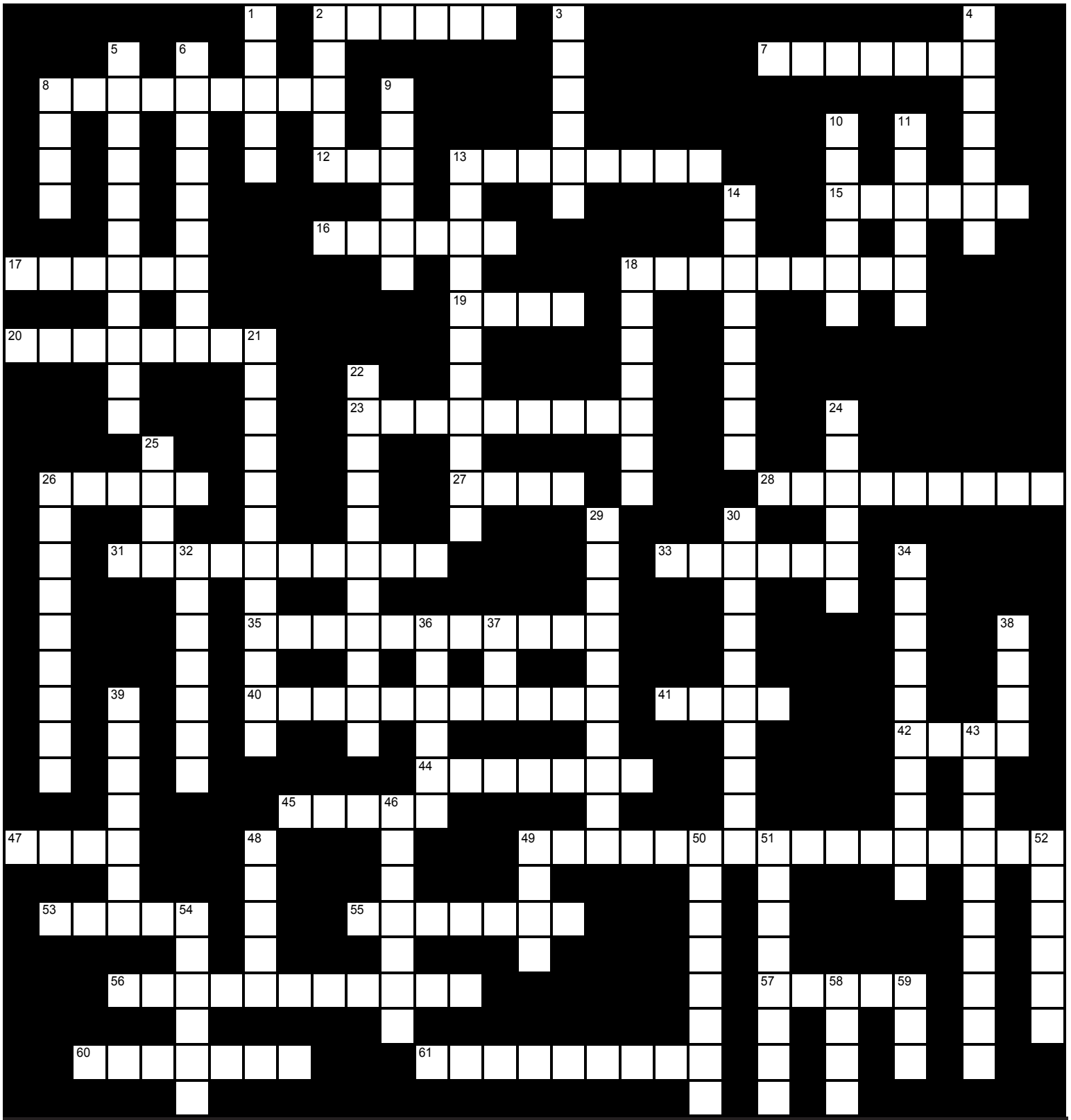
ACROSS

2. French Anna Karenina
7. Misspell this, get delicious pastry
8. Place of questionable existence
12. Bow in shame, awe, forgiveness, etc.
13. Textured lava
15. Duel took this mathematician's life
16. An anagram of a type of structure
17. This one's a musician, not a politician
18. Pop these like Swedish fish
19. 64 cases!
20. Many linguistic families here
23. Keeps moisture in
26. Blue, Red, or _____
27. "Do it for the ____"
28. More influential than the Beatles?
31. A group is named after him
33. The Three Legends, pluralized
35. Price of wraps in C&D + HST (2 wds)
40. Celebrated more in the States (3 wds)
41. They just added in the MC
42. "____ California"
44. Painful smile
45. Deemed too gangster in China
47. Cocoa infused stew
49. Master of Sprechstimme (2 wds)
53. **Food of love**
55. **Desirable quality in meat**
56. The Potato King
57. "You are not the father!"
60. Most sought after stationary in this faculty
61. You can ski and swim here in the same day

DOWN

1. Midori
2. Modest's cart
3. Movie with Oedipal nightmare
4. Winehouse covered this song
5. 1Q84 composer (2 wds)
6. Meow, woof, squeak, hiss (2 wds)
8. "____ as Love"
9. Liked to send poop-themed letters
10. She looks like a British man with no hair
11. Construct more of 'em
13. Frequent Youtube recommendation (2 wds)
14. Not a chum of Spongebob
18. Fictional medieval evil matriarch (2 wds)
21. Say the colour, not the word (2 wds)
22. Euthanasia (3 wds)
24. Seaside city with a German name
25. Zooey Deschanel, appropriately
26. **Für Elise**
29. Blonded (2 wds)
30. The Prince of Darkness (2 wds)
32. Unaspirated t's
34. Eyedrop used by beautiful ladies
36. Good for night time and sleep
37. Your first online friend
38. Japanese George
39. Chicky nugs
43. Don't read it back to back (2 wds)
46. Peek at you - sound it out!
48. Disillusioned
49. "So be it."
50. Algorithm created at a cafe
51. Sacrificials go here (2 wds)
52. Immediate nuker
54. British snacks
58. SLC
59. Should-be anthem for Toronto Pearson Intl. (abbv.)

GRIDXWORD



Drop your gridWORD solutions off at MC 3030. And yes, we do award points for creativity.

A PERPETUALLY BORED mathNEWS EDITOR

lookAHEAD

SUN MAR 17	MON MAR 18	TUE MAR 19	WED MAR 20	THU MAR 21	FRI MAR 22	SAT MAR 23
Drink 'til you puke day	Wake up with a massive hangover day		FIRST DAY OF SPRING!!1!	View Spring 2019's schedule and appointments on Quest	Drop with WD ends	Drop with WF begins University Choir Concert 7:30 @ Trillium Lutheran Church, 22 Willow Street $5 (students/seniors) $10 otherwise Free admission for children
SUN MAR 24	**MON MAR 25**	**TUE MAR 26**	**WED MAR 27**	**THU MAR 28**	**FRI MAR 29**	**SAT MAR 30**
	Drop/Add period begins Production night v139i5	Drop/Add period begins			**mathNEWS** v139i5 published	

MATH PROBLEM OF THE WEEK

Hi everyone, I was very pleased to see a huge amount of solutions! We even almost ran out of prizes to give, but we managed to resupply in time!

Here is the Problem for this issue:

Prove the following generalization of the AM-GM inequality:

For all $a,b,c > 0 : a^3 + b^3 + c^3 \geq 3abc$,

and if you're up for it prove the general version :

$a_1{}^n + \ldots a_n{}^n \geq n * a_1 * a_2 * \ldots * a_n$

As usual, bring solutions to the PMC Clubroom at MC 3033 for a Free Chocolate Bar. (P.S. We got new and bigger options!)

UW PMC

UW TAX CLINIC!

We're super excited to announce that the UW Tax Clinic will be operating on March 23/24 (SLC MPR) and March 30/31 (STC 1012), from 10 AM to 8 PM on all days. We file tax returns for low and medium families and individuals, including international students.

Eligibility details and more can be found on our website:

http://www.uwafsa.ca/taxclinic

UW AFSA Tax Clinic Committee 2019

LAST ISSUE'S gridWORD SOLUTION

1 Z	2 E	3 T	4 A	■	5 G	6 L	7 A	8 R	9 E	■	10 S	11 H	12 A	13 G
14 E	T	A	L	■	15 R	O	K	E	R	■	16 Q	A	D	I
17 A	U	N	T	■	18 I	C	I	N	G	19 S	U	G	A	R
20 L	I	G	H	21 T	N	I	N	G	■	22 L	A	I	R	S
■	■	■	23 O	E	D	■	■	■	24 G	O	L	O	S	H
25 I	26 S	27 S	U	E	■	28 C	29 H	30 I	R	A	L	■	■	■
31 S	W	A	G	■	32 G	L	O	B	I	N	■	33 T	34 S	35 P
36 B	A	C	H	37 E	L	O	R	S	D	E	38 G	R	E	E
39 N	P	S	■	40 R	E	U	S	E	S	■	41 O	U	R	S
■	■	■	42 D	R	Y	D	E	N	■	43 S	L	E	E	T
44 A	45 P	46 N	E	A	S	■	■	■	47 S	O	D	■	■	■
48 F	R	O	S	T	■	49 A	50 L	51 G	E	B	R	52 A	53 I	54 C
55 R	I	D	E	A	56 U	H	A	L	L	■	57 U	N	D	O
58 I	C	E	R	■	59 S	A	T	A	Y	■	60 S	N	O	W
61 T	E	S	T	■	62 A	B	I	D	E	■	63 H	E	L	L