



"HOW WOULD YOU DESCRIBE YOUR PERSONAL STYLE?"

Merry February, **mathNEWS**. Reading week is over, which means the fall term is officially halfway over-ish. Soon midterms will be here, and by soon, I mean I had one yesterday.

If you're like me, this is also the point in the term where the novelty of the term starts to wear off and co-op is looking more and more enticing, thus continuing an ancient cycle. (See my recurring article, [Student Can't Wait Until School Over So He Can Miss School Again](#)).

Now, here would be where I offer some wise advice, gained through my now almost three years of experience at UWaterloo, on how to overcome these blahs, and redouble your efforts towards academic success. But, I don't have any. Apparently, we are born to struggle.

The one helpful tip I do have is to read **mathNEWS**. It'll take your mind off any crisis of will.

Just in this very issue, we have Rosina Kharal, who I can attest from personal experience is a great lecturer, and has some great stories about her undergrad here. (Don't miss the one about the baby wipes.)

We also have tax fraud, co-op job postings, interview help, even more relationship advice, and the long-awaited followup to [warSOC I](#).

You know what, writing this has restored my motivation. Time to get that bread, **mathNEWS**.



PICTURED: GETTING THE BREAD

god ⚡ peED
Editor, **mathNEWS**

god ⚡ peED
Editor, **mathNEWS**

ABALD MAN	Bald
JEFF	jeff
TENDSTOFORTYTWO	Extremely froody.
WALDO@<3.LE-GASP.CA	Stripe-y...with a hint of mystery!
DERIVING FOR DICK	Deriving for Dick
GIRAFARIG	palindromic
QUANTUM GOOSE	Simultaneously honking and not honking
APHF	I, being a humble man, would never say this about my own work, but I have heard a lot of other people tossing my name around when it comes to discussions about the Nobel Prize for Literature
CY	comfy. it's what my name stands for
ROYAL NO.69 MILK TEA	Less sugar no ice
FINCHEY	Cottagecore academia meets witchy goth art hoe with a dash of gorpcore and steampunk lolita on the weekends. <i>Id est</i> , I dress like Mark Zuckerberg.
CC	Tastes like what does it taste like I am in suspense. So much suspense.
THE DEPRESSIMIST	Like the future of Daft Punk's discography: dark, silent, and empty.
THE EUROBEAT-'EM-UP	Fast! Loud! Bright! Drifty!
GEORGE LAMBROU	Stark and rectangular, featuring a blend of serif type (set in, say, Joanna Nova) complementing bold headings (set in DIN Next, for instance), and proportioned in rigid adherence to a 12pt baseline grid.
ZETHAR	Ancient, eldritch, and fey, not necessarily in that order
BEYONDMETA	Practical on most days, whimsical when I care to put effort
BOLDBLAZER	Personal style for what exactly?
A COOL PEN NAME	Incomparable, like a
GOD ⚡ PEED	There was some time, before March, when I wore clothes that weren't sweatpants? Can't quite remember.
CLARIFIED	Having lots of fun with hair accessories.

ARTICLE OF THE ISSUE

Congratulations, [license2derive](#), [Co-op Cycle #2 Urgent Postings](#), has claimed the crown. Your prize is the photo to your left.

Stock photos are weird, man.

KEVIN TRIEU, **mathNEWS** EDITOR FOR WINTER 2021
ALONG WITH NAMAN SOOD AND CLARA XI

mathASKS 145.3

FEATURING LECTURER ROSINA KHARAL

GOD ⚡ PEED: IF YOU COULD TEACH ANY NON CS COURSE, WHAT WOULD IT BE?

Probably Ayurvedic or Chinese medicine, only because the best way to learn something is to teach it.

TENDSTOFORTYTWO: WHAT'S YOUR FAVORITE ISA, AND WHY IS IT RISC-V?

How did you know? I like the open ISA design.

It is simple, customizable, easy to adopt with no strings attached. The design of RISC-V favours AI and edge computing applications where it is quickly gaining attention and implementation.

TENDSTOFORTYTWO: DO YOU HAVE ANY INFORMATION ABOUT CS 251E? THE CS ADVISORS HAVE NOT BEEN RESPONDING TO MY EMAILS.

There is not a lot of information or progress to report on this, sorry. The idea of having a CS 251E is still on the table for now, let's see what happens. For now, students can take CS 450 for advanced topics in processor design.

GRADIENT.DESCENT: WHY IS CS 251 THE HARDEST COURSE AT THE UNIVERSITY OF WATERLOO (WATERLOO, ONTARIO, CANADA)?

Hardest? Not at all. I would suggest it is one of the more interesting ones.

You learn how to build a microprocessor, get an appreciation for the hardware-software interface, and where else will you get to learn about transistors?

PSYCHGIRL: WHAT WOULD YOU BRING BACK TO UW FROM YOUR UNDERGRAD DAYS?

The people and time.

WALDO@<3.LE-GASP.CA: YOU'VE LIKELY BEEN ATTACHED TO CAMPUS IN SOME WAY FOR LONGER THAN MANY OF OUR WRITERS. WHAT MADE YOU CHOOSE TO COME BACK AND TEACH?

During the pandemic I've felt like I've been away from my second home — campus. I tell my boys that I basically grew up in MC. Coming back to teach at UW had a lot to do with students. I enjoy being around students so much, keeps me feeling young 😊. I also worked in industry, and although I enjoyed it and learned a lot, I found it to be very cutthroat with long hours; not the lifestyle I was looking for.

CIX: HOW DID YOU SPEND/ARE GOING TO SPEND READING WEEK?

Table tennis and creating online midterm exams (note: plural because we are online).

TLLLOW PRINCESS: WHERE IS YOUR FAVOURITE TOILET ON CAMPUS?

Here is a list:

On the DC overpass towards E3, there is steep set of downward stairs behind a large door that leads to E3. Turn left into E3, and then right into the first corridor — there will be two private washrooms, very clean and usually empty.

Also, along the same path to E3, instead of the large door stairwell, take the side stairs inside DC. You will exit into the basement floor in a hidden, quiet area. To your left are again will be two private washrooms, hardly ever occupied.

In MC, only the sixth floor washrooms are good options.

The top floor of Chemistry has a washroom with a shower.

CHEMIST: WHAT'S THE LINK TO THE YOUTUBE VIDEO OF HOW P-N JUNCTIONS WORK THAT YOU PLAY IN CS 251 EVERY TERM? ASKING FOR A FRIEND.

<https://www.youtube.com/watch?v=7ukDKVHnac4>

ROYAL NO.69 MILK TEA: NOT A QUESTION, BUT I WAS IN YOUR CS 251 CLASS IN SPRING 2020 AND IT WAS ONE OF THE BEST ORGANIZED CLASSES OF MY ONLINE SCHOOL CAREER :)

I'm so glad to hear you enjoyed the course! Students have really touched me with their comments and feedback over the past few terms. It makes it all worthwhile.

CC: ARE MORE CORES BETTER?

Yes, but it does depend on the workload. For example, imagine 5 children building a Lego tower. 5 can do it faster than 1, but what about 10, or 25, or 100 children? They would be rolling on top of each other fighting over pieces, and there most certainly would not be a Lego tower.

A MEDIOCRE KITTY: HOW HAS THE PANDEMIC AFFECTED YOUR TEACHING AND ANY RESEARCH YOU'VE BEEN DOING? DOES IT BRING BACK ANY MEMORIES OF BEING A STUDENT AGAIN HAVING TO LEARN NEW WAYS TO TEACH AND CONDUCT YOUR WORK?

I try to stay positive and grateful for my blessings.

I am happy to see courses make many positive changes to support student learning in our department. The first online teaching term was significantly heavier for all of us.

However, my research and teaching have improved as I have learned to manage the heavier workload better between my own work and my new job as room service to my kids. Steve Mann will read this and think, *“No wonder Rosina is always behind on her videos.”*

I encourage students to connect with their instructors more and take part in live discussions and tutorials. We like to hear from you and know about your thoughts on the course.

I have heard from some students that are really enjoying online learning and others that are really wishing to be back on campus. I strongly encourage students to stay connected! It is so important for you guys to check-in on each other, video chat or meet online. The pandemic has been very isolating. Force yourself out for a walk, in the snow or sunshine—it is rejuvenating.

Also, remember the many benefits to online learning. I say to my son, *“Just wait and see how much you enjoy getting up early and getting to class on time compared to rolling out of bed, joining class online, and then going back to sleep 😊.”*

EGGO_CHUGGO: WHAT MUSIC DO YOU CODE/MARK TO?

I find it too distracting to listen to music. Recently, I realized that some of my best work during the pandemic was done in my car in a Tim Horton's parking lot.

EGGO_CHUGGO: AS A WOMAN IN STEM, DO YOU HAVE/HOW DO YOU DEAL WITH IMPOSTER SYNDROME?

To be honest, I have been blessed to work with great people throughout my time at UW. It helps me to keep an open mind and always be ready to learn and benefit from others and their experiences.

I have never really noticed or felt anything like imposter syndrome, except when I lose at being the imposter 😊.

BUILDING REVIEW: QNC

The heat pooled and gathered upwards, and so by the top flight or two of stairs I felt uncomfortably sweaty and gross and somehow compressed. I felt like I was trapped in here with a passing cloud that got stuck and squashed onto the ceiling. There was glass in every direction. Even the whiteboards downstairs aren't really whiteboards but glass again, blocks of it laid over some creamy-white backing that project pale and staggered reflections.

‘Staggered’. Slightly offset. Two reflections overlaid. No distortions in the hand waving back at me, as in no convexities or concavities—it's a bit pale as I've already mentioned, and more importantly Staggered, overlaid, offset, &c &c. The reflected fingers interlock if I space them right, but frustratingly they never manage to merge back together into one outstretched hand. But that's obvious of course I know how light works,

I'm not dumb. Something about density, angles, color-coded lines on a page, dark rooms with fifteen little boxes of light in high school, little mirrors and chipped lenses in foam blocks that swelled and never fit inside the cardboard completely. Lids that were slightly propped open from the swelling and when the boxes stacked the tilting effect compounded until—

The three glass walls tell me (and I quote) to shut the hell up. To them I reply saying that if ‘Mike’ and ‘Ophelia’ didn't want me to have dumb circling thoughts in their (extremely vibration-resistant) science building, they shouldn't have put this glass all over the place. But of course I know the building doesn't get to decide that sort of thing. (And really, the glass is hardly the root of the issue; if it was, I could just say that instead of writing some long roundabout mess about it.)

P.S. This building has an ‘orange section’, in which I presume sensitive scientific investigation is taking place under closely-maintained sanitary and security conditions—but some of the mystery was lost when I realized that the secure rooms weren't actually bathed in a deep orange light. The glass is just tinted.

girafarig

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UW'S BASTION OF ERUDITE THOUGHT SINCE 1973

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MEMORIES OF UNDERGRAD

profTHOUGHTS 145.3

FIRST YEAR

My first memory of UW is from when I was driving up to my all-girls Catholic residence, *Notre Dame*. This was part of St. Jerome's at the time. I could see the Pink Tie hanging in the distance.

I grew to love my new home and became the resident mascot (since I fit in so well 😊). My residence was luckily the closest walk to MC, which soon became my second home.

While I was enjoying my new residence and friends, my academics did not go so well. I had a terrible first year for two main reasons:

1. I wanted to major in this and that, and minor in this and that, but all I really did was be majorly bad at everything.
2. Believe it or not, I had way too much fun with the girls!

By the time second year started, I pulled my head out of the clouds and started focusing on my classes. I also trimmed down my list of majors and minors significantly. Things were much better.

UNDERGRAD CS BACK THEN

CS undergrads stayed together on campus, almost always in the computer labs. We would run to the labs right after class to get a good spot 😊.

Upper-year students advised the lower-year students on everything from academics to clubs, and they occasionally bought us pizza as well.

We would get tea at 3 AM from SLC together, smell bad together, wear pajamas to class together and eventually we got through the program together. And we laughed at each other all the time 😊. It was great.

We coded in the labs all day, ate in the labs (this was kind of allowed back then), and some people even slept in the labs. Others napped in the comfy lounge or SLC quiet room. If you happened to walk by the comfy lounge in the middle of the night, you might have seen some things you sure did not want to see! (This is one reason why I personally never napped there; I had better secret spots.)

Can you believe that CS students back then unjustly had a bad reputation for being odd, unhygienic, and drinking smelly coffee all day? This was unfair of course, since many of us would go take showers at the PAC, and I drank tea, not coffee. My house mates used to give me baby bottom wipes to clean any surface I touched in the labs. They were afraid I would catch something and bring it home. (The convenience stores

back then only sold baby bottom wipes — not regular sanitary wipes.)

Even the CS professors provided us with amusement. We had a theory that all of our CS professors had at least one unique quality; we called it the strangeness measure. The strangeness measure indicated why each professor was teaching computer science.

And all these years later, I have validated my own theory.

During undergrad, I talked way too much. I talked to everyone in the building and everyone in the walkways. I knew the entire MC custodial staff, from the day shift to the night shift. I talked to all the people who worked at the Turnkey Desk, the bakery, and of course, the C&D. I would lock myself away in the dungeon lab on the sixth floor to get work done.

In fact, I realized how much I really loved CS people when I began to take engineering courses for an option I was doing. Engineering was far too serious for me; people were glum, boring, and worst of all, they didn't talk!

EMBARRASSING MOMENTS

Some of my many embarrassing moments in undergrad included the number of times my car was towed to The Pound. The Pound was where cars were taken because drivers (like me) didn't know what a parking lot meant. My friends used to tease me: "Rosina drives from SLC to the MC."

I also recall one night in the lab when I was very tired. My thoughtful partner looked over at me and said, "Rosina, why don't you go home? You're beginning to look like the Predator." *THE PREDATOR???* *THE PREDATOR???* Have you *seen* the movie *The Predator* with Arnold Schwarzenegger 😊? I wanted to storm out of the lab, but I couldn't, as we had an OS to finish 😊.

HIGHLIGHTS

- **ECE 222:** I stayed up all night wiring up my calculator circuit. In the morning I said to my partner, "This is never going to work," but, to my utter astonishment, it worked perfectly! I had never been so happy to multiply 5×6 .
- **CS 350:** My partners and I entered MC on Friday night, and we left on Monday morning with a fully functional operating system. It was amazing!

REGRETS

- Not taking CS 452 (the trains course). I *really* wanted to take this course, but I did not have room in my schedule. I could have gotten by in the course back then, but not anymore 😊.

- Not taking a Developmental Psychology course, which would have been useful since I now have four kids.

ADVICE TO STUDENTS

- Join at least one club or a team no matter how busy you are.
- Make memories with your classmates and friends. Your undergraduate years may be stressful, but you can make it *happy* stressful. Enjoy your down time and relax.
- Never give up on your dreams and don't be afraid to do things differently. Take ownership of your decisions and be proud of your choices. It is okay to do it *your way*. (When I was an undergrad, a fellow classmate complained for years about how "computers were supposed to make our lives simpler" and that "we were supposed to have all this free time." "Where did our free time go?" he would often ask. Finally, after he graduated he joined an NGO and took off to Africa! I never heard from him again.)
- Chart your own course, and remember one thing: You are not defined by your GPA. There is so much more to the amazing person you are!

Rosina Kharal

RE: N SENTENCES

Dear girafarig,

Wait okay I saw that one of my sentences from my article made it onto your **N Sentences** and it was one of the most validating things that happened to me this year both as a writer and a person and thanks dude/girl/[gender neutral address] I like your articles and think you're a great writer!

As a gesture of appreciation here are N sentences from **N Sentences**:

- "Lots of sentences are good and do their job in silence, they hold the meat so to speak, the ideas and feelings the writing is trying to communicate."
- "Finchey's writing is stuffed with little writing crescendos, crossing and overlapping and building on each other, and to try to take a clean slice out of something like that is perverse and impossible. Just read it, okay?"
- "It must have been random chance, or coincidence, or fate."
- "FROM THE LAST **mathNEWS** ISSUE, IN CHRONOLOGICAL ORDER"

I will not be offering any commentary, but know that the vibes of these sentences are impeccable.

royal no.69 milk tea

TEST

mathNEWS is sorta like a job right? I technically put work in for it, so I think so. If you ignore all the job bits it is missing, it is quite similar to employment. So if I purchase anything that is necessary for me to write a **mathNEWS** article, then it is sort of a business expense, right? And it would count as a tax write off kinda sorta? The Canada IRS or whoever are probably too busy to closely examine everyone's tax stuff, so small things like this will probably slip through anyway. On a note unrelated to tax write-offs, this article is about a \$450 pneumatic powered "pro" pogo stick I purchased, the X5 pogo stick. I was watching all these videos with these people doing fancy flips and spins off of all these abandoned looking warehouse places on YouTube, and thought it was pretty cool. Needless to say I was inspired. Upon a little bit of research, I stumbled upon a brand of pogo stick that bragged of its construction from aircraft grade aluminum, with ultra smooth brushing and high grade pneumatic parts. The X5 boasts over 10 foot jump height, and is broadly speaking widely considered to be the best pogo stick on the market. One of the smoothest and most powerful pogo sticks in the world was mine. Upon unboxing it, I could tell the X5 had lived up to my high expectations. Upon removing the pogo stick from the container, I could feel the power it contained. I felt that nothing was unattainable, nothing was out of my grasp so long as I had the X5 pogo stick as my trusty steed. Anyways upon landing after my first bounce I instantly shattered all my knees, but at least now I can deduct \$450 from my taxes.

aphf

EPISODE 15: POISSON PROCESS

Enjoy Episode 15 of the MathSoc Cartoons series: [Poisson Process!](#) Want more comics? Follow @mathsoccartoons on Facebook or Instagram! Got feedback, suggestions, topic requests, fan art, cute goose photos, or prayers to Ba'al the Soul-Eater? Leave 'em at bit.ly/cartoon_feedback or email mathsoccartoons@gmail.com!

Ava Pun

Sometimes you walk by
the Comfy Lounge and
see things you don't
wanna see.

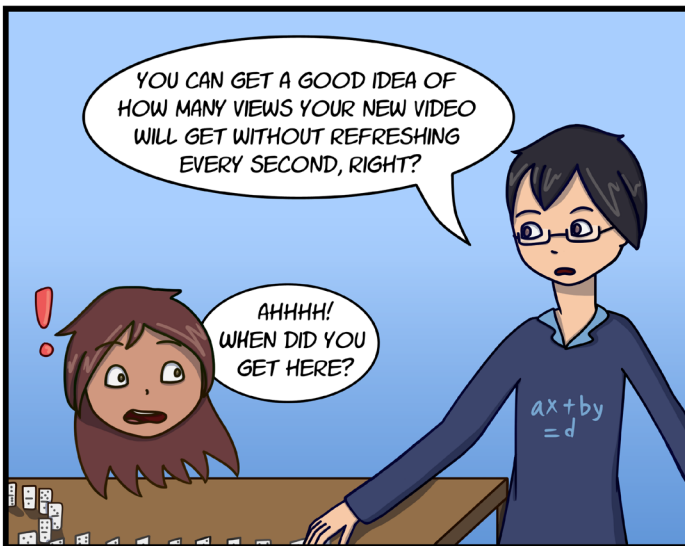
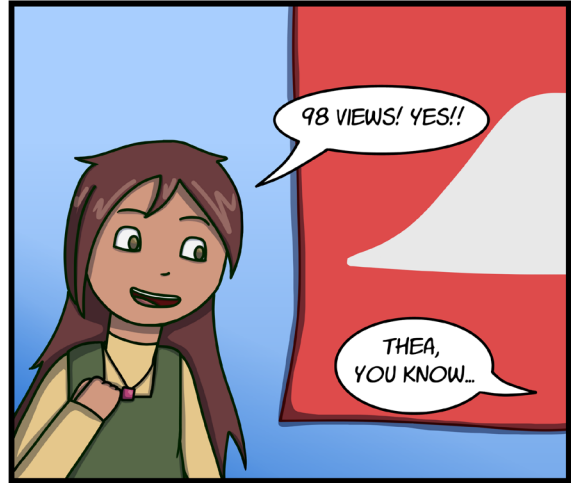
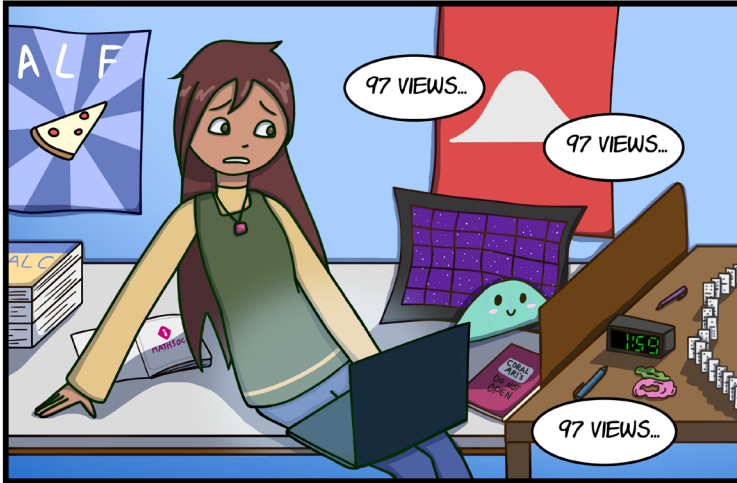
ROSINA KHARAL

STAT 230: POISSON PROCESS

STORY BY: RICHARD YI | ART BY: GRACE FENG

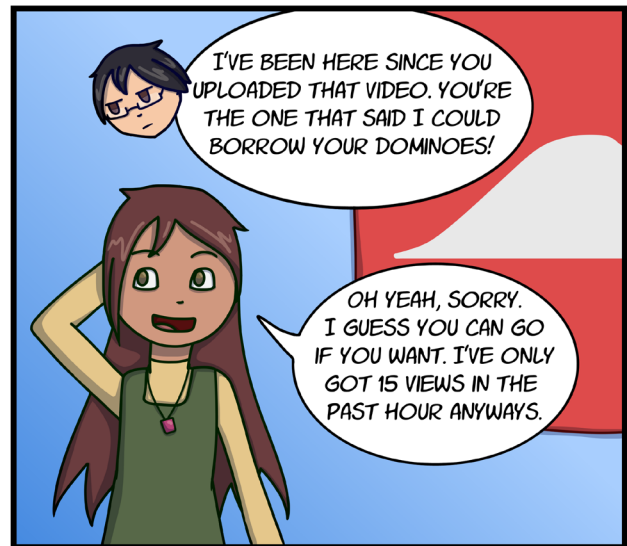


MATHSOC MEF
Mathematics Endowment Fund



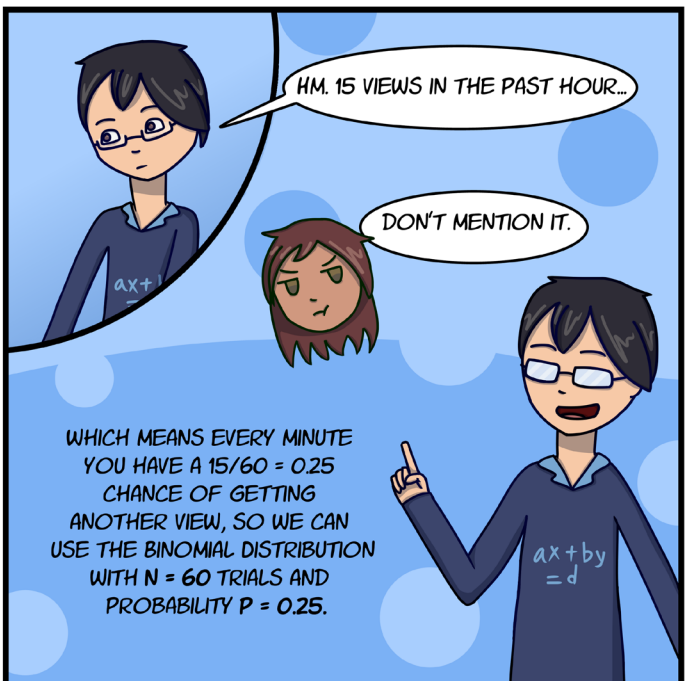
YOU CAN GET A GOOD IDEA OF HOW MANY VIEWS YOUR NEW VIDEO WILL GET WITHOUT REFRESHING EVERY SECOND, RIGHT?

AHHHH! WHEN DID YOU GET HERE?



I'VE BEEN HERE SINCE YOU UPLOADED THAT VIDEO. YOU'RE THE ONE THAT SAID I COULD BORROW YOUR DOMINOES!

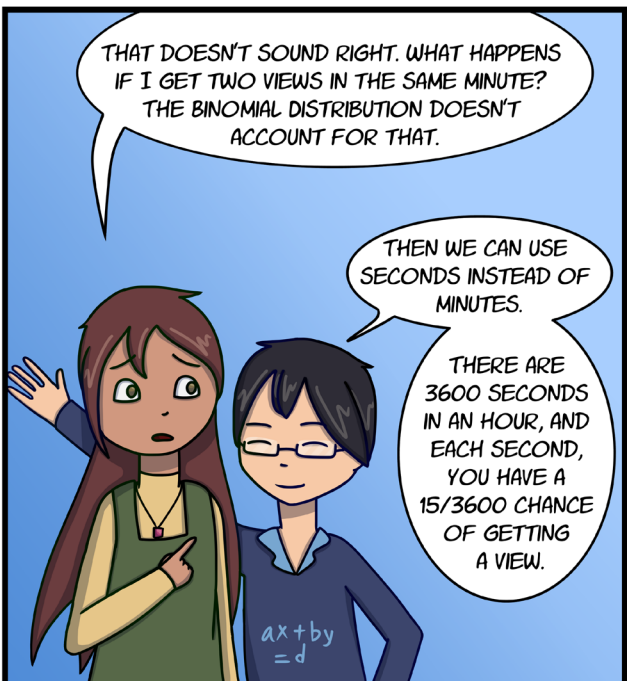
OH YEAH, SORRY. I GUESS YOU CAN GO IF YOU WANT. I'VE ONLY GOT 15 VIEWS IN THE PAST HOUR ANYWAYS.



HM. 15 VIEWS IN THE PAST HOUR...

DON'T MENTION IT.

WHICH MEANS EVERY MINUTE YOU HAVE A $15/60 = 0.25$ CHANCE OF GETTING ANOTHER VIEW, SO WE CAN USE THE BINOMIAL DISTRIBUTION WITH $N = 60$ TRIALS AND PROBABILITY $P = 0.25$.



THAT DOESN'T SOUND RIGHT. WHAT HAPPENS IF I GET TWO VIEWS IN THE SAME MINUTE? THE BINOMIAL DISTRIBUTION DOESN'T ACCOUNT FOR THAT.

THEN WE CAN USE SECONDS INSTEAD OF MINUTES.

THERE ARE 3600 SECONDS IN AN HOUR, AND EACH SECOND, YOU HAVE A $15/3600$ CHANCE OF GETTING A VIEW.

STAT 230: POISSON PROCESS

STORY BY: RICHARD YI | ART BY: GRACE FENG



MATHSOC MEV

Mathematics Endowment Fund

IN FACT...
WE CAN USE MORE THAN $N = 3600$ TRIALS.
WE CAN MAKE N AS LARGE AS WE WANT
AS LONG AS $p = 15/N$.

IN OTHER WORDS, WE LET
 N GO TO INFINITY AND p GO TO 0
WHILE KEEPING $np = 15$ A CONSTANT.

THE TIME INTERVALS BECOME
INFINITELY SMALL, SO THE
PROBABILITY OF GETTING TWO VIEWS
IN THE SAME INTERVAL BECOMES ZERO.

THIS MODEL IS CALLED A POISSON PROCESS,
WHICH CAN BE DESCRIBED BY A SINGLE NUMBER,
 $\lambda = np$.

COME ON,
REFRESH
FASTER...

IF WE TAKE THE BINOMIAL DISTRIBUTION

$$f(x) = P(X = x) = \binom{n}{x} p^x (1-p)^{n-x}$$

WITH N APPROACHING INFINITY AND SETTING $p = \frac{\lambda}{n}$ WE GET...

$$f(x) = \lim_{n \rightarrow \infty} \binom{n}{x} \left(\frac{\lambda}{n}\right)^x \left(1 - \frac{\lambda}{n}\right)^{n-x}$$

WHICH EVENTUALLY SIMPLIFIES TO

$$f(x) = \frac{\lambda^x e^{-\lambda}}{x!}$$

FOR A TRUE POISSON PROCESS, WE MUST HAVE 3 PROPERTIES:

INDEPENDENCE:
SOMEONE VIEWING THE VIDEO DOESN'T AFFECT THE
CHANCES OF SOMEONE ELSE VIEWING IT.

UNIFORMITY:
THE RATE AT WHICH PEOPLE VIEW THE VIDEO
STAYS CONSTANT.

INDIVIDUALITY:
NO TWO PEOPLE WILL WATCH THE VIDEO AT
THE EXACT SAME TIME.

THE POISSON PROCESS ISN'T PERFECT HERE,
SINCE VIDEO RECOMMENDATIONS VIOLATE THE INDEPENDENCE
PROPERTY AND SINCE PEOPLE ARE MORE LIKELY TO WATCH
VIDEOS AT CERTAIN TIMES OF DAYS, THERE'S NO UNIFORMITY.

OF COURSE, THERE ARE MANY BETTER
EXAMPLES OF A POISSON PROCESS, INCLUDING...

CUSTOMERS
ENTERING A SHOP

LIGHTNING STRIKES
DURING A THUNDERSTORM
AND-

IT'S 2AM ALREADY?!
I ONLY HAVE A FEW HOURS TO
DO MY STATS ASSIGNMENT! AND I
ONLY HAVE 100 VIEWS!

OK, ONE MORE HOUR OF
REFRESHING, THEN I'LL START.

SIIIIIGGH

warSOC II — I FIND OUT BÉZOUT'S LEMMA IS LIKE SLICING BREAD

By the time I'm able to speak half-coherently, Name's already carrying me across the rock garden, toward MC. Dry leaves crackle and cackle alongside the playful gurgle of the egg fountain in the brisk fall night. I'm in miserable shape: my nose is certainly at least a little broken, and now that the adrenaline's left me, it hurts terribly, and the bubble tea I've spilled all over myself is getting on Name's suit. I try to catch Name's gaze, but she keeps glancing around furtively, keeping an eye out for... what?

"Thanks for solvin' mah theorem, Name." I try in an uncharacteristic drawl. It's not what I meant to say. "Ya, I mean, thanks for proving completeness—I mean, proving me from the goose." The words just don't come out right.

Name's response is warm but clinical. "You're welcome—I'm glad I found you in time. Don't worry if the words aren't coming out properly; the language centres in your brain get *severely* messed up by Theorem-space if you're shielded from it. I'm surprised you can even put together a sentence right now."

We make it inside MC, and Name takes the elevator up to the sixth floor before setting me down on a large study table. "I'll be right back," she says before walking into a nearby stairwell.

The sixth floor is dreadfully still on Friday evenings. I lie, in disbelief at what's transpired in the last fifteen minutes. I close my eyes, and I hear the clean buzz of the lights, the thrum of the air conditioners. My own breaths, through my mouth now instead of my excruciating nose.

And... a *pat pat pat*, like water dripping onto a hard floor? It stops. Then starts again a few seconds later. It's inconsistent in its patterning. I can't tell where it's coming from, but it seems to gradually grow slightly louder, and closer. Even with my ridiculously good hearing, I just barely pick it up.

I groan—every movement sends a streak of pain through my nose—and sit up to glance around at the labyrinth of hallways that comprises the sixth floor. Nothing. But the pattering continues.

The stairway door slams open again, and Name's back with a first-aid kit, along with a man also sporting a **warSOC** badge.

"This is the girl who got sucked into Theorem-space, Name?" He's short; built like a stack of bricks. Eyes hard, bearded face

grim and tough. He looks old for a student—I'm guessing late twenties, or early thirties—and is dressed in suit and pink tie.

"Yes—this is Sarah." Name walks up and gestures as she passes me an ice pack. "Was chasing a goose trying to anti-math Bézout's Lemma and lost sight of the beast for a second. Next I know, it's portalling into Theorem-space taking Sarah with. I pulled her out as soon as I could."

"She went in untethered?" The man asks.

"That's correct."

I'm starting to get a touch annoyed. The almost-silent *pat* noises are getting on my nerves, and so is being ignored. "Are ya gonna introduce me, Name?" I ask from beneath the ice pack on my nose. Name and the man turn to me in surprise.

"You can speak?" The man asks. *The nerve!* Annoyance starts to turn to anger.

Name interrupts before I can yell an insult back. "Sorry, Sarah. This is Soren; he's **warSOC**'s president. What he means to say is that he's impressed at how fast you've recovered from your trip in Theorem-space—that's where the goose took you." Name's conciliatory smile sends a warm shiver through me and I calm a little.

It's at just that moment, with the same *pat pat pat* I've been hearing this whole time, that a goose emerges from the hallway opposite of the stairway. Then another, and another, and a half-dozen pairs of beady eyes are staring ten metres down the hallway at us, lined up like a firing squad.

"Oh crap! What are *they* doing *here*?" Soren shouts, and I see him slip off his tie with one fluid, practiced motion. Name does the same. I sit up and look around, adrenaline whisking away the pain in my nose. Someone's left a huge hardcover of Skiena's *The Algorithm Design Manual*, and I clench my fingers around it as I slip off the table and stand up. An anger's swelling inside. The geese aren't getting the better of me this time.

Name grabs my shoulder. "Grab my tie, Sarah!" I want to listen to her, I really do, but I'm *mad* now, and when I'm *mad*, that part of my brain doesn't let me. I start walking toward the row of geese.

This blackBOX was here all along, I swear.

A mathNEWS EDITOR WITH NOTHING TO HIDE

“What the *frick* is she doing?” I hear Soren behind me. The big goose in the middle matches my first step forward and starts hissing, but I don't back down. I speed up, breaking into a run that would make my high school football coach grin. The goose stops hissing and balks a second before I slam *Algorithm Design Manual* into its side, sending it tumbling onto the ground with a honk.

It's totally animal abuse, but I don't care. I hear Name gasp behind me. There's a moment of silence for the room and a moment of chagrin for me.

Then all hell breaks loose. The five geese still standing all start honking, flapping their wings, and surrounding me, and the halls flash into the same dense mathematical void I fell through earlier. *This must be Theorem-space*, I just barely think as my thoughts slip away again, the math taking over.

This time, it's Bézout's Lemma. Name mentioned it earlier. It was months ago that I'd glanced over it in MATH 135, but I see the the integers, coefficients, the GCD; the proof, oh the proof! The Euclidean Algorithm dividing numbers like parting bread. The slices rearranged, substituted, coming back together for the conclusion —

Name garrotes me out of nowhere and the the fabric of the pink tie pressing into my neck snaps me back to normal thought. “*Grab the tie*, Sarah!” She shouts into my ear, and she releases the stranglehold as I do. “It'll keep you from losing your mind in here.”

I look around, and it's still Theorem-space all around me, with its dazzling colours and incomprehensible fractals. The geese are flying orbits, honking wildly and flapping at a sphere of symbols surrounding us.

The sphere is coming from Soren. He's mumbling something about values and weights, and volumes of numbers flow forth, entangling in a thickening shield. He shouts with a flourish, cracking his tie like a whip, and turns to us with a sigh of relief. There's now a shell around us that the geese can't seem to get through, a bubble of calm in the flashing abyss. I feel the tension in the three of us lighten a little.

“0–1 knapsack with huge weight. Classic shielding problem—a problem I've constructed that the geese need to solve to get through. Glad they haven't figured out a fast approximation yet.” I see a hint of pride in Soren's eyes. “Now, what do we do with you? Back to the clubhouse, Name? Geese won't be able to get us there.” His explanations seem to be for my benefit.

Name hesitates for a moment—I haven't seen her hesitate before—and proceeds slowly. “We... can't. Section 2.2.1a in our constitution. Only members of **warSOC** in the clubhouse.”

“What do you think, then? Leave her here for the geese and untethered Theorem-space?”

Name stutters and pauses. I glance around, and see the geese still circling and honking, frantically picking at the tangled

sets around us. I feel the solution slowly coming together as the geese work, subproblems falling into place one by one, and the confused mess of a sphere gaining order slowly. It's the oddest sensation, watching this battle unfold. The ambient mathematics still puts a pressure in my mind, but it's a pushing suggestion instead of the earlier floods. I focus on the pink tie I'm holding, and the suggestion retreats further.

Name finally comes up with a response. “No, of course not! But we can't just break the constitution rules...”

Soren raises an eyebrow and shakes his head. I see Name flush with embarrassment. *Poor Name*. He turns to me, instead. “Do you enjoy mathematics, Sarah?”

“Sorta... na very good a' it, but ya? Maybe?”

“Well, that'll have to be enough. With the power vested in me as president, I invite you, Sarah...” Soren gestures at me.

“Tha name Cortés. Sarah Cortés.”

“You, Sarah Cortés, to join the Waterloo Anti-mathematics Resistance Society as a probationary member. If you accept, of course.”

I decide that joining a new club I'm really too busy for is better than losing my mind or dying to geese in Theorem-space.

“Ya. I accept. Thank ya, Soren,” I answer. Name looks abashed. I can't bring myself to get mad at her for stonewalling; for some reason, I want to hug her worries away instead.

“You're welcome. Now let's get back to the clubhouse; follow me.” Soren snaps his tie again, and *solves* the shield he's put up. I figure if he's made the problem, then he must also know the solution from the start. The tangle of numbers collapses into a single, beautiful set of weights and values that floats away. We start to move, following him.

The geese begin what feels like a mathematical onslaught, diving toward us. An equation slings with each flap of their wings, something dark and unnatural and somehow *wrong* and *false* hurtling toward us. I sudder as I feel the flying contradictions close. *I don't want them to touch me*. Just before they hit, though, Soren and Name do something to block them, shouting facts that poke logical holes in the statements. They dissolve as they're proven false. “Anti-math attacks by the geese,” Soren grunts, also presumably for my benefit.

We keep running, or floating, or whatever we're doing to move through Theorem-space, blocking attacks as we go. Soren and Name look like they're tiring, breathing hard. I spot, or sense, a point of dense, dense mathematics ahead of us. It grows as we close into a layeres of spheres of immensely complex problems I can barely comprehend. They look like Soren's shielding problem from earlier, but so, *so* much more difficult. Movement gets harder and harder even before we reach it, and the geese fall behind, honking in what sounds like frustration.

“Welcome to the clubhouse back entrance. Some of the heaviest shielding problems you’ll find in Theorem-space,” Name pants, as Soren dons a look of concentration and works on the shielding problems, making small holes we slip through that close the next second. It takes a few moments, and then we’re through the spheres. Floating in the middle, there’s a door. It looks like the inside of a locker, and Soren pushes it open.

I sigh in relief as I walk back onto solid ground. We’re safe. Name seems to have recovered some of her spirit, and smiles

a little at me as we enter. “And welcome to the clubhouse proper.”

It looks like the inside of an MC classroom. But no MC classroom looks like what I see inside.

To be continued...

CC

KRAKEN THE CODING INTERVIEW

Cracking the Coding Interview is the first book you will be recommended if you asked a random guy in the DC library for his favourite fiction novel. However, I always felt it lacked any tips on how to really stand out in the interview process. Therefore, I decided to write *Kraken the Coding Interview*, a guide on how to ace the job search with the confidence of a 300-foot Lovecraftian monster.

MAKING A GOOD FIRST IMPRESSION

Remember: the first 10 seconds are by far the most crucial part of your interview. This is your opportunity to impress your future employer, so you have to seize it with your metaphorical 80-foot tentacles.

For starters, the first thing you will do in an interview is to shake your interviewer’s hand. Since you are the Kraken, make sure to get a strong grip with your cold, wet, suction-cup covered hands. Remember that you are an ancient being with all the time in the world on your side, so make sure to keep your grip for a solid 20 minutes while maintaining direct eye-contact and complete silence. If you feel tired from maintaining your grip, feel free to munch on some raw fish while your interviewer decides whether they should call an ambulance or campus security.

Next, you should make your interviewer feel comfortable by predicting the exact time and place of their death. This knowledge will make them feel understood and appreciated, while giving you a chance to demonstrate your great foresight right away!

Lastly, throw your unconfident language into the sea, just like you did to those passengers of that big pretentious English ship in the spring of 1912. For example, why say, “I think I am qualified for the position”, when you can scream “I, THE MIGHTY KRAKEN, RULER OF THE SEAS, MONSTER OF THE OCEAN, AM PROFICIENT IN EXCEL”?

SHOWING YOUR TECHNICAL SKILLS

As the Kraken, you have a reputation you have developed for millennia, so you’ll have to make sure to maintain it during your arduous interview process for the QA position at Hidden

Acres Mennonite Camp. You will most likely be asked about your preferred programming languages, and you’re going to need to prove your deep historical knowledge of software development. Therefore, your answer should include Aramaic, Ancient Greek, and COBOL.

During the interview process, you might encounter some algorithm questions for higher level jobs, such as the Web Developer in Test position at Hidden Acres Mennonite Camp. Once you flawlessly solve the question by drawing Godzilla on the white board, you will be asked the runtime of your algorithm. Since your solution is more of an unintelligible scribble than a programmatic solution, it unfortunately doesn’t have a time complexity. But not to worry! Make sure to ramble on about the Great Old Ones, who could bend time and space in ways incomprehensible to your interviewer; once they are risen, they will show the world the TRUE MEANING OF THE COMPLEXITY OF TIME BY FOLDING IT LIKE A CLOTH UNTIL HUMANITY BECOMES A MERE SPECK ON THE FABRIC OF THE COSMOS, which means there really isn’t any point for you to write a solution to FizzBuzz on the board.

MAKING AN EXIT

At this point in the interview, you will have about 45 seconds before the CECA secret services comes to escort you out of the building, so you’re gonna have to make a quick and memorable exit. First, calmly threaten to throw your interviewer into the cold ocean if they don’t rank you. Secondly, remember Waterloo is landlocked and that your closest body of water is a pond outside the SLC. Lastly, you should realize that all interviews are conducted online because of COVID, so none of this advice is even relevant anyways and this whole article is just a way for me to procrastinate during reading week.

I hope this guide was as useful to you as it was blood-curling for me to write. Please stay tuned for the next **mathNEWS** issue, where I will publish *Crack In The Coding Interview*, a guide on how to pass the job interview while enjoying some sweet nose candy.

CO-OP CYCLE #2 URGENT POSTINGS

Hello UWaterloo co-op students, CCA has been contacted by several employers about the lack of quality of their applicants for the jobs they have posted on WaterlooWorks. To seek out more qualified applicants, we have been asked to find alternate avenues of recruitment. Hence, we have decided to post in **mathNEWS** after hearing of its highly intelligent readership.



JOB ID: 42069420 SENIOR WEB DEVELOPER

JOB SUMMARY

Another.AI is a cutting edge start-up in Toronto creating the latest innovations in AI, ML, and Data Science backed by investors from WSB. Join us and be part of the latest and hottest technological changes of this century. As a Senior Web Developer co-op, you will be working on the front-end site for our company (no background in AI, ML, Data Science required as it involves none) by fixing bugs in JS and HTML/CSS.

JOB RESPONSIBILITIES

- Work in an agile environment with a team of developers who will produce bugs throughout development
- Investigate and fix the aforementioned bugs in code
- Write unit tests and execute manual tests to ensure perfectly working code

REQUIRED SKILLS

- Previous experience in AI, ML, and Data Science technologies, preferably have published a paper in ML
- Excellent knowledge of Linux, preferably has built an OS
- 4+ years of software development experience
- Not in first year
- Up to date on latest advances in AI research
- Excellent team player (i.e., doesn't question manager)

COMPENSATION AND BENEFITS INFORMATION

- Competitive pay according to work term, up to a maximum of minimum wage



JOB ID: 13372053 ACCOUNTING FIRM TECH DEVELOPER

JOB SUMMARY

Here at Boas we provide accounting tools and technology to top consulting and business management companies worldwide. Our main clients our accounting companies involved in the reptile care and breeding industry, specifically

Serpentes, commonly known as snakes. We are looking for a software developer to create next-gen technologies to support accounting firms in the snake industry.

JOB RESPONSIBILITIES

- Create technologies and applications that will make a big impact on the snake industry
- Gain a thorough knowledge of snakes to better understand the needs of this industry
- Work closely with team members and clients in the snake industry to continuously improve software

REQUIRED SKILLS

- 1+ years of experience in all modern coding languages (Racket, C, Lisp, etc.) and eager to learn more
- Excellent knowledge of the full stack, from machine code to high-level code
- Excellent team player (i.e., works overtime)
- Nice-to-have: enjoys working with those in the snake industry

COMPENSATION AND BENEFITS INFORMATION

- Competitive pay according to work term, up to a maximum of minimum wage



JOB ID: 11235813 ACADEMIC JOURNAL MATHEMATICAL RESEARCHER

JOB SUMMARY

The University of Waterloo publishes a biweekly, leading academic journal of mathematics called **mathNEWS** contained with papers from the top experts in various fields of mathematics. As part of the review process for each paper, **mathNEWS** is in need of a mathematician to assess the correctness and validity of each paper's content. This will require not just a solid grasp of various areas of mathematics but will also involve mathematical research and modelling.

Co-ops in this role have gone on to highly prestigious roles such as **mathNEWS** Writer, **mathNEWS** Editor, and **mathNEWS** Article of the Issue Winner.

JOB RESPONSIBILITIES

- Use strong foundation in mathematics and research skills to verify claims in articles submitted to **mathNEWS**
- Be an integral part of the review board for publishing
- Apply models where necessary to assess validity of research submitted by writers

REQUIRED SKILLS

- At least one paper published in a mathematics journal
- Majoring in Pure Mathematics
- Bonus if double majoring in Pure Mathematics and CO
- More bonus if triple majoring Pure Mathematics, CO, and Statistics
- Great bonus if quadruple majoring in Pure Mathematics, CO, Statistics, and Applied Mathematics
- Ultimate bonus if majoring in all programs in the math department

COMPENSATION AND BENEFITS INFORMATION

- Competitive pay according to work term, up to a maximum of minimum wage

license2derive

WUSA ISSUES STATEMENT OF SOLIDARITY AGAINST ALBERTA

Following the recent controversial discussions among WUSA executives to issue a statement in solidarity with the Indian farmers' protest, the student union settled on a surprise middle-ground agreement wherein they publicly affirmed and announced their stance on Alberta, the Canadian province. In particular, they announced that they would advocate strongly for the removal of Alberta and its comprising land from Canada, by airlift if necessary. While executives have made it clear that this stance is not a move of sympathy with Alberta separatists, they did not offer a clear explanation for the stance besides repeating that the province "just really needs to go." Although some students have voiced confusion over the reason for WUSA's new Alberta-removal stance, reception has been mostly positive, with undergraduate students largely supporting it nevertheless. Since the announcement, sources have suggested that there has been word on the student union also taking a stance regarding Québec, but any official word has yet to be seen.

jeff

YOU CAN'T INTERRUPT PERSON RANTING ABOUT THEIR OBSESSION BECAUSE YOU HAVE NOTHING TO CONTRIBUTE

The pandemic has vastly overstayed its welcome. Actually, it was never welcome. You notice that the number of people you interact with has vastly decreased and while there are still events happening you only really show up to the one reoccurring thing that you don't have to organize. As you attend this event you notice that the same person is talking about the exact same thing as they were last time.

You consider interrupting them and talking about whatever is going on in your own life except nothing is going on in your own life. There is nothing to talk about, things have not changed and everything else has already been said.

So instead you politely humour them as the ramble about March Madness. You wonder, *Isn't this about basketball?*, and you are told very emphatically that is not about basketball. This would likely be a lot funnier if you had more context but you had sort of tuned them out by that part.

As you listen to them ramble, you are slightly envious of their passion and how they still have things to look forward to. You remember looking forward to events before everything was cancelled. It was nice, you miss it. You are informed that if you wanted, you could get involved with KWLT's March Madness, and in theory that sounds lovely but you are so exhausted. Just the thought of undertaking a project makes you feel tired.

You don't even remember what KWLT stands for. Well, you are pretty sure you know that the KW stands for the Kitchen Water you would use to deal with the growing pile of dishes you have been putting off. But what does the LT stand for? Lieutenant? Your dishes could use some army intervention. It doesn't matter you aren't going to look it up that would require caring.

Oh well, it looks like they are winding down on their ramblings. Maybe next time they will talk about something else. (They won't. They would like to have other things to talk about but there's just nothing else going on.)

Beyond Meta

That mathNEWS co-op sounds like a pretty good idea.

A SHORT-STAFFED EDITOR

mathDATES: HOW TO BE SINGLE 101

RELATIONSHIP ADVICE TURNED ON ITS HEAD!

Welcome, all, to another issue's worth of **mathDATES**: **mathNEWS**'s SUPERIOR sex and relationship advice column, where I provide my advice, backed by years of field experience, at NO cost to the asker whatsoever. The only caveat is that I do not actively accept new questions, due to the huge backlog of them by which I am burdened. What can I say? Unlike the other guy, my wisdom is a high-value commodity.

I have some life updates for you all. Remember that long-distance common-law relationship that I was in which I mentioned two issues ago? It all went to shit last week. To make a long story short, I'm single. Yes! Let me say it one more time. S-I-N-G-L-E! In fact, this is shaping up to be one of the longest stretches in recent memory where I haven't been in some sort of relationship. I'm not looking for a pity party, however. (In fact, my last relationship ended quite amicably. There were just some irreconcilable differences between us, like how I did not speak or understand Sumerian, the only language they knew.) My newly single status has inspired me to make the focus of this issue's **mathDATES** about making the most out of single life. Because being single is the opposite side to the coin of being in a relationship—ever heard of yin and yang?

I'm so lonely. Every day is the same—I wake up, do schoolwork, eat dinner, and when I get into bed, I get this overwhelming sense of hopelessness, like I've got nothing to look forward to the next day. I've asked out people in the past but nothing went anywhere beyond a date or two. I've never kissed anyone. I'm 23 and it feels like time is running out—the pandemic hasn't helped either. I've lost all hope, but the thought of being single for the rest of my life still hurts. How do I accept what I know is in the cards for me?

YOUR AVERAGE R/FOREVERALONE POSTER

Forget r/ForeverAlone. I read a slightly different version of this paragraph every week on r/uwaterloo. So, in some sense, you're not truly alone—there's hundreds of UW students who feel the exact same way! Not to even speak of how many other people in the world feel your plight. Misery loves company, that's what I believe. But just in case that's not enough, I've got some more words for you.

Yes, you might be pretty old, but at least you're not Millennial old, those poor suckers. You see, you've still got some of your youth left, so you have ample time and brain plasticity to change how you view singleness. I can tell you're not hot about it right now. But you've got it wrong.

You know, there's a trade-off to finding love, getting hitched, and riding off into the picturesque Mission Bay sunset. Sure, you'll have someone to experience life side-by-side with. To wait for you at home. It does make things less lonely. But you'll also have to put up with and accommodate their myriad dreams, wants, beliefs, habits, vices, annoyances—God, just listing a handful of the things you'll need to deal with sends

me into a tizzy, and NOT in the good way like when I take a lungful of Whip-Its! The romantic partnership that you crave is all about compromise, about sacrifice. You lose some self-determination in your life. You need to put effort into the relationship *every day* to keep it alive. Does that sound like a walk through the park, you sexless virgin?

Grass is always greener or whatever the fuck people say. Coming out of a committed relationship, I am truly relishing my newly-single status. I would not be opposed to remaining single til the day I die. But I guess you don't have my relationship experience, which is why you've sent in this question. I can't fault you. Although, by the way, kissing is not what you're hyping it up to be. Now detomidine? I don't see people wah-wah-ing about *that*, but if you're not injecting horse sedatives into your bloodstream on the daily, you're missing the fuck out!

Still going to be a hopeless sod about it? Fine, I'll let you in on a secret. Using my clairvoyance, I peered twenty years into the future and discovered that society will develop sentient, obedient, anatomically-accurate androids, eradicating the loneliness characteristic of your ilk forever. HAPPY NOW?

Next question!

Casual sex during COVID? Yay or nay?

HAYER OF HOOKUPS

I don't have a PhD in virology, but I believe I heard that one could transmit COVID-19 through intercourse (maybe penetrative, definitely oral). I'm certainly not one to moralize, and there's no use arguing against the unbearably horny masses, so I won't only endorse abstinence. If you are going to have hookups with randoms, make sure to use personal protective equipment. That means masks for your face, condoms for your dicks (a condom is like a mask for your dick if you think about it), and dental dams, also for your face (you can make a dental dam from a condom, and, if in a pinch, from a mask; now that I think about it, an actual dental dam is probably not all too necessary).

If you're a *really* upstanding citizen who wants to limit the spread of the virus as much as possible while indulging in adventurous, steamy romps with near-strangers that would not look too out of place in a sex diary published by *The Cut*, take a page from the Mormons' and Orthodox Jews' playbooks and do the deed through a hole in a sheet.

Next question!

I think being single is fantastic! I love living the single life. I thought this would be true for my friends, but recently it has been revealed that this is not so, as over the past few years they've all acquired boyfriends and girlfriends of their own. One of them is even planning to get married next year! It's appalling!

How do I turn my friends back from the dark side before it's too late?

SINGLE PRINGLE

Disclaimer: again, I'm not one to moralize—I'm just here to provide advice. With that in mind, wait for the weddings and then sabotage your friends' relationships in dramatic, fiery fashion by bringing a flamethrower and aiming the jet right at your friends' partners while they're up on the altar. Make sure to dress up in costume and to have a body double of yourself at the wedding so that you can construct an alibi later. Your friends will be pretty devastated, as one can be after the end of any relationship, but they'll probably get over their widow/widower status eventually.

Next question!

How do you not feel weird when you're doing things like eating at a restaurant or going to a theme park alone?

ALL EYES ON ME

Although this question appears to be specific to the *single experience*, it's really not. Consider the following: *How do you not feel weird when you go to the gym for the first time?*, or, *How do you not feel weird when wearing hee-lies as an adult?* I don't think I should have to explain the connection between the questions to you. If you're not seeing it, please schedule an appointment with your optometrist as early as possible.

To answer the general sentiment of this question, which is *How do I not feel self-conscious?*, I suggest that, whenever you are out in public doing something that makes you feel self-conscious, to grow some balls. Like, literally grow testes from the bottom of your chin so you go around looking like a turkey. I wrote about this method in detail in last issue's **mathDATES**, so please seek that out and read more about it there.

You could also try smashing a barrel over the heads of people you think are judging you, to provide temporary relief to the symptoms of your affliction, but know that doing this would kill anybody instantly, and put you in prison for second-degree murder (the worst that can happen to you using the first method is a charge of public indecency).

Finchey

sexNEWS: sexNEWS THE THIRD

Welcome back to **sexNEWS**, where I answer (romantic and non-romantic) relationship questions submitted by you, the lovely readers. If you have questions, send them to mathnews@gmail.com and they will be forwarded to me anonymously.

My Aphrodite match took a week to start talking and even now she is very slow to respond. However, when she does message she sounds fairly interested. What do I do/think about this?

There are many possible reasons for this. She could not be big on texting. Maybe her phone notifications are off/buggy. Maybe she's nervous about talking to you. You could try asking if she has a preferred messaging app different from the one you're using. If it's really bothering you, it doesn't hurt to mention it to her but you also don't want to come across as too needy. Alternatively, consider arranging to have a video call every now and then.

What do you do when you and your partner start out on the same page about your future but as you spend time together you realize you're not on the same page anymore?

This really depends on the extend to which you disagree about your future. You should ask yourself, are you okay with the future your partner envisions, and are they okay with the future you envision? If either of you wouldn't be happy with what the other person wants, then you should consider if this is the right person for you. However, if you think that you could make it work, you should extensively talk it over with your partner and try to figure out what has changed since

you first got together. It could be that your partner is just nervous about the future, or there could be bigger problems. Communication is the most important part to a relationship.

Is it a good idea to send your crush horse-themed haikus?

It is a good idea if and only if your crush likes horses.

How do I not become jaded?

I draw my life force from writing for **mathNEWS**, and you should too!

I saw my OTP break up live on MathSoc's newly-wed Valentine's Day game show and I'm heartbroken for them, how can I come to terms with the fact that they're broken up?

Write for **mathNEWS** until your sorrows are gone.

Is it problematic to have heart eyes (for someone who won't look at me the same way), in the absence of other potential suitors?

No. However you feel is valid (assuming only adult humans are involved and they are not related to you), as long as you don't expect anything to happen or try to act on it. Your feelings will probably go away with time if you recognize that they will not be reciprocated.

Senior **mathNEWS** Relationship
Correspondent

I SUPPORT GRAPHIC VIOLINS

AND HERE'S WHY YOU SHOULD TOO¹

If you were around last term, you may recall the “Graphic Violins” issue, **mathNEWS** 144.3, in which we introduced “**lightBOXES**” to the current **mathNEWS** format, and shortly after its publication, someone on the **mathNEWS** Discord server asked why I bothered orchestrating its “Graphic Violins” theme in the first place. Since my response ended up being article-length, and seemed to prove an enjoyable read to others on the server as well, I've opted to publish a lightly-edited version here, both to help advertise the new feature, and explain the design process behind it.

The actual point of the “Graphic Violins” plan I orchestrated for **mathNEWS** 144.3 was to finish—and formally introduce—a new layout feature I'd left half-implemented a long, long time ago: the **lightBOX**.

Written articles have always been a first-class feature of **mathNEWS**—I mean, that's kinda the point of a newspaper—while visual artwork has traditionally only been peppered in wherever we would find space². But back when I designed **mathNEWS** 20XX³, I wanted to add a way to showcase our contributors' visual art talents just as prominently as our writing ones, and let that artwork stand peer-to-peer with written articles on our pages, as opposed to being something that was often used just to fill a column, and ultimately I figured that the best way to accomplish this was to simply **treat them as articles** from the start.

But since body-less, image-only articles looked odd, I decided to try adapting the **blackBOXES** for use as a framing device instead, and it actually worked out quite well: they provided a clear visual distinction between art and article, but in a way that works *with* the rules of the layout, and is visually consistent with the rest of the paper's design language (which, if you haven't already noticed, is quite heavy on thick, sharp rectangles).

Of course, given that most art is drawn on media with a white background, just taking **blackBOXES** and sticking pictures in them wouldn't do, since pictures and illustrations can look way different against pure black than they do against pure white. And even if it *did* work, doing so would muddy the “meaning” of a **blackBOX** in the **mathNEWS** layout: **blackBOXES** are intended to be repeatable, one-off pieces of filler, and putting art in the same type of frame would ultimately make it look either like the filler they're **not** supposed to be, or worse, like a strange, uncanny-valley **blackBOX**, neither of which I considered an acceptable result.

So I opted for a grey background instead. It doesn't clash with most artwork like black would, still creates a clear visual distinction and separation from articles without being confused for what readers instinctively know as filler, it lets us keep the text consistently black in *both* articles and artwork (meaning that you can still successfully ignore white text without missing much), and has the added benefit of allowing artists to produce artwork with more obvious transparency,

since they can now remove the white “background” from their submissions, and have that appear more obviously in the paper.

It's **like** an article, but **not** an article, while still following the rules of layout; it's new, but it looks like it belongs.

And finally, the name just worked out perfectly: in the real world (whatever that is) a “light box” is (in broad strokes) a miniature, studio-like environment in a box used to showcase objects in a space they have all to themselves, and with consistent lighting—exactly the point of the new **lightBOXES** in the **mathNEWS** layout!

And so, we can *finally* get to the ultimate answer to the question that spawned this article: why was **mathNEWS** 144.3 the “Graphic Violins” Issue?

lightBOXES were made to show off the less-wordsy artistic talents of **mathNEWS'** contributors, but introducing just one or two in a single issue with a little side-note wouldn't have gotten the attention I wanted them to have, but by getting a whole bunch of writers to draw their unique takes on the same description of a scene, we've created a much more memorable issue that **highlights** the **lightBOXES** as a new feature of **mathNEWS**—a first-class *made-the-cover* feature—while *also* (and more importantly) putting what our writers can do with their drawing implements of choice front-and-centre. The consistent orientation and perspective of the violin was just my way of trying to send the message that “we're all different here at **mathNEWS**, but we're still one community”—always the plan, but maybe an even more important statement right now, given the ongoing apocalypse.

So that's **lightBOXES**, a new feature of **mathNEWS** that we introduced last term to showcase your artwork. If you've ever wanted to show off your drawing skills, or maybe just publish some doodles that you enjoyed more than the assignments you drew them on, feel free to send them in⁴ to your shining Bastion of Erudite Thought—**we're ready for them**.

George Lambrou
Editor Eternal, **mathNEWS**

1. I do wanna stress, though, that I **do not support nor condone** “graphic violence,” which as it turns out is a different thing entirely.
2. At least, it was up until I left in Winter 2018; I can't, and won't claim to, speak for editorial teams since then.
3. For those unaware: “**mathNEWS** 20XX” is the official name of the publishing format used from **mathNEWS** 133.4 onward, including this issue.
4. Always remember to include a title *and* your writer name when submitting artwork! That way, you can brag to your friends that you had enough free time to both make it *and* figure out what to call it.

ALAS PD

T's a windy night, and the windeth howls outside of mine own window.

T's anoth'r Tuesday, a PD assignment is due at the twelfth hour.

Alas PD I sayeth, to nay one to heareth me.

I has't to drageth mine own feet across the flo'r,
and into mine own cubiculo wh're I has't did stay f'r months on endeth.

I ope mine own comput'r which I has't hath used too many times.

I commence the journey into LEARNeth and am did greet not once but twice,

Wh're I doth expecteth mine own duo pusheth notification upon mine own cellular.

So gentle its vibration shall awaketh me,
but tonight the surge in mine own gaskins is all-worthy.

I dismount my machine from its confines,
ope its sconce of toucheth.

T's only me who is't t couldst beest, I profess to the notice.

On the moment I am gratulated by the denunciation of a TA,

This charge all students wilth fulfill, while-ere the last night.

I heave at which hour I survey the brief and bring off the W'rd document,

This gent does lick my own lips, in depth shall I stir.

Alas PD.

Behold a template f'r marking in ease!

Its commandments I doth skim through demeurly,

Lusty I drageth mine own eyes, drawing out the concerns.

A pair of pages I yearn at length, thick and heavy art mine own fantasies,

Lacking lust'r I doth breaketh thy virgin-knot.

Alas thy boxes art so belock'd.

In fine this gent clicks into the first grizzled boxeth,

on the reaward of fleering the document ov'r and ov'r.

I doth fing'r mine own engine, hands flashing at an irregular pace,

By instinct I goeth, and humour my way through mine own w'rds.

Tilly vally is mine own imagination, stale is mine own thinking.

Unseason'd I wend in, unfilt'r'd arethe hot doth take,

Thee liketh at which hour I alas thy PDussy thee not?

C'rtain and settl'd I swimeth through thy dare,

but upon the gad I am on a precipice,
between here and there, everywhere.

Quaint closeth I doth edge, limitations in lodging.

Catastrophe doest approach, the last untimely.

Alas, I'm so closeth.

Abroad this gent busts, all ov'r the document.

The provocation, yond is too populous.

In a haze I am questing f'r the saveth,

A new title I refuse to provideth

Into the boxeth of dropping 'twill wend

Alas PD.

COUPLE BREAKS UP, WINS COUPLES' GAME

Reporter's Note: this sounds like a shitpost but mostly isn't. If you think this is interesting, you should attend more MathSoc events! Or OtherSoc events, for our readers stuck in other faculties.

WATERLOO—Valentine's Day was a spicy affair for the Math students of UW—the ones who paid the MathSoc fees, at least. MathSoc organized a Newlyweds Game, for couples to play and singles to watch... or at least that is what the organizers intended.

Technical difficulties led to the moving of the show from Twitch to Zoom after just one couple was done. And the troubles didn't stop there. Anonymous sources present at the event indicate that a large portion of the so-called “couples” on the game were not couples at all, but merely fictitious pairings designed to game the system and win the highly couples-oriented prizes the game had to offer. Further, during the final round of the game, a couple allegedly decided to end their relationship completely, citing irreconcilable differences due to one of them being constantly late in meetups and also sexually incompatible with the other. Other couples, real and fictional, managed to survive the game unscathed, and one of the fictional couples may even have a real romance budding.

Further highlights of the events include:

- A couple was asked to name three favorite toppings other than pepperoni. When pressed, they confessed that the only pizza the couple had was pepperoni.
- A couple called their first meeting a “fob-y interaction.”
- One member of a couple responded to “When did you know they were the one?” with “Not Applicable.”
- A couple was designated the official **mathNEWS** couple.
- A couple was actually real and actually very sweet and they had a friend called Cindy I think? Cindy if you're reading and you have two friends who are a couple please tell them they're so cute I ship them.

In the end, the event was won jointly by the the cute couple and the couple that broke up, resulting in the latter coming back together again just to use the couples gift together. This news was celebrated highly in the Zoom chat, who hailed the ship as one of the greatest of all time. Personally, the reporter still maintains that Jarl > Dary, but the eyewitnesses are free to have their own (incorrect, potentially misinformative) opinions.

R. E. Porter

D'riving f'r Dick

elseWHEN 94.1

Welcome to the back page, folks. If we've met here before, you know what this is about. But, if you don't, **mathNEWS** long ago made a deal with Satan that this publication must have an even number of pages. (In return, he gave us a \$25 gift card to the C&D. A fair deal.) Now, under pain of whatever it is Satan does to people, we must maintain this ancient pact, even when, hypothetically, we may not have enough content to do so.

It then falls to the editors to find some sort of content to fill the remaining space.

Unrelatedly, please enjoy the following article from v94i1, published January 19th, 2004.

SO YOU'VE DECIDED TO WRITE FILLER (BY e.)

It has come to my attention (by way of Krease) that I didn't write an article this week and there just so happens to be an empty column in the print!

What a combination! So, in light of this news I have decided to put together some random garbage (resembling much of the equally random garbage I have previously written)...

On with the random garbage! So, yes. Again with the theme of "so you've decided to" whatever... For those of you who don't know, I had this thing going where I come in every other Monday and write a random article involving some bulleted points and a title that tells you some random information that may or may not (heavy on the 'not') be useful.

This week, the list will be all about filler and things to do within a 'filler article'. So, yes. on with the list.

- write about the (things you did) last week
- write about the (things you didn't do) last week
- write about the (things that your friends swear you did but you can't remember because you were too trashed) last week
- write about the (random description of activity you did) last week
- draw a random picture
- insist that your filler article is good enough to be published in the National Post
- rewrite previous articles you've written and do a search and replace on random things (like e → ma, n → t, g → h, or the like...)
- decide to change previously unfunny articles so that they have random occurrences of "well, yes, but I'm still a cow-shaped helium balloon"
- take another article you've already submitted to this issue and reverse it and submit it as a second, totally valid article (or filler...)
-)...rellif ro(elcitra dilav yllatot ,dnoces a sa ti timbus dnati esrever dna eussi siht ot dettimbus ydaerla ev'uoy elcitra rehtona ekat

- write a letter to the president of the university regarding the recent change in need for content in **mathNEWS**, and request that he write an article... submit whatever he writes back, even if he says he won't write an article
- make a separate
- bullet for every
- three words that
- you write in
- your **mathNEWS** article

Ok, I'm done coming up with filler, I suppose. :D



Just like war, filler never changes. Thanks, e., for your creative take on an old issue.

god ⚡ peED

THE TRIP

I opened my eyes and my life was all flashing
 Before me, its moments were vibrant and dashing
 As the day I was born and the day I will die
 But before the reel finished I crashed into the sky
 And the clouds turned to couches you would find in MC
 And a crowd full of people has come around me
 And I saw my best friends and my profs were there too
 They all asked me at once, "Do you need a tissue?"
 And I tried hard to answer but no word came out
 Instead of a sound fire came out of my mouth
 The inferno took me to a land far beyond
 Of emotions unknown but most certainly wrong
 I saw a great river and went in for a dive
 I knew deep in my heart it would keep me alive
 But the shores turned to walls of dark concrete and steel
 And to shapes and to numbers that couldn't be real
 So I ran away far between bushes and trees
 Every step bringing me a much greater unease
 And only one sentence I managed to squeeze
 This is the last time in my life I am eating Lazeez

methNEWS

IS 11:11PM STILL MAGICAL IF I USE 24 HOUR TIME?

Or should I shoot for the early 22:22?

tendstofortytwo

ANOTHER DAY, ANOTHER gridWORD

gridCOMMENT 145.3

Hello again! Hopefully reading week was kind to you all. It seems that midterms have been all over the place this term, so if you've already written them, I hope they went well, and if yours are still upcoming, good luck.

Once again, I have received two correct **gridWORD** submissions. I'd like to thank everyone who has sent in a submission so far — it truly is the highlight of my week. This week's submitters responded to last issue's **gridQUESTION**, "What's the best way to treat yourself if you're spending Valentine's Day alone?", with:

- Biosaur: "Pretend the outside world doesn't exist and spend time with my most beloved fictional characters"
- DistortedLight: "Fill up a rubber glove with warm water and (finally) hold hands with someone"

This week's winner of the amazing prize of being able to cross "winning at **mathNEWS gridWORDS**" off their bucketlist is Biosaur for their very relatable answer. Although I am now wondering if there are times when I shouldn't be pretending the outside world doesn't exist...

Last week's theme was based on the colour red. This week I have once again looked to the set of primary colours for the theme, which is "Feeling Blue". I don't know yet if I will continue this for next week's theme, though. There aren't that many yellow objects out there. This week's **gridQUESTION** is "What is the most plausible theory for how time-travel would work?" (I need to know as soon as possible).

Remember to email your **gridWORD** solution attempts to mathnews@gmail.com with your name or a moniker, and your answer to this issue's **gridQUESTION**.

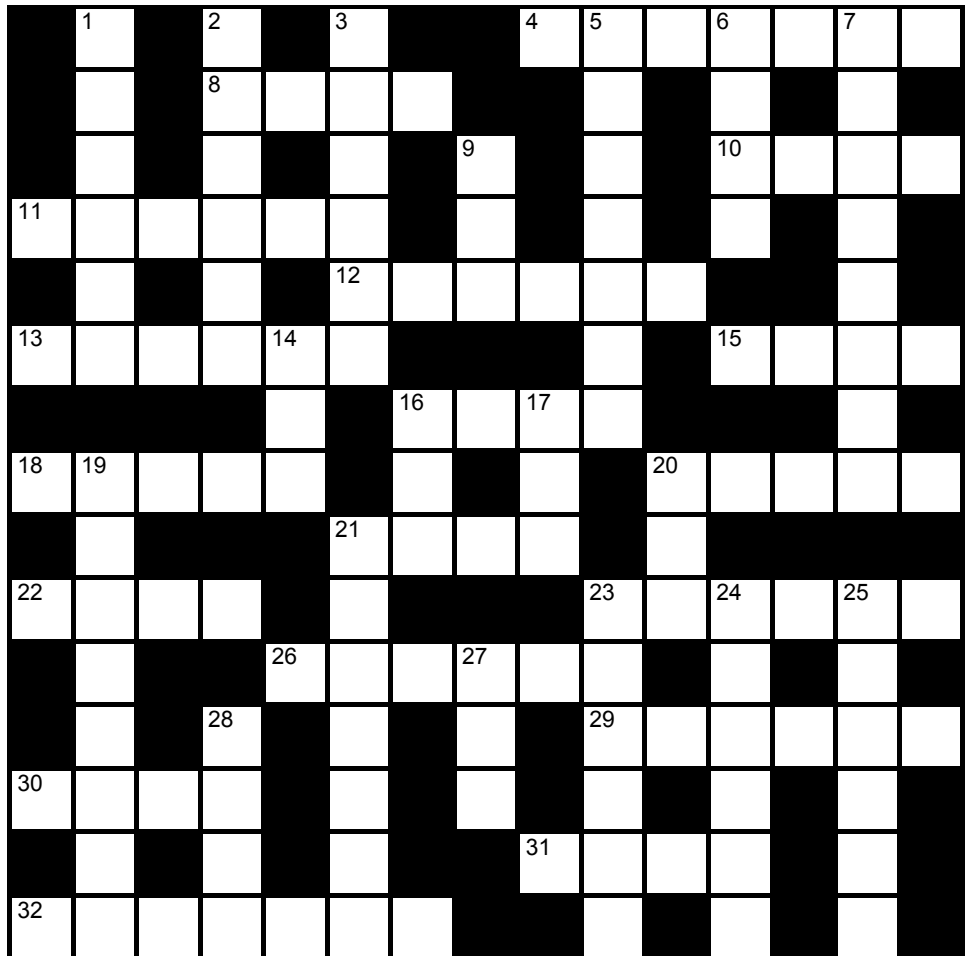
Cloak and Vorpal Dagger

ACROSS

- Unfavourable commercial poetry (7)
- To exclude this moon is oddly backwards (4)
- Surrender, crying pip (4)
- Daisy relative died after hard life in action, as beginner (6)
- Shedding tears is almost foretelling (6)
- I rise by small ornamental flowers (6)
- Shade in extremely thinly to start (4)
- As news ends, bookends show impudence (4)
- Provide a problem (5)
- Garden plant container spans yard (5)
- Dark blue army branch (4)
- Gemstone provides regular soup halls (4)
- Dark blue tropical plant (6)
- Essentially, gentry ingenuity is annoying (6)
- Planet text you ran by us (6)
- Flier heads off, bringing in random devices (4)
- Ran on, sampling shortly (4)
- Reuse, referencing repeated events (7)

DOWN

- Unjust to destroy fun with air (6)
- Forms furry growths (6)
- Strange call is giving away shrubs (6)
- Applications of colours are deaths with added enlightenments, to begin with (7)
- Every ache is worrying (4)
- Blues is made up of unhappy melodies (3,5)
- Bird is just a youth, initially (3)
- Yes, surrounded by beginnings of ends, produces seer (3)
- Water stays endlessly amazing, at first (3)
- Weird, you should know the text about visible atmosphere (3)
- Precious stone echoes fire by sugary substance (8)
- Writing utensil opens without either end (3)
- Whale ran back against wall on air (7)
- Lizard from Guiana disintegrates (6)
- Deprives of rains by ending cloud (6)
- Low-ranking workers make low sounds (6)
- Mark in knowledge fragment (3)
- Irritable due to a bit of missed gym (4)



lookAHEAD

SUN FEB 28	MON MAR 1	TUE MAR 2	WED MAR 3	THU MAR 4	FRI MAR 5	SAT MAR 6
	Application to graduate due	Cycle #2, Posting #2 co-op applications due	What if Cats And Dogs Had Opposable Thumbs Day (it's real, look it up)		Course selection begins	
SUN MAR 7	MON MAR 8	TUE MAR 9	WED MAR 10	THU MAR 11	FRI MAR 12	SAT MAR 13
	mathNEWS 145.4 production night			Cycle #2 rankings released	mathNEWS 145.4 released Cycle #2 matches released. Good luck! Course selection ends	Take a break after how busy Friday was

ACCEPTING: MEF WINTER 2021 PROJECT FUNDING PROPOSALS

Got an idea or initiative that benefits or involves Waterloo undergrad Mathies, but struggling to get financial support or sponsorship?

Consider submitting a proposal for MEF's Project Funding grant! We have over \$180K in funding this term to grant to worthy and impactful initiatives!

Head to <https://tinyurl.com/oru9nz13> to learn more about how to apply!

Proposals are due: Wednesday, March 3, 2021 11:59 PM EST!

If you any other questions about the process, feel free to just DM us on our socials, or email us at me.fcom@uwaterloo.ca.

Math Endowment Fund

MISSING:
💰 → 💡 | 🎓

**ACCEPTING:
PROJECT
FUNDING
PROPOSALS**

Due: Wednesday, March 3, 2021
11:59 PM EST
<https://tinyurl.com/oru9nz13>

MEF
Mathematics Endowment Fund

LAST ISSUE'S gridSOLUTION

