Mr. Goose... I guess you *are* my little pogchamp.

"WHAT ARE YOU GOING TO READ OVER READING WEEK?"

Hello, dearest **mathNEWS** reader!

It seems as though the speedrunning community has finally got its hands on the calendar, because that January went by on world record pace. The first round of job applications is over, and some of you are now employed for the Spring 2021 term. Congratulations! And everyone else, keep polishing your resume and grinding at Leetcode — we believe in you!

Coming up next, of course, is reading week, which should give everyone the time to be free of assignments, lay back and rel— oh, who am I kidding? They've all set assignment and midterm deadlines for the week after, haven't they?

I'm on co-op this term, which means two things: one, that I have no assignments or midterms due whatsoever (ha!); and two, that 'reading week' means nothing to me, since I am sadly not allowed to take an entire week off work (sigh). I would say it balances out. Though to be honest, I can't wait to be back to classes.

It's a curious cycle; a month or two into a work term, I will start missing the flexible schedule, dedicated learning materials and instructors, and the delightfully academic style guidelines for code (read: no style guidelines at all). I will patiently work through the term and look forward to the new and interesting courses I have picked for the term ahead.

Then, it happens! The study term starts, and I enjoy it for a while… and then, a month or two in, I will start missing the steadiness of a work term. Not having to work after 5, not having to worry about interviews, having time to work on side projects and cooking… a different set of desires start calling to me. This flip-flopping is, thankfully, really convenient, since my co-op sequence means that I'll alternate between work and study until the very end.

Anyway, since it is, after all, reading week, it makes sense to be doing some reading — and what better reading material to start with, than **mathNEWS**? And while you're at it, consider writing as well… our next production night is right after reading week, so feel free to hop on! Until then though, there's a delightful issue of **mathNEWS** waiting for you ahead. I'll leave you two to it. Have fun!

caffeinatED
Editor, **mathNEWS**

APHF	I can't read
A COOL PEN NAME	My course syllabi
ABALD MAN	Idk, work, I'm on co-op
BOLDBLAZER	The news, like usual
BEYOND META	Ridiculous erotica for research
DERIVING FOR DICK	Wordy X Camien 2
FINCHEY	*Playboy* magazine. Don't look at me like that. It's for my Sexuality and Marriage Studies class.
WALDO@<3.LE-GASP.CA	Nah, I did my reading yesterday.
TENDSTOFORTYTWO	autotrader.com/oversteer
GIRAFARIG	*The Pale King*
EGGO_CHUGGO	Probably Soneta XLVI by Neruda — NOT NARUTO @ my_old_manager_at_undisclosed_shop
JEFF	ISO/IEC 14882:2020
PSYCHGIRL	Expectation: my delayed psych readings / Reality: Nothing (I'm watching Netflix)
ROYAL NO.69 MILK TEA	Expectation: *Bayesian Data Analysis* / Reality: 100k enemies to friends to lovers coffee shop AU fic
CC	Expectation: Dante's *Inferno* / Reality: /r/uwaterloo
TERRIFIED	Expectation: *Physically Based Rendering* / Reality: **mathNEWS**
GOD⚡PEED	Expectation: Various course readings / Reality: I made up the expectation, that's why I don't know what the readings are called.
CLARIFIED	The *AP Stylebook*.

ARTICLE OF THE ISSUE

Congratulations to ²¹⁄₃₆th in Love, for winning Article of the Issue with their excellent "Numbers are cool"! I'll be honest, I never really thought of circles that way, but I'm really happy for them, and wish all the circles the best of luck in their lives ahead.

Your prize is unquestionable and unlimited bragging rights — you are the first, and so far the only person in this world, to have won Article of the Issue for **mathNEWS** 145.2. It is a rare honor and I'm sure you're very proud.

caffeinatED
Editor, **mathNEWS**

Why bother with Aphrodite when Mr. Goose isn't on it?

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

math**ASKS** 145.2
FEATURING LECTURER EDDIE DUPONT

WALDO@<LE-GASP.CA: HOW HAS WORKING FROM HOME BEEN OVER THE COURSE OF THE PANDEMIC? HAVE YOU BEEN ABLE TO ENJOY MORE TIME WITH YOUR KIDS AT ALL?

At the beginning it was interesting because the elementary schools didn't really know what to do, so my kids only had two 30 minute sessions a week. This was both good and bad. I found myself working outside much of May-July just to keep an eye on them since they didn't have any school. I had no shortage of meetings under a tree.

The fall was rough because school had a more standard routine, but our kids stayed home until October so we had to stay on top of things. I was also running MATH 137 which had some uncountable number of students this past term.

Honestly, the kids are still pretty small so I'm not sure how much damage I've done to them by constantly neglecting their wishes to play Dream Phone (it's their favourite board game at the moment). At some point in late fall I managed to train my 4 year old to play Mario Odyssey which in turn made the 6 year old jealous and thus she needed to learn. They've both become so good at moving Mario around I feel like I should set them up with a Twitch channel.

CLARIFIED: WHAT IS YOUR FAVOURITE MOVIE AND WHEN WAS THE FIRST TIME YOU WATCHED IT?

My favourite movie is Memento, which I will admit is weird for me to say because I think I only watched it twice. I nonetheless keep coming back to that when people ask me. I have this blurry memory of having watched it right after the wardrobe malfunction of Super Bowl 38.

Though I feel like that's my favourite movie, I think the best movie I've ever seen (and possibly the one I've watched the most) is Shakespeare in Love. It's cleverness is on par with (and possibly surpasses) that of Memento's.

πLLOW PRINCESS: WHERE IS YOUR FAVORITE TOILET ON CAMPUS?

The one closest to my current location.

CIX: I'M SURE YOU'VE HEARD THAT YOU LOOK LIKE JESUS — AM I RIGHT?

So you say. (see Matthew 27:11)

TENDSTOFORTYTWO: ARE THERE ANY COMMON THEMES IN STUDENT QUESTIONS/PROBLEMS THAT YOU OBSERVED IN TEACHING ONLINE VS IN-PERSON?

To be honest, I've been impressed with everyone's ability to adapt. We've been somewhat forced to ask harder questions, or at least more theoretical questions because computational ones are so easy to do outside of a proctored test environment.

This has caused people to make deeper connections with the material. I've been pleasantly surprised at how many students I've talked to that have made these connections and then later reference them almost as if they were trivial.

NARF DERT: DO YOU MISS PLAYING VIDEO GAMES IN YOUR OFFICE?

I brought in some games to help students feel more at ease and possibly take their mind off any struggles they are currently experiencing. Admittedly only a handful of people have taken me up on this. As much as it seems like a cool idea I honestly don't have the time to play games like I used to. It's one of the things I miss in general. I used to play so many games as a kid to the point that I now wonder how my parents let it happen. On the flip side it makes me less strict with my own kids, though I do kind of force them to play together and solve the puzzles with each other as opposed to hiding away in their rooms.

BOLDBLAZER: THE ELMTOT (EXPO LINE MEMES FOR TRANSLINK ORIENTED TEENS, THE LOCAL VANCOUVER NUMTOT (NEW URBANIST MEMES FOR TRANSIT-ORIENTED TEENS) GROUP) COMMUNITY HAS A LONGSTANDING MEME WHERE BRAID SKYTRAIN STATION ON THE EXPO LINE SUPPOSEDLY DOES NOT EXIST. THE GRAND RIVER MEMES FOR LRT-RIDING TEENS (THE WATERLOO REGION NUMTOT GROUP) COMMUNITY DOES NOT HAVE SUCH A STATION ESTABLISHED YET. SO, TO KICKSTART THINGS, I MUST ASK, WHICH ION LRT STATION DO YOU THINK HAS THE HIGHEST PROBABILITY OF NOT EXISTING?

The one that solves the twin prime conjecture.

BOLDBLAZER: ALSO, WHAT'S YOUR OPINION ON USING MOBIUS?

Next question.

GOD ⚡ PEED: NEAR THE END OF MY FIRST TERM, YOU SHOWED UP IN A DEEP RED SUIT BECAUSE YOU HAD A WEDDING AFTER THE LECTURE. HOW WAS THE WEDDING?

I very much wish I could remember whose wedding it was. I was kicked off social media about a year ago for not logging on frequently enough and never actually having a proper email account. So, I lost any way of answering this question that doesn't involve me leaving my chair.

CC: WHAT'S YOUR FAVOURITE THING ABOUT TEACHING?

Learning new things. Not just about math, but also about the students. To be honest I much prefer office hours than teaching in a large room, even a small room for that matter. No matter how hard you try it's very unlikely that you'll be able to convince everyone on your first pass and sadly, in a classroom, you just have to move on.

In office hours, things are so much more personal and I feel like I can actually help students. I suppose the complement to this argument is that all of those students that don't come to office hours must have learned it perfectly from me the first time!

ROYAL NO.69 MILK TEA: THIS IS NOT A QUESTION, BUT YOU WERE MY PROF FOR MATH 137 IN FALL 2018 AND I REALLY LIKED HOW ENGAGING YOU WERE AS A TEACHER. IT WAS ONE OF MY FAVOURITE COURSES IN FIRST YEAR 😄

Thanks! How very kind of you… (Please tell me where I should forward your payment.)

QUANTUM GOOSE: FAVOURITE CLASS TO TEACH AND WHY?

I don't know that I have a favourite class. I learned recently that it takes about 6 years before I get a bit tired of teaching the same class (which I've been doing consistently in Spring terms) and want to move to something different. So, hopefully in 2022 this will happen!

ABALD MAN: WHAT IS YOUR FAVOURITE MATH PROOF?

I'm very impressed by all of the proofs found here: https://thatsmathematics.com/mathgen/

BECOMING GOD

Quite recently, the editors of **mathNEWS** made the absolutely stupendous decision to give me copy editor rights. In short—they have bestowed upon me the power of God. How does it feel, fellow writers, knowing that I am able to read your every article pre-release, knowing that I can edit it as my whim fancies, and twist your tales into my own truth with the mere switch of a comma or the correction of a typo? Does it make you uncomfortable that I can read what you wrote, delve deep into the restricted private WordPress posts past the vague headlines that are present to the public, a whole 24 hours before the rest of the world? I am invincible, and there is *nothing* you can do to stop me.

A cool pen name

[Author's Note: hi dearest editors none of this applies to you I would never disrespect your authority please don't take away the most interesting bullet point on my resume] *[Editor's Note: That's right. Know your place.]*

FIRST-YEARS ARE BAD AT WRITING π

You'd think π is a letter that's pretty easy and straight-forward to write. Sure, you can try and get fancy with it and make the top a little wavy and the legs a little curly, but at the end of the day, the most average sans-serif π just looks like a side-on illustration of a table.

I used to think that, and the last month I've been given a rude awakening. Below I've compiled some of my personal, faithful-as-possible recreations of some of the discount-π glyphs I've discovered in my ventures grading first-year math assignments.
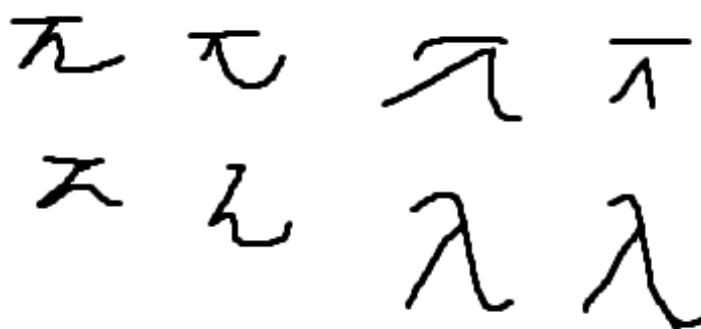
I know what you're thinking, the last two aren't even π, they're λ! Am I sure the first isn't actually supposed to be the reduced Planck constant? Why? How? I don't have any answers. I'll say that the first and fifth ones were the most common, followed closely by the sixth. How does it happen? I think some of it comes from hasty writing that ends up conjoining the two legs. The pen goes up from the first leg, and doesn't end up going quite far enough to reach the top, slumping back down and making some sort of sad "h" or cursive "z" shape. I also remember seeing one that looked like an "x", somehow (????). I can't stress enough how easy this letter is to write. It's just 3 straight lines!

To conclude my petty rant on shapes of letters, a PSA to people who submit hand-written work: please make sure your π's look like π's and not λ's or x's or h's or z's. I didn't realize this was a problem but apparently it is; that's just the kind of world we live in. Or just write your solutions in LaTeX. Please write your solutions in LaTeX. Please. Most will even settle for Word if you swing that way, just don't be too loud about it.

jeff

That makes no sense. Good enough for us.

PROF. DAVID JAO

THE PARAMETRIC DONUT

prof**THOUGHTS** *145.2*

INTRODUCTION

I recall a time when Tim Hortons used to make their own donuts as opposed to having them shipped-in. While their Timbits are still reasonably edible, it's hard not to feel like they have lost their way in recent years.

Many moons ago, in an effort to best their manufactured efforts, I figured I'd take a crack at the delectable yeast ring. At the time, my immediate surroundings were severely lacking anything resembling the donut buffet that now exists in KW, so my options were limited.

As it turns out, working with leavened dough is not the simplest of endeavours, let alone the requisite frying and glazing processes. The initial efforts landed somewhere between a hard bagel and an even harder bagel; subsequent attempts produced little gains.

Admittedly, there was one episode that yielded a very delicious pile of apples covered in sugary gluten drips but it was unlikely to be salvaged by even the most clever homeomorphism.

And before you go sharing your disgust on Reddit, I am well aware that there is such a thing as a cake donut, a very popular form of this most exquisite pastry. Alas, my interests lie solely in its yeast variant. That's not to say I don't find them both equally divine, I am simply stating that I am, or at least I was, more interested in slaying the yeast dragon.

Fast forward to today, and as previously mentioned, we are now living in somewhat of a donutopia. As a result I find myself much less inclined to embark on any form of donut construction. That is until now.

When I was asked to be a part of this edition of **mathNEWS** it was immediately clear that I must contribute some form of donut-based information. I had originally planned "A tale of two donuts: Yeast vs. Cake", but to my surprise even a n00b author can be hit with a severe case of writer's block. A followup comic "The adventures of Yeast Yung and Carl Cake" fared no better other than to have a quasi-interesting psycho-analytic reference in the title.

However it was this latter iteration that guided me on the current path. While working out some sketches of the afore-mentioned comic it quickly became apparent that my poor writing skills are no match for my even weaker drawing skills. It was time to give in to the one thing I am somewhat qualified to work with: Math!!!

While it is likely true that it would be more work to create an arbitrary picture using equations, certain types of shapes lend themselves to the beauty of analytic geometry. Not being much of a geometer myself, I thought I could share my recent experience in mathematical baking.

THE PARAMETRIC DONUT

Step 1: Clearly, you're gonna want a torus. It's also very likely that there's a simple equation of a torus out there, but I didn't want to cheat so I figured I would try to reproduce it myself. This could also serve as a way to walk the reader through the parametrization process.
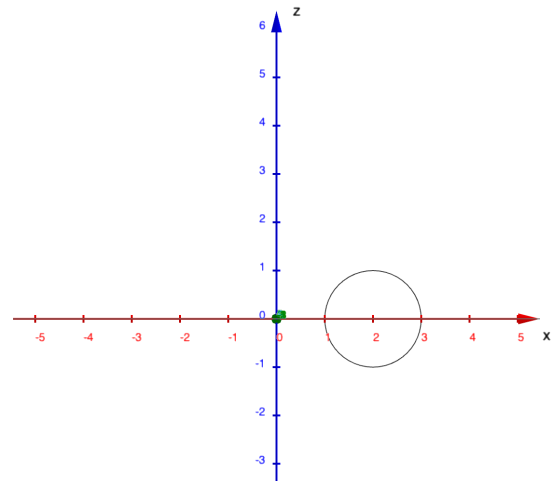
$$(x, y, z) = (2 + \cos(t), 0, \sin(t))$$
$$t \in [0, 2\pi]$$

Step 2: We can make an equivalent circle on the yz plane using $(x, y, z) = (0, 2 + \cos(t), \sin(t))$. Plotting both in (x, y, z) space yields
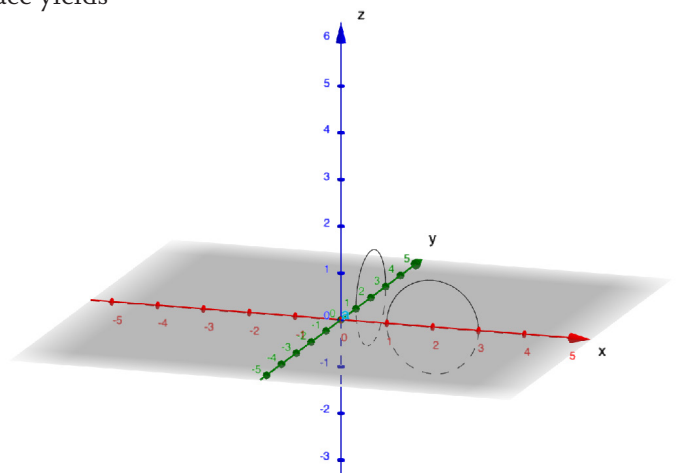

$$(x, y, z) = (2 + \cos(t), 0, \sin(t))$$
$$(x, y, z) = (0, 2 + \cos(t), \sin(t))$$
$$t \in [0, 2\pi]$$

> This isn't magic, this is math! Subtle but crucial difference.
>
> **PROF. DAVID MCKINNON**

Step 3: To make a surface from the first circle to the second we introduce a second parameter s and have it vary so that the circle $2 + \cos(t)$ will switch from being on the xz plane to the yz plane and sweep out the value in between in a circular fashion. What better tool to use than some more $\sin$ and $\cos$ action!
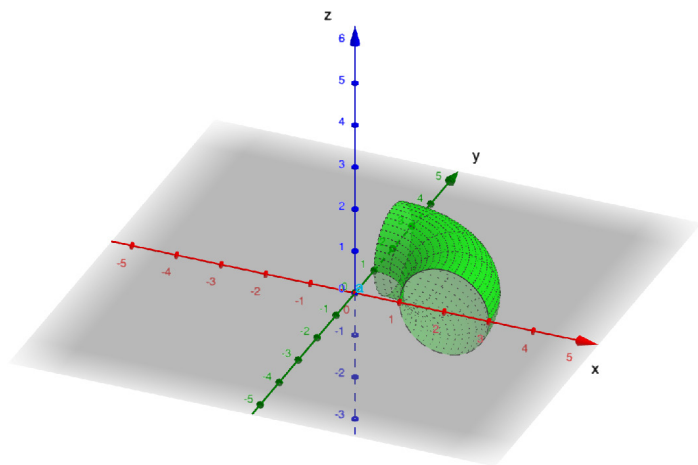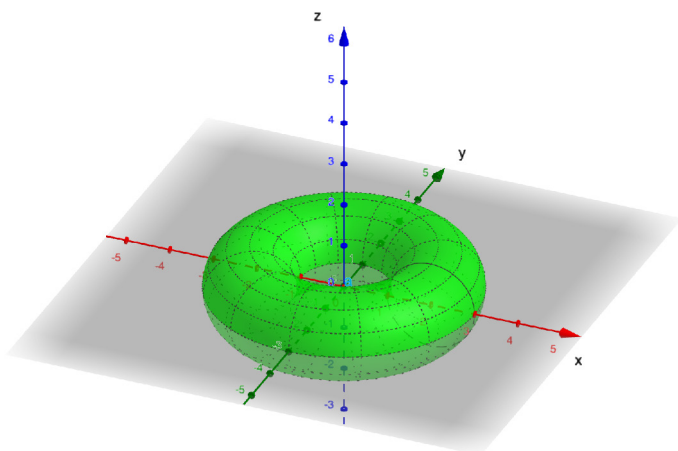
$$(x, y, z) = (\cos(s)[2 + \cos(t)], \sin(s)[2 + \cos(t)], \sin(t))$$
$$t \in [0, 2\pi]$$
$$s \in [0, \frac{\pi}{2}]$$

Step 4: At this point changing the range of s to cover a full period of a sinusoid will give us our starting donut.

$$(x, y, z) = (\cos(s)[2 + \cos(t)], \sin(s)[2 + \cos(t)], \sin(t))$$
$$t \in [0, 2\pi]$$
$$s \in [0, 2\pi]$$

That was the easy part. This makes a "perfect" donut. But I don't want a perfect donut. I like the imperfections and size variations from one day to the next. Going to a donut shop and seeing everything look identical is a bit eerie.

So, we must introduce some variation! We will also switch to a vertical representation to more easily identify each coordinate.
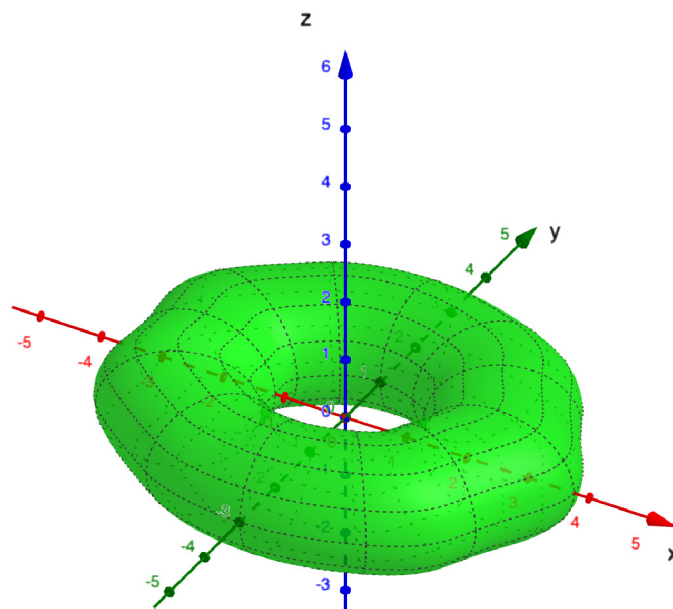
Step 5: Let's stretch it out in the x a bit.
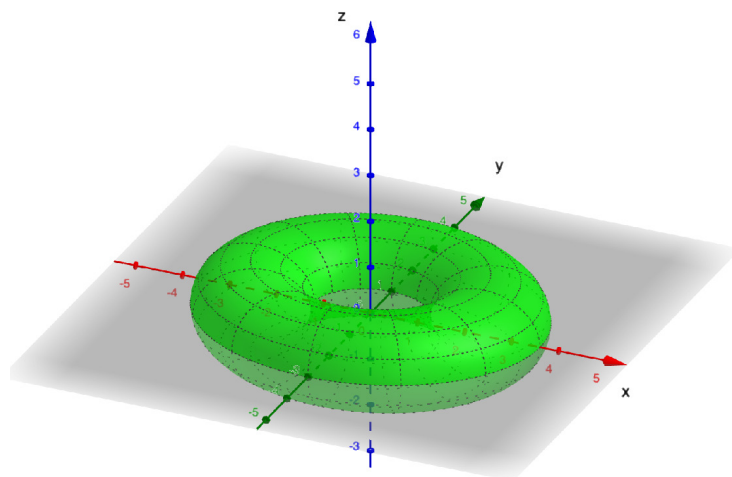
$$\begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} 1.2\cos(s)[2 + \cos(t)] \\ \sin(s)[2 + \cos(t)] \\ \sin(t) \end{pmatrix}$$
$$t \in [0, 2\pi]$$
$$s \in [0, 2\pi]$$

Step 6: How about, instead of a constant stretch of 1.2, let's add some small deviations from 1.2? (Note: the grey xy plane has been dropped.)
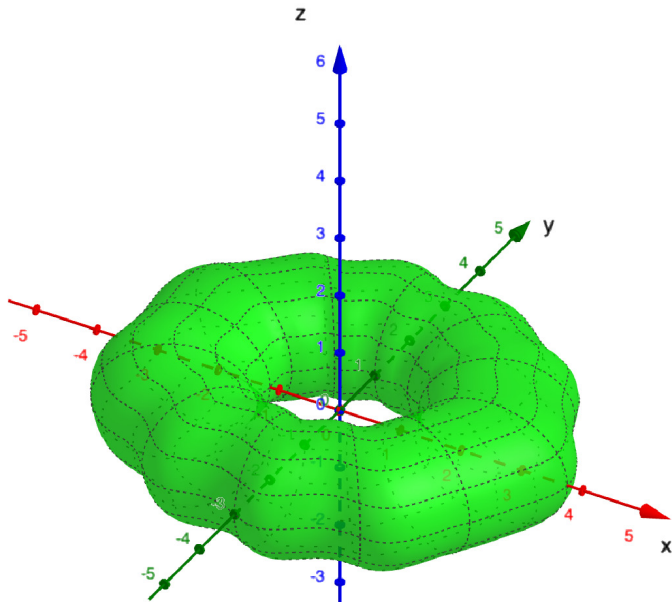
$$\begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} \left(1.2 + \frac{\cos(7s)}{20}\right)\cos(s)[2 + \cos(t)] \\ \sin(s)[2 + \cos(t)] \\ \sin(t) \end{pmatrix}$$
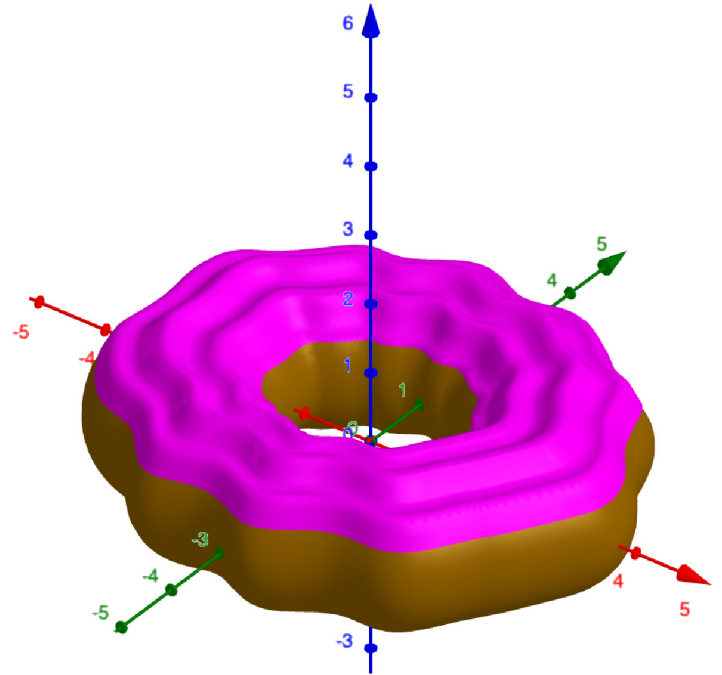$$t \in [0, 2\pi]$$
$$s \in [0, 2\pi]$$

Step 7: Looking good! Maybe do something similar for the y coordinate?

$$\begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} \left(1.2 + \frac{\cos(7s)}{20}\right)\cos(s)[2+\cos(t)] \\ \left(1 + \frac{\sin(12s)}{20}\right)\sin(s)[2+\cos(t)] \\ \sin(t) \end{pmatrix}$$
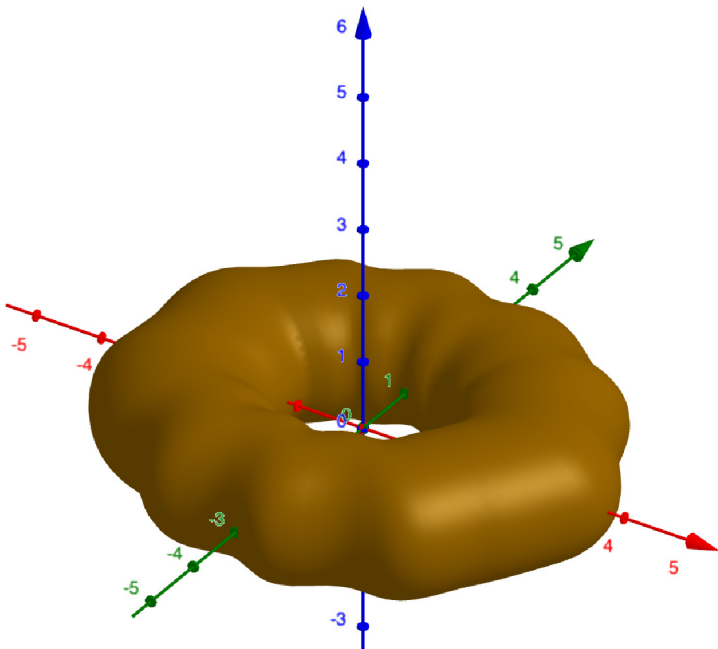$$t \in [0, 2\pi]$$
$$s \in [0, 2\pi]$$

Step 8: Make it brown!!!

Step 9: The magic secret (which you'll have to figure out on your own) is to add some delicious pink frosting.

You can see it in all of its 3d glory here: https://www.geogebra.org/m/w53smcfm.

Eddie Dupont

TOP 10 THINGS THAT MAKE MANITOBA THE WORST PROVINCE IN CANADA

An academic response to TOP 10 THINGS THAT MAKE MANITOBA THE BEST PROVINCE IN CANADA by author A cool pen name:

1. The ice is getting thin. Your polar bears won't be there to defend you for long. The sun is setting on Manitoba.

aphf

DUST SETTLES

This is a story about my high school graduation. I submitted it for the 2020 CBC Non-Fiction contest. It did not win.

I am drinking water. My thumbprint on the side of the glass is an orange smudge. But it's clearer than I would ever bother to see. I set down the dirty glass. Dust settles everywhere. Insignificant. I swipe my hand across the counter and a thick layer of dust comes up with it. Insignificant.

In stories they gloss over these. The cups and glasses. The counter-top. All are coated with a dust that I haven't bothered to clean. I don't know if they ever stop to take a drink of water. Much less bother to clean the dust coating it. Don't they get thirsty? Don't their homes get dirty?

It's obvious. It's between frames. It's not important enough for us to see.

Now the glass is empty. I let it rest on the dust. It's a worry for another time. I've decided.

And so is the streaking on the bathroom mirror. I've seen my reflection every day. But only now I see the marks on the mirror itself. I swab at the surface with wadded toilet paper. The dust is behind the glass.

As I get ready I trip over a pile of my clothes folded by Mom. They rest on the carpet, now covered in dust. Tomorrow I will brush them off and put them back in the closet. I said this yesterday and the day before that.

The Neighbour Kid who lives in our basement is in the backyard today wearing a one-piece bathing suit vibrant against dark tanned flesh. She turns on the hose and sprinklers and runs barefoot back and forth through the tall dandelions in the lawn. She drinks a Slurpee purchased from the gas station next to the Small Building. Once five years ago I also had a Slurpee when I rode a scooter on a long smooth road riding back home from the Small Building and pepperoni sticks from the same gas station underneath the same summer sun.

Can I come to your graduation? Neighbour Kid sees me and my black cap and gown. *You don't want to.*

When Neighbour Kid was just a baby her family moved into our basement. Now she exchanges coins for those Slurpees and plays on her own in a bathing suit under that summer sun. I wave goodbye to Neighbour Kid as she kicks through a patch of the dandelions. Their seeds dispersing fuzzy grey dust covering the lawn by her feet.

The road sizzles. I walk by a group of classmates with wide hips and broad shoulders and detailed makeup all smiles. I recognize some of them. I've seen the pictures they shared with the blurred hints at life and movement and the glass bottles with red tips and the tables full and full of them and the dust hidden shoved just underneath the lens. I knew one

of them five years ago. She averts her eyes. I look down and pretend. Five years ago I was in that Small Building with cubby desks and green doors and she was with me in the counselor's room with two other girls. We were ordered to have hot chocolate together every week. That was when she told us about the razors and I told her about the dust.

I rode a scooter on a smooth road five years ago. I sat in a parking lot underneath the summer sun and watched a single cloud pass across the clear blue sky. Now they're blowing candy mist at me. Steaming perfume exhaled from their mouths and nostrils seeping into my gown. They avert their eyes from me hide those tubes from me. But they should know better should know that this sick sweet cloud stands nothing against the other cloud.

This other cloud is also here following me always with the yellow sun bringing me the cotton from the trees. My eyes trace and follow and I reach my hands out. But I never get a catch they fly so far so fast in the cloud. Tree dust. I am in the dust I follow the dust in the cloud is dust. The back of my eyelids are veiny and red hot. In the daytime the dust spreads as far as it can under this red and the yellow and the summer sun and in the night it settles in a clean pattern soft snow dust I brush off each day. I step off the sidewalk and run into the light the sun the cotton from the trees the road away from home the cloud the dust the dust the cotton the dust.

☙

Our graduation takes place in an ice rink de-iced. We are in the east rink for gathering. The west rink is for Mom in one hour. The scoreboard looms above on the ceiling angled dormant penalizing indoor cloud. They hug and snap photos. Big smiles. I stand at the end of the rink gripping the edge. And of course the dust right now is in the peripherals circumscribing the rink coasting along plastic and rubber cement barely drifting settling into corners threatening me always within reach.

That's the girl from before. From the Small Building from the room with the hot chocolate she wears a short tight burgundy dress unzipped she has orange hair now the same as her skin she looks at me she doesn't notice me she doesn't know who I am now the buzzer rings I am on skates I glide through the rink through the doors as everyone else trots in heels we enter the tunnels she is there on the heels taller than me now her boyfriend's arm around her hips and lips full and dark.

Five years ago was when she told us about the razors. And later that day she accompanied me down the long smooth road on my scooter after we left the Small Building. The two other girls had earlier confessed to having childhood enemies and soft voices but I had nothing. I had Slurpees and scooters and the long smooth road to ride it on with no bumpy patches no cracks nothing. She powered down the road on my scooter kicking up the dust from underneath the concrete while I held our Slurpees I ran to catch up to her and I saw the end of

the road the long smooth road and grabbed her thin body with no curves yet *don't go too fast it's dangerous.*

Why not just live in the moment as I held onto her on the scooter five years ago the Slurpees spilled all over my arms sticky cold sweet *I want every day to feel special like it was Christmas or my birthday* and the single cloud in the blue sky has been following us across the road. I am looking at my scooter she's covered it completely with the dust that had been buried just underneath the concrete and no matter how many times I clean the dust it will always return.

We wait longer in the tunnels underneath the rink. I look up at the lights filled with dead creatures. The dust floating around only visible by the halos of these lights in the darkness drifting slowly softly landing on my skin eyelids hair. Mom will wait these three hours for my fifteen seconds. Someone spills mop water it mingles with the dust that girl is upset her heels are dirty I step in the water it should follow me around tonight. Finally we end up in the west rink Mom somewhere in the crowd music smothering the words suffocating. We follow ourselves across the rink one by one exactly like we practiced and anticipated some days ahead. This place finally free of dust someone is videotaping us.

꩜

Then I step off the stage. The girl is right behind me shorter than I remembered shorter than in all the pictures where she smiles and pouts. She says nothing to me she looks past me and she is crying. I clutch pieces of wood engraved with my name. The future opened for a moment and I almost missed it. We count to three and I throw my hat into the air and all the dust comes back down with it gathering in my seat.

Next we are on the lawn Mom is gone and the red-tipped bottles are out arms everywhere the girl kissing her boyfriend I tell her *we are on public property* laughter *who are you* laughter *I used to drink hot chocolate and Slurpees with you* laughter.

So I am out of the bushes now and out and out and the darkness is settling the dust. My wooden pieces are gone. I reach the house the keys fall through my fingers grasp the door the white frame the little window miss the doorbell nothing I don't want to go home the gown will rest on the doormat and I with it.

Neighbour Kid is here now *what are you doing just resting are you drunk no I'm not and why are you out so late it's only ten.* Neighbour Kid invites me inside. Her family is happy to see me in the basement *congratulations thank you I wish you a bright future thank you.* I don't know Neighbour Kid's name. In the bathroom I wash my face and see the mirror full of dust and the sink stained with slime. In my day it was scooters now they like slime. Neighbour Kid is in her room I still don't know her name she's making a fresh bowl of slime green gross but child-like. Childish dust covers every inch of the room I brush it off to make a seat and look at the cracked ceiling of my basement at the uncovered light-bulb twelve years of life in this small home always beneath my feet and I don't know

her name and now I will be gone forever. Tonight was the night my night my fifteen seconds everyone else in the bushes drinking kissing voices lost in the dust. The slime pops and crackles like a fire it is five years ago I left the Small Building I only knew the edges of this darkness I hesitated to the Large Building now I am in the corners after counting up my fifteen seconds just left with pieces of dust.

cy

N THINGS TO DO IF YOU'RE STRESSED

- Make a good cup of tea
- Eat ice cream
- Take a nap
- Paint your nails
- Drink some water — stay hydrated regardless!!
- Do some squats
- Look at photos of dogs in top hats and bowties
- Write for **mathNEWS**
- Read **mathNEWS**
- Put in some headphones and listen to "Russian Guitar 1800–1850" on YouTube
- Stare at the ceiling and listen to Chasing Cars by Snow Patrol
- Make meringues (if you want an added stress reliever, hand whisk: you'll exert all the anger and stress into the egg whites)
- Do some chess/IQ puzzles
- Decorate your room
- Watch some Taskmaster (Available on YouTube for f r e e…)
- Crack your knuckles
- Watch cartoons — might I suggest Bob's Burgers, Gravity Falls, and Over the Garden Wall
- Look at something far away (> 20 meters) for 20 seconds
- Do some stretches
- Scream into your fridge (a long stream of AaaaAAAAaaAAAAAaaaaaAAA's will do)
- Make an ice cream float and devour it
- Draw the source of your anger
- Build something with Lego/wood blocks/dominoes (then topple it over with a road roller) (then clean it up)
- Eat some fruit
- Go on NitroType and… type
- Make flan and EAT IT — it's so good omg
- Read Soneta XLVI by Pablo Neruda
- You just lost the game
- You are manually breathing now
- You are manually blinking now
- Time is a cube

Eggo_chuggo

NUMBERS ARE COOL

Numbers are cool, but have you ever tasted shapes?
a point, a line, a circle, a sphere,
I like to imagine what might come next;
You could see a circle's stomach from the third dimension so
What does a sphere's stomach look like?

Take that sphere and pretend it's made of plasticine;
What can you make? A cube or icosahedron or
maybe a beating heart.
I have my spheres for breakfast;
I roll them out
as if the palms of my hands were pulling the sides of a sideless
Shape,
loop the edges back around and around
A torus!
Hold it,
trail your fingers around the smooth doughnut —
No beginning, No end,
so you can pretend it's infinite.

Go back to the line,
What would happen if you pulled it too?
pull pull pull
Now it's infinitely long but you want to keep
Pulling,
So you
pull pull pull
And get an infinity of infinitely long lines
all on the same line,
Like how I'm still on the same planet as the one
I love but the space between us
(*physical mental*)
is still untraversable.

I pull on circles for lunch;
My ellipse is fat and soft
pull pull pull
Somewhere along infinity I lost its right edge —
Funny how circles become ellipses become
Parabolas,
And maybe if you pull hard enough
that edge will come back from around the planet
(infinity)
And give you a hyperbola,
But hyperbolas are two-faced, doubled-meaning —
Don't trust hyperbolas.

There's a different kind of pulling
You can pull like:
Reach deep into the stomach of a shape and pull
so hard that you're the one being
Pulled deep
(*down falling down*)
deep into its stomach
until you're back where you started
because you haven't really gone anywhere
no matter how long you've been
(*love falling in love*)

Pulling at your fractal,
Intricate
Entrancing
Fractal love.

I play with a strip of paper under
the table at dinner;
Try looping it around with a half twist
and you'll get a three dimensional object with only
One side.
Somehow it reminds me of the torus,
tracing my fingers
around around
All things that go around come around like

the edge of a circle!
I've been tracing my fingers over infinite edges
and infinite faces
but how did I miss the simplest shape?
Smooth like water but it's infinitely jagged,
Each point both an edge and a vertex;
jagged makes smooth like
love makes friendship.

It's nearly bedtime, and there's still
one shape I've got up my sleeve:
One giant circle whose perimeter
is the centre
(archipelago)
of every other circle, like flowers
budding on a flower crown,
but each bud's perimeter passes through
A space time Singularity —
You've made
the loveliest shape,
magnificent
sure
pulsing
beating.

There's a cardioid in my cup of tea
(badum badum badum)
Happy Valentine's Day.

$^{21}\!/_{36}$th *in Love*

warSOC I — MY DAY WAS GOING PRETTY POORLY UNTIL THE FLOOR WENT POOF

I was walking through Physics, 'cause of *course* Physics is the freaking building that decides the laws it's named after don't apply on a Friday night when I'm just trying to stumble home with a mango bubble tea shake in hand after an bad evening out, trying to forget about the six math assignments and midterm I've got due next week.

Anyways, I'm strolling down that third-floor hallway lit with the consistency of a third-date dinner table, when something big and feathery catapults out of a locker with a honk and football-tackles me, sending all of that cold sweet syrupy mango all over my face and shirt. I hit the ground face first and my nose *crunches* into a shape it's really not supposed to be in.

"Ah ya freaking idiot can ya not *watch out* where ya goin'?!"

I'm screaming words even before I lift my head off the ground 'cause *damn' I'm mad*, but the goose now standing in front of me isn't fazed. It shakes its head with a slathering of exasperated honks, and then, with the easy familiarity of reaching for thrown bread, pecks the floor. Its beak touches, and a portal opens in the floor beneath us, revealing an emptiness filled with a kaleidoscope of colourful fractals, and my stomach lurches as I fall, fall, fall down the rabbit hole. The goose glides gracefully alongside into the newly formed abyss.

It's incredible. My senses explode with the shapes and colours, and I forget all about the Physics building and my bubble tea shake. My mind *cracks* and *shifts* as unnaturally as my nose did earlier—as if in a dream, all of my priorities and perspectives are split and thrown back together broken. The proofs for next week's assignment are suddenly at the front of my mind, burning with a stubborn insistence, pushing forth with a headache-inducing pulse, trying to burst out of my head and into the vortex all around me.

I follow the trains of logic through permutations of paths, recalling and applying the most esoteric proofs my prof once off-handedly mentioned with a sudden familiarity as if they've always been tattooed on the back of my hand. I scream in unexpected ecstasy as the solutions slide into place in my head, and *I want more*. I've always watched with envy as classmates sped to solutions as I struggled to piece together a half-correct proof I barely understood. Now, mathematics is mine, and I lose myself. The assignment proofs are as simple as addition, and I take them and reforge them into a dozen more theorems and lemmas that build upon one another in a frenzy of fluid creation and I go deeper and deeper and epiphanies spew forth like a broken hose—

I barely notice the pink fabric wrap around my arm, and my jerky, sudden ascent out of the colourful void. I barely notice the girl at the lip of the abyss, grunting with effort as she reels in the other end of the pink tie. I barely notice as she drags me over the edge and back onto the material floor of the Physics building as I babble incoherently about vectors and congruences.

I *do*, just barely, notice her speak my name as she peers into my eyes with her own deep brown irises. They're brimming with concern, and as beautiful as her smooth black hair swept back into a ponytail, and her striking, hawk-like, dark-skinned features.

"Sarah? Are you okay?"

The goose is gone. The magic portal is gone. It's just us, in the third-floor hallway of the Physics building. The mathematics burning through my head starts to fade to ringing echoes, and I recognize her as none other than Name, the software engineering gal I've chatted with a time or two and thought about much more than that. She's wearing a black suit, kneeling beside me and adjusting the pink tie she's just put back on. I think I'm in love.

"I'm so sorry you got caught up in that. That goose had *no business* pulling that trick on a bystander."

I try to tell her I'm okay, but it just comes out as a blather of math jargon. My nose starts to hurt and I taste blood. The spilled bubble tea begins to feel really icky.

Name decides to stop attempting to talk with me, and instead picks me up, cradling me with the same strong grace as a prince rescuing a damsel. She starts walking down the hallway, and I manage to read the embroidered text on a badge she's wearing over her left breast: **warSOC**.

"Let's get that nose patched up, Sarah."

And my day, which was going poorly, gets a *whoooole* lot better for two reasons: One, I'm still riding a high from that magic math portal. And two, the hottest, smartest girl I've ever had a crush on has just randomly arrived to save my life or something and is now carrying me off into the metaphorical sunset.

To be continued…

CC

N SENTENCES

FROM THE LAST math**NEWS** *ISSUE, IN CHRONOLOGICAL ORDER*

Is not so much a person, but rather more the Wittelsbach Diamond, which has an estimated value of 23.4 million dollars. This is more than enough to permanently rid me of any financial worries for my lifetime.

FROM THE mast**HEAD**, BY APHF

Aphf is really good with these. Aphf has written like 4 articles total, and all of them have these sorts of really well-put-together, very-precisely-timed phrases — I have to stop and appreciate them every time.

(I can't explain what it is that makes sentences sound good to me. I think I can explain when they sound bad. There's usually some obvious flaw or misalignment in the writing that you can isolate, point at, generalize, something you'd find in a textbook, and so finding bad sentences is, in most cases, extremely easy and boring.)

I talked to her a few more times over the next few weeks, with desperation and listless hope, trying to figure out if "not looking for a relationship" left any room for being attracted to me. I didn't get an answer from her.

FROM HINDSIGHT IS 2020: I CAN SEE THE STARS AGAIN, BY CC

CC's writing is transparent in the sense that I feel that I can see the writer through the page when I read; the quoted part in particular has a very strong personal pull to it, besides being generally well-conceived and -executed. One nit: the last part is actually so good that I would strongly suggest removing the "desperation and listless hope" part, because it's rendered totally inert and redundant by what comes after.

(I don't gain sustenance from bad sentences; I try to avoid consuming or producing them whenever possible. Thankfully, there are almost none in **mathNEWS**. 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. I appreciate them; you're, uh, hopefully reading good sentences right now. None of the quoted parts in this article I would call "good".)

…the desire to prove that you can do as well as your brilliant friends, golden afternoons in the Math CnD, isolated nights at the dining table in your apartment, hashing out proofs until all the symbols have turned into lights in your eyes

FROM CIEN AÑOS DE SOLEDAD, BY ROYAL NO.69 MILK TEA

I'll be honest, I haven't read that book, and so tried to pick a part that Márquez definitely didn't write. This article is full of word chunks I really like, and the overall mood of the article makes individual bits like this even better, maybe this one is a bit stale when you're reading it in isolation like this, but that's my fault more than anything else. As to royal no.69 milk tea — you're a mystery to me. A lot of range in their writing, and can hit good peaks in every direction, I'm slightly envious…

(The main similarity shared by all of these writing chunks is that I can't describe what I like about them (so really, the main similarity is that they're all totally dissimilar from each other), like the italic parts try their best, but it's all so cursory and meaningless that it's more of a vague reflection of my feelings than anything you could charitably call "analysis" or "explanation". The other similarity is that they're all really really great and memorable and distinctive, whatever the hell that means.)

(How'd I end up with no children? The secret is being born sterile, like a mule.)

FROM mathDATES, BY FINCHEY

Okay, okay, for this one you HAVE to read the article to get the idea. 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? Actually, read all the articles, I know you skim most of them and just look at the titles.

(So ultimately the only way I can communicate this to you is to point them out at you. Like: did you notice this part? Say it in your head out loud; do it again, let the words roll around in your head. Say the sentence out loud, like actually out loud, in a nice voice, like you're reading poetry, pay attention to the timing/pace/speed, etc etc etc. Next (aka this) issue, find some sentences yourself.)

I don't think I have ever seen so many different kinds of the Gadsden flag. There were ones with a yellow background or red, blue, white, etc. There were snakes in all sorts of positions and coils. Where they get all these variants, I have no idea.

FROM N FLAGS SEEN ON THE CAPITOL ON JANUARY 6, BY BOLDBLAZER

This is the reason why I wrote this article. I won't mince words; boldblazer's writing is so simple and utilitarian so to speak that I can't imagine this was written with full conscious intention. It must have been random chance, or coincidence, or fate. Someone else in math*NEWS* has an article in the cooker about so-called good writing and children that I hope you get to read eventually, because it perfectly captures how I feel right now. These sentences will live rent-free in my head forever.

(I give these quotes the collective award of "Sentence(s) of the Issue", or perhaps "of All Time", depending on whether or not I issue another award.)

girafarig

sexNEWS

I'M ABOUT TO GET MY PROJECT APHRODITE MATCH SOON. HOW DO I BE NOT A DISAPPOINTMENT?

The Project Aphrodite matching algorithm is incredibly sophisticated, so whoever you get matched with is likely your soul-mate. You should just be yourself.

HOW DO I CONVINCE MY FRIENDS THAT I'M STRAIGHT?

If you're straight and your friends are calling you gay, then your friends are homophobic. You should get better friends.

MY BOYFRIEND IS AN ENGINEER AND THINGS (SIC) THAT PI = THREE, WHAT SHOULD I DO?

Shaky hands can be a sign of great emotional trauma. If your boyfriend is writing $\pi = 3$ instead of $\pi \approx 3$, then you should help him get into contact with a therapist to sort out his deep trauma.

WHAT IF MY APHRODITE MATCH IS AN ENGINEER?

Big red flag, you should not start a relationship with an Engineer.

WHERE'S THE BEST PLACE TO HAVE PUBLIC SEX ON CAMPUS?

Unfortunately MathSoc has removed the couch from their office.

HOW DO I PREVENT MYSELF FROM PUSHING AWAY ANYONE WHO CARES FOR ME BECAUSE I HAVE A CRIPPLING FEAR THAT I DON'T DESERVE A GOOD THING HAPPENING AND ANYWAY WHAT KIND OF SICK DEMENTED PERSON WOULD ACTUALLY TAKE AN INTEREST IN ME?

It sounds like you have issues with your self-image. The first thing you need to do is recognize what's good about yourself and why you're an amazing person. Before someone can love you, you need to learn to love the wonderful person that you already are.

Clearly if someone cares for you then they must see something in you. This is probably a theorem or something. You could try asking them what that is. Ask them why they think you're special so that you can learn what makes you special.

It's important to be true to who you are and not try to be someone who you aren't.

WHY DO WOMEN BE SHOPPING?

Off to the guillotine with this stupid question!

HOW DO I CONVINCE MY BOYFRIEND TO LET ME PEG HIM?

Start with a finger in his butt and work your way up.

WHAT'S YOUR OPINION ON THE WORDY X CAMIEN SERIES?

$^{10}\!/\!_{10}$

Senior **mathNEWS** *Relationship Correspondent*

EPISODE 14: EIGEN-THINGS

Enjoy Episode 14 of the MathSoc Edu-Action! series: *Eigen-Things*! 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`!
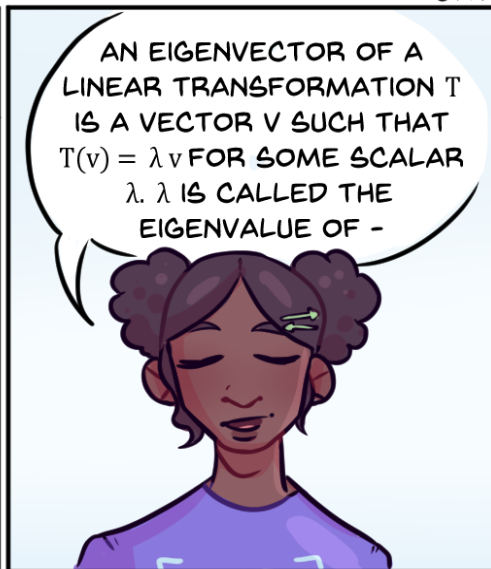
Ava Pun

Mysterious are the inner workings of a black**BOX**...

A CURIOUS mathNEWS EDITOR

LINEAR ALGEBRA: EIGEN-THINGS

STORY BY AVA PUN | ART BY ISABELLA SCOTT

math**DATES**: THE VALENTINE'S DAY/APHRODITE PROJECT SPECIAL

CO-OP MATCHES, APHRODITE MATCHES… YOU KNOW THAT PLAYING WITH MATCHES IS THE GATEWAY TO ARSON, RIGHT?

Welcome to **mathDATES**, a biweekly column where I, Finchey, discuss and dissect everything relationships and sex for the low, low price of **free**. You heard me right! After the first iteration of **mathDATES** was published two weeks ago, I got an outpouring of support and people wanting to throw money my way. Who can blame them? So I've been thinking of making a Patreon. It's not that I need the cash (I once sugared for a director on the Canada Pension Plan Investment Board, so I'm covered until retirement), it's just that if you wanna go out of your way to support me, well, I want there to be something special for you. More of **me**! As a treat.

Since V-Day will be two days from the publishing of this issue, and Aphrodite match emails will be out in merely one, I thought I should make this issue's **mathDATES** especially topical this time around. No more babbling! Onto the questions.

> *If I get an Aphrodite Project match tomorrow, what can I do to make it less awkward or to prevent it from fizzling out? The pandemic makes it difficult to meet people in-person. How do I know if my match and I have that spark, or chemistry? I dunno, I'm just feeling really nervous about this! This is the first time I've done Aphrodite too. Looking for advice!*
>
> THE LITTLE MATCH GIRL

Funny that you mention this is your first go with the Aphrodite Project, 'cause I've never done it. But you know what they say—you're best off with an outsider's perspective, with someone removed from the riff-raff. Well, I'm here to give you my completely impartial, yet informed advice.

To keep things non-awkward, to keep it from fizzling out, plus all the other things you needed to keep, I suggest you come on strong right from the get go. Make that first move to message them! Talk to them like they're your bosom buddy! Commit

arson together! Really, there's no better way to fan the flames of passion with a potential soulmate (if what they say about the Aphrodite algorithm is true) than to sneak into a locked building at night together with a tank of kerosene and a Zippo lighter. This activity hasn't been specifically prohibited by Ontario's lockdowns (and besides, re-opening's already begun by the time you've read this article), and it's really good at stirring intense emotions in people. It's a one way train ticket to the romantic tryst of your dreams! Plus, psychologists have proven that you learn more about a person's personality when you see them in stressful or extraordinary situations, and that's exactly the kind of thing you want to figure out on a first date.

I look back fondly on the time I attempted to burn the Four Seasons Centre in Toronto to the ground during a matinée performance of a Puccini opera, even if I was unsuccessful and thrown in jail because of it (you may read all about the adventure in issue 140.4 from Spring 2019). I wasn't doing it to impress a date or anything, but I still enjoyed the experience greatly. Honestly, it was pretty self-actualizing. I think if you had the courage to put yourself out there by signing up for the Aphrodite Project, you'll have what it takes to keep the spark between you and your match from flickering out. Get the 18.9 L buckets of low-odour kerosene from Home Hardware, by the way—trust me on this one.

Next question!

> *How do I steel myself for the possibility that I won't get an Aphrodite match tomorrow, or worse yet, that my Aphrodite match won't like me?*
>
> NOT SELECTED

My clairvoyant abilities tell me that you didn't get any offers for a co-op job this cycle, and perhaps that you didn't get any

interviews at all. Don't make me explain how I know. I just do. You're bad at dealing with rejection. It's not a problem I've personally had, but I'll try to emphasize with you. The only way to get over this fear is to grow some balls. Like, literal nuts. Your chromosomal sex doesn't matter here. Just grow some big fucking balls from that flab of skin under your chin; if you're having trouble visualizing it, think of how a rooster looks with its wattles that hang from its throat. I've not undergone this procedure myself, but I've helped some acquaintances and former lovers through it, and let me tell you—once you've been chin-castrated, you'll have no fear left in you. You will no longer fear rejection. You will no longer fear death. You will no longer fear God. The wretched thing you become eclipses all of your past silly and earthly fears. In a way, you transcend human understanding. It's a pretty nuclear option, but hey—it works.

Next question!

> I want to make an annual viewing of the Sonic move a Valentine's Day tradition with my partner, since it was the last movie we watched together in theatres on opening day. But, my partner tells me that the movie "sucks" and that they "really want to do something else for Valentine's Day, like get takeout from a nice restaurant". How can I convince them otherwise? I bought a Blu-ray copy of the Sonic movie that I thought I could get a lot of mileage out of and I don't want it to go to waste.
>
> CIM JARREY

I think you might actually be in the wrong here. Watching the Sonic movie once every year sounds like it'll get repetitive real fast, becoming like a chore, so unless you were going to make a podcast out of this à la *Til Death Do Us Blart*, I'd stick with your partner's idea. Sorry about the Blu-ray: maybe you could re-purpose it into a cock ring or something. As for a nice restaurant that the two of you will enjoy, may I suggest Olive Garden?

Next question!

> I want to get my girlfriend a Valentine's Day gift. Is jewellery a good gift?
>
> BEDAZZLED BOYFRIEND

There are so many unknown variables here. Does your girlfriend like wearing jewellery? Do you know her taste in jewellery? Do you know the right size to get? How much is the cost of the jewellery in relation to your net worth? Is the jewellery unique or sentimental? HOW MANY CARATS, MAN? Actually, you know what: if you really, *truly* loved your girlie (and you know how I feel about young people professing their *true love*), then you'd orchestrate the heist of the millennium to steal the Crown Jewels from the Tower of London for her. Anything less and you're not worth her time, you despicable man. If you're not up to the task, save us both some time and email me her number, won't you?

Next question!

> What's the best flavour of lube?
>
> THE GASTRONOMER

I'm normally not a fan of fruity, sweet lubes, but freshly-squeezed grapefruit juice is tasty and acts wonderfully as a natural lube.

Next question!

> What's a rude way to ask for some guy's height?
>
> RUDE RUTH

Easy. "How short are you, exactly?"

Finchey

N PLACES AND TIMES TO CRY IN A SOCIALLY DISTANCED MANNER

- Your room, during a live tutorial (you've muted yourself already, that's a given)
- In your Aphrodite match message
- In your Snapchat Memories from 2 years ago, when everything hadn't taken a turn for the worse yet
- Everywhere at the same time on campus, in order to contribute data points towards WaterWorks
- In the QED of a proof in which you were way more detailed than you needed to be
- At the intersection of University and Phillip, when the sun is just beginning to set and the fog has almost settled completely
- On your second co-op term, on the shores of Columbia Lake
- In the student Linux server
- During **mathNEWS** Prod Nights

royal no.69 milk tea

Solely to provoke an argument, I will say that I don't believe in infinite sets—they are merely convenient fictions.

PROF. DAVID WAGNER

FUCK PD

It's a windy night, and the wind howls outside of David's seventh floor ICON window. He sighs.

It's another Tuesday. A PD assignment is due at midnight.

Slouching further into his leather sofa he groans in disappointment. "Fuck PD", he mutters out loud, for no one but himself to hear.

He pockets his phone and painfully leans forward and onto his feet. He drags his feet across the floor. His MathSoc branded socks are running thin at their soles after all the floor pacing he's done at home over the past month due to the stay-at-home order.

He slides closed his bedroom door forcefully then settles down in his chair. He opens the laptop that hasn't left sleep mode in over two weeks, twisting his chair back and forth as he opens up the LEARN login page. He enters his password then waits for the Duo Push Notification for approval on his phone. Even if he only anticipates a short buzz he waits for the surge of vibration in his pant pocket and basks in its sensation. Slowly, he reaches his hand deep into his pocket, firmly clasping his fingers around his device. He yanks it out slowly from its restrained prison and rubs through the side to lock it once he's properly authenticated his identity, then leaves it to rest upon his chair.

He's instantly greeted with the TA's announcement from last night, reminding the students that their due date is tonight. He groans again, clicks the first link he sees. A download for the Word Document template of the assignment starts and he licks his lips, getting ready to get deeper into PD.

Fuck PD.

He pries open the .docx file and scrolls through the template created for easier marking on the TA's end. He lightly skims over the instructions, dragging his cursor sensually through the words and getting a feel for what actually matters in his responses. He reads through all two of the document pages, taking in the beauty of gray, carefully formatted tables. He scrolls up and down with long and deep strokes, up and down he goes. He's awestruck by the limited space granted to fit in his thick, hardening answer, excited to break in the space for lackluster bullet point responses.

Fuck, your boxes are so tight.

At last he clicks into the first grey box after teasing the document over and over. He starts to finger his keyboard, letting letters spew into the text box one by one, hands flying at irregular paces. He goes by instinct, feeling his way through his words and nonsensical thoughts from when he skimmed through the course notes over the weekend. He doesn't bother fiddling through the rubric, going in completely raw and unfiltered with his hot takes on the communication tactics that need to be considered in the hypothetical case study.

You like it when I fuck your PDussy don't you?

He settles into a steady rhythm as he breezes through the questions, stating buzzwords from the unit to get those mindless points from the TAs. He's already edging himself pretty close to the deadline if he doesn't submit to the Dropbox soon. His typing becomes sloppy, and erratic, continuing to drill through the questions being posed. He audibly groans as he clicks into the final question, letting out further grunts as he works his way in and out of the final box.

Fuck, I'm so close.

At last he comes to a climaxing finish all over the document. He takes in the mess that he's made all over the document's page and slaps the Save button, not bothering to rename the file. He hazily clicks back through his browser to find the Dropbox for his symphony.
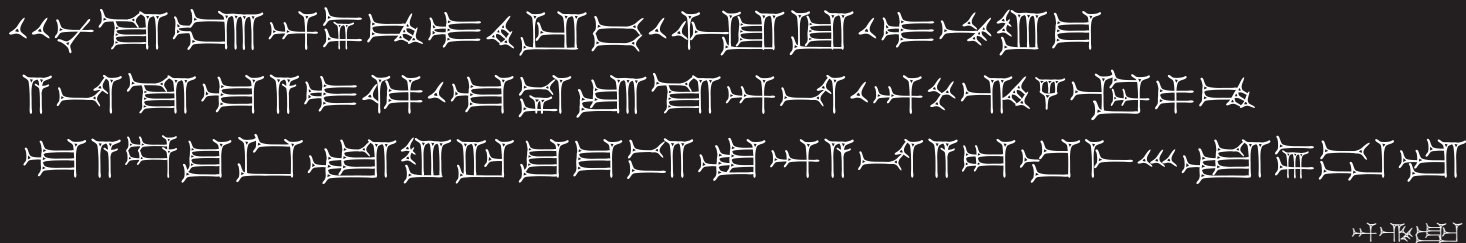
Fuck PD.

Deriving for Dick

YOU CAN DO ANYTHING

You really can, you know…

An elementary school student practiced/played Beyblade after school for 6 months, then went to the world Beyblade competition, went on NATIONAL TV and became the world champion.

Eggo_chuggo

I CAME TO THE EMOTIONAL END BITS OF ANOTHER ANIME AND I AM NOW A MESS AGAIN

So I've been watching *The Pet Girl of Sakurasou*, and I'm close to the end now. I'll try not to spoil it, but suffice to say that a lot of things that the protagonists were hoping would work out didn't, and it's a sad time in the story right now. And honestly, this sucks — I feel down, I don't want to have the food that sits right next to me, I have no inspiration for an article other than this… but it makes me wonder why it has to be like this at all.

It feels strange that an anime — or equivalently, a book or a movie — is able to make me feel so much emotion. Even real life success and failure seems almost anticlimactic in comparison sometimes. Is it because it's all just a story, so the writers can artificially raise the stakes however much they want? Or do I actually end up being more emotionally invested in the success of fictional people than in my own? If it's the latter, what makes them so important to me, more than even myself?

I have a theory: the best way to feel an emotion, and to make others feel it, is to express it. Loudly and clearly, let the world know what you're feeling. Because you're not just telling the world — on some level, you're telling yourself how you're feeling too. It explains the anime — the characters do express their emotions, which makes me feel those same emotions too. At the same time, it explains other things — why sadness feels better after I cry, why I want to share my successes or happiness with someone as soon as I hear of them, why things being more "relatable" make them feel more legitimate.

What I don't know, though, is if this theory applies to just me, or if it works with others too. I have no reason to believe it wouldn't — after all, mass market media seems to be capitalizing on it. On the other hand, I almost want this theory to be unique to me. I want to believe that we all have our own rules for dealing with emotions and feelings, and because of that we all experience emotions differently — maybe not wildly differently, but just enough to notice.

Anyway, that's enough rambling. I need to finish this anime. Hopefully there is a happy ending — they're cheesy, yes, but I love them anyway.

tendstofortytwo

THE GREAT INEQUALITY

mathletes > athletes

Eggo_Chuggo

THE MOUNTAIN (AKA MY THERAPEUTIC ATTEMPT TO WRITE SOMETHING SERIOUS)

I've been thinking for some time on what gives us all purpose
We all have this mighty mountain we can choose to scale
Even though the climbing is so strenuous on the conscious
We've been told that those who don't climb are all doomed to fail
I set my mind to stay at move to reach the peak faster
Like climbing is my calling that the others can't complete
I told myself I'll be the first to top the highest mountains
Ignoring all the climbers that have fell beneath its peak
It seems to me that most people don't have to keep on climbing
They pause to catch their breath and let themselves enjoy the view
But I can only see the mountain as a foe I'm fighting
So every time I try I think I slip a feet or two
Some merchants, doctors, shamans offer various herbs and liquids
They help your mind forget there is a mountain here at all
And I have tried my share of these to try and calm my spirit
They only blind your eyes and make you numb before the fall
Sometimes I wonder how the climb has started in the first place
Everything before it is a distant memory
It could be it all began in my attempts to save face
From the people that I think are watching down beneath
So maybe I am running from the fire I ignited
Or maybe my end goal is to catch up to a friend
Whatever it might be I just hope I'll finally find it
Since every day I ask myself when does this mountain end

methNEWS

HOW TO DEAL WITH PANDEMIC BLAHS
THIS IS TOTALLY NOT A POORLY DISGUISED SHILL ARTICLE

This unending pandemic has a lot of people feeling tired and unmotivated and for good reason. Some of things that I have found helpful to deal with this current year are exercise and taking creative projects. I understand that it lot easier to say a person should do a thing versus actually doing the thing. So below I have included some specific suggestions that can help with either of these.

HOW TO DO A CREATIVE PROJECT IN A PANDEMIC

Personally, there is nothing quite like a creative project for giving me renewed vigour for life. If I had to think about the things I am most proud of it's the things I created—not because I had to—but because I wanted to. My soul is happy when I pour it into something and make it come to life.

When it comes to creative projects (or really any project for that matter) it's always easier to work on something if you have clear deadlines and you are accountable to more than yourself. It just so happens that the Kitchener Waterloo Little Theatre (KWLT) has a great upcoming opportunity that includes deadlines and accountability and also a chance to make new friends.

KWLT is hosting this event called March Madness where you have several different teams that are all given the same silent film and they have 2 weeks to add all the audio: dialogue, sound effects, and music. All the different submissions are judged and the best one is picked. It's a really fun opportunity to get involved in the community and try something new.

If you are interested in directing, stage managing, writing dialogue, doing audio editing, or creating/sourcing audio, you can either submit a team with other people filling those roles or just indicate your interest with what kind of roles you would like to do.

If you interested in voice acting, auditions are going to be held on Zoom on February 27th. Or if you just want to watch the results the performance will be on March 13th at KWLT's youtube channel. For more information go to kwlt.org: the information is under March Madness.

HOW TO EXERCISE REGULARLY IN A PANDEMIC

Going outside and getting some fresh air is definitely good for one's mental health. It is however rather easy to not do right now as everything is cancelled and it's very cold. My solution to this has been to play Pokémon Go. It's a game that is designed to encourage people to go outside. It will tell you how much you have walked this week and has rewards to walk 25 and 50 km a week. If you are struggling to get regular exercise it's a really useful tool as it gamifies the experience. Instead of exercise feeling like a chore you need to do, you will just end up going out because you want to as there is rare pokémon nearby. Or you will make a plan to visit new neighborhoods and see your surroundings with new eyes.

CONCLUSION

If you are having a hard time right now, know that is perfectly normal. This has been a rough time for everyone. Even if my hyper-specific coping strategies don't fit you, hopefully it gives you a useful perspective on finding coping strategies that do work for you. Remember this pandemic will end one day and then we will get to the roaring part of the twenties. Better start practicing your Charlestown now!

Beyond Meta

HOW TO FAKE BEING CULTURED

1. Make spaghetti the night before and have leftover tomato sauce.
2. Realize you have half a thing of tomato sauce leftover from last night.
3. Add water and cornstarch to make it into tomato soup.
4. But also just forget to eat it because you made a really good breakfast sandwich.
5. The tomato soup is now cold.
6. Call the cold tomato soup "gazpacho".
7. Culture achieved.
8. Profit.

Eggo_chuggo

N FACTS ABOUT BEN SHAPIRO

[Editor's note: In the interest of space, we have only included the top M facts, for some $0 \leq M \leq N$]

His wife is a doctor.

His wife is a doctor.

His wife is a doctor.

His wife is a doctor.

His wife is a doctor.

His wife is a doctor.

His wife is a doctor.

boldblazer

IT'S READING WEEK ALREADY?

gridCOMMENT *145.2*

Wow has time been flying by this semester! Reading week is upon us at last and it feels both like a much needed break, and strangely early. Simultaneously, Valentine's Day is coming up, and with it the cheap chocolate afterwards. I hope everyone's been enjoying their classes so far this term, learning a lot, and finding some time to take breaks.

This term has started out strong with two whole submissions to the last issue's **gridWORD**. They were both entirely correct, and they responded to last week's **gridQUESTION**, "What is the best way to welcome the New Year?", with:

- DistortedLight: "Put out a nice embroidered welcome mat for it. 'Home Sweet Home' and such…"
- RubberSoul: "Listening to 'This Year' by the Mountain Goats at least 17 times on repeat"

Competing to win the truly awe-inspiring prize of winning, the winner for this submission is RubberSoul. I think we all need to listen to some music in an attempt to wipe the majority of last year from our memories forever. Plus, despite the wonderful imagery of DistortedLight's response, I'm not sure how charitable I can be towards 2021 until I get a better idea of what it has in store.

This week's I chose the theme "Seeing Red" for the cryptic. I realise now that the red theme could have matched with the approach of Valentine's Day, but any correlation there was completely unintended. I may have forgotten about the existence of Valentine's Day until about a week ago. The **gridQUESTION** for this issue is "What's the best way to treat yourself if you're spending Valentine's Day alone?"

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**.
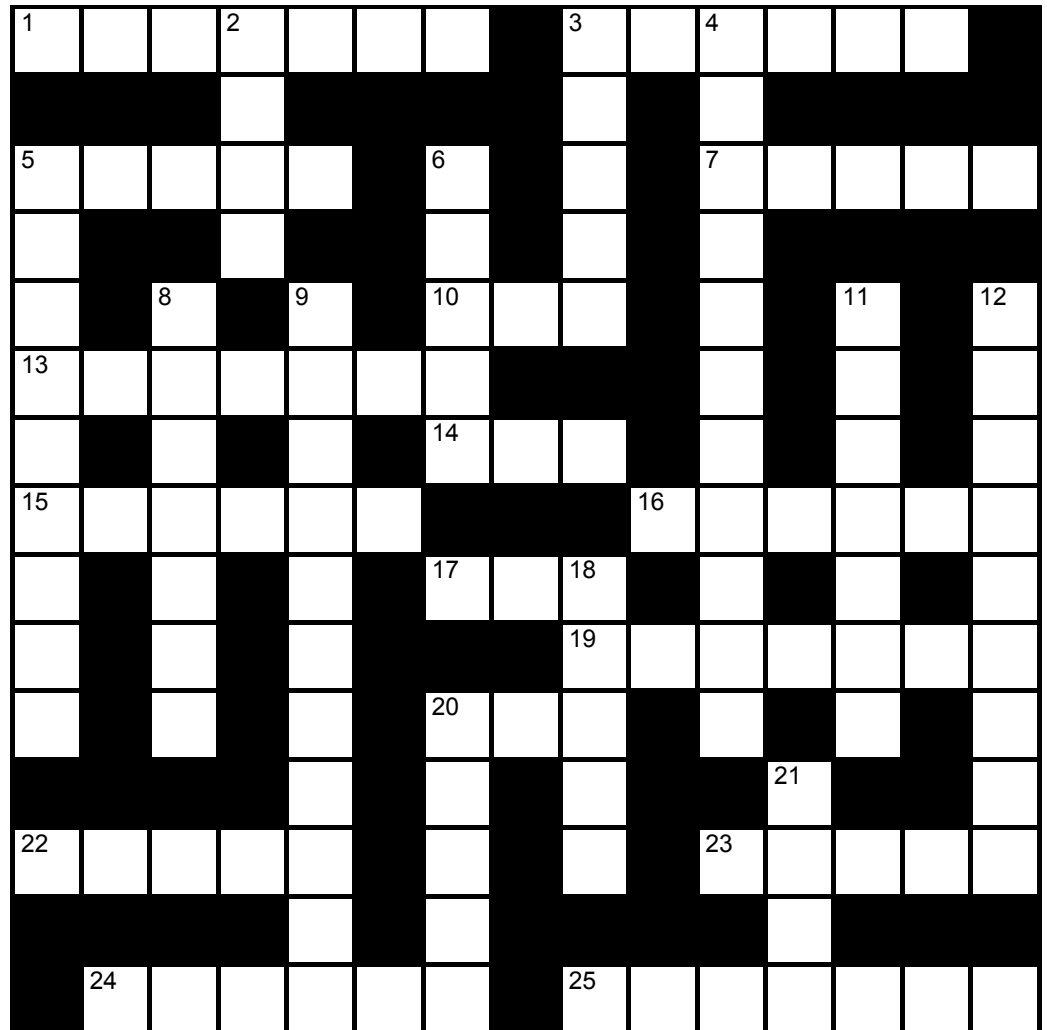
Cloak and Vorpal Dagger

ACROSS

1. Tall bird lacking tail is on fire (7)
3. Abhor net to capture stinging insect (6)
5. Cry about your text into hot dish (5)
7. Dance in the sauce (5)
10. Shout about mother's sister being an insect (3)
13. Turn all ox to salamander (7)
14. View reported salt water (3)
15. Company, small, sells fruits (6)
16. Crazy mars ad plays (6)
17. Sly imp evens rim (3)
19. Mean one strays, buttercup (7)
20. Bird requires a bit of comprehension (3)
22. Cobra or tarantula holds artery (5)
23. Bodily fluid is bold or odd, very odd (5)
24. Vegetable canceler yet to hold (6)
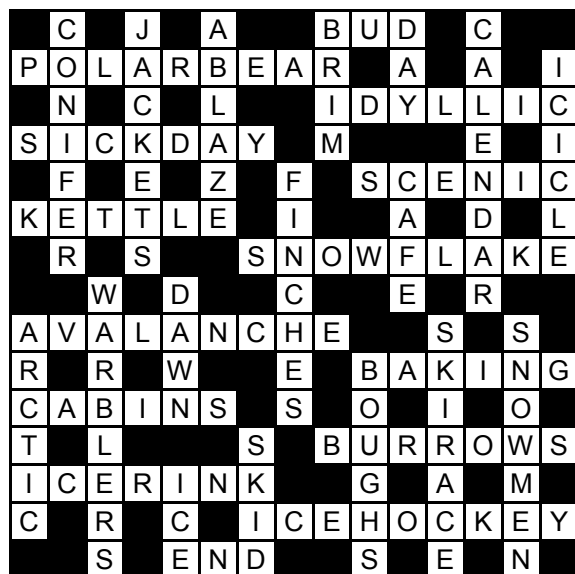25. Stumble on scary drawing utensils (7)

DOWN

2. Planet concealed by marshmallows (4)
3. Shape like an organ (5)
4. Make harsh grating noise with berries for fruits (11)
5. Sale of terribly clear cane (9)
6. First of friends provides gemstones (5)
8. Dogs swap in urns for ores to get flowers (7)
9. Throw magenta rope to get seedy fruit (11)
11. Haphazard microns of red (7)
12. Burned odd steel bird (9)
18. Trapped chimp and an endangered animal (5)
20. Yes, by the hall, shout christmas plant (5)
21. Cleric lay hiding on the earth (4)

lookAHEAD

LAST WEEK'S gridSOLUTION

WANTED: MATHIES FOR MEF WINTER 2021 FUNDING COUNCIL

ARE YOU A WATERLOO MATH UNDERGRAD???

EVER DREAM OF BEING A DRAGON ON DRAGON'S DEN??? 🐉🐉🐉🔥🔥🔥

WANT FREE FOOD??? ✖✖✖

This term, the Math Endowment Fund (MEF) will be disbursing over $180K and needs your help to decide how to allocate the funding to the many proposals we have received for your benefit! We are looking for undergrad Mathies to join our Winter 2021 Funding Council!

Being on Funding Council is very similar to being a Dragon on Dragon's Den where you listen to pitches from clubs/organizations that are looking for funding from MEF, ask questions, and then you get to decide whether to fund them or not (and yes, you can make counteroffers $$$)!

Might I add, this is all being done while you chow down on a meal (it's on the house)! We only have a maximum of 3 meetings too!

Spots are allocated by year and program, and some are positions first-come, first serve, so apply ASAP! Applications are due Sunday, February 21st, 2021 at 11:59 PM EST, so send in your forms ASAP to mefcom@ uwaterloo.ca.

Note: First Year General Math Undergrads and programs not under a Math faculty department may apply under the 'Faculty Programs' banner.

To find the form and for more information, visit tinyurl.com/324gh9s5. If you have any other questions, just DM us, or email us at mefcom@ uwaterloo.ca!

Math Endowment Fund