"WHAT DOES MATH MEAN TO YOU?"
BEFORE YOU CAN DEDUCE A PROOF, YOU MUST FIRST INVENT THE UNIVERSE.

It's been such a lovely week! At least, it has if you like rain, and I like rain. I'm not a goose, though, and anyone who has been telling you that is a dirty stinking liar.

I almost want to sit outside and do my homework, except I think I would get the shakes if I were away from my laptop that long. Honestly, how long is it going to be before the great outdoors is equipped with outlets everywhere and universal wifi?

Universal wifi sounds scary, actually. We might have access to bizarre alien websites. Or, even worse, aliens might have access to our horrible bizarre websites. I mean, I want to give aliens a somewhat sanitized view of who we are. We don't want them judging humanity based on the contents of **mathNEWS**, for goodness' sake.

They'd get an odd perspective on what math is, and maybe even what news is, considering our contents. I don't know if we've ever had an article about both math and news, but if we did, the universe would probably spontaneously pop out of being and replace itself with something far stranger.

And what use would universal wifi be then? I don't want to go to all the work of setting up truly universal wifi access only to have it benefit denizens of another universe who aren't me or my friends. Those aliens can pull themselves up by their bootstraps is what I always say. Of course, I've never considered this exact situation before so I guess what I say now is in fact what I always say when the situation arises.

Say, have you considered writing for **mathNEWS**? We're always happy to have fresh blood. We don't actually want your blood, though, just your articles. Please don't write them in blood; we much prefer electronic submissions, because then we don't have to type them into the computer.

Oh, and if you're an alien you're still welcome to submit articles. I know you're reading this, you might as well start coming to production nights.

TBDED
Editor, **mathNEWS**

Yahoo's On Lock	Pain
Theodore Bear	It's a four-letter word.
BeyondMeta	Awesome witchcraft
Zethar	A collection of tautologies which may be (occasionally) useful.
GBAD	Math used to be nice numbers, but they got lost when I moved to University, so now it's just sorry letters. Like English... Ugh.
Paru-Paro	A Broken-Winged bird /that cannot fly
wrenchfail	A lot of letters, and for some reason not a lot of numbers...
dank	Math is love, math is life.
You dont deserve to know	Requirements for my CS courses.
RunEMC	Not the prooofs!!!
Laggy	M - My A - goodness T - stat is H - hard
LJ	M-A-T-H. This proof will put me in my place!
HatOfChocolate	$$$. Arguably a variable in PHP, I believe.
Vice Mitt	A cheaper tuition than CS
The Farting Pony	It stole my friends.
Objective-taste	7th grade bonfires
Soviet Canadian	Mega-Athletic Team of Hitmen
Diminutive Rex	5
Viceroy Butterfly	Where my friends are* *mostly
tobedeterminED	The thing in all lowercase that comes before NEWS
ExtrovertED	Something I don't like to do but value its importance.
undecidED	Maximizing Anguish, Thinking Hard.

CREATIVITY IS HARD
WELL, NO DUH, RIGHT?

You may have read the title, and thought the subtitle. I... put the subtitle there for a reason? Anyway. First thing: what is creativity?

By definition, creativity is simply the ability to create. We often associate creativity with producing new ideas, or producing things by yourself. We call artists and writers and musicians creative, because they create visually/audibly stunning or emotionally compelling works. Less often, we call inventors creative; usually they're called innovative, because they innovate, but clearly this is a form of creativity. We almost never call mathematicians creative; usually, if we call them anything positive at all (heaven forbid we call them inspiring or positive; the best they usually get is eccentric. Thanks, society, you hivemind of misery), we call them clever. I would argue that the production of a clever idea to use in a specific situation is creative.

If you consider the great works and feats of humankind, many of these are in part thanks to creativity. Whether it's coming up with ways to fire people (safely!!) into space, or having the vision to develop modern communication systems, creativity plays a part in the success of the endeavour, or even just the attempt. If no one is creative enough to push the boundaries of what's currently possible, then it will never happen.

But creativity isn't just about the big ideas; it's also about the small ideas. Things like realizing that you could just add and subtract the same quantity from an expression to simplify it, or adding a seventh note to a chord to enrich it, or merely having an idea of what to write for a **mathNEWS** article, are also signs of creativity. And while the magnitude of these ideas may be smaller in scale, sometimes it's just as challenging to come up with anything.

And it's fine to struggle with creativity. It's hard to be creative. Moreover, we can be creative in some ways, and not in others. However, importantly, some creativity can be developed! You can experience certain ideas, and use those in the future to help you be creative. This is called, gasp, learning. Not all creativity can be learned, but indeed a not-small portion of it can be. Things like little tricks and handy skills can be added to your toolbox of ideas, to help you going forward.

So whether you're just suffering through writer's block at **mathNEWS** Production Night, or trying to figure out how to solve a non-trivial assignment question, or attempting to come up with a novel idea upon which to base a Ph.D. dissertation, know that you're not the only person who is struggling a bit with creativity. It's okay; you'll get there, and you'll be better off for the effort you put in to try to be creative and figure it out for yourself.

(Says the person whose inclusion in the first and third categories prompted this article.)

Scythe Marshall

GROUP WORK CHICKEN

Have you ever felt that group was just not exciting enough? That trying to coordinate with the bunch slackers who aren't doing any work was insufficient stress to get your adrenaline running?

Well, we have just the thing for you! Introducing the exciting game of Group Work Chicken! It's pretty simple: as the deadline approaches, engage in extreme procrastination to see if any of your group members will swerve first and do all the work.

There is no real winning in Group Work Chicken, only progressive degrees of losing. This includes the potential to lose your degree in the most extreme version of this game.

This article is brought to you by real life experiences of only needing 10% on a group project to pass a course, and terminal senioritis.

Beyond Meta

THINGS I HAVE DONE IN RPGS

- Accidentally invented myself a harem of flexible men all named Hans

- Saved my entire party by befriending a horse

- Almost gone full Loki as a druid turned into a horse

- Created an ogre named Smash Mouth

- Sold part of my character's soul to turn invisible and ditch her dead comrades

- Beaten up a fire elemental, and then got beaten up by a fish

- ~~Accidentally set the bird I was riding on fire~~

- Accidentally sicced a herd of skinchangers on an untouched indigenous settlement

- Spent an entire evening wandering Paris looking for a really big horse

Diminutive Rex

mathASKS: IMPRINT

This week, our unsuspecting **mathASKS** target was our dear frenemies, the Imprint Editors! We figured that, since they're constrained by trying to act like a Real Professional Newspaper, we should give them a taste of the unconstrained, mildly ridiculous, Full **mathNEWS** Experience. So we let our authors loose on them.

They responded admirably, and we'd just like to extend our thanks to Rameesha, the Managing Editor; Steph, the Creative Director; and T, the Secret Editor, for volunteering to answer our questions and give us some insight on the inner workings of Imprint. We didn't pester them for an article to accompany their answers, so if you want to know more about their newspaper I suppose you're going to have to read it.

As of press time, we'll have already sent off our questions for our next **mathASKS**, but our fourth **mathASKS** this term will be none other than former Dean, Professor Ian Goulden. If you have any questions you'd like us to ask him, please submit them to us by email, facebook, passenger pigeon, or slipped under our office door in MC 3030 by 12 June, and we'll make sure to pass them along.

If you have any requests for profs you would like to see **mathASKED**, feel free to submit those as well.

TBDED

Q: WHAT DO YOU WISH WOULD HAPPEN ON CAMPUS SO YOU COULD WRITE ABOUT IT? —BEYOND META

Rameesha: Interfaculty cooperation and justice for students who have committed suicide to not be numbers, in the form of policies and procedures reflecting the unique landscape that UW is.

Q: HAVE YOU NO SHAME IN THE INCIDENTS IN WHICH IMPRINT HAS BEEN EMBROILED IN THE PAST? -ZETHAR (EDITOR'S NOTE: NOBODY IS REALLY SURE WHAT INCIDENTS ZETHAR IS REFERRING TO WITH THIS, BUT WE ASSUME THEY'RE SUPER BROIL-Y —TBDED)

Steph: People move in and out of Imprint every four months, so a lot of the time, those past things weren't done by people part of the staff now. We just try to do better. And we're generally shameless anyways.

Rameesha: We would like to ensure that our relationships with every organization and person on campus are amicable.

T: You live and you learn.

Q: WHAT'S YOUR STANCE ON THE CHEVRON? —YAHOO'S ON LOCK

Steph: Damn commies. The Coryphaeus is where it's at.

Rameesha: We just keep finding ways to be better

T: What's The Chevron?

Q: HAS THERE BEEN A TIME WHEN YOU WISH YOU COULD PUBLISH SOMETHING, BUT WAS WORRIED ABOUT COULD LOSE YOUR POSITION AT IMPRINT? —VICE MITT

Steph: I think reporters not writing is more of a problem, tbh. Nothing's worse than having someone promise an article, then you have to scramble to fill that space the night before we go to press, then they hide behind the chips when you spot them in iNews. I've had it done to me, I've done it to others. #stopthecycle

Rameesha: When I was researching the suicide of Chase Graham in March, I was coming across content that made the University look very bad and I was worried in the final few weeks of my degree I was going to be kicked out.

T: Yes.

Q: FAKE NEWS! HOW DO YOU THINK REPORTERS SHOULD RESPOND TO ACCUSATIONS LIKE THOSE LEVELED BY THE PRESIDENT OF THE US? —GBAD

Steph: Revolt! Though really, I don't think there's much reporters can do except keep proving they're more trustworthy than Mr. My Hands Are Huge, What Are You Talking About.

Rameesha: Trial by media (more like impeached by media).

DO YOU MEME? –YABOI

THIS MEME IS SO BLAND
NOT EVEN MATHNEWS WOULD PUBLISH IT

imgflip.com C Fox/Everett / Rex Features

Q: WHAT IS THE STUPIDEST THING YOU'VE HEARD SOMEONE SAY? —VILLAGER

"Can I get my refund?" (then immediately picks up a copy of Imprint)

"How much is it to print my essay?"

"Can I change everything about this article you wrote about my event so it sounds like I fart immortality-granting rainbows?"

"What does Imprint do?"
"We are the school paper."
"Oh, I thought that was iNews."

"Oh, sorry, I thought these computers were for public use to print off of."

Q: HOW COME GOOD PEOPLE DO BAD THINGS SOMETIMES? —OBJECTIVE TASTE

Steph: So Imprint can write about them.

Rameesha: Because being bad is so much fun.

T: So Camilla Cabello can sing about it and then leave Fifth Harmony.

Q: WHY DOES ONE OF YOUR EDITORS WEAR A FARTING PONY ON THEIR HAT? —CHALLENGE MODE ERIC

This one?

Steph: The pony chooses the hat.

Rameesha: Who does this? I don't this is professional and they should be let go of immediately. *realizes it's Steph* Well, this is awkward.

T: Pass.

Q: HOW DO YOU REALLY FEEL ABOUT MATHNEWS? —BEEZUS CHRIST

Steph: math**NEWS** is great, just like the people who work there <3. We fill very different niches on campus, so there isn't much overlap, overall. I don't get some of the math humour, but I do enjoy the Profs Say.

Rameesha: Y'all make cool covers.

T: I actually love math**NEWS** even if I get shit sometimes for reading it. I'm sure it's all in good fun though.

Q: WHAT'S YOUR OPINION ON THE IRON WARRIOR? —YOU DON'T DESERVE TO KNOW

Steph: I don't read it, personally. It's cool that it has an audience and other people seem to enjoy reading and working on it, though. We support our fellow publications!

Rameesha: It's cool that we have so many publications.

T: Necessary.

Q: WOULD YOU EAT A BEE? —DIMINUTIVE REX

Steph: Only if it's okay with it.

Rameesha: No, I'm allergic.

T: I actively try to avoid bees because they keep us alive.

Q: HOW DO I GET IMPRINT TO COVER AN EVENT OR TOPIC THAT I'M INTERESTED IN? —VICEROY BUTTERFLY

Steph: Email the section editor it'd fall under ([first word of section name]@uwimprint.ca), or our managing editor (rameeshaqazi@uwimprint.ca), or walk in and tell us about it. You can also message us via Facebook, Twitter, Instagram, Reddit, mail, fax, pigeon, and bribery. Generally, we look for events that are open to all or a fair number of students, and/or would be of interest to the community (UW students). Though you can tell us about it, it's up to editors whether the event will be covered and how, as well as if there is a reporter available to cover it.

Q: DO YOU THINK THAT PUBLICATIONS LIKE IMPRINT AND mathNEWS HAVE A DUTY TO THE STUDENTS, AND, IF SO, WHAT WOULD YOU SAY IS THAT DUTY? —FELONIOUS MONK

Steph: I think they have a duty to be truthful, like any publication. Whether math**NEWS** or Imprint or any publication, I think there's a responsibility to be as truthful about the world in our humour, reporting, and even fiction (in that weird way good fiction is) as possible. Fake news, alternative truth, and aggressive spin doesn't often help anyone except the people making it up. But every small truth, I think, helps everyone touched by it.

Rameesha: Of course. We have to let students know what is happening on and around campus so they are aware of the full story. Especially the things that happen that are covered up by the university. So much is happening around us all the time that sometimes it's hard to keep up with everything all the time and it's our job to investigate thoroughly and report on it. Oh and to entertain. I mean, I love our cat. <3

T: Short and sweet: yes. Think about the exchange of information and how fast information flies about. Regardless of how the information is presented (as long as it's the Truth), news will always be interesting to some people and we recognize that not all people find news interesting. Yes, digital media is great and all that jazz, but news in one consolidated area is just as important because of the community representation that local news tries to cover and general interest. And to everything else that has been said so far, ditto.

Q: IS THERE ANYTHING INTERESTING THAT IMPRINT HAS IN THE WORKS THAT YOU CAN TELL US ABOUT? —THE EDITORS

Steph: You'll know when it happens. :P

Rameesha: I'm sorry that's top secret, and if we tell you we'll have to kill you. And I can't hide any more bodies this month - I mean….

T: Not that I'm aware of.

MY FREE TRIP TO SOUTH DAKOTA

I like vacations, you like vacations, everybody likes vacations! It turns out that even the University of Waterloo likes vacations, despite not even being a person. For this reason, every year, the University gives some people money (that they got from some company that apparently also likes vacations) to go on a trip to some place around the world.

This year, last week, I was invited along with around 11 other students to go to South Dakota. The week-long trip was a lot of fun! Particularly, it had:

- FREE drinks! But even more importantly,

- FREE food! We were given an amazing opportunity to try the ethnic foods of whatever people live there, such as e.g. dessert pizzas![1]

- Also, FREE money! The airline thought we were so cool that they just offered us money, but of course, we were way too cool to take it.

- An interesting scenery. Apparently there's grass in the US too! (And trees, too!!)

- Mount Rushmore. Do you ever feel the urge to go around saying "Whoah, Mount Rushmore is actually wayyy smaller than you would think"? Now, I can satisfy this urge whenever I want!

- Board games! They exist in South Dakota too!

- Patriotism! Do you sometimes just forget to join the US armed forces? In South Dakota (and, as it seems, the rest of the US), they'll helpfully remind you!

Also, as an ADDED BONUS, we got to see the secret of how to properly end a lasershow about the oppression of Native Americans on a high note with a patriotic song![2]

Pretty amazing, eh?

It only hade some minor downsides:

- Rapid City (the place we went to) doesn't have as many awesome beaches as, say, Thailand.

- There were some signs advertising "insurors", even though I don't think that's even a word. Also, some bank missspelled the state as "Dacotah". Isn't that ridiculous? Seriously, learn to spell, people!

So in total, I had some wonderfully relaxing vacation last week.[3]

So do you want a free trip next year? Unfortunately, there's not enough money to grant one to every student,)': ([note to the editors: replace by a sad emoji of your choice if you want to]) so there has to be some sort of rationing system. The rationing system turns out to be some weird programming contest that you can write in the first few weeks of the Fall term. Stay tuned![4] [Note to the editors: I know it's late, but can you insert the following? Thanks!] Details on this contest can be found here: http://acm.student.cs.uwaterloo.ca/~acm00/

--DANK

1. Those aren't as gross as they sound like at all. In fact they're delicious!
2. While listening to that song, we also got to see that the USA has EXPLOSIONS (whoah) and FIGHTER JETS (whoahhhhh) and SPACE SHUTTLES (whooooahhhhh)!
3. Unfortunately, some people apparently don't know how to relax properly: Three people insisted on wasting their precious vacation time to participate at the ACM ICPC, some international programming contest. They even ruined enough time to train hard enough that they got first place in North America, and 13th place globally! Those tryhards..
4. But don't get too attached to those contests, otherwise you'll end up like those three poor guys from the last footnote.

INVESTIGATIVE JOURNALISM! ARE THE mathNEWS EDITORS PART OF A SECRET CULT*?

Hello, everybody, it's Theodore Bear, back again to deliver the hottest scoop straight to you. This one's a doozy. Be careful, try not burn yourself on it.

When you look back on the history of the world, you will find that investigative journalism is built on mistakes of others. Small mistakes can get investigative journalists like myself on the trail, unraveling the thread to get to the heart of the conspiracy. Watergate started with a break in, FEDs' attempts to control time were uncovered by me after they forced Imprint to move offices, and finally, we would have never known that ABBA had been stealing music from alternate dimensions if the giant gelatinous cubes hadn't invaded Earth in 2005.

The mistake that launched this painstaking investigative journalism investigation occurred shortly before the release of the last issue of **mathNEWS**. I had sent an email to the **mathNEWS** editors, asking them to make some changes to my pizza review from last time. I emailed them hours before the edit deadline, but when I picked up that fateful issue of **mathNEWS**, I found that none of my suggested edits had made it inside the final draft. I found it odd, suspicious even, and resolved to find the reason my edits had not made it in issue.

What could it have been?

My first thought was that the **mathNEWS** editors just missed my email, but I mean, how likely is it that a bunch of overworked students didn't see an email sent to an email account they probably don't check all the time? Besides, investigative journalists never take the official explanation for granted.

I decided to visit the **mathNEWS** office a couple days later to inquire into why my edits didn't make in. To find the truth, I visited slightly before the time I had sent my email: 9:37 AM. I asked the editors there about the mistake and all of them told me that none of them saw my email, confirming my initial suspicions, but why?

Then, it reached the exact minute I had sent my email, and suddenly, all the **mathNEWS** editors stopped in their tracks, and their eyes all turned completely black. They started chanting in unison in a language I could not understand, but whose words made me feel as though there was a presence nearby. They chanted for about a minute (54.2823 seconds, to be exact), before they all yelled out "THE BLACK PYRAMIDS WILL RISE AND THE DARK KING SHALL TAKE HIS SEAT" together. Then they vanished into thin air when the second hand reached twelve, never to be seen again. Well, until the next day.

I thought that their behaviour kind of strange, a bit weirder than what I expect of **mathNEWS** editors, so I decided to pry a bit and ask them about it. Strangely, none of them would admit to remembering their actions from the day before.

Smelling a story, I decided to look into these "black pyramids" and "dark kings". Strangely enough, there were no hits online for either of these terms. All I got was a blank screen with the words "TURN BACK" written in big letters. I ended up finding some stuff in the ancient archives housed deep within the University of Waterloo's Dana Porter Library. Everything I found connected the 'Black Pyramids' and 'Dark King' to ancient rituals from before the dawn of human civilization.

I thought about maybe phoning up one of my acquaintances, a Lovecraftian Horror whose name I can't for the life of me figure out how to pronounce, (probably a good thing, as he told me that hearing his name would drive any normal man insane), and asking if he knew anything about this, but I decided that it wasn't really worth it. (On a side note, we'd met over drinks last term, and let me tell you, there is no experience like getting drunk on eldritch liquor. It comes in bottles that defy the laws of physics, allows you to see in 37 different dimensions, and lets you draw non-euclidean geometries perfectly.)

In the next few days, though, some stuff started happening that struck me as somewhat weird. The **mathNEWS** editors started stalking me at all hours of the day, appearing outside my residence just staring at me, looking in through my window. I eventually got tired of all the attention and asked the editor following me at the time to stop, which he did, but not before telling me "The Dark King Shall Break The Crystal Chains And He Will Rise Again". Kind of an odd thing to say, I thought at the time.

With all the evidence I have gathered, I will say that the chance of the **mathNEWS** editors being part of a secret cult* is close to zero. I mean, it's obvious they are part of a cult*, but because of how easy it was for me to find evidence on them, either the cult is not secret at all, or is so bad at keeping secrets that they as well not be secret at all. In that case, I call upon the editors of **mathNEWS** to reveal the truth, because seriously, I want in on this shit. Editors, you know who I am and you know my contact information. Please, let me in on this cult of which you're a part*. I won't reveal anything more about you in this paper. I promise.

And to rest of you reading this, if I suddenly ascend to a higher plane of existence, you will have some idea why, and if so, I urge you to seek out this cult in the same way I have, through investigative journalism.

That had been your bi-weekly dose of investigative journalism. Theodore Bear out.

(* you know, besides the cult that is being a **mathNEWS** Editor)

[Editor's note: All of our editors this term are female. Theodore Bear, if a man is stalking you, we find this very alarming and we recommend contacting campus police. **undecidED***]*

Theodore Bear

WATERLOO WORKS (KIND OF)

So this term is my first term using Waterloo Works to apply for jobs, and it generally seems to work about as well as jobmine did. I'm not entirely sure where all the money in revamping it went, but I guess that's why I'm not a website designer. I'm glad it's open 24/7, but that seems less like an exciting new feature and more like functionality that we should have had access all along.

One thing that I do find incredibly irritating is the fact that if an employer requests you submit a cover letter, you're required to do so in order to submit your resume. You just have to, no exceptions.

What is it with the university removing functionality on things? I know a lot of people who are either finished co-op or nearing the end of their six terms, and almost everyone has obtained interviews and offers for jobs that specifically requested a cover letter, without submitting a cover letter on their application.

Employers don't actually know what they want. We can deduce this because they'll ask for 4 years experience in 9 different programming languages for an IT job that pays minimum wage. If we could only apply to jobs for which we actually had all of the listed qualifications, most jobs would get very few applications if any, and first years would be entirely locked out of the process. So what makes cover letters any different?

I mean, there's always a way to leave out a cover letter. You can just upload a blank PDF in the cover letter slot, and Waterloo Works will happily accept this as part of your application. I hesitate to mention this in my article because they might remove more add functionality to ensure your document has text in it in order to close this loophole, but it's not a great loophole at any rate because you're stuck inserting a blank page in your application.

Removing your ability to submit an application without a cover letter just feels condescending and paternalistic to me. It feels like they're saying they know what's best for us, instead of allowing us to let our job application and interview skills guide us. I've held at least ten different jobs in my life, I think at this point I am capable of making an informed decision as to which applications need cover letters and which applications can be submitted as just a resume speaking for itself.

I asked a co-op advisor why they made this choice, they said something along the lines of, that's just part of the tool, it's not changing (I didn't ask them for a quote for **mathNEWS**, so I'm reluctant to quote them directly). This isn't a huge issue for me, as I'm starting my final co-op term in the Fall (light at the end of the tunnel), but I'd like to make things a bit better for the students who come after me. So, if any of you have any ideas as to how to get the university to fix this stupid decision, feel free to email **mathNEWS** suggestions on my behalf. I'm certain the editors will know how to pass it along.

<div align="right">Diminutive Rex</div>

ADVENTURES OF AN ENGINEERING STUDENT TAKING AMATH 242/CS 371

DAY 28:

Neither my classmates nor the instructor of the course have realised I'm not one of them. I sit in the dark corner of the lecture hall, scribbling down notes and trying to remain unnoticed.

Why subject myself to this life of secrecy, you ask? Why venture beyond the humble bosom of engineering courses that barely require you to know anything beyond high school algebra? I'm hoping that taking this course will help me optimize my design of a disruptive ass-wiping robot. But so far the prof hasn't taken up any applications...

Today's lecture was on LU decomposition. The instructor spent 20 minutes solving a system of 3 equations in the most convoluted manner I have ever seen. It was all I could do not to ask why he doesn't simply plug the numbers into Wolfram Alpha.

Apparently $\sin(\theta) \neq \theta$.

The first assignment was also handed back today. Apparently a 'proof' is a series of logic statements forming a mathematical argument, and not copy-pasting the Wikipedia page to the theorem and writing 'Q.E.D.' underneath it. Strange... this will require further investigation.

My greatest success so far on my journey into the unknown depths of the math faculty have been infiltrating the Computer Science Club. My working knowledge of C++ and the Microsoft Office suite has allowed me to feign familiarity with computers. Still not sure what LINUX is, though...

DAY 29:

Last night I got lost in MC and never made it home. How do Math students navigate these hallways without a plaque on every corner and desperately post-modern architecture? I'm fine on fluids, but I haven't had anything to eat for a while now. I overheard someone say you can get free pizza if you submit an article to **mathNEWS**, maybe I'll look into that.

<div align="right">WRENCHFAIL</div>

ONTARIO LIBERALS CONSIDERING EMBARGO ON PUNS

In Canadian politics, question period has been known to lead to some rather heated debates - this past Monday being no exception. The Ontario provincial parliament saw quite the flight of fancy when conservative MPP Rick Nicholls took the stage over Kathleen Wynne's recent $200,000 grant towards procuring a 6 story, 14 ton yellow rubber duck for the Canada 150 celebrations in Toronto. Starting off on a strong webbed foot, Nicholls shot at the liberals: "Was Kathleen's rubber ducky really worth $200,000?"

Eleanor McMahon, Minister of Tourism, Culture and Sport, responded with some top notch introducktory statements, noting "On this side of the house we're not ducking any of these questions," saying that the rubber duck "was an important investment to make."

Never missing an opportunity to quack a joke, ol' Ricky was rather derisive of the Liberal answer, as it was "really quacking [him] up...this absurd waste of taxpayers dollars is an absolute cluster duck."

After a brief break for applause and awe, m'lord (m'allard?) the Speaker of the House interrupted, asking the MPP to withdraw his statement, telling him "I hope you can tell I'm not happy," likely due to Rick's implied fowl language.

Undeterred and still on beak performance, Rick soldiered on in his one man crusade against Kathleen Wing's - excuse me Wynne's - rubber duck: "People are already treading water trying to pay their bills, and you float this rubber ducky right in their face?"

Still managing to stay afloat and attempting to pass the duck, Eleanor retorted "It's interesting when the member opposite raises an issue about investments," finishing off with a zinger that earned her a standing ovation: "We're not quacking about anything...this is exactly the kind of investment we should be making."

To Canadian newspapers the debate was an absolute golden goose, er, duck. All across the country journalists flexed their wings and took to the story like a duck to water. The headlines, much like the debate itself, were loaded with as many puns as the writers could muster, from the Toronto Star's "Ontario Tories cry fowl over $120K for a giant rubber duck" to CBC's "What the duck? Ontario paid $121K to festival bringing world's largest rubber duckie to Canada." The Canadian Press noted that this whole duck business was "ruffling some feathers."

mathNEWS reached out to Premier Wing's office, wishing her good duck with the coming celebrations and wondering if she'd done any Peking at the articles on the issue. Tired of the unending flight of duck puns, the premier could not be reached for comment; all we received in response was a memo from her secretary telling us to "duck off."

YOU DON'T DESERVE TO KNOW

BICYCLE SAFETY
WITH SAFETY PONY

Do: Wear a helmet.

Do not: Wear it on your head. Leave room for your mind to expand. Especially while concussed.

Do: Use bike lanes on your route whenever possible.

Do not: Share bike lanes with other bikes. Screw them. This is your lane.

Do: Bring plenty of water.

Do not: Drink that water. There's no electrolytes in water. Get electrolytes, get CHARGED.

Do: Regularly inspect your bicycle for broken or worn down parts.

Do not: Pay to replace those parts. Everyone else is leaving spares out in the open for you. Just carry a wrench and an Allen key.

Do: Watch for cars entering your path.

Do not: Stop. Cars are easily intimidated by the raw power of well-developed thighs. Pedal on, my well-toned friend, pedal on.

Do: Share mixed-use paths with pedestrians and horses.

Do not: Ride your bike near a horse. Like, seriously, bikes freak them the fuck out.

Do: Enjoy your two-wheeled trip.

Do not: Think you're as cool as the other two-wheeled vehicles. They will give your bike a wedgie. And probably crush your skull with a pipe or something.

THE FARTING PONY, THE GAS-POWERED
CYCLIST

UNQUALIFIED

SUNG TO THE TUNE OF "THAT'S WHAT I LIKE" BY BRUNO MARS

Hey, hey, hey
I spent 4 years taking classes
Learning mathematics
Assignments and tuition,
Putnam competitions,
Thought I'd find a job, thought-thought I'd find one
But now instead I'm mowing lawns, can't-can't find one

I rent a 10-square foot apartment
Facebook, always on it (yup)
Friends in California
Making all that money
God, I wish I had it, God, God I wish I had it
Said I got no money now, empty wallet in my hand, now

Go the grocery (Gotta buy some ramen)
Send some resumes (Got rejected by McDonald's)
My degree is worthless, baby, can't work at all
3 years since I left Waterloo

Why did I study Pure Math
Instead of CS or Stats?
I'll always be unqualified, unqualified
E-ve-ry job unqualified, unqualified
Busted my ass every night,
Freezing to death's how I'll die,
I'll always be unqualified, unqualified
E-ve-ry job unqualified, unqualified.

Paru-Paro
P.S. Spare some change?

THE UNOFFICIAL GUIDE TO TRAVELLING ON VIA RAIL

AKA HOW NOT TO LOSE YOUR MIND AS YOU TAKE 2 DAYS TO TRAVEL ACROSS ONTARIO

You might have gotten one of the rare Via Rail Canada 150 youth passes. Or you're considering paying for a cross Canada ticket. Or maybe a rail pass.

Any way you choose, you're still subjecting yourself to 4 days (potentially non-contiguous - highly recommended!) of travelling across Canada (or at least Toronto - Vancouver) by (not entirely comfortable) train.

Having actually attempted this at one point, here's my suggestions:

- Be prepared for delays. You're on Via Rail. There's a reason Via only gives you credit in the event of delays in the Montreal - Windsor section. Everything else is "best effort", the tracks are owned by shipping companies.

- Perversely, the most comfortable section is probably Saskatoon - Toronto, because there aren't as many people travelling, so you can snag one of the rare facing seats, and pull out the footrests to make an uncomfortable bed.

- If you're doing a round trip from Toronto to Vancouver, break it up with a stopover on the way. Based on the published schedules, stop at Winnipeg on the Toronto-Vancouver leg, and Saskatoon on the Vancouver-Toronto leg.

- Unless you have to, don't stop at Kamloops North. It's in the middle of nowhere, no bus stops closer than a 90 minute walk away, and the taxi services don't (appear to) run that early or late. Which you're likely to need, since delays mean you're going to be at the station at inconvenient times.

- Winnipeg, Jasper and Toronto stations are unique in that they're close to the centre of the city. Vancouver's station is on the outskirts, but there's still fairly direct access by the subway line.

- Saskatoon's station, while in the middle of nowhere compared to Winnipeg, it at least has a bus stop ~20 minutes from the train station. Said bus will take you to the city centre in 20 minutes.

- The most conveniently located Hostelling International hostel is in Vancouver. You can get to it by public transit. Jasper is second - you have to climb a mountain, but there's a shuttle service to/from the train station that runs fairly regularly. Winnipeg and Saskatoon don't seem to actually have HI hostels. Edmonton HI is an hour by public transit.

- Since you're still a university student, you can get an ISIC card to be able to use the Youth rates even if you're older than 25. As a bonus, the ISIC card is also accepted as photo ID in a few places, despite looking really fake.

- There is nothing to do in Saskatoon other than walk along the river. You will also do this in Winnipeg, but at least there's the Winnipeg Zoo.

Hat of Chocolate

A NOVEL ALGORITHM FOR BIN PACKING

There I was, sitting in algorithms class listening to the professor explain various methods for packing bins. Why are we packing bins? I'm not too sure either, but apparently somebody's shoving packages of differing sizes into your hands and yelling to put them in bins, and not to waste empty space in the bins, and god forbid you ever try to take something out because that's just not allowed apparently. So apparently people like to try putting things in different bins and seeing how close they can get to an optimal solution by checking what they could achieve if they WERE allowed to reorganize things once in a while like a reasonable person. Then they start arguing about epsilons and the probability of failure and on and on and on.

I don't get it. I think there's a whole lot of hubbub about nothing. Here's the only algorithm you'll ever need to put your packages in bins. Not only will it be linear, it will be constant! And not only will it be constant, I only need ONE bin to hold all your packages!

1. Get your package from the package overlord

2. Throw it over your shoulder into the nuclear reactor

3. If the package overlord has another package go to step 1

4. Fuse all the packages into a single, gigantic atom

4.5. Collect your Nobel prize for discovering a new element!

5. Put the microscopic atom into a single bin
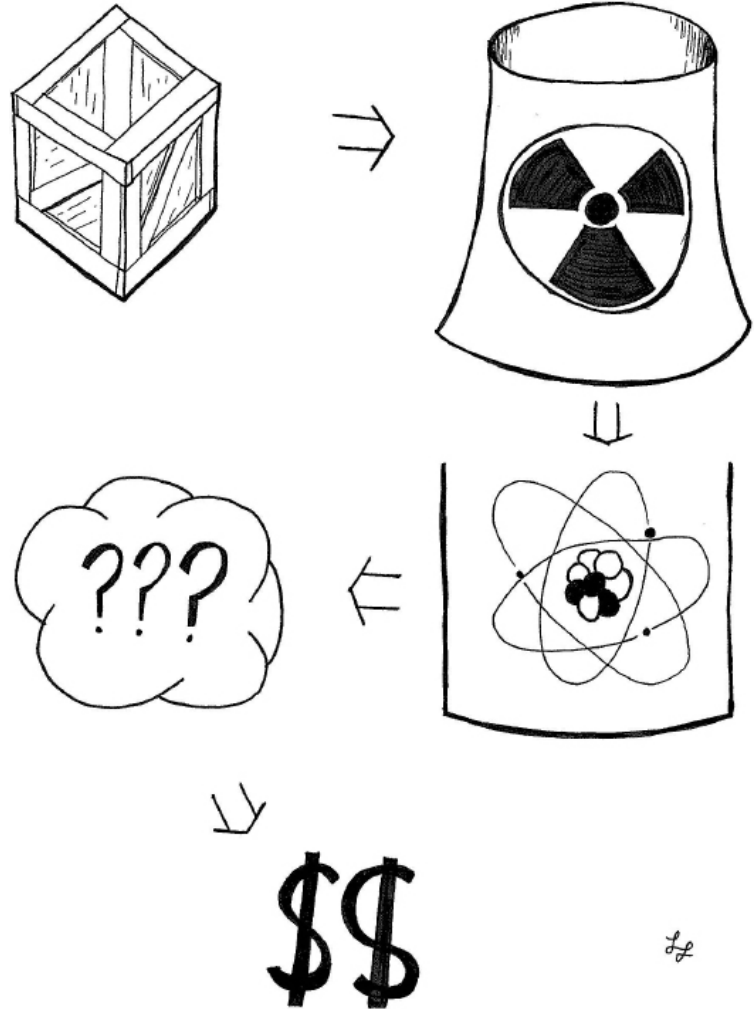
6. ???

7. Profit!

And there you have it! Everything you'll ever need to know about bin packing. Just make sure you wear your lead suit and everything will be fine!

LF

N THINGS THAT HAVE A HAWAI'IAN FLAVOUR

- Pizza
- DQ Blizzards
- Punch
- Barack Obama

VICEROY BUTTERFLY

OVERHEARD AT mathNEWS

" Does Imprint really want to be associated with our shameless shitposting?

" I just don't need surprise chest hair all the time.

" Don't put surprise chest hair in there, please.

" Are you implying my privacy is garbage?

" Ask him what his normal body temperature is, for a baseline. Then we can check if he's human.

" I might go to western Ukraine.

" You mean Russia?

" My mind is a tabula rasa ready to be filled with pizza toppings.

" Comic Sans supports Cyrillic, right?

REVIEWS NOBODY WANTED 2: MEAL KIT BOOGALOO

Today I will be reviewing the Marinara Sauce With Meatballs from the international chain Meal Kit Supply. Their food is eaten the world over by members of the US military and people in disaster areas, and is a staple in some parts of the world. The food itself is presented in high-quality packaging, which has been stress-tested by my cat at home, and has maintained its integrity. Even if the outer layer had broken, there is an internal package.

The food is tightly packed, and upon opening the inner package, the items spill everywhere. At this point, I should note that I've taken measures to preserve authenticity of the experience, by not showering for three days, doing physical labour before writing, and depriving myself of sleep. I've also neglected to heat the meal before eating, truly encapsulating the full experience.

I've begun with an appetizer in the form of the Crackers. The crackers themselves are a basic unsalted cracker, measuring approximately 10cm x 10cm. The taste opens with earthy tones, and if one aerates the palate enough, a strong oaky undertone comes through. $6/10$, needs more salt.

A packet of Peanut Butter was included in the package. It is fairly dense through the package. The butter itself has a strong nutty scent, and tastes fairly nutty, with a strong soy undertone. Paired with the Crackers, it forms a congealed mass in the mouth, with a pleasant melting butter texture, more so than most peanut butters. Overall, an $8/10$ experience.

The Crackers are followed by the first course, the Potato Cheddar Soup Flavoured with Bacon. It is contained in a green package, as is the main course, the Marinara Sauce with Meatballs. The soup is very creamy, and has an acidic potato smell, with slight pork overtones.

The taste is vinegary, with sour undertones. The texture is that of thick cream, with some solidity in the potato, bacon, and celery. Each piece is very small, allowing for a spoonful to hold a bit of the complete package. With the addition of the Tabasco sauce included, the taste is almost overwhelmingly vinegary, but pleasantly spiced. Without Tabasco: $4/10$, with Tabasco: $5/10$. Too much vinegar.

After, I cleansed my palate with the mix of water and the Carbohydrate Electrolyte Beverage Powder - Lemon-Lime Natural and Artificial Flavor. At a mixture of approximately 5 parts water to powder, the beverage is exceedingly sweet, with a tart aftertaste.

The main course, The Marinara Sauce with Meatballs, is also in a green package. It is presented extraordinarily poorly, appearing as a red slop in the package. The appeal could be improved with better presentation. The taste is sweet, with a pepper aftertaste. The texture of the meatball is somewhat dense, with a somewhat bland taste. The composition mix of Chicken and Beef create an intriguing mix of taste, not particularly savoury, nor particularly foul. The addition of Tabasco and pepper greatly improves the flavour. The conspicuous lack of pasta severely detracts from the experience. Overall, $6/10$.

To finish, I mixed up the Vanilla Pudding Dessert Powder with the recommended amount of water. With an extensive amount of mixing (3 minutes), the pudding is somewhat grainy, giving it a complex taste, as the smooth texture of the main pudding contrasts against the granularity of the un-dissolved particulates outside of the pudding solution. This interaction occurs over the pleasantly sweet taste of vanilla, creating a thoroughly enjoyable gastronomic experience. $9/10$.

I followed this meal with the enclosed Cocoa Beverage Powder, mixed with cold water. It has a very milky taste, however the extreme sweetness of the cocoa is overpowering in cold form. The chocolate is a definite low-percentage cocoa, giving a light taste to the drink. With a darker chocolate, the drink would have been unbearably bitter at cold temperatures, a blessing given the limited resources available for mixing. $7/10$, too sweet. $8/10$ with Tabasco.

The overall experience was very filling and energizing. As I write, I feel more energized, and the fatigue hallucinations are retreating. $7/10$.

Yahoo's On Lock

FUN FACTS ABOUT PINEAPPLE PIZZA

- It was first made in Ontario in 1962.

- It was named Hawaiian only because it was inspired by Hawaiian cooking, which often uses pork + pineapple.

- It could have been much worse - Spam is very popular in Hawaii, after it was a primary source of protein during the second World War.

- **mathNEWS** usually has pineapple pizza at the post-article writing party.

Hat of Chocolate

BREAKING NEWS: DIFFERENT PEOPLE LIKE DIFFERENT THINGS

Recently, we came to the earth shattering conclusion that different people have different preferences. Not only do they have differences in their opinions, but unless their preferences are actively harmful, it doesn't matter. It's okay to like things that other people don't. And it's okay for other people to like things that you dislike. If you encounter a difference in opinion, you do not need to go on a rant about how they are wrong.

Really, it's fine to disagree. You don't have to convince people of your opinions. You think that certain food is delicious? That's cool. You really don't have to insist I try it too.

There is nothing wrong with other people's preferences if they don't impact you. Let them enjoy themselves, and enjoy the things you enjoy.

You don't need anyone approval; they don't need yours.

Beyond Meta

STUDENT USES mathNEWS AS DIARY

GETS FED PIZZA

For almost five years a student at the University of Waterloo has been shamelessly using **mathNEWS** as their personal diary. For some bizarre reason instead of informing people on facebook about their life they decided that the best way to keep track of their life was by writing **mathNEWS** articles.

They wrote articles about various topics including how totally not bitter they were about their breakup, how smug they were about their breakup, how much they love strawberry shortcake, how to stalk people, how to find your virginity: in case you ever manage to lose it.

Not only did nobody stop them but in fact they were actively encouraged by being awarded article of the issue on three separate occasions.

Now that they have graduated, we asked them if they have considered stopping. They answered 'probably not', as they take great joy in writing articles and hope that they have also entertained other people with their adventures in life.

Beyond Meta

BEES 101

After consulting the random topic generators of **mathNEWS**, I've been assigned to write about bees. This is complicated by the fact that I know very little about bees, and can't connect to Eduroam on my laptop, and am not sure what kind of article the generator would like. For a more thorough review of bees, please consult one of BBC's wonderful nature shows, preferably voiced by Sir David Attenborough.

Let's begin with a review of the major half dozen facts of bees. Examine your bee closely, and you will notice the following.

1. Bees are usually yellow and black striped. And soft! Very soft. Bees feel like a soft little fuzzball. Whether they are black with yellow stripes or yellow with black stripes is better left to the philosophers, because...

2. The two primary sensations caused by bees are stabbing and hurting. Most bees have an end with a stinger, which is unpleasant to come in contact with. Especially in the mouth or rear area. This is much more important than fact the first, and should really have started this list. Do not eat or sit on your bee.

3. As insects, bees have both two or three body segments, and six legs. If your bee has too many segments or legs, it is probably a centipede. Too few, possibly a dog or a snake.

4. Bees can have prosthetic legs attached! There's a guy online who made prosthetic legs for bees who'd been injured in the honey wars. Further proof that bees are not snakes is their ability to make use of artificial legs.

5. When confronted by big, scary hornets, bees can swarm them to cook their larger stingy brethren. Whether this could be harnessed to cook a pizza pocket by dressing it with wings and a striped scarf remains to be seen.

6. The traditional family structure for bees is colloquially known as "the metric crud-tonne". If your bee dislikes you, or feels distressed, expect many, many angry siblings to arrive shortly.

And that's all that's known about bees, at least until Eduroam comes back.

Hardly Eric

AN ARTS STUDENT'S TRAVELS TO MATHNEWS

- MC is a square? And there's stairs at the corners? How did they make that work?

- So the hallways just go around the edge of the building? And there's straight lines down the middle? I'm sorry, I can't navigate a building that isn't made of hexagons.

- Tsk, I can't even touch both sides of the hallway with my elbows.

- Where's your three half-floors between the second and third stories?

- You…have couches? And food? Why can't I get sketchy sandwiches for $2.00 in Arts Lecture?

- I'm getting used to this square building thing. I bet the room numbers don't match the floor number, though.

- WHAT IS THIS WITCHCRAFT?!

- Why'd they put all the clubs in one place? How do they hide from each other that way?

- Here's Math**NEWS**, I guess. How am I supposed to reach my step count if I don't spend a few hours in the alternative dimension under PAS?

- Screw this, I'm going back to the economics department in Hagey.

THE FARTING PONY

DID YOU EVER HEAR…

The tragedy of Cali or bust? I thought not. It's not a story the faculty would tell you. It's a /r/uwaterloo legend. Cali co-op was a dream job of the CS student, so fantastic and so well-paid, that one could use their experience to influence developers to create the ultimate start-up. One would have such deep networking connections that they could even choose to keep the inexperienced first years from being jobless.

It became so sought after that the only thing one was afraid of was losing to their competition, which eventually, of course, most did. Unfortunately, the news spread, teaching everyone everything they needed to know, then, in their sleep, the CS student's dream of Cali was bust. Most never saw it coming.

It's ironic that without the Cali co-op, one could save others from joblessness, but not themselves.

RUNEMC

ADVENTURES OF AN ENGINEERING STUDENT TAKING AMATH 242/CS 371

DAY 28:

Neither my classmates nor the instructor of the course have realised I'm not one of them. I sit in the dark corner of the lecture hall, scribbling down notes and trying to remain unnoticed.

Why subject myself to this life of secrecy, you ask? Why venture beyond the humble bosom of engineering courses that barely require you to know anything beyond high school algebra? I'm hoping that taking this course will help me optimize my design of a disruptive ass-wiping robot. But so far the prof hasn't taken up any applications…

Today's lecture was on LU decomposition. The instructor spent 20 minutes solving a system of 3 equations in the most convoluted manner I have ever seen. It was all I could do not to ask why he doesn't simply plug the numbers into Wolfram Alpha.

Apparently $\sin(\theta) \neq \theta$.

The first assignment was also handed back today. Apparently a 'proof' is a series of logic statements forming a mathematical argument, and not copy-pasting the Wikipedia page to the theorem and writing 'Q.E.D.' underneath it. Strange… this will require further investigation.

My greatest success so far on my journey into the unknown depths of the math faculty have been infiltrating the Computer Science Club. My working knowledge of C++ and the Microsoft Office suite has allowed me to feign familiarity with computers. Still not sure what LINUX is, though…

DAY 29:

Last night I got lost in MC and never made it home. How do Math students navigate these hallways without a plaque on every corner and desperately post-modern architecture? I'm fine on fluids, but I haven't had anything to eat for a while now. I overheard someone say you can get free pizza if you submit an article to **mathNEWS**, maybe I'll look into that.

WRENCHFAIL

PING PONG (NOT) THE ANIMATION

I rediscovered my love of Ping Pong last co-op term, where we had a table coupled with a competitive scoreboard to determine who was the most powerful ping pong player in the office.

It was also during this term in which I had finally decided to watch a show I had on my backlog for a while; Ping Pong, the animation. The show was an artistic masterpiece, and the only reason preventing past me and more people from watching it is the bizarre style of art and animation.

After the first episode, however, I found I understood the realistic effect of the peculiar animation style no matter how surreal it initially seemed. The plot is layered with heavy themes and symbolism about enjoying life and finding happiness. One could say the show is less about Ping Pong, and more on the lives of individuals.

Overall, coupled with an amazing soundtrack and incredible opening song, it made its way to one of my favorite shows and strengthened my desire to play the game. It felt like my Ping Pong career had just begun, and immediately I searched for a "Ping Pong" club on campus so I could play to my hearts content. I was distraught when my Google searches came up with nothing, but thanks to /r/uwaterloo I discovered the club was actually called the "table tennis" club, which I assume is due to copyright on the word ping pong.

I immediately went to every session for the rest of that term, and was ready to do the same for this one as well. But, much to my dismay, the club was inactive for two-thirds of the semester due to renovations in PAC. I became increasingly desperate, day by ping pong-less day. My hands started to swing and flick an invisible paddle unconsciously during lectures. I found myself daydreaming about competing in various ping pong tournaments.

In my desperation, I resorted to playing Pong on a circular kitchen table with masking tape marking the center line. Eventually I denied reality, believing that true Pong was to be played in the convenience of one's kitchen. Denial turned into anger, as I lashed out towards my friends whenever they mentioned any form of racket sports. Anger soon became bargaining, as I sent a frantic email to the table tennis club begging them to re-open. Then came the depression, as I stared longingly at my paddle each morning, with hopes that I would hear that satisfying sound as I applied heavy topspin to a ball once again.

And finally, I accepted that I would have to wait two whole months until I could play again. This all changed when I saw a glimmer of hope, a light so small I realized it came from the notification light of my phone. A new email. This email was not the Crowdmark disappointment I was expecting. It appeared in my inbox with the soothing appearance of all that was good in this world. I closed my eyes as its melodic tune whispered in my ear "the UW table tennis club is now active again on Wednesday evenings and Sunday afternoon."

Laggy

FEATHERING OUR NESTS

When we think free, we think free as a bird. If someone is living a life of wealth and luxury, we may say they're a bird in a gilded cage[1]. We've even got them on our money. So many things are for the birds. And yet, so little is from the birds[2]. I say it's time we got a cut of their nest egg.

A little taxation could take the free out of freebird. There's no reason we can't make them pay property taxes for their nests, just like all of us have to pay for our houses. A home is a home, whether it's made of twigs and spit or brick and mortar. While it may be tricky to keep tabs on many birds that are living off the grid[3], we're missing out on so much potential tax revenue from the ones we have tagged and tracked. We should also get a cut of the income from all those golden goose eggs.

Just because bird taxation is so intuitive doesn't mean the private sector can't tap into this goldmine too. If we have privatized highways with tolls if you want to take the fastest route, why not have tolled airways as well? If those crows want to get somewhere as they traditionally fly[4], they should have to pay for the luxury of the most direct route. Alternatively, make them pay the same sort of landing fees our pilots who had to work for the so called "gift" of flight have to deal with. It's only fair[6].

Hopefully, together, we can undermine the bird elite[7], or at least take them down a little in the pecking order.

Yours,
$s,t \in \{2k, k \in Z\}$, 144

1. Even bird prisoners have a cushy gig.
2. Those selfish featherbags.
3. Don't get me started on the birds literally living on the grid2,5, without paying a dime for the infrastructure taxpayers shelled out for.
4. Yet another idiom demonstrating how ingrained bird privilege2 is engrained in our society.
5. That's right, nested footnotes in an article about birds. Yeah, I went there.
6. And therefore anathema to fowl.
7. Or "birdgeoisie"[2], if you will.
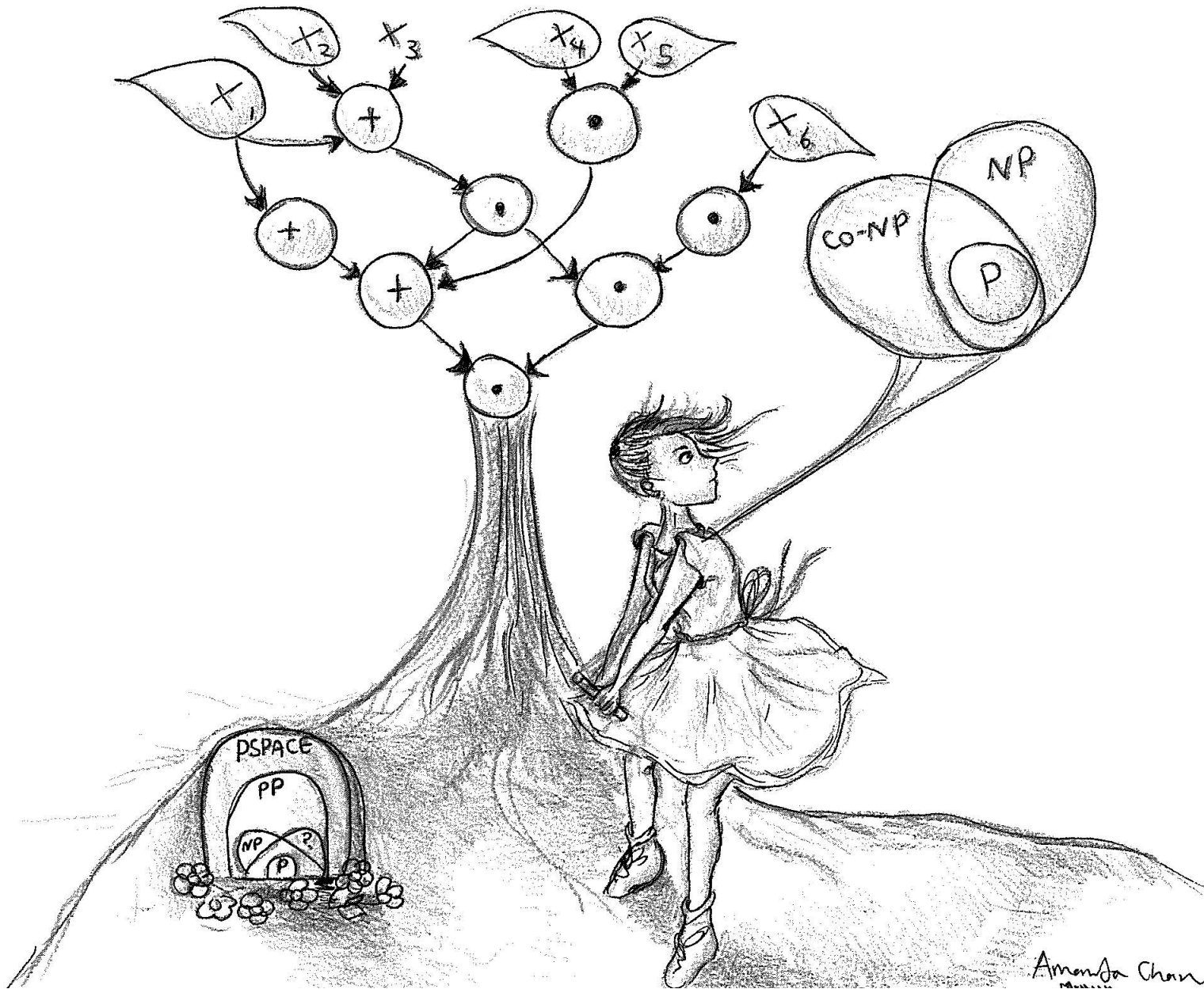
I'M SORRY, TEDDY, BUT WE'RE MOVING IN A DIFFERENT DIRECTION…

For the next two years, I'm going to be allowing the education system of Europe to slowly suck the life of me. That's not the important thing here. The important thing is that I have to fit all of my everything into two suitcases and two carry-on items. I have spent the last five years here in Waterloo slowly accumulating the weird shit that you do when you live somewhere for any length of time. I now have two months to play f***, marry, kill with my possessions… Only, in this case, it's more like: take, store, donate.

Some things are easier to part with than others. That t-shirt that has a hole in it, but that I haven't thrown out because… well, I'm lazy, that ends up in the garbage. The t-shirt I got, but never wore because orange is not a good colour on me, that can be donate. Those sorts of things are easy. Realizing that your favorite shirt

has basically disintegrated because it's been worn and washed so many times is a little more difficult to let go of.

Honestly though, the books are the hardest. I have spent the last few years trying to complete my set of books by my favourite author. (I know I could just buy the books online, but I like to comb through the second-hand bookstores and book fairs for them. There's something far more satisfying about that.) I know I can't take them with me, but how will I survive two years without easy access to the smell, the feel, and the words that are my favourite books.

I've only just begun, but I have a feeling I'm going to spend most of my time cleaning up my apartment lost in a book that I haven't read for a year, rather than doing anything actually useful. Two suitcases and two carry-on items don't fit much- and they fit even less if you need to bring maple syrup and Canadian whiskey to ease your way into the land of wine, cheese, and stuck up Europeans.

GBAD

THINKING OF DOING A MASTERS?

WHY LEAVE SCHOOL, WHEN YOU CAN STAY FOREVER?!?!?

PROS:

- Socially acceptable to live with 12+ roommates.
- You can eat like shit and no one cares.
- Sometimes, the university and/or the government give you money.
- 3 day weeks.
- Get to terrorize students as a teaching assistant.
- Cheap booze.
- You are knighted in the eyes of the undergrad.
- You get extra letters after your name.
- Your parents no longer care and no longer ask what you're doing.
- OSAP doesn't send the collectors… yet.
- You still get free student banking.
- You know the ins and outs of using the uni system – so you can pet all the therapy puppies.
- The groups you work in are better – everyone is as messed up as you.
- Your nihilism is so deeply ingrained, you float through life.
- At least you aren't the only one who doesn't know what they're doing with their life.

CON:

- The university usually takes all your money.
- No weekends.
- Have to deal with students as a teaching assistant.
- Projects are harder but you get flabbier.
- Profs want you to call them by their first name… and it's weird.
- You eat like shit.
- Undergrads now look like children.
- No one cares about the letters after your name.
- You have to explain to your profs instead of your parents why you're doing shit all.
- You have no savings.
- You still can't afford a dog.
- You actually have to answer emails now.
- Everyone in your project groups is as messed up as you.
- Your nihilism is so ingrained you might as well do a PhD.
- NO ONE knows what they're doing.

GBAD (SOON TO BE M.SC) AND THE FARTING PONY (SOON TO BE M.A)

INVESTIGATIVE JOURNALISM! IS ROGUE ONE A GOOD MOVIE?

No.

THEODORE BEAR

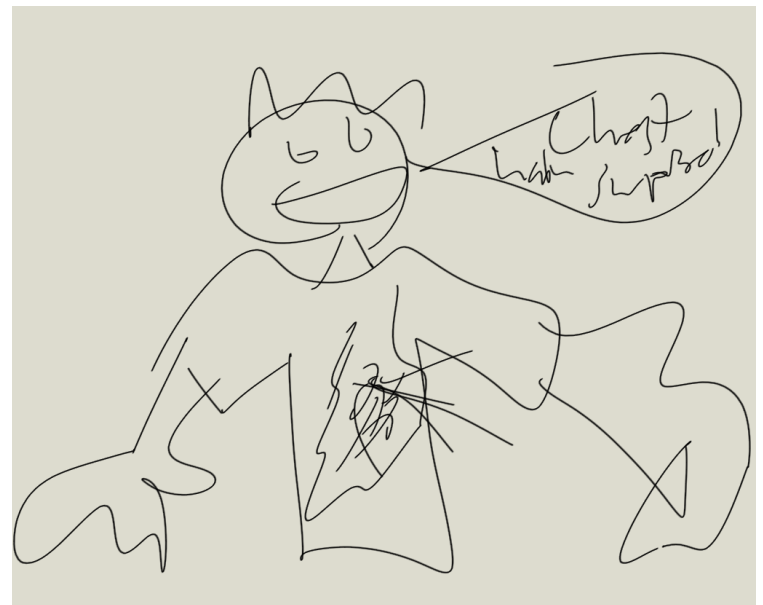# INVESTIGATIVE JOURNALISM! IS ROGUE ONE AN OKAY MOVIE?

No.

THEODORE BEAR

INVESTIGATIVE JOURNALISM! IS ROGUE ONE A BAD MOVIE?

Yes.

THEODORE BEAR

FLACCID SWORDS, ARTICLE ___, AND AN ORB STRAIGHT FROM LORD OF THE RINGS

So Trump is back in America, and the world has sighed in relief while Americans said goodbye to sleep once again. If you've been stuck under a rock for the past week, a quick recap:

- Trump went to the Middle East (news flash: Israel isn't in the Middle East anymore)

- He talked about Islamic- shit, he totally meant **islamIST** terrorism (but don't worry about it, he was exhausted)

- He "danced" a sword dance (he Trump danced, which means he moved his sword side to side, instead of up and down like everyone else in the building)

- He touched an orb, like Saruman (everyone may already have made that comparison, but to be fair, it's pretty legit)

- He went to Israel and made people literally facepalm

- He went to a NATO summit and managed to completely omit any mention about Article V. You know, the founding principle behind NATO (an attack on one is an attack on all- and a central star in the Madame Secretary from last weekend… which is impeccable timing)

- He pushed the Prime Minister of Montenegro to get to the front of a photo

- He then went to the G7 summit, made everyone wince and tried to pull Macron into his breast with his patented handshake

- And to top it all off, when he was in the Vatican, he looked like a kid in a candy store while the pope looked like Trump stole his candy

And that's just the big cheese himself. When you look at the ladies in his life, there was also some weird shenanigans going on. While visiting the pope, Ivanka and Melania looked like they were attending a funeral. 'Cause American ladies can't allow visiting Saudi Arabia to infringe upon their right to NOT wear a head covering, but you just gotta when you're visiting the pope.

And that thing where it was terrible that the Clinton foundation took any money from the Saudis- that's not so terrible when it's Ivanka and her foundation taking that foundation. So when people tell you they were so poised and powerful while in Saudi Arabia, remember, they weren't allowed into half the venues, they took money for their foundations, and though they wore whatever they wanted, they didn't exactly speak out against the inequality, human rights abuses, or terrorism sponsoring that the Saudi government takes part in.

Meanwhile, there's a new special prosecutor, Jared Kushner wanted a private number so he could have heart to hearts with Russian government officials, and the CBO told the world that that new healthcare bill will ONLY take healthcare away from 23 million people over the next few years. But Trump had the overdone steak he likes, people styled their speeches to be short and have his name lots, and the Saudi King gave him a gold medal. So yeah. Trump is going to want to be abroad a lot more than he'll want to be in the States.

GBAD

ADVICES FOR WATERLOO STUDENTS BY A RETIRED SOVIET THEORETICAL PHYSICIST A. ALEKPEROV, PHD

May 2017, somewhere in Eastern Europe:

Good afternoon, Comrade Doctor Alekperov! We thought it would be interesting to interview a Soviet scholar and an esteemed professor, and get him to share his tips for University of Waterloo students. Thank you for letting me bother you with this during your retirement.

Ну, дорогой мой, я не владею английским, не очень-то понимаю твой вопром, можешь ли ты перевезти? (Смеется)

Of course, sorry, my bad! Earlier, we talked about the achievements made by Canadian scientists in the Physics field, and some of the folks I mentioned were the graduates of the Waterloo University. What do you think is essential for the young and unexperienced physics students?

(Слушает, прищурившись) Университет Ватерлоо? Это в Канаде?

Yes!

Ну, я слышал про этот университет, но не знал что он в Канаде. Хотя, я знал что он Северо Американский. Так в

чем был твой вопрос? Ты что то спрашивал про физику? Ну, как физик, я желаю ученым и студентам всего мира удачи и много энтузиазма. Без ученых не было бы и прогресса. Я посвятил всю свою жизнь физике и надеюсь что мой маленький вклад хоть чем-то поможет мировой науке.

Any serious blunders you have encountered in your path to the top of the Academy of Sciences? You are a distinguished scientist who was known in Soviet Theoretical Physics community, but was there anything that was different for you than it was for your students?

Ну, все что я понял это вопрос про академию. Да, я провел там почти всю свою академическую карьеру.

Judging from what I told you earlier about Canadian student life, would you say that differs much from post-Stalin Soviet Union?

Сталин? Я все ещё был в школе, пока Сталин был жив.

Well, I am thankful for your time!

Сенк ю ту! Москоу из кепитал оф Совиет Юнион! (Смеется).

August Marauder

EMERGENCY PIZZA COLUMN
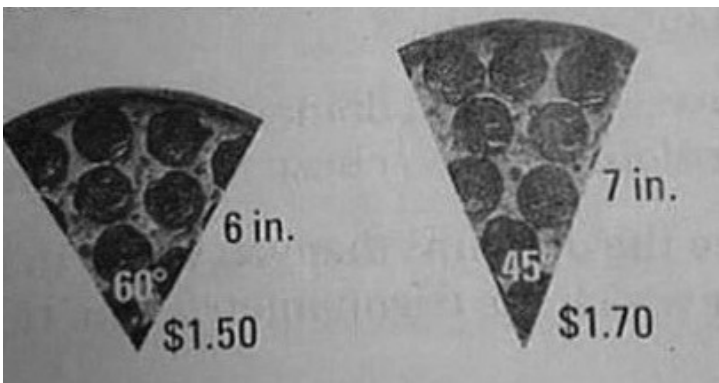
Lately, I was surfing the vast ocean of knowledge on interwebs and I encountered a thread about pizza comparison. While the original calculations were not made by yours truly, I believe this might be important information that might aid you during a serious dilemma.

Let's say, you plan to get a pizza. Like a good citizen of your country, you go to the nearest commissary shop. You find there two different kinds of pizza deals. But what is more profitable? A 60° 15cm slice for $1.50, or a 45° 18cm slice for $1.70?

Let's dive into it.

First, I considered an answer by a third-year engineering student. She provided me with this:

$(½) * 6^2 * \sin(60) = 15{,}58$ and $½ * 7^2 * \sin(45) = 17.32$, which means that for the first pizza, you get 15.58 square inches for $1.50, and in the second one you get 17.32 for $1.70. In first case, you get 2 tenths of a pizza more per slice. Considering the size of pizza (360°), it consists of 6 slices, which means 0.2in * 6 slices of pizza = 12. This would mean that by buying the first pizza, you get more square inches of pizza than the second one.

I was not completely satisfied with this answer. What bugged me most was the use of sines, so I kept looking further. The second suggestion was provided by a programmer:

Area of sector is calculated using $S = \pi * r^2 * (a/360)$.

For the first pizza the area of a slice is 18.85 in^2. The whole area is 113.1^2. This works out to a price of 0.08 c/in^2;

For the second pizza the area of a slice is 19.24 in^2. The whole area would be 153.92 in^2, for a price of 0.09 c/in^2.

However, there was a more compact solution in the end. A pizza maker added this solution:

Every pizza's area is determined by $\pi * r^2$. Then the number of slices (6 and 8) is multiplied by the price of each and divided by area.
However, y'all assume that the pizza's have same height, which ain't right. In our pizza store, 1.70 is also thicker, but since this is math, we just assume that every thing omitted is equal, right?

And finally, I know a guy, who knows a guy, who is an arts and humanities student, and he just plain old counted the pepperonis on each slice to figure out the better deal.

Stay safe, eat more pizza, and beware the bears.

August Marauder

INVESTIGATIVE JOURNALISM! ARE SHORT LISTS A GOOD IDEA?

- Yes.

The Editors

AN ASSESSMENT ON ENERGY CONSERVATION THROUGH EXTREME WEATHER ON A BICYCLE FROM A THEORETICAL PHYSICS APPROACH

The goal of any cyclist is to expend the least amount of energy to go fast while looking like a major dork in bright silly spandex outfits. However, most cyclists are also terrified of taking their precious little pieces of wheely metal contraptions out into the rain because it might make their bikes get dirty and not worthy of admiration from the local dentist. However, I can prove that it is worth the possible risk of getting wet that the energy conservation is a quantifiable amount and is therefore worth the risks at hand.

1. Rolling resistance

A popular reason for cyclists to use a road bike over a mountain bike is the smaller surface contact between the road and the tire. There exists a limit of rideability, which can be referred to with the following equation:

$$\lim_{x \to 0} x^{2^{m_{rider} * x}}$$

where m_rider refers to the mass of the cyclist, and x refers to the width of the tires measured in millimeters. The end product of this equation creates a parabolic curve in which the tires, as they approach a width of 0, become more and more difficult to ride, and extremely wide tires also become undesirable.

However, this only touches on the popularity and rideability of a bike based upon the width of tire. The more important thing, and pertinent thing to discuss is the rolling resistance of the tire. This can be represented by the following equation:

$$F_r = \frac{1}{4} p v^3 C_d A$$

where p refers to the surface area of the tire, v refers to the velocity the rider is attempting to achieve, C_d is the coefficient of friction dependant on the surface type (constant) and A refers to the tire pressure in pascals.

While the force required to achieve a desired speed increases based on the amount of friction between the tire and the road, as well as the amount of energy required to get up to the desired speed, an interesting phenomenon occurs during rainstorms. Due the the laminar flow of the rainwater over the biking surface, the friction coefficient as well as the surface area of the bike tire touching the surface approach zero. This renders all other values in the equation to be unnecessary, allowing cyclists to achieve high speeds with a low watt output.

2. Thermal output of rider

During a long workout on a sunny day, a cyclist will often expend up to a liter or more of fluids, requiring continuous hydration throughout the journey of the ride. This energy output to cool an athlete can be summarized by the following equation:

$$\pi = iMRT$$

where i refers to to the solar energy input in megawatts, M refers to moisture consumed prior to the ride, R refers to the moisture required throughout the ride to stay hydrated and T refers to the transient energy required to keep the system in balance. Sun input can be determined with relatively trivial algorithms provided by NASA, such as the 6S algorithm while knowing the cloud cover, humidity, sun azimuth, and zenith. The equation can be rearranged to reveal this:

$$T = \frac{\pi}{iMR}$$

During rainstorms however, the combination of cloud cover and rain in the air causes the moisture input and output, as well as the moisture output to drop significantly. This allows for a lower amount of latent heat energy to leave the riders' system, allowing for less effort overall.

This article has proved that there are measurable benefits to cycling in the rain through robust physics equations.

VICE MITT

else**WHEN** prof**QUOTES...**

BECAUSE NO ONE SUBMITTED prof**QUOTES** *THIS WEEK, SO WE HAD TO DREDGE UP SOME OLD ONES FROM 1986...*

❝ The fact that this number is rational has nothing to do with its mental stability.

DH Younger MATH134A

❝ ...when we say a number is rational we don't mean that the number is not mentally unbalanced...

DH Younger MATH134A

❝ I may give you a mild case of this as an exercise.

M Albert MATH240B

❝ No, this is completely useless, no matter how devious the route.

P Schellenberg C&O350

❝ Suppose you are stranded somewhere without Chi-squared tables. Not a likely problem, but just in case...

Shaw STAT231

❝ I'm out of theorems, so let's think of another theorem.

D Djokovic MATH244A

❝ Mathematics is not very good at squeezing fruit.

W Cherry STAT332

❝ Do you mind if I rub this nonsense off and replace it with some other nonsense?

Bennett STAT230

❝ The fact that this variate is cuter than the other doesn't make a damn difference.

Bennett STAT230

❝ Don't write this down! If you see anyone writing, break his pencil.

J Wainwright MATH140A

❝ I really think that numbers larger than 5 are too large anyway.

C Ng MATH234A

❝ So nobody's going to approach me in the Gent's and ask how these are done?

C Rogers AM381

❝ Take any function you like - even one you don't like!

B Higgs MATH134A

❝ Important theories usually have about 50 corollaries.

M Best ACTSC335

❝ I'll probably get this wrong, so watch carefully.

M Best ACTSC335

❝ Has anybody got a headache yet? It's gonna get worse.

M Best ACTSC335

❝ What have I done here? I've written it backwards.

Lawless STAT330

❝ Everybody know the definition of a function? I mean, give me an x and I'll f it!

K Woolner PHYS121

❝ This is known as 'Tromping over the problem with hob-nail boots'.

JW Graham CS180

❝ The ducks are like students - quote Shakespeare at them and they go away.

B Lawrence MTHEL100

❝ This isn't quite right, but it's close enough.

D Wood CS360

❝ Carry on ad nauseum... or until you feel sick.

DM Jackson MATH234A

❝ Now think of these two functions as machines. The output of one is the input of the other. So I guess this is the male machine and that is the female machine. Perhaps that was a bit risqué.

P Hoffman MATH134A

❝ This is all you have to write down to get all the marks, even if it's not clear to you. It's called 'proof by intimidation'.

P Hoffman MATH134A

❝ If you find a good politician, take him out and shoot him before he goes bad.

SG Davidson AM465A

❝ You either have to be alive or dead - we don't account for engineers.

FG Reynolds MTHEL305

❝ Who's the bastard that's been quoting me in **mathNEWS**?

W Cleaver BIO 1134

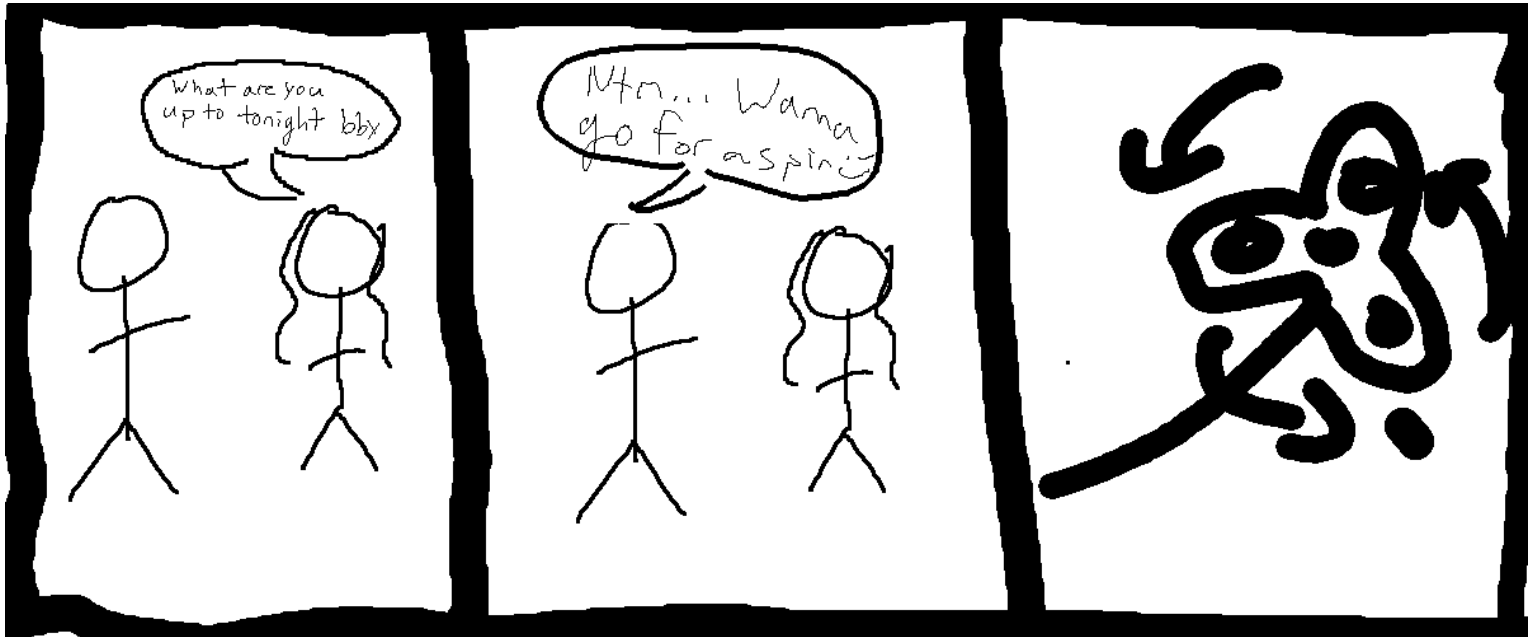❝ Ideas spread slowly. Genes, perhaps a little faster,

Hill ANTH101

❝ You should shoot me right now... you really should.

B Marshman AM371

❝ That's the second time that chair's attacked me today...

K Woolner PHYS364

gridCOMMENTS: WARM SEASON

Anyone who's been around UW knows that unlike many places in the world, we only recognize three seasons: Fall, Winter, and Spring (although one could make a very strong argument for "exam" as a season). Thus, with the herald of Spring come and gone (thank you for that barrage of bullets), it is time to enjoy the warm weather by looking out of windows at the bright Daystar-illuminated plant matter wistfully imagining what one could be doing instead of question 3c on your latest assignment.

Yet, the warm weather is not without its hazards: some domiciles are not fitted with air conditioning and thus its occupants must resort to other methods of cooling down. I had asked last issue's **gridWORD** respondents to recommend a drink to this effect, and received only three responses. Mr. Ieritano answered with "A pitcher of Dorian Gray Goose", which is certainly an interesting suggestion. Mmes Emma and Allison answered with "FANta", eliciting a groan from the pun. Mr. Pang answered with "PI SMOOTHIE!!", which, given the virtue of being the only response with an entirely correct grid, wins the prize. Please drop by the **mathNEWS** office (MC 3030) and badger the editors for it at your leisure.

In addition to a nice refreshing π smoothie, a nice juicy fruit platter would pair quite suitably (admittedly, it's usually a fruit smoothie and some pie for dessert). Unfortunately, being The Great White North, we are quite lacking in native fruits and vegetables, and even today where the world is an increasingly connected place, some commodities common elsewhere are hard to find here in KW. With that in mind, I pose this issue's **gridQUESTION**, "What is it that you wish you could also get here in KW?"

As always, submit your **gridSOLUTIONS** to **mathNEWS** (either physically by sliding your submission under the door to the office [MC 3030] or via email at mathnews@gmail.com) before 1830 hrs on June 12, 2017 (really, the Monday before next issue actually comes out, whenever that actually happens to be). The most correct solution shall be awarded a prize, and in the event of a tie for most correct, the winner shall be my favorite response to this issue's **gridQUESTION**.

KEEP COOL,
ZETHAR

gridWORD

ACROSS

1. Telesthesia
4. A professional stand-in
9. A Caledonian
13. Palm berry
15. Takoyaki birthplace
16. 5-tone language
17. Wonts
19. Break
20. E.g. neuromuscular junction
21. Maps
23. Ruby sulphur
24. West Indian nation
25. It's not free of charge
26. Its oil flavours a popular English tea
29. The original musical mania mark
32. Biblical Instruction?
33. Something to pick
34. After
35. Mexican coins
36. Blue hue
37. Oxalis
38. Sheer fabric
39. Barbecue fuel
40. Menace
42. Mythical bird
43. Someone living abroad
44. Faithful
48. Turn into bills
50. 25A in ferriselite and umagnite
51. Miss
52. Sizes
54. An imaginary creature that looks like a cross between a bear, yak, and a pug
55. Start of an AOL alert
56. Break
57. Primes
58. Pointed
59. Devil-may-care

DOWN

1. Fast finisher?
2. Vista
3. The PRC is known for this kind of diplomacy
4. Dragon eye?
5. Academy Award
6. Pegasus commander
7. It has strings attached
8. Cosmetic items
9. Sheets
10. Twain's favourite fruit
11. Kiln
12. Small songbirds
14. Venerate
18. Rye blight
22. Lit
24. His formula calculates the area of a triangle
26. E.g. ƒÁ, g, Z
27. Nuncupative
28. Some bills
29. Sack
30. Creep
31. Effigy in a field
32. Dogma
35. Otherwise known as dragonfruit
36. Hoofbeat substitute
38. Refreshers
39. Desire
41. Elevates
42. Depended on
44. Dig
45. Affected by the moon, in a way
46. Swelling
47. Neuter
48. Quaint outburst
49. "Blue" or "White" river
50. Made a web
53. Trim
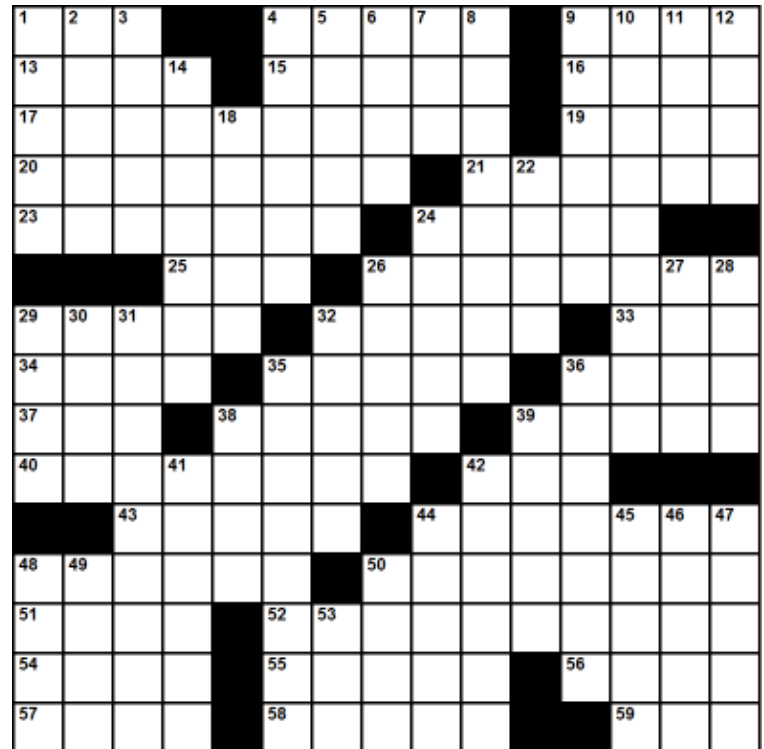
lookAHEAD

SUN JUNE 4	MON JUNE 5	TUE JUNE 6	WED JUNE 7	THU JUNE 8	FRI JUNE 9	SAT JUNE 10
Hug Your Cat Day			National Chocolate Ice Cream Day	Best Friends Day		Beware the bees

SUN JUNE 11	MON JUNE 12	TUE JUNE 13	WED JUNE 14	THU JUNE 15	FRI JUNE 16	SAT JUNE 17
	Last day to change online exam location	Convocation	Convocation	Convocation	Convocation — Deadline for 50% tuition refund	Convocation

wpirgNEWS

Looking to get involved in the community with a non-profit? Want to make your opinion and ideas heard? Want to renew or become a WPIRG member?

Show up to the WPIRG AGM! It's a General Meeting that only happen once a year and a bunch of important stuff happens there! Plus you'll meet cool people.

YOUR LOCAL MATHEMACTIVIST

ARTICLE OF THE ISSUE

So last week Bees 101 won Article of the Issue, and yet it was not actually in the issue. Thanks to the eagle-eyed reader who noticed this discrepancy! Not to worry, we're putting it in this issue SO YOU CAN

STOP COMPLAINING NOW ~~PLEASE STOP ASKING ME ABOUT BEES~~.

As for this week's Articles of the Issue, I'm giving Humour Article of the Issue to "I'm Sorry, Teddy, But We're Moving in a Different Direction" by GBAD because although it isn't that humourous, it is rather well written, and I hope it means that GBAD will give me her stuff.

This week's Informative Article of the Issue goes to the illustration of a math tree done by Amanda Chan because the informative category is intended for articles which either relate to math, news, or both, and it definitely related to math.

(If anyone comes after me arguing about the categorization of our winners, may I remind you that the categories were invented entirely by me which makes me the Expert.)

TBDED