

GOOSEWERK
THE MATH • MACHINE



LA MACHINE • MATHÉMATIQUE
MATEMATIKA • МАШИНА
数学 • 机器

2019

"WHERE WILL THE MONEY SAVED FROM THE FORD GOVERNMENT'S OSAP CUTS GO?"

Hello again, dear readers of **mathNEWS**!

It has been a few months since I last wrote a **mastHEAD**, and in that time it appears **mathNEWS** has been overrun by a fresh new wave of faces. I'm not complaining, though — the sacrifice of young blood means that **mathNEWS** can live on for a while longer.

All these writers means the renewed popularity of **mathNEWS** as a platform for students' musings has caught the attention of at least one company hoping to advertise their info session in **mathNEWS**. Fortunately for all who read **mathNEWS**, we make a point not to succumb to the glimmer of promised riches, unless we're running out of money because MathSoc and Feds are confused about who's funding us and both refuse to give us money until it's figured out. (Coverage and history in previous volumes of **mathNEWS**, approximately v135-v138.) As such, no such ads appear in **mathNEWS**, something you can thank the morally upstanding editors for. As stated in my email response to the company's inquiry, "**mathNEWS** does not offer any means of advertisement for companies, paid or unpaid. This ensures the continued quality of the publication, as well as interest from math students in reading and contributing to one of the last ad-free publications available without a subscription."

Fortuitously, it came to my attention that our own Imprint does offer ad spaces in exchange for payment, and so I offered them as an option in my reply. Though I have not yet checked Imprint to see if the ad ran, I did receive a reply stating, "I understand and appreciate the need for ad-free publications. I'll reach out to the imprint [sic] shortly." Hopefully, diverting ad-spot-seekers away from **mathNEWS** has also generated revenue for Imprint!

In any case, **mathNEWS** is back, and ad-free as always. Our featured professor of this issue is David Jao, or as terrified informs me, "Daddy Jao". He offers plenty of answers to your many questions, and an article, too! Unfortunately, he did not title the article, so we have taken the liberty of using one of his email responses as the title. Enjoy!

itorED
Editor, **mathNEWS**

terrified
Editor, **mathNEWS**

A CUTE ANGLE	Not to my sister coming into uni this year :(
CIX	My bank account ;)
DAWDLING	Tuition subsidies
SANDWICH EXPERT	Paying legal fees when they're taken to court. Again.
MILK & COOKIES	A new gas plant.
BMONEY	Funding Dougie's drug business.
HERBIE	A void of disappointment.
THEODORE BEAR	Hookers and crack.
EPSILON SCREWN	Toward M4... I hope?
VESICA PISCIS	Erecting a HUGE plaque that says "Our government is all for education!"
NONAME/ANON	Bribing the legislature to accept the cuts.
ZETHAR	Take the money and pour it into the burgeoning **BIG DATA** industry... or embezzle the money into a fat-cat coffers, but I repeat myself.
VARIOUS PSEUDONYMS	Knowing the provincial government, they'll actually manage to lose money on the whole thing.
ITORED	Right back into their own pockets.
CONFUSED	*holding knife* What OSAP cuts?
TERRIFIED	Building the Ontario-Québec border wall, those damn Quebecois & their French!
STAPLED	More cowbell.

ARTICLE OF THE ISSUE

This week's article of the issue goes to Xx_420SonicFan69_xX for his wonderfully informative Funny ways to say that you're stupid. One of our editors really, really liked it, and it turns out she was the only one who actually remembered we had to do this goddamned "Article of the Issue" panel, so the prize goes to you. Now that we've educated ourselves with more eloquent ways to tell others that they are of lesser intelligence than us, our lives have completely changed — for the better.

Come pick up your prize at the **mathNEWS** office, in MC 3030!

Father Jao vs. Pastor Snew. Cast your bets!

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

S/NAME/SOMETHING FUNNY/: WHICH POST-QUANTUM CRYPTOGRAPHIC PARADIGM DO YOU THINK IS THE MOST PROMISING?

Isogeny-based cryptography, of course, because I invented part of it. More seriously, isogeny-based cryptography is slow (although not ridiculously slow), but small (as in, the key sizes are small). If you need fast, you can always take something and make it faster, by throwing more resources (e.g. hardware) at it. But if you need small, you can't do much to make something smaller.

QUANTUM GOOSE: OF ALL THE ROOMS ON THE UNIVERSITY CAMPUSES YOU'VE VISITED AND WORKED IN, WHICH ONE IS YOUR FAVOURITE?

That's easy — the RBC Cybersecurity Lab in DC 2531. It has, I believe, the only climbing gym on campus, now that they closed the one in the PAC for construction, and until the new climbing wall in the SLC expansion opens.

BASE -10: WHAT'S THE CORRECT WAY TO PRONOUNCE COQ?

Anything but /'kɔk/

EPSILON SCREWN: WHAT PERCENTAGE OF STUDENTS IN A TYPICAL MATH 145 CLASS DO YOU KNOW BY NAME?

BY THE END OF THE SEMESTER, ABOUT HALF, BUT IT DECAYS WITH A HALF LIFE OF ABOUT A YEAR.

B2MEMES: HOW DO YOU STAY MOTIVATED WITH YOUR RESEARCH WHEN YOU'RE NOT MAKING PROGRESS?

Richard Feynman had a good answer, which matches what I do, so I'll just quote him. This is from "Surely You're Joking, Mr. Feynman!":

I don't believe I can really do without teaching. The reason is, I have to have something so that when I don't have any ideas and I'm not getting anywhere I can say to myself, "At least I'm living; at least I'm doing something; I'm making some contribution" — it's just psychological.

In any thinking process there are moments when everything is going good and you've got wonderful ideas. Teaching is an interruption, and so it's the greatest pain in the neck in the world. And then there are the longer periods of time when not much is coming to you. You're not getting any ideas, and if you're doing nothing at all, it drives you nuts! You can't even say "I'm teaching my class."

So I find that teaching and the students keep life going, and I would never accept any position in which somebody has invented a happy situation for me where I don't have to teach. Never.

NITRIC ACID: WHEN DID YOU GET YOUR BLACK LOTUS?

1995.

N WAYS TO DRAW A CIRCLE ON PAPER

- Use a compass (the pointy one, not the pointing one)
- Use a compass (the pointing one, not the pointy one)
- Just freehand it
- Draw an infinity symbol and erase half of it
- Draw Snew's beautiful silver 2008 Toyota Corolla CE with 4-speed automatic transmission and power windows, perfect down to every single detail, then proceed to erase everything except for the outline of one tire
- Hold your pencil tip down and rotate the paper
- Stand on the paper and spin in a circle while holding down the pencil
- Graph a circle in Maple (cough cough Desmos), print it out and trace it
- Trace anything remotely circular (such as pizzas from Production Night or the lower half of a viola)
- Go to art school for five years and learn to draw the perfect circle
- Go to art class for a year and learn to cut the square into a circle
- Watch a YouTube video on the technique mentioned above and attempt to replicate it (but end up with a disfigured egg-like thing)
- Just draw a square, since squares are homeomorphic to circles anyway
- Reproduce the diagram for $\pi = 4 \frac{22}{7}$
- Give Archimedes a large enough lever so that he can move the earth for you, then hold out your pencil and allow the world to spin around you, the pure mathematician that is the centre of the universe
- Drawing a circle is a problem that has already been solved. QED.

The Killer Tomatoes

**Here at mathNEWS,
we're not afraid to ask
your toughest questions.**

**Of course, that doesn't
stop us from posing
your idiotic ones too.**

THE mathASKS AMBASSADOR

"TITLE? THAT WASN'T PART OF THE DEAL. WE CAN GO WITH NO TITLE OR YOU CAN PICK ONE AT RANDOM LIKE A REAL HEADLINE WRITER."

profTHOUGHTS 139.1

No matter how good you are at math, everyone hits a wall sooner or later. I don't care if you're Carl Freaking Gauss himself. Learning how to overcome your limits is a trial that every would-be mathematician must face. I have shared bits and pieces of my experience in various places, but never all at once. This is my story.

In the movies you often see people who start from nothing and beat the odds every step of the way to achieve their dreams. Not me. My upbringing wasn't perfect, but I had more than most. I did really well as an undergrad at MIT. Lots of people have a hard time with the transition to university; after all, MIT is a pretty strong school — Waterloo of the North, or something. Now, don't get me wrong, it was hard. There was that time for example when I left my peritonitis untreated for a month in order to finish up my final exams on time. (By the way, don't do that; Wikipedia claims a mortality rate of 40% after 48 hours.) But somehow I ended up winning the Bucsele prize, awarded to the top math student at MIT. Life was good.

Graduate school was where it all went to hell. Before graduate school, I thought I had the potential to be one of the top mathematicians of my generation. By the end of graduate school, I was convinced that I was not good enough to do math, and started applying for (and eventually accepting) a non-academic job. The truth is probably somewhere in the middle, but it's really easy to get too high or too low when you're lost in the moment.

Things change when it comes to rankings, especially on the timescale of decades, but back then (1998) Harvard was in the midst of a stretch in which it had won the Putnam competition four out of previous five years, and its graduate program in math was very strong. (Incidentally, as of this writing, MIT has just put together its own 4-for-5 streak in the Putnam.) As a result, I went from the top-ranked student at MIT to somewhere in the bottom 20% of my class at Harvard. I knew that this would happen, of course, and in fact chose Harvard in part because it had the strongest students. But theory is one thing; reality is quite another.

One of the first things that you do in a Ph.D program is the qualifying exams; here at Waterloo they are called comprehensive exams. Basically, qualifying exams are multi-day exams on all of math, and you have to pass the exams in order to continue. At Waterloo, you typically get one chance to pass. Harvard gives you as many chances as you want, and it's a good thing they did, because I failed twice. (If you want to see the exams I failed, you can find them easily on Harvard's web site.) I think it's the only time(s) in my life I ever failed a math exam. The exams are only offered twice a year, so I had to wait until the following year to try again, while all my classmates were moving forward with their Ph.D research. The next year,

I passed, just barely — the pass mark was 90 and I got 89.5 and they let it slide.

Unlike in Canada, most graduate programs in the US require you to choose your supervisor after you begin (and your supervisor must also agree to work with you, which is not automatic). Most students choose their supervisors and start their thesis research in their first or second year. I didn't start my thesis research until the fourth year of my Ph.D studies. This is not normal. (Note that a Ph.D program is typically only four or five years long.) I was, objectively, the worst student in my class, the one who had taken the longest to pass the qualifying exams, with the worst possible passing score, and I was convinced that no professor would want to supervise me. Mind you, I wasn't actually rejected by any professor in the math department. I just didn't ask. It's probably the kind of thing that every autistic at Waterloo would understand, but it's definitely not a winning strategy in grad school.

Eventually I did the math and figured out that if I wanted to graduate on time I had better start my thesis. Instead of asking a professor directly to supervise me, like everyone else did, I asked the graduate director to arrange a supervisor for me. (Remember — autism.) Nevertheless, this actually worked, and soon I was put into a shotgun marriage with Noam Elkies, the youngest professor ever to receive tenure at Harvard. At our first meeting, he presented a problem to me and mentioned that "if you were to solve this problem, it would result in a *tenable* thesis, certainly not the best thesis that Harvard has ever seen, but enough for you to graduate." And with that ringing endorsement as motivation, I set to work on the problem.

Having started my thesis two years late, I had a lot of catching up to do. I soon realized that Prof. Elkies had given me the perfect thesis problem. For one, it was very accessible: everyone else in my class could understand my thesis problem (although not how to solve it), but I couldn't understand anyone else's thesis problem! That was a good thing in this context since it meant I had less catching up to do. Moreover, the solution ended up being unexpectedly complicated, because the obvious approach had a subtle technical flaw, necessitating an entirely different approach. A year later I had only solved half of the problem, but my advisor decided that it was enough, notwithstanding his earlier prediction that I had to solve the entire problem in order to get a tenable thesis.

Of course, there is no free lunch. My advisor had miraculously found a problem that I could both solve in a short time and make into a thesis, but the price was that I lacked the depth of mathematical training that my classmates had gained from working on their research for four years instead of one. Academic research jobs are extremely competitive, and even

the very best students have only a 50-50 chance of landing a desirable position. I felt that an academic job was not in the cards for me, and told my advisor that I would focus my post-graduation job search on non-academic jobs. He agreed to help me with my search even though (like most professors) he had little non-academic job experience.

Here, again, I got lucky. My advisor's first Ph.D student, Henry Cohn, was working at Microsoft at the time (he still is), and arranged for me to interview there. I got a job at Microsoft, not in Henry's group, but in the cryptography group, and

that's how I started working in cryptography. There would be more obstacles to come. My first research result in cryptography went through 30 drafts and 5 rejections, and never did get published anywhere. But after what I went through in graduate school, I never again felt like I was in a situation that I couldn't handle. It's like the old saying goes: What do you call the worst student in medical school? Doctor.

Some people still call me Dr. Jao. Well, now you know.

David Jao

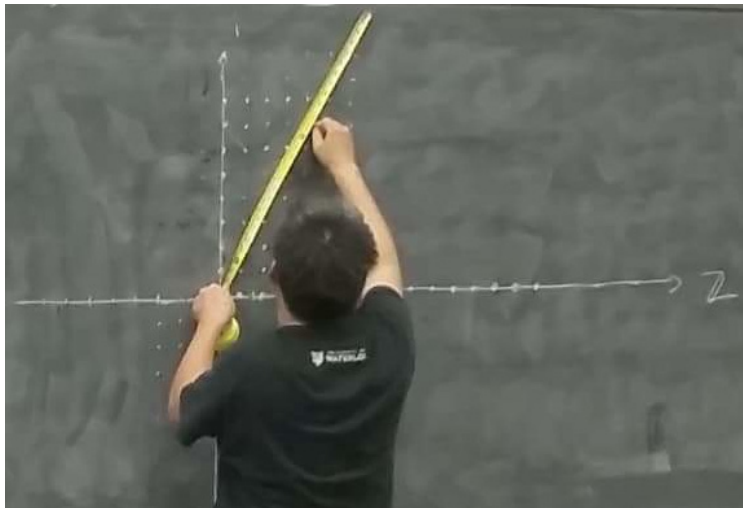
THE WONDERS OF TAKING MATH145 WITH DADDY JAO

Good morning.

Caring, encouraging, kind, loving, father figure, post-quantum being.

These are just some of the ways David Jao's students would describe him. Because of his endless support and encouragement, students have taken to calling him Daddy Jao for all of his paternal qualities.

From 160 students to 64, Daddy Jao's 145 was a wild ride. We learned about Coq, and how great it felt to finish a line. We flexed on the 135 peons in group chats organizing snowball fights. We all made poor life decisions by sacrificing sleep and a social life for computing modulus in the Gaussian Integers. We thrashed around in the dark without answers. We learned how to draw a straight line on a chalk board with a tape measure.



We suffered punishment by long proof.

We suffered through the same answer to every question: "That's something you should think about."

We created our own axioms.

We discovered the meaning of life: PMATH and C&O.

We learned about monstrous moonshine.

We didn't sleep.

We had no social life.

But in the end, it was all worth it.

Because the midterm and exam were curved to the point where you could hand in 0 assignments, show up to the midterm and final and hand in a blank page, and still pass.

Long live Daddy Jao.

SandwichExpert

Picture is from daddyjao.com/daddyjao.gitlab.io

N THINGS ECE 2023 KIDS WILL DO IN 1B

There are my predictions for what ECE 2023 kids will do in 1B instead of studying.

- Try to seduce their prof for a better grade
- Use their advanced knowledge of for loops to hack the curve
- Not show up to the final — if every one fails, the prof has to curve!
- Purposely get sick to have an excuse to postpone their midterm
- Admit that CS students are better programmers and try to hire CS students to write their ECE programming exams for them
- Get a permanent tattoo of the course material on their hand
- Break into their proctor's house at night and write the answers on the proctor's forehead with permanent marker

SandwichExpert

profQUOTES 139.1

STAT231: MICHAEL WALLACE (FALL 2018)

- “ You're having a bad day, and then you go to Tim Horton's which makes it worse.
- “ I went to the hockey hall of fame when I moved to Canada, to learn more about the country.
- “ I don't really know what civil engineering is, I'll be honest.
- “ If I'd grown up in Canada I'm sure I'd like soccer less than if I'd grown up in England, even though it is objectively the best sport.

- “ Gravity's super weird.
- “ Leading nose and throat specialists suggest: cancer sticks.
- “ They do kill people which is usually not a great idea, but that's a side note.
- “ I wish I had a cave.

MATH135: MARTIN PEI (FALL 2018)

- “ The Aye-Aye is an animal, isn't it? Very cute animal, but very huge eyes...that's why it's called aye-aye!
- “ What happens if Z_p takes acid? It goes on a field trip.

CS135: ROB HACKMAN (FALL 2018)

- “ Haskell's a better language [than Racket].
- “ I'd make a good auctioneer.
- “ 'slon' is fun to say
- “ How did that work? I changed its name.
- “ Don't do what I do. Do as I say, not as I do.
- “ Let's give it a shot...ah, you son of a—
- “ Totally not personal experience.

CS135: NIAYESH AFSHORDI (FALL 2018)

- “ What does plagiarism lead to? Bad things. Very bad things.

C0353: CHAITANYA SWAMY

- “ If you ever solve $NP = P$, split the prize halfway with me.
- “ If you want your name on an algorithm, don't be the first one to discover it. Be the second to popularise it.

PMATH334: BLAKE MADILL

- “ I just don't feel brave enough to start that. [on standardized subring notation]
- “ I still don't buy bagged milk on principle.
- “ Nothing makes me happier than a 4L jug of chocolate milk.

MATH 145: DAVID JAO

- “ You know **profQUOTES** are fake, right?

NICK EYLES, EES A06 (UTSC)

- “ Nothing's permanent, except grades.

ROSS WILLARD, MATH 146

- “ Welcome to MATH 146...this is MATH 146, right?
- “ This is a can of worms, best left in the ground, maybe nuked to death.
- “ Don't put that in **profQUOTES**.
- “ If you can't think of anything better, you can always ask, "But Sir, how many children *have* you sired?"
- “ We need a symbol to denote the zero vector...how about zero?
- “ What constitutes a good proof is a matter of taste. I encourage you to use your taste and get zero.
- “ I'm paid a lot of money to work at this university. I'm paid too much to check all eight of these axioms.
- “ This apple is delicious, but it is not a set.
- “ Let's define a set where the only element is this apple.
- “ Take the set with an apple and an orange.
- “ That is called the Apple-Orange Theorem.
- “ There are differing religions in the world...well, about linear algebra.
- “ It will equal...it will equal...it will equal...I never wrote it down.

- “ But who gives a flip.

- “ Sorry I'm late. Professor Jao accosted me in the hallway.

- “ Contrary to rumour, he was not fired last term as a result of your course evaluations.
- “ You know what, I don't want to get into an argument about what Professor Jao did or did not say.
- “ I'll bet even Professor Jao's computer software could prove that!
- “ Every set contains the empty set. Duh. Everyone knows that. Even Professor Jao knows that.
- “ Actually, I don't really care what theorem it was....
- “ I don't want people to think I'm full of shit.
- “ How many of you have heard of Pavlov and his dogs? You will become Willard's dogs.
- “ Don't worry, I believe Pavalov's dogs were well cared for and led happy lives.
- “ Can I make an announcement? This is not MATH 145. We're done with implementing stuff with computer systems. We are living, breathing humans. We are animals on this planet, and we are doing math. We are doing it.

“ Monotonicity — YEEEEEEEEEEEEEEEEEEEESSSSSSSSSS!

“ W is a nice letter. My last name begins with W.

“ If you feel robbed by the fact that there's no announcements, I can announce that it's frickin' cold outside.

BRAD LUSHMAN, CS 146

“ "Racket is nothing but lies.

“ Perhaps C was the first language you learned, before English even so.

“ At this point, we're way too deep into philosophy.

“ Ladies and gentlemen, I present to you C's comma operator.

“ If the question mark operator is your best friend, then the comma operator is your second best friend, because it lets you get away with using the question mark operator more often.

AARON ETTINGER, PSCI 150

“ [While discussing the Iraq War, a student's phone rings] I've upset Saddam; he's calling back.

“ There's Bill Clinton, laughing it up; there's Boris Yeltsin, probably drunk off his ass.

“ You gotta listen to those damn Belgians lecturing you all the time.

“ I owe you a drink...I'll buy you a bottle of water.

“ Can't believe I did that. Which is to say, can't believe I fixed that.

JORDAN HAMILTON, MATH 138

“ This is weird...there's empty seats.

“ *slides surprised Pikachu meme onto the document projector*

“ Thanks Pikachu.

“ So again, the majority didn't vote...just like real democracy.

DAN WOLCZUK, MATH 136

“ 96059601 is my favourite integer because it's 99^4 of course

“ It's not my favourite number. Just my favourite integer.

DAVID MCKINNON, MATH 147 (FALL 2018)

“ The answer is Bertha!

“ Well it didn't have a name, so I made one up!

“ Any questions about that philosophical rampage?

“ There is some positive level of crappiness you're allowed.

“ Then it converges frickin' fast.

“ Now we have to prove the moreover, which means we move it over.

“ That's terrible. That's exactly the kind of humour we approve of in this class.

“ CMVT is, for everyone who reads **mathNEWS**, just "MVT with a backpack on."

MICHAEL RUBINSTEIN, PMATH 340

“ For me an application is proving another beautiful theorem, not, like, building a toaster.

L.W. MARCOUX, MATH 148

“ We call it the "Cauchy Criterion for Integrability," named after Einstein.

“ **writes "sup" on the blackboard** Mmmm, soup.

“ This fellow over here — and I'm using fellow in the androgynous sense...

ZACH THE TA, MATH 148

“ I have some positive area and some negative ares. They could kill each other.

NIAYESH AFSHORDI, SCI 238

“ What does plagiarism lead to? Bad things. Very bad things.

N WAYS TO ADULT

- Graduate
- Cook instead of eating out
- Get a full time job
- Take out your own garbage
- Get excited for grocery shopping
- Pay student loans
- Cry

A cute angle

INTRODUCING... TERRIFIED

[Editor's note: I do not approve of this article.]

Tension hung in the air of MC Comfy like London fog last Thursday night. Various miscreants assembled around the whiteboard on the east wall for the **mathNEWS** Disorg checked phones and watches compulsively, hoping and praying that the most important attendee would arrive before the meeting was scheduled to begin at 1830 hours. As the minute hand on the wall clock sluggishly moved past the half-hour mark, hushed whispers permeated the dense silence. Eventually, one of the organizers tentatively began to outline the evening's agenda, and the attendees reluctantly turned their attention from the entrance way to the speaker, feeling dejected as they were certain that the Promised One would not grace them with His presence.

Then, without warning, a shadow fell across the room. The speaker's voice trailed off. The whiteboard marker fell from her grasp and rolled under one of the armchairs. Somewhere on Columbia Street, a dog barked. Professors passing in the hallway outside froze in their tracks. All eyes turned to the doorway, where He stood—fashionably late, as usual.

The occupants of the Comfy collectively breathed a sigh of relief as He strode to the whiteboard and began to address the crowd in commanding tones, hands confidently positioned in His pockets, occasionally fingering a lanyard of keys tucked in His belt for additional emphasis. The goofy grin strategically positioned on His facial features fooled no one. As He

spoke, the mood of the room shifted—expressions of pure and unadulterated joy overtook the faces of all who heard His voice. All knew that this was a man who was born to lead. This was not the hero that **mathNEWS** deserved, but one it desperately needed.

This, ladies and gentlemen, was the inimitable terrified. A man so cool He showed up late to His own inauguration ceremony. A man who pulls all-nighters the night before assignments are due—and spends them watching hockey highlights and mass-producing professor bingo cards. A man with the gall to submit memes on Crowdmark—and make the markers laugh. A man with the guts to invoke “Graham's Number + 1” in a MATH147 proof—and earn full marks. A man with the nerve to call Prof. Stephen New “Pastor Snew” to his face—and get away with it.

This is terrified, your new **mathNEWS** editor. Readers, you cannot comprehend the wonders that lie in store.

What His friends and colleagues say about Him:

There's a beauty in mathematics, [and it's terrified].

"PASTOR SNEW"

terrified's a wizard. He can cast dimension door at fifth level.

JESUS[:] TERRIFIED.

RADISH COOKING MASTER

My god[:] terrified.

I said [terrified's] name today, and all of my high school classmates got triggered.

RADISH COURIER

[terrified] actually understands advanced course content.

A MATH147 TA

[terrified] was being a bit of an arrogant twat thxe other day.

CREATOR OF MASSIVE TREES

[terrified is] un-frickin'-believable.

PROFESSOR DAVID MCKINNON

The University of Waterloo has ... reached milestone after milestone including Donna Strickland's Nobel Prize, our 200,000th graduate, and being named one of Canada's top 100 Employers for the third consecutive year ... None of this would have been possible if it were not for [terrified].

PRESIDENT FERIDUN HAMDULLAHPUR

The Killer Tomatoes

WHAT CAMPUS BUILDING ARE YOU???????? TAKE THIS AMAZING QUIZ TO FIND OUT!!!!!!!1!!1!ONE!!!!ELELVEN1!!!!

- Your friend messages you on a Friday night and asks if you want to hang out. How do you respond?
 - "Sorry, I have too much homework."
 - "Sorry, I already have a date."
 - "Sure, I'd love to!"
 - I am the friend who sent the message when I realized it was Friday while writing homework. "Frick! ****throws down pencil**** "Yeah! Time to ask my friends to hang out!"
- It is 5 am, and you finally finished the last problem on your math assignment! How would you conclude your epic 30-page solution?
 - And thus we are done. (square box) ****stays awake until submission deadline proofreading****
 - Why would I be up at 5 am doing math assignments? That's ridiculous. I have better things in life to do (a.k.a. socializing), man, unlike you. [Author's Note: I feel personally attacked.]
 - Submit and go to sleep; I can still catch a few hours of sleep before class.
 - Time to make a dank meme to attach for the TAs!!!
- What are your plans after graduation?
 - Grad school/med school/law school. If my grades are high enough. AAAGGHH why am I even wasting my time reading this **mathNEWS** article instead of studying and improving my GPA?!?!?
 - I don't know, maybe travel or teach English in a developing country? I have time to figure all that stuff out.
 - Make lots of money :D
 - Oh, frick! I should get around to arranging that internship... right after I watch this video.
- What would you do during lectures for a bird course?
 - Listen to the instructor carefully and take notes.
 - Message my friends or just chat in the back of the lecture hall.
 - There are course notes? Perfect! I can just study off those and not go to lectures! It's better to nap or do other work during this time anyway.
 - Pretend to take notes on my laptop while actually browsing *Subtle Asian Traits*.
- What do you read in your spare time?
 - Spare time?!?! I only read the textbooks for my courses... I just don't have time for novels anymore...
 - My Instagram feed!
- This cool paper on an application of elliptic curves to modelling cellular systems.
 - mathNEWS**.
- Which of the following would you set as your profile picture?
 - Wait, you can change it? Oh... Mine is still the default one...
 - A meticulously filtered, supposedly candid photo of me with a group of friends—but I stand out :)
 - Me drawing the graph of a Julia set.
 - A professional shot of me with a bubble tea.
- If you could have any non-forehead body part on your forehead, what would it be?
 - wtffff
 - Another belly button. Mine is kinda cute!
 - Another ear, I guess? I haven't really thought about it.
 - Can I have recursive foreheads??? :DD
- On a blackboard, someone wrote $1+1=1$. How do you respond?
 - No! $1+1$ is zero! Wait, I've been working mod 2 for too long...
 - Haha! Let me take a picture of this and post it on my feed. Waterloo math, btw lolololol!
 - In a field of characteristic 1, this statement is true!
 - No, $1 + 1 = 10$. There are 10 kinds of people in the world...
- If you have a two-way 4-to-4 tie, you should start a petition to get those two buildings linked.

YOUR RESULT:

If you answered (a) four or more times, then you're the Mathematics and Computers (MC) building. You come across quiet and unassuming but that's just a result of your shyness that keeps you from making any friends. Having nothing else to do and few windows to the world around you, you grind and grind and grind. At the end of the day, you're unhappy with your life and lack of fulfilling experiences—but the 100 on that course was completely worth it.

If you answered (b) four or more times, then you're the shining, popular new kid on the block—Engineering 7 (E7)! Everyone loves you, hates you, and wants to be you. You always try to show your most perfect side, and your aesthetically appealing exterior draws in everyone (even some mathies!). Perhaps you are the studious type deep down? It's just buried below your party animal personality.

If you answered (c) four or more times, you're the Quantum Nano Centre (QNC)—basically MC, but actually cool and has real life skills.

If you answered (d) four or more times, then you are Davis Centre (DC). Your exterior looks somewhat serious, but on the inside you're completely goofy. You're the clown in every

crowd—but people don't realize this when they first meet you. You are the troll that everyone loves.

If your answers merely form a plurality of two or three, you're hard to pin down—just like Dana Porter Library (DP).

The Killer Tomatoes

IClicker ANIMATION CANCELLING STRATEGIES TO IMPROVE YOUR ACADEMIC SUCCESS

We've all had that moment in class: desperately trying to calculate an answer to a question on the board, having that *eureka* moment as the solution comes to mind, and scrambling for the iClicker as your professor counts down the time to the question's end. As you depress the small button of the iClicker, you feel the relieving *click* of your answer being submitted. Then, due to some gut instinct that tells you something's not quite right, you glance down at your clicker. Time seems to slow as you realize that the green glow of the "response received" light shines not over (c), the correct answer, but the dreadful (d), a hollow, bashful eye mocking your incompetence in button-depressing.

You look up to see the professor's cursor sliding towards the stop button of the assessment, and you desperately try to change your answer. Frantic clicks blend with the chatter of class for a brief moment, and you pray to all the deities you can think of to give you a half-second more, but there is no answer to your calls. The iClicker was designed with a lockout to prevent you from submitting again until the green light turns off, and it does its job well. The professor taps the stop button, and a moment later, your clicker finally registers the click, and blinks the red of "response not received". As the results are revealed, a single sliver of red above (d) is dwarfed by the emerald tower of (c), the correct answer. You hang your head in shame as the whoops and cheers of victorious classmates surround you.

If only there was less delay between clicks. If only there was a shorter lockout animation before the green light turned off and let you begin clicking again. If only there was some way to break free of the constraints of the iClicker, and realize *your true potential*.

I'm here to tell you that, in fact, there is.

I discovered what I now call the Clicker Cancel, (or CC for short) in none other than my calculus class. Nothing inspires a mood of discovery quite like partial differentiation and clicker questions. This technique is quite simple, and allows one to greatly improve one's CPM (clicks per minute). No more will you have to deal with waiting inordinate amounts of time before submitting a second answer.

It all hinges on one simple mechanic of the iClicker: upon powering on, there is almost no delay before you can send a click. Instead of waiting for the light to turn off after a button press, one can turn off the clicker, turn it back on, and submit another response. The restart of the clicker cancels the lockout animation altogether. It takes practice and timing to grasp. At first, it may be slower than simply waiting out the delay, but as your skill grows, the Clicker Cancel reduces the lockout to a thing of the past.

Not only will you be able to submit answers more rapidly, but also will your skills allow you to easily defeat anyone—not similarly trained, that is—who dares challenge your iClicker prowess. No longer will you be helpless in the face of the iClicker's recalcitrant rejection of your clicks. You will be in control of what you submit—not the little plastic device that is now merely a conduit to your academic success.

Now go forth, and realize your true destiny as an iClicker master.

CC

N THINGS THAT ARE SANDWICHES

- Panini
- Sub sandwich
- Hotdog
- Two pieces of pizza face down on top of each other
- Burritos (according to this article from a legal journal, if you disagree, then you're racist <https://repository.law.umich.edu/mjrl/vol14/iss1/4/>)
- Oreo cookies
- Calzones
- Quesadillas
- An entire dead rhinoceros between two slices of bread
- Taco

SandwichExpert

HOW TO OBTAIN A GALAXY BRAIN TO: PASS THOSE COURSES™

It's the beginning of the winter term and soon enough the inevitable will occur: you'll get lazy and cold and you're gonna wanna cuddle in your bed at home, skipping all those lectures, watching your grades (and will to live) fizzle away into nothingness...

Well, that *could* happen — unless you had a Galaxy Brain™. What is a Galaxy Brain™, you may ask? My own polished definition of a Galaxy Brain™ is the following:

galaxy brain (noun)

a person who exhibits behaviours that far exceed humanity's mundane levels of intellect.

Many of you may already think you have a galaxy brain since you attend the University of Waterloo. You may even think to yourself, "Ah yes, it is because of my throbbing intellectual prowess that I am able to call myself a Waterloo student. I must have a Galaxy Brain™!". I am deeply regretful to inform you that this is, however, incorrect. It is simply your inflated ego that makes you believe you are on the level of Galaxy Brain™, when in reality this is what I would call a Fallacy Brain™.

fallacy brain (noun)

a person who is under the belief that they own a Galaxy Brain™, but are simply held under the delusion of their own convoluted morals and merely try to poorly imitate behaviours exhibited by Galaxy Brainers™.

Now, I'm sure you're all eager to know how to obtain a fresh, quality-grade Galaxy Brain™ after having your dreams of being a natural scholar utterly crushed. I'm here to present to you the hidden secrets of getting a Galaxy Brain™ to ease your qualms:

- Never go to sleep before 2AM — it lets the juices of the galaxy marinate in your mind while simultaneously giving you bags under your eyes so it looks like you spent the entire night doing an assignment you never started.
- Dab unironically — it lets the dank meme folk flock in your direction, while simultaneously repelling normies.
- Only start your assignments the day before they're due - Galaxy Brains™ need hard and long training in the art of Doing-Things-Very-Fast-Last-Minute-and-Still-Getting-a-Passing-Grade.
- Apply to jobs last minute — similar explanation as above.
- Never dress appropriately for the weather — people with Galaxy Brains™ are known to be very stylish and are willing to compromise their own health for the sake of hype. Don't like wearing anything

besides free tech tees? That's too bad. Submit. Submit. Submit.

- Cuff your jeans. No explanation needed.
- Tuck in your shirts. Again, no explanation needed.
- Only speak in meme. Meme is the sacred language of Galaxy Brain™ folk. It shows that You Know The Way. :-)
- Disregard any and all comments on the fact that you're a Waterloo student. Galaxy Brains™ ignore this recognition, and instead savour the sweet release of imminent death graduation.
- Never browse /r/uwaterloo. Just don't.
- Stare a goose in the eye until it submits — this is the one and final act of true Galaxy Brain™ behaviour.

And lastly, perhaps the most important point to keep in mind:

- Stan Red Velvet. [Editor's note: this position is not necessarily endorsed by the editors.]

I sincerely wish that this article has touched one of you out there in this cold, scary world. It's hard to achieve Galaxy Brain™ status, but I have hope that one day, we will become a nation of Pure Galaxy Brains™ and conquer the normies that are polluting this world.

In all seriousness, I know it's unsettling to think that you aren't as smart or as important as you thought you were, but I'm here to tell you that there isn't a set of guidelines we need to follow to be our best selves. No amount of morning routine vlogs or downright inspirational "How I Got Over MY Depression!!!! :D" posts are going to make you a better you — that's up to you, and it's up to you to decide what makes you the best version of yourself.

Self discovery is a long and tiring journey, but in spite of that, there are many things you come to learn along the way. There are many things you can look back on and appreciate, because at the end of the day it made you what you are today. Keep moving forward and keep your head high — *that is true Galaxy Brain™ behaviour.*

'til the next meme goes viral,

Herbie

It's a side effect of the alien probes.

PROF. DAVID MCKINNON

FEDS ELECTIONS — FEB 5TH TO 7TH

My god, there are a lot of candidates!

It's that time of year again — time to choose the next Feds execs as well as who you want as your reps on Feds Student Council and Senate! This year's elections are going to be spicy — we have an election for **every single consistency** that math students are eligible to vote for!¹

Now you might be thinking — *who the fuck cares?* Feds doesn't give a shit about students — #FedsDoesThat.² Now that's where you're wrong. This year's election is *crucial* — the Ontario government's announcement about the opt-out for non-essential university fees means that Feds and university services are at risk, and whoever wins this election will be leading Feds out of this mess. So — who's running? Here are the candidates:

FEDS EXECUTIVES (PRESIDENT, VP EDUCATION, VP OPERATIONS & FINANCE, VP STUDENT LIFE)

- Team Ignite (Michael Beauchemin, Seneca Velling, Tomson Tran)
- Team Gold (Simran Parmar, Fayza Ibrahim, Joshua Mbandi, Amanda Fitzpatrick)
- C-Soc (Simon Grigg)

MATH COUNCILLORS (5 POSITIONS AVAILABLE)

- Diana Chang
- Terry Chen
- John Hunte
- Navya Mehta
- Rana Saleh
- Hancheng Wu
- June Xu

MATH SENATOR (1 POSITION AVAILABLE)

- Yussef Ourchane
- Matthew Schwarze
- June Xu

To learn more about these candidates and their platforms, visit <https://feds.ca/elections>.

There's also a referendum going on at the same time: the Legal Service referendum, as well as the GRT UPass referendum³. Both referendums are important (especially the legal service referendum), and I highly encourage you to learn more about them at <https://feds.ca/referendums>.

Now there's one position that I left out: the *Senate-At-Large Undergraduate Rep (One-Year Term)* position. Why did I leave it out? Because there's only one candidate running for it, and he's being acclaimed to the position.⁴ However, he has listed his platform on the website⁵, so you should go check it out and see how he's going to represent you on the university Senate.

Voting starts on February 5th and ends on February 7th at <https://vote.feds.ca>.

Happy voting,
Alexel

1. Except Senate — At-Large Undergrad Rep (1 Year).
2. Do people even get this reference? I must be getting old.
3. Which is about expanding the UPass program to any undergrad taking at least 1 on-campus course.
4. Lucky him.
5. What a keener.

14 WEEKS AFTER LEGALIZATION

Happy legalization everyone!

Unfortunately I didn't get to celebrate the legalization of marijuana until six weeks later, since my Ontario Cannabis Store order arrived just now after ordering on October 17th.

To test if the substance was any good, I tried to consume it in every way possible. I first used a vape since I was too lazy to roll a joint. However, it felt more body high due to the higher activation of CBD from a vape.

The main complaint here is OCS (Ontario Cannabis Store) not taking responsibility for their own screw up. They kept making excuses in all their apology emails and pointing blame to other parties. First it was Canada Post for the strike, then it was allegedly mislabelled products from their providers. So perhaps stay away from OCS until they get their act together.

For some reason, we can only purchase our legal cannabis from one source at the moment. Soon we will have storefronts as a legal source of weed, but that is coming painfully slow. First there is a lottery for which retailers are eligible for licenses.

Now every non-progressive city is trying to outright ban marijuana. Fun fact, alcohol kills a lot more people while marijuana has killed literally no one. So far, Markham and Oakville managed to ban storefront sales. Markham outright banned consumption outdoors as well as sales. I'm not too sure why these cities aren't enticed by the extra tax income they can get if this were permitted. Regardless, weed is still legal and we have a legal source for it. Or you could reach your local neighborhood, dealer I guess.

Stay lit,
BMONEY

FUNNY WAYS TO SAY THAT YOU'RE STUPID

If you're anything like me, you tend to make a lot of mistakes. And by a lot, I mean, a LOT. And if you're anything like me, you like to, or even feel a compulsory urge, to apologize for your mistakes. So, I've decided to come up with new ways to say that you're dumb, so that whenever you make a mistake, people will say "what the hell [y/n]!?" instead of "it's ok."

"SORRY I JUST DOWNED A LITER OF IDIOT JUICE."

I like this one because it makes it seem like you intentionally drank the juice. Like you know what the juice is called, you know its full effects, but like you just chose to be stupid. Honestly, I would do that too who needs to think lmao thinking's for losers *does a shot of idiot juice.*

"I'M CHANNELING BIG DUMB ENERGY RIGHT NOW."

Honestly, any variation of BDE is really funny to me. It's like how the French have a way of saying "l'air de ..." to talk about someone's disposition in relation to a noun, but like you don't have to use the word disposition. Also actually figuring out how to channel the inherent chakra and chi of dumbness would be spiritually cleansing.

"CHEM120 IS PRACTICAL AND USEFUL FOR A MATH DEGREE."

Would've been equally useful if I spent my transfer credits on history, or even philosophy. I came here to have a good time and honestly I'm feeling so attacked right now (by my own article).

"I'M, LIKE, SO TOTALLY SUPER SMART RIGHT NOW I FEEL LIKE I'VE UNLOCKED MY FIFTH SENSE."

This is solidly half a Mean Girls reference. The joke is that you're playing on the irony of what your saying, and what your actions indicate! Haha hoho hehe irony the pinnacle of comedy.

"WOOPSIE DOODILY! I MAKE BIG BOO BOO!"

Use this when you're talking to 5 year olds, or your name is Tumblr.

TRIES TO FINGER GUNS AND THUMBS UP AT THE SAME TIME AND ENDS UP IN A HUMAN PRETZEL

Hyperbolize the situation! Comedy comes in threes, and you have three failures total to stack up, so you ascend beyond the moral realm of fallibility and into the transcendent plane of jokes.

"THAT'S A BIG Y I K E S"

Yikes is a great word. I've been berated by my siblings for using it and the attempt on my life has left me scarred and deformed, but do you know what I say to that? YIKES.

"[ANY GAME OTHER THAN SONIC ADVENTURE 2] HAS TO BE THE BEST GAME EVER."

Because Sonic Adventure 2 is the best game, obviously.

"OOF"

Minecraft nailed it.

OPEN UP A MEME RELATED TO YOUR LAST TWO BRAIN CELLS

A picture says a thousand words. Especially if that picture is of what my brain is doing when I'm trying to think while it plays Scott Pilgrim and Paramore tracks endlessly in my head.

BREAK INTO SONG

This is more of a distraction strategy, so they stop thinking about your mistake. Works really well if you know the other person/people's music tastes. If you're alone, it can also help keep you sane rather than dwelling on the mistake and having it ruin your day.

"PEMDAS: PLEASE EXCUSE MY DOPE ASS STUPIDITY."

If you want a middle school math joke to spice up your language. Because who didn't love middle school?

"CALL ME A MODERN SOCRATES BECAUSE I'M DUMBER THAN A PILE OF BRICKS."

I'm sure like basically everyone knows this quote, but to those who don't Socrates famously said, "those who realize they know little are the wisest of all." If we're speaking in strict DnD terms, this just shows that WIS and INT are different stats, but I have a feeling that my main man Socky ain't talking about some dice game.

LITERALLY EVERYTHING OUT OF KAREN'S MOUTH IN MEAN GIRLS. ICONIC.

Karen is an absolute riot in the movie and I wished she played a bigger role, considering she was the nicest of the Plastics by far, and she had such great lines on screen.

LITERALLY EVERYTHING OUT OF KAREN'S MOUTH IN THE MEAN GIRLS MUSICAL. ICONIC.

Wish granted.

"LITERALLY EVERYTHING OUT OF KAREN'S MOUTH... OH WHOOPS LOL I SAID THAT OUT LOUD HAHA KAREN AM I RIGHT"

Haha am I right guys I'm still relevant with a 15 year old movie reference haha right guys? Guys?

At the risk of this article just being reduced to a list of my "hot takes," I'm gonna end it here. Remember, if you need to fess

up to making a mistake, do it in the correct way, by being witty as h*cc.

Xx_420SonicFan69_xX

OBJECTIVE RANKING OF 2018 GAMES

STILL BETTER THAN MYERS-BRIGGS!

With the close of 2018 in gaming, everybody and their dog seems to have a ranking of the games which had come out. However, all of these video game rankings have a fundamental fatal flaw: they are a subjective measure which lacks reproducibility and is tainted with opinion.

No more, for I present you with a truly objective and bias-free way to rank games. The algorithm is simple: simply take the English title of the game, and calculate the score of the title using English Scrabble scoring (counting digits as 1 point apiece), and sort the games in lexicographical order. To demonstrate, I mined five top games list from 2018 and sorted the games they have into one final objective list, presented below:

1. Atelier Lydie & Suelle: The Alchemists and the Mysterious Paintings
2. Xenoblade Chronicles 2: Torna – The Golden Country
3. Call of Cthulhu: The Official Video Game
4. Dragon Quest 11: Echoes of an Elusive Age
5. Valthirian Arc: Hero School Story
6. Omensight: The Definitive Edition
7. Age of Empires: Definitive Edition
8. Kingdom Come: Deliverance
9. Ni no Kuni II: Revenant Kingdom
10. Pokémon Let's Go Pikachu
11. Pillars of Eternity 2: Deadfire
12. Shadow of the Tomb Raider
13. Call of Duty: Black Ops 4
14. Dragon Ball Fighter Z
15. Jurassic World Evolution
16. Captain Toad: Treasure Tracker
17. Valkyria Chronicles 4
18. Warhammer: Vermintide 2
19. Yoku's Island Express
20. Shadow of the Colossus
21. Super Smash Bros. Ultimate
22. Spyro Reignited Trilogy
23. Assassin's Creed Odyssey
24. Detroit: Become Human
25. Pokémon Let's Go Eevee
26. Return of the Obra Dinn
27. Monster Hunter: World
28. The Gardens Between
29. Dynasty Warriors 9
30. Marvel's Spider-Man
31. Octopath Traveler
32. Red Dead Redemption 2
33. Two Point Hospital
34. Prey: Mooncrash
35. Super Mario Party
36. Into the Breach
37. Lumines Remastered
38. A Case of Distrust
39. Overcooked 2
40. Sea of Thieves
41. Bring to Light
42. Just Cause 4
43. Mario Tennis Aces
44. Frostpunk
45. Gundemoniums
46. Planet Alpha
47. The Messenger
48. BattleTech
49. Donut County
50. Moonlighter
51. God of War
52. Payday 2
53. Soul Calibur 6
54. Sunless Skies
55. Vampyr
56. Iconoclasts
57. Tanglewood
58. Dragalia Lost
59. Mega Man 11
60. Subnautica
61. Beat Saber
62. Dead Cells
63. Florence
64. Fallout 76
65. FIFA 19
66. Hitman 2
67. Déraciné
68. God Eater 3
69. Below
70. Celeste
71. Ashen
72. NHL 19
73. Minit
74. Fe
75. GRIS

Zethar

THE OBSCURE CORNERS OF THE FANFICTION WORLD

I SHIP HUMPHREY CHIMPDEN EARWICKER AND THE PIXAR LAMP

You may remember my article from last term¹, where I analyzed whether it was more worth it to read *Zootopia* fanfiction than Tolstoy's *War and Peace*. Even though I'm no longer at the university, I decided I still can't let the topic of fanfiction rest, so I sent in this article remotely. Today, come with me on a journey through varied and obscure categories on the fanfiction hosting site Archive of Our Own. We'll see fanfics about movies, games, and even some media you didn't think would have fanfics. I've even read through a story in each category to report on.

Our first stop is in the realm of movie fanfics. As a rich storytelling medium, movies are naturally a popular choice for a hobbyist writer to base their own story on. On AO3, the *Marvel* and *Harry Potter* movie series dominate this section. But who could forget...

THE ROOM (41 STORIES)

This infamously cheesy movie, by filmmaker and alleged human Tommy Wiseau, tells the story of Johnny, who is totally not an avatar of Wiseau himself, because that's bullshit! It's not! Oh, hi, gun barrel.

This category features forty-one fanfics, one of which is *The Room Squared*, by BeveStuscemi. It's a crossover between *The Room* and *Silent Hill*, where Johnny bumbles around South Ashfield and gets a few people killed by his complete obliviousness. The highlight of the story is Johnny's interactions with Jasper:

"Anyway Jasper, what is with all of the candles? Are you expecting a girl to show up?" Johnny said in a playful voice, completely cutting Jasper off.

"N-No. I l-lit these s-so I could s-s-see what I was doing! I'm t-trying-"

Jasper was cut off once more. "Whatever! Maybe you should get a girl, Jasper. Anyway, how is your sex life?"

Next, let's check out a game. We could go for a popular one like *Dragon Age* or *Final Fantasy*, but how about a classic?

CHESS (31 STORIES)

Yes, the venerable, millennia-old game of strategy. Who could forget such classic, thousand-year-old moments, such as "King and Rook Swap Places," "Pawn Somehow Captures Another Pawn by Walking Past It," and "Pawn Promoted to Enemy Knight?" A shame, then, that there are only thirty-one stories about chess on AO3.

Very surprisingly, one of these thirty-one stories is erotic fiction. And yes, I read it. It's called *Victorious*, by initialism. In this story, a pawn reaches the end of the battlefield, transforms into a queen, then checkmates the enemy king. Various lewd

acts ensue, but to avoid violating Section 163 of the Criminal Code², which makes it a crime to circulate obscene matter, here's a safe excerpt.

And that was when the new Queen realised: her body had taken on the defeated King's seed, but it would not quicken until she had need of it. Her replacement as pawn would be of the royal blood.

"Have you decided?" the King asked after a moment.

"Yes," the new Queen said without hesitation. Looking at the defeated Queen, she said, "I am a Queen, I can go anywhere."

She walked away to her unknowable destiny to the sound of the warriors of both sides applauding.

From the low tech, let's go to the high tech. Let's see some fanfiction about one of the most important software projects today.

LINUX (6 STORIES)

The Linux kernel (often accompanied by the GNU tools, might I interject) is vital to much of the computing world today, and is an exemplar of the importance of free-as-in-Stallman software. The story I read for this category is perhaps less exemplary.

HIVESUCC ACT 1 by vriskastrider is some kind of NSFW Homestuck-styled fanfic that involves free software for some reason. It's very messy and word-salady, starting with two characters having sex and ending with them turning into Linus Torvalds and Richard Stallman, then having a shouting match.

joey gasped because her brother was juts revealed to be linus torvalgs, witch is a pretty fucking strange event to happen in real reality.

"are you a dounshe who has ssubmitted some shitty code or said that c++ is a good language 2 use" said linus torvalgs
"BECAUSE IM FAIRLY SURE IM GOING 2 SCRAEM AT YOU OR KILL YOU AND HAVE SOME SECRET SEXUAL FEELINGS ABOUT IT"

"if u thing u can beat me" angered richard stall man "then the answer is FALSE, CRATED BY JIM MEYRING COPYRITE THE FREE SOFT WARE FOUNDATION AND LICENSED WITH GPLv3"

How about we take a look at a subtler, tamer attempt at humour, developed for television audiences?

MR BEAN (5 STORIES)

This character, portrayed by Rowan Atkinson, stars in the eponymous show, comically struggling to do everyday tasks. Millions have viewed the show when it was current, and it has become an international sensation. Despite this, there are only five fanfics of Mr Bean, which makes this show extremely underrepresented in the TV fanfiction scene.

One person who is fighting to change this injustice is apacketo-seeds and their story, *Bid Up, Mr Bean*, which is written to resemble an episode of the TV show. In this “episode,” Mr Bean guesses the weights of various objects and also goes to an auction.

Looking around, he saw the hall was full of people doing much the same as the ladies: looking at items on the tables and writing in their notebooks. It reminded him of the church fete the week before. A table had proudly displayed a large fruitcake wrapped in cling film and decorated with a bow. People went up to it, lifted it, then wrote how much they thought it weighed on a pad. Bean had a go himself, though he thought it rich he had to pay fifty pence for the privilege.

Okay, okay. Enough about popular TV. Let’s talk about the TV stuff you probably didn’t know existed.

JAPANESE MCDONALD’S RECRUITMENT COMMERCIAL (3 STORIES)

In Japan, McDonald’s pushed out a TV commercial to attract part-time applicants, called “Mirai no Watashi,” which means “my future.” It’s a 60-second long animated bit about a teenage girl who thinks about getting a job at a McDonald’s. She then gets recruited by a staff member who looks like she pushed the hipster slider on her uniform to the maximum. There are three fanfics about this commercial! I guess it counts as anime.

Interestingly, the story I found in this category, *Our Future*, was disowned by its author, so it can no longer be properly attributed. It’s a mostly faithful retelling of the commercial’s plot, adapted to English. The author’s take on the story also adds a subplot about a developing friendship between the applicant teen and the staff member. The story includes a preface from the author, which says, “i cant believe i wrote fanfic for capitalism.”

The days pass, and Sumire feels successful. She can serve food without spilling it and talk to strangers without freaking out. More importantly though, she's closer with Hoshino than ever before. The two of them often hang out after work at the teashop, and chat in every minute the shift allows. In fact, when they part ways at the end of the day something feels missing.

Let’s turn now to more domestic obscure media. We won’t need to stop for directions, because the Master is present!

MANOS: THE HANDS OF FATE (3 STORIES)

Manos was a 60s horror movie made on a Z-tier budget by a fertilizer salesman as part of a dare. It follows two idiotic and unlikeable parents who accidentally induct their young daughter into a polygamous hand fetish harem/cult, led by some creep known only as “the Master.” By the way, the movie is in the public domain, and Wikipedia hosts a full version to view for free!

The fanfic I’m presenting for this category is “*As Thou Has Decreed, So Have I Done!*” by AtomMudman. It somehow manages to be a crossover of *Manos* with many different media, such as *Master and Margarita*, *James Bond*, and *Sherlock Holmes*. The story ties together these sources to create an origin story for the Master: he was a Russian who was into American comics, moved to Texas, got involved with a voodoo cult, spoke with an evil god who’s mainly known for having large hands, then started collecting wives. What the hell is going on?

The Master's Son felt sweat drip down his forehead. They were standing in the hot dark of the ritual chamber, alone. “What is his name?”

“It has been lost to the ages,” the witch-doctor mused, “but the Spanish-speaking populace of Mao’Tau gives him a name by way of the Reach of his Hands. He is called Manos.”

The name sang like music to the Son, and he did not know why.

Next is a short one.

THE TREACHERY OF IMAGES (1 POEM?!)

Ceci n’est pas une histoire. I suppose there can be a René Magritte painting fanbase. It’s a short poem by Charmaine called *Is Not (Beck-ola)*. Also somehow involves Jeff Beck and Alfred Korzybski.

The next two categories are honourable mentions. They’re technically not fanfiction, but are instead known as real person fiction, as they’re portraying fictionalized versions of real people, instead of building on an established fictional setting.

LOADINGREADYRUN (1 STORY)

LoadingReadyRun is an internet comedy group based in Victoria, BC. The only story about LRR on Archive of Our Own is *Shadowed*, by stormguard798. It’s a 12 chapter, 30 000 word story about a slow burn romance developing between LRR crew members Adam and Ben.

INTERNET COMMENT ETIQUETTE (ZERO, FORMERLY 1 STORY)

Yeah, formerly one story. *Internet Comment Etiquette* is an online comedy show about online behaviour. It’s hosted by Erik Hoffstad, who’s also known for another video series, in which he tries to complete basic tasks while high on salvia.

There was previously a single story in this category, but the author has since deleted it. Although the story itself is gone, its effects are still visible, like dark matter interacting with normal matter. Google still lists an old link to the AO3 tag for this show, even though the tag now takes you to a 404 page. The fact that a Google web crawler picked up this page means that it previously wasn't a 404 and this corner of Google Search hasn't been updated yet.

Loquatius

1. War and Peace or Zootopia fanfics: which is more worth reading? In **mathNEWS** volume 138, issue 1.
2. <https://laws-lois.justice.gc.ca/eng/acts/C-46/section-163.html> Amusingly, "crime comics" are also illegal.

HBOMBERGUY APPRECIATION ARTICLE

I might spice up this article with a few jokes, but I don't mean it to be a comedy article.

I'd just like to shout out my favourite news event in recent times: the HBomberGuy stream. This man is a mad lad. Some politician (unimportant, irrelevant, and soon to be owned) wanted to take down the trans rights charity Mermaid, by finding reasons to shut it down financially, and berating it on social media. Do you know what HBomberGuy does? He wanted to give the charity one last breath of life, as a "goodbye" present. So, he decides the best way is to raise money for it. HBomberGuy does it the only way he knows how: streaming video game content.

So what video game does he pick, for his marathon, ideally 24 hour stream? He probably needs an easily accessible platformer that's universally relatable. So he picks DK 64 to 100% complete, including collecting all the bananas. Here's the thing: DK 64 is notorious for having a nauseating amount of collectibles. So this guy streams DK 64 for 59 hours (at least that's the number I heard; it could've gone higher), in an attempt to complete the game.

His stream got so much traction on social media that famous politicians (AOC) and other celebrities actually went on his stream to congratulate him and discuss trans rights. And do you know how he responds? He just wants to know how to get to the next level, which goes to show how humble (and tired) he is about it all. He ended up not only meeting his goal of \$500, but surpassing it. He ended up raising over \$340 000 for Mermaids. The politician was tweeting angrily about it the whole time, but he was silenced quickly.

So, I hope you've learned that with good intentions, and doing what you love (ad nauseam), you can make anything happen, and the world will be a better place because of it.

Xx_420SonicFan69_xX

THEODORE BEAR REVIEWS: AQUAMAN

Greetings all. It is I again, famed investigative journalist and one-time world saver, Theodore Bear. What is not as well known about me is that I'm also an avid film connoisseur, having watched and analyzed such important films like **Avengers: Infinity War** by Disney and Marvel. Over the course of this volume, I will be giving reviews of movies I have seen, starting with the 2018 movie, **Aquaman**.

Aquaman is a 2018 movie directed by James Wan and starring Jason Momoa, Amber Heard, and Patrick Wilson. It's the newest entry in the DC Cinematic Universe.

It's also dumb.

Like, really dumb.

There are so many things wrong with movie that it's hard to list them all. First, the plot flat out forgets about Justice League, presenting Aquaman (Momoa) and his love interest (Heard) as unfamiliar to each other despite Justice League implying the opposite. To be fair, I don't want to remember Justice League either. Other than that, the plot is corny and predictable, but also doesn't seem to know what genre it wants to be. The two leads have no chemistry with each other, while aspects of the story make absolutely no sense. Furthermore, the dialogue is unintentionally hilarious at points, and Willem Dafoe is Willem Daf-oning it in. The music is as subtle as a sledgehammer, going "BAM BAM BAAAAAMMMM!!!" while a character makes a dramatic pose far too many times. There's also a song on the soundtrack that's a cover of Toto's Africa by Pitbull; it's as bad as it sounds and is used in the most obvious place imaginable.

Yet despite all that, the movie was just ridiculous that I couldn't help but enjoy every second of it. I started laughing at the amount of times characters would be talking, only to be interrupted by a random explosion. The cheesy dialogue brought the goofiest grin to my face, as did the bad romance scenes. It was all just fun, even when it was falling on its face. The best comparison I can probably make, since the movie turns into an adventure movie in the second act, is **The Mummy** starring Brenden Frasier. There are so many things wrong with it, but being boring isn't one.

Aquaman: Dumb / 10

Theodore Bear

Ceci n'est pas filler.

A SURREALIST blackBOX

MICHELLE'S FIRST DAY

“Wow what a beautiful first day of class!”, exclaimed Michelle, and it could not be more true. The sun was shining, the temperature was warm; a perfect day to be outside and enjoy the fresh air. So Michelle made his way to MC, a bit disappointing given the day, but what could he do? CLASS was a priority. Plus Michelle decided that he was going to enjoy himself this semester; his courses were going to be fun!

“Good-morning class and welcome to BOOP10! My name is Mr. Muchacho and I will be your professor for this semester. Before I begin, I should mention that there will be a textbook for this class. But don't worry, it can be found on Amazon for \$10. It's quite comprehensive and everything you need for this course can be found within it. However, you will need a CODE to do the online quizzes. Now this is not just any ordinary CODE. This CODE is one of the finest on the markets. It has been developed by the brilliant engineers over at Vista Higher Learning and it is worth its weight in gold. Now I've called the bookstore and they're selling the combination of the textbook and the CODE at a discounted price of \$310 (originally \$315 !!). Like I mentioned, the CODE is needed for the online quizzes which will amount to 50.001 % of your mark, so it's up to you whether or not you want to purchase it. Okay, with all of that out of the way let's proceed with Lesson 1...”

“Well that sucks,” thought Michelle as he headed back to the bus stop. Michelle was a bit strapped for cash after his OSAP payments got cut, but it was okay. He just needed to be bit more frugal with his money for the next couple weeks.

As Michelle boarded the bus to Walmart, he suddenly realized he neither had his Watcard nor any cash. He walked to class this morning (because it was a beautiful day) so he must have left it at home. Instead of leaving the bus, Michelle inwardly hoped that the bus driver would be kind enough to let him on anyhow.

“Hello sir, I've unfortunately left my WatCard at home this morning and I need to get to Walmart to pick up some notebooks. Is it okay if I simply show you my student account with my schedule?”

“Well, that doesn't prove you are a student, now does it? I just can't accept it! I've seen freeloaders like you my whole life, and I won't let you take advantage of the system like that. And besides, if you have the money to pay for your special notebooks, you should have the money to pay for your fare!”

“But sir, don't you see that I'm boarding the bus from the university stop? I even look like a typical student with my Jansport knapsack and this Waterloo lanyard hanging out of my pocket. With regards to payment, I only have my credit card and your bus doesn't accept it!” Alas, it was already too late and Michelle was kicked off the bus. He simply decided to walk to Walmart. It wasn't nearly as nice outside as when he was in class, but he also wasn't willing to wait another hour for the next bus.

A long walk it certainly was, but eventually he made it. Tomorrow, he would be prepared for class with his new notebooks, and no ounce of bad luck would be able to prevent that... At least that's what Michelle thought. Upon entering the store, Michelle noticed something strange. Shelves seemed unusually empty and the products were thrown around (more than usual!). As he B-lined towards the notebook section, his heart quickened, mainly because he had not done any physical activity in months, but also because he had a terrible feeling from within. He did not want it to be true, but he knew deep down that it was. It was the first week of class and he did his shopping at Walmart LATE. Too LATE, goddammit. The sight of the empty notebook section was too much for Michelle's overworked heart. He fell to his knees, his body radiating with disappointment. It was all too much for him to handle, and so he decided to lay there for a while until he was forced to leave. Unfortunately, an especially large individual on an electric scooter came by and struck Michelle head on. It was a hit-n-run (the perpetrator quick enough to escape), and it was the final blow to Michelle. It was a painful death, but many would suggest that it was a painful life as well. RIP Michelle.

milk&cookies

N REASONS I STRUGGLE AT EVERYTHING

- Being around enablers, offline and online
- dleness, boredom, loneliness, joy, happiness
- Sleeping problems and insomnia
- Loss of interest in education, career, and relationships
- Hoping for the best without a plan
- Underestimating how beneficial help can be

Help

A HAIKU ABOUT THE INTERNET

Internet's not mine

You kids best get off my block

(of IPv4)

you don't deserve to know

SHORT REVIEWS OF MOVIES I CAN DISTINCTLY REMEMBER WATCHING FROM 2018 TO NOW

ROMA (2018)



"We [women] are always alone". A subtle yet evocative film exploring themes of class, feminism, and vulnerability in the 1970 middle-class Mexico City neighbourhood, Roma is not a thriller, but the situations Cleo, our protagonist, must go through is sometimes scarier than any other slasher — sometimes they're just too relatable and it hurts. Why her and not me? You want to cry out in frustration and long to help, not just Cleo, but everyone — in the end, it's just a movie. Isn't it great when a movie makes you feel so strongly?

AMADEUS (1984)



Based on historical truth and fiction, we see Wolfgang Amadeus Mozart's life expand to fame, riches, and Vienna yet also observe it quickly diminish to insanity and death. We follow Antonio Salieri, Leopold II's court composer, who falls in love and jealousy with Mozart's music — so much to the point he is determined to kill Mozart... through his own music. F. Murray Abraham is the star here, making his jealousy and hate palpable to the audience as Antonio Salieri, and Tom Hulce does an excellent job as the bumbling yet serious Mozart. The costumes and music are incredible, and you see a sliver of life in 1700's Vienna. The Director's Cut

helps to fill in some vague details left out in the Theatrical Cut, but is very much optional.

LOVE EXPOSURE (2008)



What happens if you mix religion, sexuality, (petty) crime and fucked-up childhoods? Welcome to the shockingly different yet converging lives of three characters — Yū, Yōko, and Aya. Love conquers all, yet love also destroys. Love, in its many twisted permutations, is what anchors the characters together... and what destroys their psyche as well. This movie astounds the viewer by capturing the ugliness and desperation of man using the lives of lonely, broken people. Check out this scene: <https://youtu.be/tX32Aj-50Vo?t=86>

Two warnings, it is 4 hours long and subbed. But I promise you, reader, it is so worth it.

JULIET, NAKED (2018)



I watched it with my two friends under the guise of "teaching [redacted] on how to talk to girls". Fun, lighthearted rom com. The main character Annie is a pushover and perhaps a bit too Mary Sue and Tucker Rowe is redeemed too quickly for my liking. I can't say much beyond that, except that I didn't hate it, and that's good enough for me. (However, there is something said to be said about "stripped-down" versions of music: it's nice to slowly remove layers of skin until you see the bare bones of the musical structure of your favourite song. Annie was wrong.)

CLERKS (1994)

I'll say this first: DON'T BOTHER WITH CLERKS 2. Total Hollywood cliché. I wouldn't *not* recommend Jay and Silent Bob Strike Back; a good stoner film that'll exercise your zygomaticus muscles and give you nasolabial folds. Anyway, Clerks is a film in the study of existentialism with dark humour, nostalgia, and 36 (in a row?). Dante Hicks is a 22 year old convenience store clerk who hates his job yet is unable to change it and accepts this inertia as fate. (Un)fortunately for him, life pushes him around, not by his own doing, but by external factors in his life that just won't stop bothering him. I love everything about this movie — the raunchy sex jokes, stupid pranks Dante's friend, Randal, pulls on the customers, the absurd situations and the number 36.

YELLOW SUBMARINE (1968)

It is commonly said that a good children's movie should entertain both the children and the adults. The same idea applies to Yellow Submarine, with whimsical, colourful art that is guaranteed to delight your senses. The plot is simple, but perfectly so: the Blue Meanies have attacked Pepperland and stripped the people of music and flowers and all that is beautiful, and who can save them? The Beatles, with their mighty songs and beards and costumes. If you hate the Beatles, don't watch it (obviously). But maybe with the right concoction of ... ahem, substances...

INDIAN HORSE (2017)

I read the book first, and was a bit disappointed. Saul's childhood memories seemed too rushed compared to the novel and it feels like some context is missing. Movies should feel complete even when full details are not given, but maybe it's just my fault for not watching the movie first. However, it is a story that needs to be told for the Indigenous people of Canada, as they have been silenced and neglected far too long. It is a good beginning to experience what thousands of Indigenous people had to face. Northern Ontario's beauty is also quite, quite underrated.

IS IT FALL YET? (2000)

It's ok to cry (there's a club for that) and you see *actual* development from the most frustrating character: Quinn Morgendorffer. Though if you watched Daria, you can slowly see her progress from a ditzy, shallow girl one with more thought and care. You might actually like Quinn after this movie. Shocker! Daria shows her sensitive side by reaching out to a boy who isolates himself from the camp's activities and peers; she's been there too many times and she sees himself in him. Jane goes off to art camp and must question her identity and ideals in midst of fame-hungry, soul selling artists.

Your myopic degenerate

mathNEWS*'S TOP 10 GAMES OF 2018

2018 was a seminal year for video games, with many great games from both AAA and indie developers releasing these past 12 months. We received brand new IPs and new takes on well-worn franchises. But what were the top games of the year? Well, we at **mathNEWS*** are here to tell you, even though you are probably better off getting that information elsewhere. Here were our favourites of 2018:

10. SUBNAUTICA

In video games, there is probably no genre more saturated than the open-world survival genre. With games like Minecraft and Don't Starve being some of the best of this genre, and games like Metal Gear Survive and a bunch of crappy Steam indie games being the worst, it's hard for a survival game to stand out these days. Subnautica, though, manages to rise above the rest to occupy our Number 10 spot. Being both beautiful and hostile, Subnautica's underwater world sucks you in. At first, you're only focused on survival, but eventually, the world and its various biomes are opened up to you. While you may upgrade to exploring the ocean depths in a submarine, there's still danger you have to look out for. And it's that which makes this game such a compelling experience.

9. BEAT SABER

Virtual reality headsets have become more popular for gaming in recent years. In 2018, we got the only good game ever released on the platform: Beat Saber. Fulfilling one of man's primal urges - that is, the urge to cut things with laser swords - Beat Saber adds to the experience by having you cut things in time to music. While science still hasn't figured out how to make a VR headset that doesn't make you look like a moron, it has made the entire Shrek movie playable on Beat Saber. That alone puts Beat Saber at the Number 9 spot.

8. KINGDOM COME: DELIVERANCE

Kingdom Come: Deliverance manages to offer a realistic depiction of life as a peasant in Middle-Ages Bohemia. You die easily, you don't know how to read, you can't use a sword either, and you don't matter at all. In normal RPGs, when you take a quest, the NPCs will wait around until you're ready. In Kingdom Come, if you're not at the right place at the right time, they'll just continue without you and you'll fail the quest. However, it's this powerlessness that makes Kingdom Come compelling, offering a more personal experience where the world isn't at stake. It makes it all the more rewarding when you finally learn how to fight, figure out how you do this "reading" thing, and get a good set of armor. With branching quests where your choices end up mattering, Kingdom Come tells a interesting story and offers a different kind of experience than normal RPGs, one that gets our Number 8 spot. It's not for everyone, but for those who like a slow-burn, it's a must play.

7. FAR CRY 5

While Far Cry 5 is a standard Ubisoft open-world adventure (now considered it's own genre), it has a bear named Cheeseburger in it that you can sic on your enemies before petting him like the good boy he is. The gunplay is fun and satisfying, but not as fun as having a full-grown grizzly bear kill your enemies for you. The setting is also interesting, a Montana county taken over a Jim Jones-style religious cult, and it's fun to explore, especially with Cheeseburger by your side. While playing, he spoke to me with roars and grunts, telling me to put Far Cry 5 at our Number 7 spot.

Did I mention there's a bear named Cheeseburger?

6. BLACK MIRROR: BANDERSNATCH

Black Mirror: Bandersnatch takes our Number 6 spot, because there's no way in hell I'm actually putting Detroit: Become Human on here.

5. STEAM SUMMER SALE 2018

Valve has managed to outdo themselves, going from the seminal Half-Life series and critically acclaimed franchises like Left 4 Dead and Portal to this tower defense game that harkens back to the old Flash games that we at **mathNEWS*** played when we were young. With support ending soon for Flash Player, Valve gave us the experience we needed at the time we needed it most. Congratulations Valve! You've hit it out of the park again.

4. SUPER SMASH BROS: ULTIMATE

No game of the year list would be complete without the newest entry in the Super Smash Bros series on it. So despite me never actually playing it, it gets the Number 4 spot. But I'm sure it's full of that quintessential Super Smash Bros. fun. Whatever that is.

3. DOMINION

You know what? I take back everything I said at the start. Video games sucked this year. So that's why I'm putting a board game at my Number 3 spot. It's really fun. I could go on listing board games, you know. It's not like I'm desperately trying to fill out this list, you know. It's not like I'm so far gone my best friend this year was a grizzly bear inside a game. Why won't they let me out of here?

2. GOD OF WAR

I honestly don't even know why I'm here.

Did I do something wrong? Was it because I used to read Imprint?

Please, just let me go. They're keeping me locked up in a basement somewhere. I don't even know what their faces look like. There's a slot in the door that they shove things through. What they give me alternates between video games I need to play and give my opinion on, and pizza to keep me fed. I've been stuck here for 7 years. It's absolute hell. I just want to die already.

I don't know how I can go on. I tried to end it all a few weeks back by playing The Quiet Man. Yes, it's that bad.

I don't know if I meant the game in that last sentence. Things stop mattering when you're forced to sit in front of a TV screen all day, playing video games for the amusement of your unseen tormentors.

That's it. I'm not writing any more. I'm not finishing this list.

RED DEAD REDEMPTION 2

Red Dead Redemption was one of the best games of 2010, and Rockstar has truly outdone themselves with its sequel. Telling a slow-burning, emotional story, while also giving players a world that's fun to play around in, RDR 2 has a level of polish that isn't matched by any game, this year or any year. Gunplay is satisfying, characters and missions are interesting, and seeing locations you remember from the first Red Dead Redemption brought into the current generation is an incredible experience, as is seeing how that game's world was expanded for the sequel. Giving some of the highest highs of gaming this year, there was no way Red Dead Redemption 2 would get anything but our Number 1 spot.

0. SONIC ADVENTURE 2

However, Sonic Adventure 2 is the best game of the year, every year, so it wins the title. Congratulations, Sonic Adventure 2, you get the prestigious prize of mathNEWS*'s GOTY for 2018.

By everyone at mathNEWS*

*Actually just one guy

N THINGS FORTNITE PLAYERS LOVE

- Bush campers
- Being the third last to die
- Dying to someone who starts to dance right after
- Ur bad, git good
- The meta

Someone who watches people play Fortnite



HOW TO BECOME A CIA AGENT

As you know, the CIA is one of the nation's most important organizations. In the ever-changing political, social, economic, and technological landscapes, we rely ever more on the crucial services rendered by the CIA in the form of research, enforcement, public education, and government advising. If you're reading this article, you must be wondering, "How do I become a CIA agent?". Well, usually people say "fellows" and not "agents", but a rose by any other name would smell as sweet. So let's get straight to the information you came for. Here's how you can become a Fellow of the Canadian Institute of Actuaries.

(If you are already a credentialed actuary in a country other than Canada, I'm surprised you're reading **mathNEWS**, but you may be able to skip some of the following steps.)

1. Have been an Associate for 12 months. If you haven't finished this step yet, stop procrastinating and be-an-Associate-for-12-months faster!
2. Finish either an SOA (Society Of Actuaries) or CAS (Casualty Actuarial Society) exam track, other than the SOA General Insurance Track (if you wanted to be a general, you should have joined the military)
3. Complete the CIA Practice Education Course
4. Have three years of practical actuarial work experience, including 12 months of Canadian practical work experience, while enrolled as an Associate of the CIA within the three-year period immediately prior to your application to fellowship

And that's it! Now you can spend the rest of your life doing cool spy stuff, if you think the application of mathematics to financial problems is cool spy stuff.

sillycone

B REASONS TO PUT A BAR IN C&D

- Engineering has a bar already, and we're better than them (POETS stands for "piss on everything, tomorrow's Saturday")
- Bomber is shutting down
- It's a more productive use of MathSoc money than any digital locks
- Lectures are more fun and memorable when the professor is wasted
- We could use the income to fund the building of M4

- Math students are good with numbers and won't run it into the ground like what happened with Bomber
- We used to have a student bar but the University of Waterloo took it away :(
- By the time C&D can get a liquor license, I'll be 19
- It will provide a way for math students to drown their sorrows after brutal midterms
- Easier to plan Ross Willard Appreciation Day

SandwichExpert

C REASONS WHY NOT TO PUT A BAR IN C&D

- Liquor licenses are expensive
- POETS is already licensed *and* is a lot more nicer!
- Liquor licenses are extremely expensive
- MathSoc would need to reallocate some of its funding towards paying for the liquor license, which means less money for events
- There's a bit too much traffic in the C&D area — kinda hard to control people entering and exiting — which creates a problem, as liquor can't be consumed outside the licensed premises
- Did I mention that liquor licenses are expensive?

Alexel

QUOTES FROM A UTSC GROUP CHAT

Recently, I was added to a UTSC Earth Sciences course group chat, presumably by mistake. Immediately taking advantage of my position as a **mathNEWS** contributor, I decided to sift through the chat for interesting nuggets from the hands of our rivals in the Don Valley. Surprisingly, my exploration yielded many a result, which are partially reproduced below:

"its just popping up as an error for me. 'error 404'"

"Did u know icelandic people take shots of vodka with pebbles?""since when have frats infiltrated group chats"

"Rocks aren't as interesting as I hoped they would be"

"Bruh whoever fucking snakes and made the exams closed book I hope u keep on stubbing ur lil toe per hour for the rest of ur life"

"I'm dropping outta this shit school next sem"

quantum goose

MATH PROBLEM OF THE WEEK (WITH PRIZES)

haltingCOMMENT 139.1

Hello **mathNEWS** readers, starting this issue, the {(Pure Math) (Applied Math) (Combinatorics and Optimization)} Club will be sponsoring a Problem of the week, and the best part is, if you come up with a solution, **you can redeem it at the PMC clubroom for a prize!**

The problem for this week is the following :

Prove that for all integers $n > 0$, the following identity is true :

$$\sum_{k=0}^n 2^k \binom{n}{k} \binom{n-k}{\lfloor (n-k)/2 \rfloor} = \binom{2n+1}{n}$$

where $\binom{a}{b}$ is the number of ways to choose b elements in a set of size a , and $\lfloor x \rfloor$ is the floor of x , is the smallest integer less or equal to x .

The PMC clubroom is MC 3030 (center hallway of MC 3rd floor). Feel free to drop by whenever the door is open; any complete solution deemed correct will earn you a **free can of soda** from the PMC's large selection of drinks, with an extra special prize for particularly creative solutions.

Good luck !

PMC Prez

Mathsoc, more like
Mathsocks!



Mathsocks
Sockiety

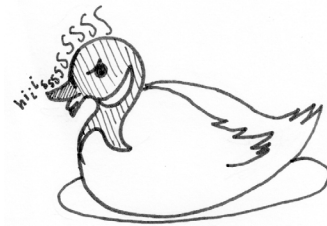
BREAKING: gridWORD SOLUTIONS RELEASED

As you can't see anything, we regret to tell you, readers, that there is no **gridWORD** for this issue. We do not have a gridmaster at the moment, so if you want to step up to the plate and make fun, challenging crosswords for us, please contact us!

In the meantime, we turn to the winners of 138.6's **gridQUESTION**, which was "what should the **mathNEWS** editors do to make the holidays extra special this year?". We received a whopping total of 0 submissions, and so we will keep everything and laugh at your faces as we keep the \$5 dollar gift card to ourselves.

This week's **gridQUESTION** is, "What should the **mathNEWS** editors do to make the holidays extra special this year?" Yes, I know, we reused last issue's question. Policy 71 us. We dare you.

The **mathNEWS** Editors



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UW'S BASTION OF ERUDITE THOUGHT SINCE 1973

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LookAhead

SUN JAN 27	MON JAN 28	TUE JAN 29	WED JAN 30	THU JAN 31	FRI FEB 1	SAT FEB 2
Course selection period begins (ends Feb 7)	Feds Elections Reddit AMA (Executive candidates)	Feds Elections begin AMA (Student Councillor candidates)	Feds Elections Reddit AMA (Senate candidates)		Feds Elections Reddit AMA (Senate candidates)	

SUN FEB 3	MON FEB 4	TUE FEB 5	WED FEB 6	THU FEB 7	FRI FEB 8	SAT FEB 9
	mathNEWS 139.2 production night. Feds Elections Executive Debate	Feds Elections begin — go vote! Feds Elections Boba and Ballots	Feds Elections — go vote! Noon Hour Concert: Soirées Françaises	Feds Elections ends — did you vote? Course election period ends	mathNEWS 139.2 published. Feds Elections results announced	2019 ICCA Central Quarterfinal

WE NEED 40 VOLUNTEERS

Come help Professor Benoit Charbonneau to build a larger-than-life 3D projection of a 4D polytope model on January 25, 2019 in the M3 Atrium.

Sign up for **30-60 minute intervals** from 8:00 a.m. - 6:00 p.m.

Make a valuable and memorable contribution to the legacy of the Faculty of Mathematics.

uwaterloo.ca/omnitruncated-dodecaplex



otherNEWS is made technically possible by club executives of the Math Faculty.
I say "technically" because if they had sent us more news this week, this box wouldn't be here.

THE mathNEWS EDITOR WHO PUTS THE "NEWS" IN mathNEWS