

**WARNING!**  
THIS ISSUE CONTAINS  
**GRAPHIC VIOLINS**



## “WHAT WAS YOUR FAVOURITE PART OF HALLOWEEN, PRE-PANDEMIC?”

### MINE WERE THE GRATUITOUS VIOLINS

It **finally** fucking happened. I'd planned this cover *years* ago, but after graduating, I thought I'd lost my chance for good.

*You cannot fathom how **deliciously** satisfied I feel right now.*

Anyways, it's been a while, so I should probably (re)introduce myself: my name is George Lambrou. I was a **mathNEWS** Editor between Winters 2016 and 2018, and led the team (also consisting of itorED, toBeDeterminED, and ExtrovertED) that revamped our shining Bastion of Erudite Thought™ and brought you **mathASKS**<sup>1</sup> and **profTHOUGHTS**<sup>2</sup> in Winter 2017.

I'd assumed I was mostly done with **mathNEWS** after having graduated last year, but after two years out there in the so-called “*real* world”, I decided that coming back to **mathNEWS school** part-time was the best thing I could do for my future.

Anyways, back to the lunacy that is **right goddamn now**: the air is so infectious that our “computer addictions” have become an asset, we're in the middle of midterms season, and **mathNEWS** hasn't served a single pizza in *months*.

But then, that's not a bad thing, because as the real world (and its lack of free pizza) slowly implodes around us, we at **mathNEWS** choose to define our **own, better** reality. It might not actually mean much beyond the realm of these pages, but it's a nice little break from everything else going on in 2020.

This week, our reality includes such insights as why stairs and numbers make great friends, tips on how to prepare instant coffee, and a terrible pun I've been sitting on for years and *finally* managed to make happen — and on the **cover**, no less! So enjoy this week's issue, and remember: there **might be no escape**, but that's okay, because you're *never* alone at **mathNEWS**. 🍷

George Lambrou  
(Part-Time) Editor Eternal, **mathNEWS**

1. Truthfully, we have the recently-retired Professor Steve Furino to thank for **mathASKS**. The Q&A format was his idea for the first **profTHOUGHTS** — we liked it so much we turned it into a standalone feature, and it's arguably one of our best.
2. And “**haltingPROBLEMS**”, which were extra non-**gridWORD** puzzles at the end of each issue, but it seems they didn't work out...

ABALD MAN	Pumpkin pie
HOECHIMINH	Those cheap pilsbury cookies that they make for almost every occasion for some reason (that being said I can definitely still enjoy them during a pandemic but a homie is trying to be a skinny legend)
WALDO@<3.LE-GASP.CA	Going into the stores on cheap candy day and procuring ALL THE CANDY. Also the in-person weeklong version of Humans vs. Zombies running on Halloween night.
ALYSSNYA	Cry for me as we don't celebrate Halloween where I'm from... Even the Christmas decorations are already going up.
DERIVING FOR DICK	Judging low-effort costumes
WATER	not midterms
ROYAL NO. 69 MILK TEA	That CS 246 midterm on Halloween night
CC	Running around outside in the dark with friends without looking creepy or having grown-ups worried about you being on the street
JEFF	Skeleton (still favorite part of Halloween in pandemic)
APHF	Lacing the candy I hand out with smallpox
BOLDBLAZER	[See <b>boldblazer's</b> favourite part of Halloween, pre-pandemic on page 20]
FINCHEY	The hilarious “sexy” costumes one could procure on <b>vandy.com</b> . But that's not just a pre-pandemic thing. My favourite one from this year is the “Mail-In Ballot” costume. “Hand Sanitizer” is a close runner-up.
GOD&PEED	Using my costume as a joke prop for the entire day.
CLARIFIED	Seconding that CS 246 midterm which was held on Halloween last year. The post-exam depression Lazeez was cathartic.
TERRIFIED	Trolling the neighbourhood younglings by pretending I couldn't hear the doorbell.

## ARTICLE OF THE ISSUE

Since apparently editors can't win this for the new **lightBOXES**, this time around Article of the Issue goes to **tendstofortytwo**, for *How to Make Instant Coffee Bearable*.

That much effort for a drink will always have my vote.

George Lambrou  
(Part-Time) Editor Eternal, **mathNEWS**

## Guess who's back, back again...

GEORGE LAMBROU, **mathNEWS** EDITOR FOR FALL 2020  
ALONG WITH JAMIE ANDERSON, TERRY CHEN, AND CLARA XI

# mathASKS 144.3

FEATURING PROFESSOR JUN LIU

**ANON: WHAT IS YOUR FAVORITE FLOOR OF THE MC AND WHAT DO YOU MISS THE MOST ABOUT IT?**

Fifth floor. I miss the old Applied Math lounge room.

**TLLLOW PRINCESS: WHERE IS YOUR FAVOURITE TOILET ON CAMPUS?**

Fifth floor MC men's room.

**THE EUROBEAT-'EM-UP: WHAT EXACTLY IS A HYBRID SYSTEM, AND WHAT DO YOU FIND MOST INTERESTING ABOUT THEM?**

It's a dynamical system with mixed discrete and continuous dynamics. Think of a robot controlled by discrete logic (code) and governed by continuous laws of motion at the same time. I find it fun because it contains interesting and useful math!

**GEORGE LAMBROU: HOW CAN WE TURN mathNEWS INTO A HYBRID SYSTEM THAT FUNCTIONS BOTH AS A VOLUNTEER SCHOOL NEWSPAPER, AND AS AN APPROVED COURSE FOR SCHOOL CREDIT? (WE'RE TOTALLY DOWN FOR CREATIVE SOLUTIONS HERE.)**

It's hybrid in a different way, but I'm totally for it.

**HOECHIMINH: WHAT IS YOUR FAVOURITE COURSE TO TEACH AND WHY?**

MATH 137, because I get to see interesting comments on reddit/RMP afterwards. I also quite enjoy teaching AMATH<sup>451/455</sup>, because they cover my favorite topics: dynamics & control.

**ASPIRING ACADEMIC: EXPLAIN YOUR THESIS IN 500 WORDS OR LESS. PREFERABLY LESS.**

I investigated conditions under which hybrid systems can be stable.

**CLARIFIED: IMAGINE AN ALTERNATE UNIVERSE WHERE YOU DIDN'T BECOME A UNIVERSITY PROFESSOR. WHAT WOULD YOU BE DOING INSTEAD?**

I pondered between math and archaeology after undergrad. So maybe an archaeologist? It's hard to say because in an alternate universe I may not even exist.

**CC: WHAT DO YOU DO AT THE HYBRID SYSTEMS LAB?**

On a normal day, we do math and coding, hoping to make robots more intelligent and cars safer. On a good day, we do math just for the sake of it.

**CIX: WHAT'S YOUR FAVOURITE SONG?**

The Ballad of Serenity—the theme song of *Firefly*.

**CLARIFIED: WHAT'S THE BEST AND WORST PIECE OF ADVICE YOU'VE EVER RECEIVED?**

Best: Teaching is easy. Just emulate the best teacher you've ever had.

Worst: Bitcoin is a scam.

**TERRIFIED: WHAT'S A CYBER-PHYSICAL SYSTEM?**

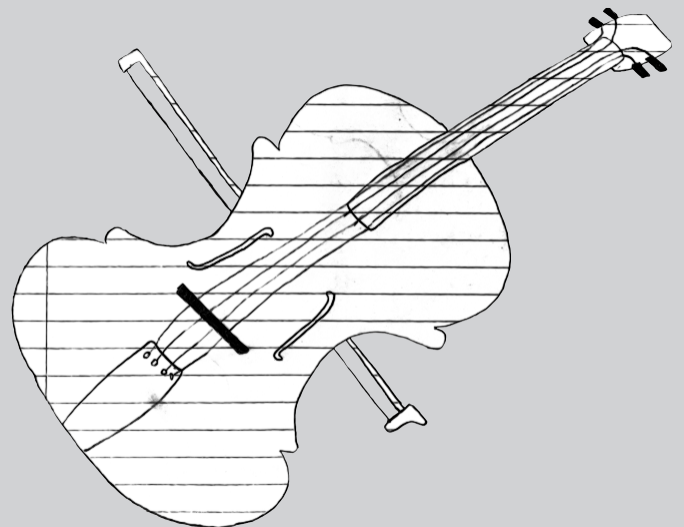
It's just a fancier name for a hybrid system :-)

## FINDING THE EXACT VALUE OF PI

Why don't we just change the number line from radians to degrees so that  $\pi = 180$ ?

tendstofortytwo

**THERE ARE INTEGRAL SIGNS INSIDE THE VIOLIN! I'D BETTER MAKE A NOTE OF THAT.**



tendstofortytwo

# STAIRWAY PEOPLE

There is a stairwell in the main mathematics building on campus (MC), from the basement all the way to the 7<sup>th</sup> floor penthouse. Along that stairwell runs a number line painted on the walls, with silvery plaques marking various important mathematical constants. You can find celebrities like the golden ratio and  $\pi$ , interspersed between oddities like the prime constant and  $2^e$ .

Students who started 2018 and earlier will remember when the walls of that stairwell were hideous and barren. Students who joined last year only know the stairwell's current beauty. And unfortunately, most freshmen today will have to wait until 2021 to experience the stairway constants for themselves. But when we are finally back on campus, please do your quarantine-atrophied legs a favour and visit the lonely stairwell.

Diehard readers know that I covered every number along the stairwell in a guide called *Stairway Constants*, which spanned issues 1–5 of **mathNEWS** volume 142 (W20)<sup>1</sup>. Still, it would be a disservice to call the series complete until we acknowledge what went on behind the scenes to make the number line happen.

## THE PEOPLE

**Prof. Kevin Hare** should be a familiar name to most math students at UW, especially **mathNEWS** readers. He appeared in **mathASKS** 142.5 last winter, while serving as Interim Dean of the faculty<sup>2</sup>. Kevin got his BMath at UW before many of us were born. After doing his PhD on Pisot-Vijayaraghavan numbers (which appear in the stairwell), Kevin returned here to the department of Pure Mathematics. He has now been with the faculty for as long as most of us have known how to add and subtract. From 2015–2017, Kevin was also Director of the Centre of Computational Mathematics, followed by a brief gig as the Vice Dean of Engineering until the Provost's office corrected this to Vice Dean of Mathematics. And of course, he came up with the idea and aesthetic of the number line.

Favourite stairway constant: the plastic number ( $P$ ), which happens to be the smallest Pisot-Vijayaraghavan number.

**Prof. Barbara Forrest** has been a lecturer with the faculty for as long as most of us have known how to count, but she is no ordinary lecturer. For years, Barb spearheaded the development of online math instruction, which has proven remarkably useful in 2020. Many of you have encountered course materials created or delivered by her. Notable contributions include first-year calculus (MATH 137/138), and the *Master of Mathematics for Teachers* offered by the CEMC.

Favourite stairway constant: zero, because “much of modern human history is a result of this number.” That said, her calculus students have a fanatical devotion to tau ( $\tau$ , a.k.a.  $2\pi$ ).

**Debbie Brown** supported the Faculty's various administrative and technical needs for 30 years until her retirement earlier this year. She started out typesetting documents for professors

(back when that was a rare skill). Debbie then became Admin Manager in the Math Faculty Computing Facility (MFCF), where she worked for as long as many of us have known what triangles are. You can also thank her for facilitating the gradual renovation of the math buildings. Debbie has helped build the faculty's sense of place and identity, from the Faculty Founders in MC, to the Slide Rule Display in M3, and of course the MC Stairwell Project<sup>3</sup>. Debbie's contributions to the stairwell included coming up with the design, collecting constant suggestions from students, typesetting of the math for the plaques, coordinating the installations with Plant Operations, working with the sign and painting external contractors, and ensuring measurements for the ruler ticks were accurate.

Favourite stairway constant: no preference.

**Robyn Landers** once attended UW as a BMath CS student, and to this day he still writes for **mathNEWS**. Perhaps you've read some of his articles without even knowing it. Currently, he works at the MFCF. As the UNIX Team Lead, Robyn is an admin for Linux and Solaris systems. In his spare time he is also an aspiring rock guitarist. Robyn's contribution to the stairwell was verifying the text on the plaques and the locations of constants along the number line.

Favourite stairway constant: a three-way tie between Euler's number ( $e$ ), the golden ratio ( $\phi$ ), and pi ( $\pi$ ).

## HOW DID YOU COME UP WITH THE IDEA FOR THE NUMBER LINE?

**KH:** It really came about because I don't pay enough attention when walking up the stairs. Multiple times when walking from the third or fourth floor up to the fifth floor of MC where my office is, I found myself on the sixth floor because I was lost in thought. My goal for this was to make the floor numbers so large that I couldn't possibly miss it, and enough other visual clues that I couldn't possibly miss it. It didn't completely work, in that I occasionally end up on the sixth floor by accident, but not nearly as often now.

## HOW DID YOU COME TO BE INVOLVED WITH THE STAIRWELL NUMBER LINE?

**BF:** A funny thing happened on the way to the mailroom... I went to check my (snail) mail one day and Professors Kevin Hare and David McKinnon were having a “hallway chat” (as professors often do) discussing the fact that there were not many common mathematical constants larger than 5. This became sort of a challenge to find constants above 5 and so the hunt began...

**DB:** I was asked by the Vice Dean, Kevin Hare and the Executive Officer if I might be interested in facilitating a stairwell constant project. Naturally I was intrigued with the idea, and I have a knack for design and art in general. Kevin thought it would be cool to have a number line in the stairwell and have constants displayed between the floors to help

identify where one is situated between floors. An interesting tidbit is that Debbie knew Kevin while he was a graduate student in PM. It was a pleasure working with Kevin many years later in his role as Vice Dean.

**RL:** Debbie Brown, recently retired from MFCF, did much of the work on this special project. She asked me occasional questions about math terminology and symbols while she was working with the company that made the plaques. Once the positions of the plaques were tentatively marked on the wall, I double-checked the accuracy and found some that needed to be repositioned.

I didn't do the number line itself, just the verification of the locations for the pink marks for the constants. I did get the occasional look or question, and once the plaques were up, I noticed many students stopping to talk about them. It seems to be a well-liked feature.

#### **HOW WERE THE CONSTANTS CHOSEN? (HOW DID YOU DECIDE WHEN YOU HAD ENOUGH CONSTANTS?)**

**KH:** We asked for constants from various people. I think a call went out in **mathNEWS**, which actually helped give a lot of the constants. The biggest problem was finding constants greater than 4; I really wanted two or three between each floor. There are lots of interesting numbers between zero and one, and between one and two, and then they get sparser.

**BF:** We used a number of references to help us out.

*Prof. Forrest sent me the main reference used for the constants. I was pleasantly unsurprised that it was Steven R. Finch's book "Encyclopedia of Mathematics and Its Applications: Mathematical Constants" (can be found at <https://sites.oxy.edu/lengyel/originals/0521818052ws.pdf>). I referred to it many times when writing Stairway Constants. In fact, this book is the only popular source for many constants in the stairwell.*

**DB:** Naturally I contacted MathSoc and **mathNEWS** and asked for volunteers to send in their favourite constants. I had a great response from Math undergrads who kept the constants coming for weeks. There are SO MANY constants out there and so not all could be used obviously. I recommended a list and tried to keep roughly the same number of constants between the various floors. Some of the constants in the stairwell are not popular at all, but it makes it all interesting. No students outside of Math were involved. Many constants were rejected.

#### **WHY THE NORTH STAIRWELL OF MC, AS OPPOSED TO ANY OF THE OTHER LOCATIONS ON CAMPUS?**

**DB:** The stairwell where the constants are situated was chosen because it starts in the basement and starts at zero, goes to the roof, and is the stairwell that gets the most use.

#### **WHAT WAS YOUR FAVOURITE PART ABOUT DESIGNING THE NUMBER LINE?**

**KH:** The fact that it made at least one of MC's stairwells interesting.

**BF:** Ha ha... fonts! You would not believe how sensitive mathematicians are about fonts versus mathematical symbols. Here is a catalogue of LaTeX fonts with math support to give you an idea:

<https://www.tug.org/FontCatalogue/mathfonts.html>

I have been to many meetings where the purpose was to create a mathematical document and/or website and the meeting broke down due to the question around what font to use... every mathematician seems to have their special favourite one.

**DB:** My favourite part was coming up with executing the design. It was very difficult getting the number line precise between the stairwell floors. Believe it or not, not one of the measurements between the floors in MC was the same. Each floor had variances as the walls are not straight. Initially I wanted a type of non-removable tape/plastic affixed to the wall as it would provide straight lines. This did not look good at all—it looked like electrical tape and then one wondered if vandalism would occur. I ended up arranging for an external painting company to come in and hand paint the number line and ticks. This was very tedious as I had to explain to the painters how to measure out in centimetres and apply the appropriate  $\frac{1}{10}$ ,  $\frac{1}{100}$  ticks, etc. Because the walls are not smooth, it was a challenge for the painters.

#### **HOW MUCH DID THE NUMBER LINE COST?**

**KH:** The majority of the cost of the project was actually not for the number line. It was for upgrading the lighting in the stairwell (which needed to be done anyways) and repainting the stairwell (which needed to be done anyways). I can't remember what the price was, but it was deemed to be reasonable.

#### **HOW DO INSTALLATIONS LIKE THE NUMBER LINE BENEFIT STUDENTS AND STAFF?**

**KH:** The fact that you are asking me these questions means that the number line meant something to you, and for those people reading this article, the number line meant something to them. To me, it was something fun and something very specifically "math".

#### **WHAT SHOULD WE DO IF WE FIND TYPOS IN THE NUMBER LINE?**

**KH:** Report them to me. I thought I caught all of them, but obviously not if you are asking that question. (My favourite was somebody who reported a typo in the 7<sup>th</sup> decimal place of a rather obscure constant, because they just happened to know the constant to 10 decimal places.)

### COULD MORE CONSTANTS BE ADDED TO THE NUMBER LINE IN THE FUTURE? (IF SO, WHICH ONES WOULD YOU ADD?)

**BF:** We had discussed having a contest to see if students could find more common mathematical constants to add to the number line, especially constants larger than 5. But right now COVID has gotten in the way of many things... a challenge to undergraduates is something I would like to see soon in the future.

**KH:** I would like some more constants with a more computer science or statistical nature.

### ARE THERE ANY INSTALLATIONS SIMILAR TO THE NUMBER LINE PLANNED FOR THE FUTURE?

**KH:** There are plans to rebuild the Omnitruncated Dodecaplex<sup>4</sup> (or as I refer to it, the Giant Buckyball of doom). This has been delayed for numerous reasons. The way the stairwell project came about is that I had an idea and pitched it to the Dean. The same procedure was done for the Omnitruncated Dodecaplex. I suspect future projects will be decided the same way. So if you have ideas, let either myself or the Dean know.

### HOW OFTEN DO YOU VISIT THE STAIRWELL? (OR DO YOU PREFER THE ELEVATOR?)

**KH:** Back when I was allowed in the building, I would normally take the stairwell at least twice a day. I tended to lock my bike up by that stairwell.

**RL:** Every day! I never use the elevator unless I'm moving equipment on a cart. Every little bit of exercise helps when one's job is mostly sitting in front of a computer screen all day.

### BONUS: IF YOU READ *WHAT STAIRWAY CONSTANT ARE YOU?* FROM PAGES 14–15 OF mathNEWS 142.5, WHICH STAIRWAY CONSTANT ARE YOU? (OR DO YOU IDENTIFY WITH ONE NOT ON THE LIST?)

**KH:** I just went and did the quiz, and I am epsilon. As an interesting side note, I was briefly considering putting epsilon

on a slider so that it could be arbitrarily close to 0. In the end I thought the fire regulations restrictions would make it more hassle that it was worth.

**RL:** My answers don't point to any particular constant. Does that make me random? Imprecise? Innumerate? Pan-numerate? Superpositional? Undefined? I think plain old 6 has some interesting properties: it's perfect (i.e. equal to the sum of its divisors), and those divisors happen to be the first three counting numbers and also happen to be prime.

Justin Xu

1. Didn't pick up a copy in person? You can find issue 1 online at <https://mathnews.uwaterloo.ca/wp-content/uploads/2020/01/mathNEWS-142-1.pdf> (extrapolate for issues 2–5)
2. Kevin became Interim Dean after Prof. Stephen Watt's term ended in January. Unfortunately, due to the pandemic, Kevin was unable to implement his plans as Dean to annex the Engineering buildings. Since then, Prof. Mark Giesbrecht has succeeded the post, and Kevin continues to serve as Associate Dean.
3. Here's a more complete list of the other faculty landmarks that Debbie managed. Though physically smaller than the stairwell, they are equally worth visiting:
  - William Tutte display (MC 5<sup>th</sup> floor)
  - Faculty Founders images and write ups (MC 3<sup>rd</sup> floor outside the C&D)
  - MC 3<sup>rd</sup> and 4<sup>th</sup> floor lighting and painting upgrades
  - Slide Rule Display (M3 Atrium)
  - Past, Present, Future (MC Comfy display case)—including a time capsule to be opened in 50 years
  - Items of Interest (MC 3<sup>rd</sup> floor display case near QNC bridge)
  - Artwork, furniture, and wall colours (MC 3<sup>rd</sup> and 4<sup>th</sup> floor elevator vestibule)
  - Graduate hotelling lab (MC 6<sup>th</sup> floor)
  - Omnitruncated Dodecaplex (M3 Atrium ceiling)—delayed due to various issues...
4. The original attempt to build the Omnitruncated Dodecaplex ran into some structural issues. You can find more about the attempt at <https://uwaterloo.ca/omnitruncated-dodecaplex/>

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UW'S BASTION OF ERUDITE THOUGHT SINCE 1973

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# A SERIES OF SPOOKY HAIKUS, 144.3

## IN THE OCTOBER CHILL

It's too damn cold out  
Seven degrees C? Crazy!  
Time to buy a coat

## POCKETS DON'T CUT IT

And some gloves as well  
My fingers are freezing off  
The wind makes them chapped

## VISITING THE GROCERY STORE

I should buy hand cream  
When I get my groceries  
At the nearby Zehrs

## I SEE CANDY

Boxes of candy  
Stacked up in packs of ninety  
It's making me drool

## THINKING OF HALLOWEEN

Too bad Halloween  
Isn't gonna be a thing  
Then I'd get a box

## IN A GENEROUS MOOD

You know what? Screw it  
"Treat yo' self." Isn't that right?  
I'm getting a box

## TO SHARE WITH A PICKY ROOMMATE

"Kit Kats are my fav."  
"Have 'em. I like Coffee Crisps."  
It's a chocolate feast

Finchey

## A MESSAGE FROM MEF

The Math Endowment Fund (MEF) is looking for students to join their funding council for this term. Join the MEF funding council which provides hundreds of thousands of dollars towards UWaterloo Math student initiatives! More information can be found here: <https://uwaterloo.ca/math-endowment-fund/funding-council-0>

Are you a Math student with an idea that needs funding? MEF Project Funding applications are due on November 6<sup>th</sup>. We have over \$180K to give away this term! Apply now! More information can be found here: <https://uwaterloo.ca/math-endowment-fund/funding-grants/project-funding>.

If you have any questions feel free to reach out to the Executive Director at [mefcom@uwaterloo.ca](mailto:mefcom@uwaterloo.ca)

Kanan Sharma  
MEF Executive Director

## EPISODE 10: DERIVATIVES KID VS THE TANNING GENT

On the following page, enjoy episode 10 of the MathSoc Edu-Action! series: MATH 137 Derivatives Kid vs the Tanning Gent! If you have any feedback you can contact the project manager Gavin Orok at [mathsoccartoons@gmail.com](mailto:mathsoccartoons@gmail.com) or fill out this survey: [https://bit.ly/cartoon\\_feedback](https://bit.ly/cartoon_feedback).

## THE FIRST ONE IS A UKELELE



Deriving for Dick

Gavin Orok

# MATH 137: DERIVATIVES KID VS. THE TANNING GENT

STORY BY GAVIN OROK, ART BY AVA PLIN (@avalovelace1)



WE SAY A REAL-VALUED FUNCTION  $f$  IS **DIFFERENTIABLE** AT A POINT  $a$  IF

$$\lim_{t \rightarrow a} \frac{f(t) - f(a)}{t - a}$$

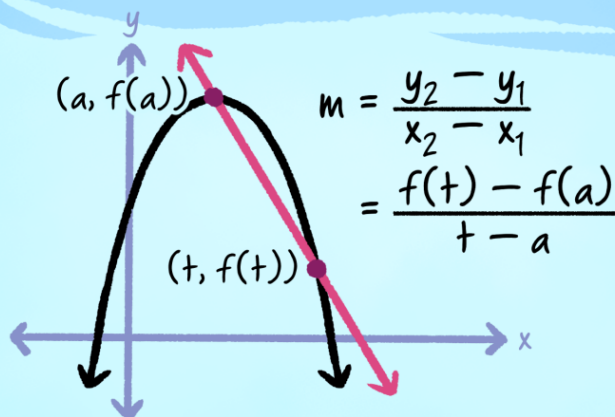
EXISTS.

THAT EXPRESSION LOOKS A LOT LIKE THE SLOPE FORMULA:

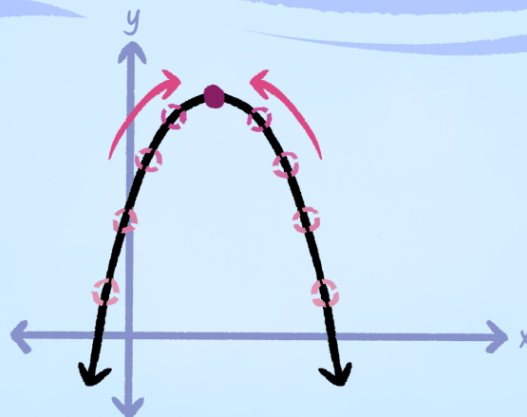
$$m = \frac{y_2 - y_1}{x_2 - x_1}!$$

MHM.

IN FACT, IT'S THE SLOPE OF THE LINE INTERSECTING THE TWO POINTS  $(t, f(t))$  AND  $(a, f(a))$  ON  $f$ ! WE CALL THIS A **SECANT LINE**.



IN THE LIMITING BEHAVIOUR, WE OBSERVE WHAT HAPPENS AS  $(t, f(t))$  APPROACHES  $(a, f(a))$  ALONG  $f$ !





IN THE LIMIT OF THE SECANT LINES, WE GET A LINE WHERE THERE IS **NO** DISTANCE BETWEEN  $(t, f(t))$  AND  $(a, f(a))$ : A **TANGENT LINE!**

THIS LINE \*JUST\* TOUCHES  $(a, f(a))$ .

SO, THE DERIVATIVE IS THE LIMIT OF THE SLOPES OF SECANT LINES WHOSE INTERSECTING POINTS ARE MOVING CLOSER: I.E., THE SLOPE OF THE TANGENT LINE AT POINT  $(a, f(a))$ !



**SUMMARY:**

- A REAL-VALUED FUNCTION  $f$  IS **DIFFERENTIABLE** AT  $a$  IF  $\lim_{t \rightarrow a} \frac{f(t) - f(a)}{t - a}$  EXISTS.
- THE **DERIVATIVE** OF  $f$  AT  $a$  IS THE SLOPE OF THE LINE TANGENT TO  $f$  AT  $(a, f(a))$ .
- TANNING PEOPLE LIKE DERIVATIVES. I BET THEY'LL ALSO LIKE INTEGRALS!

# HOW TO CREATE THE PERFECT ONLINE DATING PROFILE TO IMPRESS BEYOND META

Perhaps you are like me and you have reached the stage of the pandemic where you crave romantic partnership, but due to everything being cancelled you can't simply meet people irl, so you decide to try online dating. There is no one-side-fits-all approach to succeeding at online dating as it depends on who you are and what you want. I can't tell you how to impress the people you want to attract, but I can tell you how to create a profile that I would like.

## STEP 1: CAREFULLY CHOOSE YOUR PLATFORM

There are a lot of different online dating websites that on some level cater to different groups. If you want to be incredibly inefficient and ultimately fail at attracting my attention as I am not on this platform, you could be boring and pick Tinder like everyone else. The biggest problem with Tinder is that everyone's on there, and a person who has any standards probably doesn't want to actually date every possible person. Tinder should only be used if you just want a mindless hookup and anyone will do. If you are serious about actually attracting me, you are going to have to go with OKCupid.

## STEP 2: UPLOADING THE RIGHT PHOTOS

Alright, so uploading good photos is a bit of an art, but if you only take one piece of advice from this shitpost please let it be this: **Smile in your damn photos. And I mean a proper smile—no wimpy half smile. Smile like you actually mean it. Smile like the pandemic is actually over, you actually have hope for the future and are feeling genuine joy.** I even fucking bolded the advice so you couldn't miss it. The number one reason I will just straight out *nope* a profile without giving it a second glance is if you can't properly smile. Work with me here. I am ultimately trying to establish if I find you attractive and the single most attractive thing any person can do is smile. Okay, now that you are smiling in your photos, let's try and do a little more than the bare minimum a profile needs to be successful.

If you really want to impress me, you are going to want to take a quality picture of yourself with a clear view of your personal bookshelf. Clear enough that I can actually read some of the titles in the bookshelf. For maximum success, you get more points for having books I love. Also, you lose points for having books I dislike. So pack those shelves with fantasy and sci-fi titles. You will get points for having a lot of the same author: that shows you really like them. You will get points for having books I have never heard of with interesting covers. Not all your books should be the most popular pop culture mainstays. There should be unusual picks that show you have actual personality instead of being a generic human.



So that's one of your pictures, but you do want to have more that show the breath and depth of your personality. Have a picture of you doing something you are passionate about where it shows that this is your element. Have a picture of you doing some fun activity like unicycling. I have always wanted to ride a unicycle so I might just message you so I have a chance to ride a unicycle. You probably don't want to have a picture of a dog as I personally don't want to own a dog; that picture won't actually work for me.

## STEP 3: WRITING YOUR PROFILE

First thing: actually write something on your profile and don't be boring. Everyone wants to watch Netflix on the weekend. Instead, say something like looking for someone who is both down for watching *She-Ra and the Princesses of Power* and *Castlevania*. You can replace this with the appropriate disjointed pair that shows that you enjoy shows that have a jarring amount of contrast with each other. Really important: do not criticize women (or men) in your profile. You can express a desire for specific positive traits but any negative rants about women comes across as misogyny and is an automatic pass.

## STEP 4: ACTUAL CONVERSATION

Asking the right question is the easiest way to actually get a response. You can ask a simple innocuous question about a specific thing from a person's profile. If they mention they like some show, you can ask their opinion about a plot point from the show.

You can ask a silly question like: "If hoarding gold is way too mainstream, what kind of things would a hipster dragon hoard?". This question is utterly silly and is the sort of thing people would just enjoy answering because it's fun. And ultimately that's how you get a successful conversation—by making it fun. Asking about my job is boring, everyone asks about my job. I like my job but I don't necessarily want to talk about it 10 different times.

## STEP 5: MISCELLANEOUS REQUIREMENTS

For best results you should be a male 23–35 living in the Ottawa region. Flexible on living on the Ottawa region if you happen to be Brian David Gilbert. If you satisfy this specific requirement then congrats—you can just contact **mathNEWS** to get in touch with me.

This post was brought to you by frustration at all the mediocre profiles I have seen. Special shoutout to the guy whose profile was just a singular period. This is a bad strategy as everyone knows women hate periods.

# I'VE BEEN OBSESSED WITH CITY POP AND FRANKLY, IT'S THE ONLY THING GETTING ME THROUGH MIDTERMS

Anyone who knows me would know that I absolutely hate midterms, not that I've actually met **anyone** who genuinely enjoys midterms: I'm just saying, I personally would rather do **multiple assignments** in place of a midterm exam. Of course now that reading week has come to an end (rip), I've had to make a comeback in order to prepare for the rest of my midterms. Deepest sympathies to anyone who is also drowning in midterms like myself, they're so icky.

In the darkness of doing midterm preps, I have recently become obsessed with a particular sub genre of music known as *city pop*. Now you might be thinking, how did I even come across city pop music? Well, I'm glad you asked. The week before reading week, I had my first of three midterm exams assigned for my Human Resources Management class. While I was studying, I got bored and started to look for new music to listen to. I *love* finding new music, it's always a joy. Anyways, while I was hopping through different playlists on Spotify I came across Yukika Teramoto's music. I've listened to Yukika a few times before when she first debuted with her single *Neon* however, I didn't really take the time to listen to any of her other releases until **now**. Yukika's first full length album *SOUL LADY* is an amazing city pop album that I'd recommend to anyone who wants to try listening to city pop music for the first time. Yukika's soft vocals mixed in with the fun disco-like beats are the perfect embodiment of the city pop genre. The easiest way I can describe the genre of city pop is asian disco vibes music.

Over reading week, I listened to *SOUL LADY* well over 300 times which means it has been played so many times that it's become my #1 album of all time according to my last.fm account. I love Yukika so much that I would let her stomp on me any day. I even bought the physical copy of her album after the second time listening through the album. As a result of constantly streaming *SOUL LADY*, I got around to listening to other Japanese and Korean artists who have made amazing city pop music such as Bronze who actually just recently released a collaboration track with Yukika.

City pop music is *genuinely so fun* to listen to, whenever I need a pick-me-up or just want to vibe: I hop onto Spotify and play my *asian disco vibes* playlist which I'll have linked right here: [https://open.spotify.com/playlist/6qBNJZ8CuoYLkATrTsYDR?si=4iwcxMpQTCuJyJ\\_10-tSUQ](https://open.spotify.com/playlist/6qBNJZ8CuoYLkATrTsYDR?si=4iwcxMpQTCuJyJ_10-tSUQ)

This playlist is full of fun city pop songs that are easy to enjoy and appreciate. In my opinion, city pop is truly a *gem* to Asian pop music. I think that everyone should give city pop music a listen to at least once in their lives. In that playlist, I've also included songs that aren't necessarily considered city pop but just give off similar vibes as the actual city pop songs.

While I'm typing out this article, I'm currently thinking about how I have more midterm exams to study for that I really just want to ignore. But alas, *city pop is my lord and saviour here to save the day*. If it wasn't for city pop, I probably wouldn't survive the pain of midterms. Actually, my midterms are still going on so will I actually survive them? We'll just have to wait and see I guess.

Until next time,

HOEChiMinh

## N WAYS STAT 330 WILL MAKE YOU CRY

- Double integration
- Taylor polynomials
- "if i have to calculate another covariance tonight i will stab someone"

Why did I choose to be a STAT major

## VIOLINS IS NOT THE ANSWER



Aphf

# ALEXANDER HAMILTON BUT HE'S A CS MAJOR

WITH APOLOGIES TO LIN-MANUEL MIRANDA

[AARON BURR]

How does a failing, hopeless, scholar with grades that are rotten, dropped in the middle of a forgotten Village in Saskatchewan, incompetent, disowned by his father  
Grow up to study CS and make dollar?

[JOHN LAURENS]

The dual-major double-honours without past honour  
Got a lot farther by working a lot harder  
By being a lot smarter  
By being a self-starter  
By fourteen, they made him a COMC marker

[THOMAS JEFFERSON]

And every day while classmates would cry and be slaughtered  
By calculus and algebra, he struggled and kept his guard up  
Inside, he was longing fo' a diploma to be proud of  
The brother was ready to ace grade 12 with flying colours

[JAMES MADISON]

Then a pandemic came, and isolation reigned  
Our man saw his future drip, dripping down the drain  
Put a keyboard to his temple, connected it to his brain  
And he wrote his first "int main", compiled it first try no pain

[BURR]

Admissions got around, they said, "This kid is insane, man"  
Took up a collection just to send him to MC-land  
"Get your education, don't forget from whence you came, and  
The world's gonna know your name. What's your name, man?"

[ALEXANDER HAMILTON]

Alexander Hamilton  
My name is Alexander Hamilton  
And there's a million things I haven't done  
But just you wait, just you wait...

[ELIZA HAMILTON]

When he was ten his progress slipp'd, grades unfit, failed addition  
Two years later, see Alex and his homework, desk-ridden  
His dad, hitting him with a stick, the wrist flick

[FULL COMPANY EXCEPT HAMILTON (WHISPERING)]

And Alex got better but he still got kicked

[GEORGE WASHINGTON & COMPANY, BOTH]

Moved in with a cousin, the cousin discovered getting high  
Left him with nothin' but ruined pride, something new inside  
A voice saying  
"Alex, you gotta teach math to yourself"  
He started retreatin' and readin' every theorem on the shelf

[BURR & COMPANY, BOTH]

There would have been nothin' left to do  
For someone less astute  
He woulda been dead or destitute  
Without a sense of intuition  
Started workin', learnin' for his math contest awards  
Grindin' Euclid and DMOJ and CCC problems galore  
Scammin' for every book he can get his hands on  
Plannin' for the future see him now as he stands on (ooh)  
The 25C headed for a new land  
In UW you can be a new man

[COMPANY & HAMILTON, WOMEN, MEN]

In UW you can be a new man (Just you wait)  
In UW you can be a new man (Just you wait)  
In UW you can be a new man  
In UW, UW  
Just you wait!

[COMPANY]

Alexander Hamilton (Alexander Hamilton)  
We are waiting in the wings for you (waiting in the wings for you)  
You could never back down  
You never learned to take your time!  
Oh, Alexander Hamilton (Alexander Hamilton)  
When Waterloo sings for you  
Will they know what you overcame?  
Will they know you rewrote the game?  
The world will never be the same, oh

[BURR, MEN, & COMPANY]

The bus is outside DC now  
See if you can spot him  
*Just you wait*  
Another wide-eyed frosh  
Comin' up from the bottom  
*Just you wait*  
His enemies destroyed his rep  
And all his profs forgot him

[MULLIGAN/MADISON & LAFAYETTE/JEFFERSON]

We fought with him

[LAURENS/PHILIP]

Me? I died for him

[WASHINGTON]

Me? I trusted him

[ELIZA &amp; ANGELICA &amp; PEGGY/MARIA]

Me? I loved him

[BURR]

And me? I'm the damn fool that fired him

[COMPANY]

There's a million things I haven't done  
But just you wait!

[BURR]

What's your name, man?

[COMPANY]

Alexander Hamilton!

O(n)-Manuel Miranda

## QUESTIONS NOBODY ASKED ME BUT I'M GOING TO ANSWER ANYWAYS

FEATURING MY UNENDING ~~WISDOM~~ BOREDOM

### WHAT'S YOUR OPINION ON THE COVID PANDEMIC?

It's crazy. If in 2015 you told me the world will be shut down and changed forever because of a single virus, I would be completely shocked that humanity made it to 2020 in the first place.

### WHAT'S YOUR LIFE PRO TIP FOR FIRST YEAR STUDENTS?

Pick up jogging! Not only does it allow you to literally run away from your problems, but the constant cardio will also let you eat whatever you want without gaining the Freshman 15! The only downside is the Scurvy you will get from your shawarmanivorous diet, but that's a problem you can deal with in second year.

### WHAT'S YOUR HOTTEST UWATERLOO TAKE?

ECE, CS, and SE should all secede from Waterloo and create the Gates-Bezos School of Money (and Computer Research). This super-university will house Canada's smartest students who have never felt sunlight or the touch of a woman. More on this in my upcoming manifesto in next month's issue.

### WHAT MOTIVATES YOU TO GO THROUGH THE PAIN AND DIFFICULTY OF WATERLOO?

In first year, I was rejected by UofT Hacks. Since then, I vowed to always work as hard as I possibly could to never get rejected by a community college ever again.

### DESCRIBE YOUR IDEAL PARTNER IN 3 SENTENCES

1. Is really involved in Waterloo's university life
2. Is Turkish
3. Only communicates with me through official emails from the Office of the President

### SO LIKE, WHAT'S THE DEAL WITH WALRUSES?

I've been thinking about this a lot because the lockdown has finally driven me insane. Why do they look like giant seals with moustaches and elephant tusks? Did God hit *randomize* when he created them? They're like the Danny DeVito of the animal kingdom: I'm not sure why or how they exist, but the fact they do makes me take life a lot less seriously.

### HOW ARE YOU DOING IN THESE TRYING TIMES?

I'm clearly talking to myself through a **mathNEWS** article, so I would say I'm doing pretty well.

The Procrastinator

## TOURIST SPOTS IN MATH

This article idea was brought to you by a Markov chain.

- MC Comfy
- MathSoc Office
- PMAMCOC room
- TSA room
- Math C&D

[Editor's Note: What about the **mathNEWS** office? ☺]

Someone who needs to stop writing and do their homework

# HOW TO MAKE INSTANT COFFEE BEARABLE

## AN INTRODUCTION TO "BEATEN COFFEE"

I've loved coffee ever since I was a wee little 11<sup>th</sup> grader, looking for ways to stay up and finish homework for my coaching classes and study for my exams and watch anime (mostly the last one). But whenever I've made my own coffee, I've made it instant. The way I make it, called "beaten coffee"<sup>1</sup>, is apparently only popular in India and surrounding countries, and makes instant a lot more tolerable. So if you're like me and you don't have the patience to grind your own beans and brew your own coffee, consider this way to make your next cup of instant:

### APPARATUS REQUIRED

- 1 coffee cup
- 1 spoon
- 1 small bowl
- 1 saucepan

### MATERIALS REQUIRED

- 1 serving of instant coffee (anywhere from 1tsp to 1tbsp)
- 2–3 tbsp of sugar (you actually *need* this I don't know how to make it without sugar)
- Milk to taste (technically you don't need it but if you do have milk the coffee will be very nice and forthy like a cafe latte)
- Water

### PROCEDURE

1. Make sure the inside of the bowl is dry, and add the coffee and sugar to it. Mix it well.
2. Add *only a couple of drops* of water. Add an amount that looks like it's definitely way too little to wet all of the mixture. Remember, if you add too little, you can make it more—but you if you add too much, you can't make it less. Mix well once more—it should turn into a dark brown slush, about a bit thinner than cake mix. If it's drier/more powdery than a slush *after* mixing well, add a single more drop, and try again. The goal is to make the slush as thick as possible, and therefore add as little water as possible.
3. Beat this slush with the spoon like you would beat an egg. As you do so, the color of the slush will get lighter and lighter. Try to get your slush as close to beige as possible. This will be harder if you ended up adding too much water.
4. Add this slush to your saucepan, then add about 1 cup of milk/water mix. I typically use  $\frac{1}{8}$ <sup>th</sup> cup of milk and rest water, though you may want to do less/more depending on your preference. Heat it till you see the first few bubbles popping up. (Don't wait for it to start boiling! Scalding coffee is annoying and can actually taste worse.)

5. And you're done! Mix well one last time, pour it out into your mug, and enjoy a fresh hot cup of hopefully better coffee.

### OBSERVATIONS

The coffee that turns out is generally more frothy (if you add milk), and in my opinion slightly less flat and more flavorful. The caveat in this method of preparation is that if you're one of those people who doesn't have sugar in their coffee, you can't really do this, since the slush doesn't work if you don't add sugar. But then again, if you're enough of a purist to drink coffee without sugar, you'd also benefit a lot more from just getting a French press or pour-over coffee maker.

### CONCLUSIONS

That's all for today, folks. Remember to leave a like on my article, send comments to [spam@tendstofortytwo.tk](mailto:spam@tendstofortytwo.tk), and subscribe to **mathNEWS** for more articles like this.

tendstofortytwo

1. [https://en.wikipedia.org/wiki/Beaten\\_coffee](https://en.wikipedia.org/wiki/Beaten_coffee)

## RETURN TO FORM

*I HOPE TWO SET IS PROUD :P*



waldo@<3.LE-GASP.ca

# HOW TO GUARANTEE YOUR OFFSPRING WINS A FIELD'S MEDAL

After reading the first paragraph in Wikipedia about the literal god Terry Tao, my imposter syndrome went into overkill and I immediately drafted this seven step plan. Realistically, since the Field's medal is only handed out every four years to mathematicians under 40, and we've already wasted half of our only 10 chances to internationally prove that *no mom getting a math degree wasn't a complete waste of time and money*, we need a plan B. Sure, your parents screwed you up by not forcing you to do algebraic topology at twelve years old, but *you're* not going to repeat their mistakes.

So here we go; my patented plan on ~~ruining your child's life so that they make a movie about you a decade later about whether controversial parenting is justified when it creates a world class genius getting your kid to win a Field's medal.~~

1. Terence Tao was doing addition by two years old. Our kid can one up that easy peasy; let's have her doing algebra by that time. How long did it even take you to learn algebra in middle school, like six months? Two years is honestly quite conservative.

2. By seven, Tao was solving differential calculus. I think by that point our kid should be capable enough to do the same, but *better*. We're gonna keep her away from other kids and

engineering students; they'll only drag her down. IMO medals will undoubtedly be obtained.

3–6. Steps 3 to 6 are a little fuzzy, to be honest. But they should describe in detail the following 70 months involving your offspring's PhD, post-doctorate (can someone please explain to me how those are different??), a world-changing paper, and a goat.

7. And there you have it! A Field's medal—the greatest honor in the world, eternal glory, and endless cash all awarded to you for your extraordinary genius, enormous dedication, and years of tireless work. As a parent, I mean. Yes.

[Editor's note: But what about the Abel?]

## A cool pen name

Hey did you notice my unusual female pronoun when referring to a hypothetical human being? **\*Inspirational message about normalizing women in language, fuck yeah\***. Oh wait, did you really read that and think to yourself “Oh that's interesting, but sure I guess a child could be a girl too, yeah okay alright I can get behind this” and think I wouldn't call you out on that? Your self-realized progressiveness disgusts me.

## profQUOTES 144.3

### CS 350: LESLEY ISTEAD

“ I don't need a bar to drink; I've got a whole pile of whiskey sitting up above my head here.

### STAT 331: SAMUEL WONG

“ If any of you know where Starbucks coffee is sourced from, we might be able to find it in the dataset.

### ECE 105: FIRAS MANSOUR

“ Are there really 2.5 calories in just lifting this up? If I could do this a thousand times I could handle anything in the world. I could start eating people.

“ I did more work than just that because of monkeys jumping up and down on the book, lemurs pulling it down, and my alter ego doing stuff to me too.

“ There's cannabis in the magic molasses.

“ I produce my own marijuana in my head during my meditations.

“ What does P-O-G mean? Educate me on your language!

“ Who gives a shit, I mean who gives a damn. [*stares directly at camera, breaking the 4<sup>th</sup> wall*]

“ I've told you that I come up with my best problems when I'm smoking up something at the park.

“ I've never done drugs in my life [*nervous applause*] my brain was too precious.

“ You know what's your problem? It's the upper limit problem: When life gets too good, you eff it up.

“ Did someone say bullshit...it is bullshit. Hey my cocky friend, way to go.

“ Astronauts just wanna go aaaaahhhh all the time but they're trained not to do that.

“ I'm not going to draw a free body diagram of every creature on earth to get that.

“ He's applying the gas pedal and the brake pedal at the same time, I do this all the time on the 401. I know what I'm doing.

“ It's not pay to win you monkey.

# DIALECTICS

TUESDAY, MARCH 24, 2020 — A LUNCHTIME CALL.

*Ten dial tones. A pause. Three rings, then the sound of a phone being picked up.*

**Wordress:** Hello?

**Camien:** Hey Wordress, it's Camien! What's up?

**Wordress:** Hi Camien! Umm, not too much, I guess. I, uh, I've been trying to requisition some masks all day. They're, like, hard to find online.

**Camien:** Yeah, that's pretty funny, huh? I imagine mask company stocks must be through the roof!

**Wordress:** Uh, yeah, ha ha!

**Camien:** But how are you holding up, with school and everything closed and all that?

**Wordress:** Like, in terms of how I'm feeling? I guess I'm okay. It's been, uh, what, two weeks since classes flocked online? And last week was all cancelled for, like, profs to prepare, so I've been somehow bored and shocked at the same time. It's nice to have some unexpected time off, I suppose, but I just couldn't imagine, um, the whole situation going sideways so fast. How about your own structural integrity?

**Camien:** Huh?

**Wordress:** Oh, uh, sorry. I was trying to abuse 'holding up.'

**Camien:** I see... It's been going all right for me, lots of trying to figure out what to do with the rest of the Ballroom Dancing club execs since we're not allowed to run any classes anymore. It's a real scramble.

**Wordress:** Ballroom dancing! That, uh, sounds quite romantic.

**Camien:** It really does feel like that sometimes—I think we'll probably have to end up cancelling all the practices and the mock competition at the end of the term, though, which is a real shame.

**Wordress:** Um, have you been dancing for a long time?

**Camien:** Oh, not really. I joined around the end of September last year. I saw them at the clubs day and they convinced me to join, I guess. I'm our VP Finance, so it's not as if I have amazingly good dancing skills or anything like that.

**Wordress:** Uhm. Like, uh, maybe you can teach me some time?

*An uncharacteristically awkward pause. Out of sight of Wordress, Camien's eyes glaze over for a moment, as a memory lashes out. He shakes himself back to the call.*

**Camien:** Maybe. But, uh, anyways, on a different note, I wanted to ask about the article you wrote last **mathNEWS** issue. The one about how you don't really like academic writing? What was the title...

**Wordress:** Oh, thanks for asking! *Crisis of Clinicality*—that was the title.

**Camien:** Is 'clinicality' even a word?

**Wordress:** It, um, doesn't matter for this article—if it is, it's fine, and if it isn't, it's a rebellion against the formal academic language in the same way the article describes!

**Camien:** Huh, that works really great! I want to know more about the part where you said you don't like academic writing. I thought you loved all sorts of writing? I mean, the whole article's like just an essay where you bash academic writing as too boring...

**Wordress:** Oh, uh, not at all! I love academic writing too. Just—it's so *unexpressive* compared to, uh, poetry, or narrative writing, or. I guess I love it less?

**Camien:** Well, I think it's a very cool idea, and a very well written article. But I'd like to disagree: I think it *should* be clinical!

**Wordress:** Umm... are you, uh, challenging me to a debate?

**Camien:** [*Chuckling*] Haha, not right now. But, expect a friendly rebuttal next article.

**Wordress:** [*Giggling shyly*] Well, uh, I'll look for it!

**Camien:** Still, could you tell me a bit more about your article? I'd like some more background so I can possibly come close to rebutting your article.

**Wordress:** Uh, sure! I guess, um, let's start with where I got this idea from. I was, like, in an English class on academic writing. Uh, ENGL 109, I think, and...



**Wordress:** ...and that's, uh, the time Sarah and I snuck into the SE Lab! [*whispering*] By the way, um, don't tell Sarah I said this, but, like, I actually hate *Carnage of Glory*. Like even the title is just, uh, so *generic*.

**Camien:** Your secret's safe with me.

**Wordress:** How, um, did I even get to talking about that? Have you, like, done stuff like that too?

**Camien:** I guess I'd better give you some dirt on me, too, as like collateral, ha! Let me tell you about the time Blas and I stink bombed Dana Porter.



**Wordress:** Hang on, um, is this the same Blas I know?

**Camien:** In first-year science?

**Wordress:** Uh huh.

**Camien:** Must be! Small world, huh? It all started when some very not nice people tried to steal our study space...



**Camien:** And no-one even dared try to mess with *that* room again. I mean, we had it booked through all the official channels; they were the rule breakers. I think the whole room stank for a week! It came out eventually. Blas is good at stink bombs.

**Wordress:** Wow... That reminds me of some childhood stories I once read, with, um, all sorts of, like, hijinks and stuff like that. You could turn that into a **mathNEWS** article! If you're, uh, not worried about getting in trouble, I guess...

**Camien:** We'll see what we do with that. *[pause]* Umm, anyway, I, uh, need to get going, sorry. I've got an online lecture in about fifteen minutes.

**Wordress:** Um, no worries! It was, uh, splendid talking to you!

**Camien:** Same here! Ya know what I find neat about phone calls?

**Wordress:** What, uh, do you find neat about them? I'm intrigued.

**Camien:** They're so *pure*. When you're talking with someone in person, there's always, like distractions. If you walk by a snowman, you might stop, take a few pictures, then start talking about it. Then the conversation goes that way.

**Wordress:** Um, can't that happen with phone calls too? Like, with you noticing a fly in your lunch and mentioning it or something?

**Camien:** You're right! But I think it's so much of a lesser effect since only one person is really there and has to describe it to the other, so they can only comment from on it from a second-hand perspective. You don't get to hear their original thoughts.

**Wordress:** Woah, I've, um, never thought about that.

**Camien:** And that's why it's such a pure medium. We're the only people driving the conversation. We're drawing words from nothing but ourselves! That's the bad part, too, I guess. You don't get to see how people interact with everything around them. I wonder what you'd do if a goose ran at you?

**Wordress:** Probably, um, run.

**Camien:** Well *[chuckles]* we'll have to wait to find out, huh? It's such a richer experience in person.

**Wordress:** Um, big article idea?

**Camien:** Maybe, I guess. Anyways, gotta run!

**Wordress:** Wait, uh, do you, like, want to do this again sometime? Like, umm, next Tuesday again?

**Camien:** Sure! Same time?

**Wordress:** Uh, yup!

**Camien:** All right! Talk to you later then!

**Wordress:** Bye, Camien!

*A click. A smile of Wordress' as she lowers the phone.*

CC

## AN ARTICLE I'D WRITE IF I WAS SALTY AT THE DESIGN RECIPE WHICH I'M NOT

```
; thisFunction(a, b, c) takes some obscure variables
;; and does whatever the fuck I want it to do.
; //examples

(check-within (thisFunction 1 2 3) 3 1);

;; (thisFunction a,b,c); Any, Num, Nat → Any

(define (thisFunction a b c)

(cond [(equals? a 0) b]

[else b]))

;; Tests
```

*A cool pen name*

Why am I so hollow inside? The rage I feel dissipates into thin air as I commit empty sins of spite and adultery. I am left with the heavy weight of my lungs pressing against the thick layer of muscle inside my calloused skin as I hide my true emotions. But I am betrayed by a longing for honesty and vulnerability. My muse is gone, replaced by a mandatory fake wile I wait for the seasons to change and the familiarity of object-orientated programming to return to me; myself, back to me. O' Java, I will not break your faith. But will I be worthy of your love if my integrity is ne'er recovered?

# SE'S SECRET LABORATORY II

CONTINUED FROM LAST ISSUE'S SECRET LABORATORY I.

FRIDAY, OCTOBER 11, 2019 — WILLIAM G. DAVIS COMPUTER RESEARCH CENTRE, SE LAB.

The tattered “Software Engineering Lab” sign flapped as the door swung open inwards like it had been kicked. Wordress flinched at the sudden movement.

Standing in the doorway was a tall, bony, glasses-wearing man. He brushed a few strands of hair to the side and blinked blearily at Wordress and Sarah. After recovering from her surprise, Wordress tried a smile and waited for the man to speak. She noted the bags under his eyes. He didn't fill much of the door frame, and Wordress caught her first glimpse of the lab beyond. Suspended from wires attached to a tall ceiling, rows of bright white lights illuminated several office tables along the wall by the door. Dated-looking desktop computers and monitors sat atop the tables, and she spotted two guys locked in fervent discussion about something technical.

Several seconds later, it became clear to Wordress that the man was probably waiting for her to say something.

“Uh. Um, hi,” Wordress started, her hand trembling slightly with nerves that weren't there a minute ago. This was her heist! “Can we come in? We're, um, looking for a place to study.”

“Sure.” Bleary-eyed stepped back and held the door to let Wordress and Sarah pass. Wordress felt a rush of excitement, and took a few tentative steps forward, digging her fingernails into her palms to try to calm her jitters. *Since when was I such a nervous person?*

Wordress had just stepped past the man when he spoke again.

“Wait,” he said.

Wordress froze. *Crap, we're caught*, she thought. But when she turned to the man, she saw he wore a slight sheepish grin.

“I know this really sounds quite silly probably, but the new rules say we have to check you're actually SE students. Can I see your WatCard?”

Wordress sighed, and started to reach into her purse for her WatCard. Before her hand was halfway, Sarah interrupted her.

“Ya, wouldn'a have em right now,” Sarah jabbed a thumb at Wordress. “Gal lost hers yesterday, an' mine's forgot.” Wordress looked at Sarah in befuddlement. *Play along*, the slightest twitch of an eyebrow said. Wordress gave a nod of agreement to the man in front of her, and Sarah continued. “Can let us in this time? Ya, we sure ta bring What Car next time?”

The man looked back and forth between Wordress and Sarah for a few moments. “I dunno. I don't recognize you from SE

classes either. I don't wanna be a hardass, but you've got to understand we've had all sorts of problems with computers going missing and whatnot.”

“But, um... we won't steal anything! We're, like, uh, SE students too, why would we steal from, er, our lab?” Wordress tried.

The man was unmoved. “Sorry, rules are rules. Oh, I'm guessing you don't know the door access code either, which you should get since there's not always going to be someone like me to let you in. It should have been sent start of the term from our SE prof, check your inbox.” He gestured for the two to exit.

Wordress turned about and walked out of the lab. She could feel her face heating up in embarrassment. Sarah, however, wasn't one to give up so easily, and she haggled and pleaded and scolded with the man.

“Ya, come on! Aren't ta all tha students in already? Ya can watch us, make sure we na stealin' nothin'!”

“Sorry. No can do.”

“Na, takes weeks for What Car people ta get us new What Cars, and midterms are now, we need tha study space now!”

“Fine. Maybe if you can show me, like, both your hard hat and pink tie I can let you in.”

“Tha's from orientation! Weeks ago!”

“Sorry, not my problem...”



Sarah tried a few more salvos of pleas and demands until she realized the man wouldn't be letting them in that day. Once they were out of earshot, Sarah grumbled in agitated ire for the next few minutes, commenting profanely on the stubbornness of Software Engineering students and their forebearers. After she'd calmed down, the two found a quieter corner in bustling DC.

“Good thin' ya didn't show him ya What Car, Wordress. Tha SE students must have some special one, ya?”

“Um, thanks for noticing that, I was just about to show mine.” Wordress drew her WatCard, and flipped it over a few times in her hands, skimming the contents. Her photo's owlish countenance returned her glance with a piercing gaze. *Varma, Wordress J.* Her student number. *Mathematics, Undergraduate.* “It's probably the 'Mathematics' part, huh? They might have something else on their cards...”

Sarah clapped her hands. “Ya, tha must be it. Do ya think he real 'bout tha har' hat an' pink tie? Lettin' us in if we can find em'?”

“It, uh, sounded a little like a joke. But, like, not entirely. I guess we could, like, try... that is, uh, if he's still there on Monday.”

“An' where we get a har' hat?”

Wordress smiled coyly, and paused rather dramatically. “I, uh, might know someone.”

“Gotta drop tha 'uh', Wordy, when ya droppin' lines like tha.” Sarah shook her head as she bared her teeth in a grin.



**SATURDAY, OCTOBER 12, 2019 — VILLAGE 1, MAIN COMPLEX.**

Mid-afternoon, and Wordress and Sarah were perched atop stools next to the tall windows of the VI common space. It was loud. Billiard balls clattered on nearby pool tables, students chattered over assignments and lunch in comfy chairs, and a tour group of wide-eyed parents and high-schoolers wandered through the midst of it all. Beyond the bustling commons, Wordress could see more students lining up for lunch in the cafeteria, where pizzas baked and burgers sizzled. It was busy, but over it all lay a sense of comfortable ease. A lazy autumn Saturday morning, with the soothing thought of a Sunday tomorrow.

Blas arrived with exacting punctuality but smiling spirit, a yellow hard hat on his head, and another tucked under his arm.

“Hey Wordress! Oh hi, Sarah!” Blas waved with his free hand as he ran towards

“Ya, Blas! Na way!” Sarah looked at Wordress incredulously. “How'd ya know Blas got har' hats? Ya in science, not engineerin'!”

“Oh, he, uh, has his ways...” Wordress tried her best to sound mysterious, but broke up in a slight giggle.

“Yes, I have my ways. Shhhh.” Blas played along. “I have—contacts. Anyway, two University of Waterloo Engineering Orientation hard hats for your wearing pleasure. I'd like them back by Friday, if you would be so kind.” He handed one each to Sarah and Wordress, then took a sweeping bow.

“Aaaah, thanks, Blas!” Sarah hopped off her stool and embraced Blas in a hug.

“I'm so happy to see you two!” Blas said over Sarah's shoulder. “I feel like I haven't talked to you two in so long. How's midterms going?”

“Ya, funny thin'. It's been real har' ta find study space, but I think we got some chance for gettin' some ta study for midterms!”



**MONDAY, OCTOBER 14, 2019 — WILLIAM G. DAVIS COMPUTER RESEARCH CENTRE, SE LAB.**

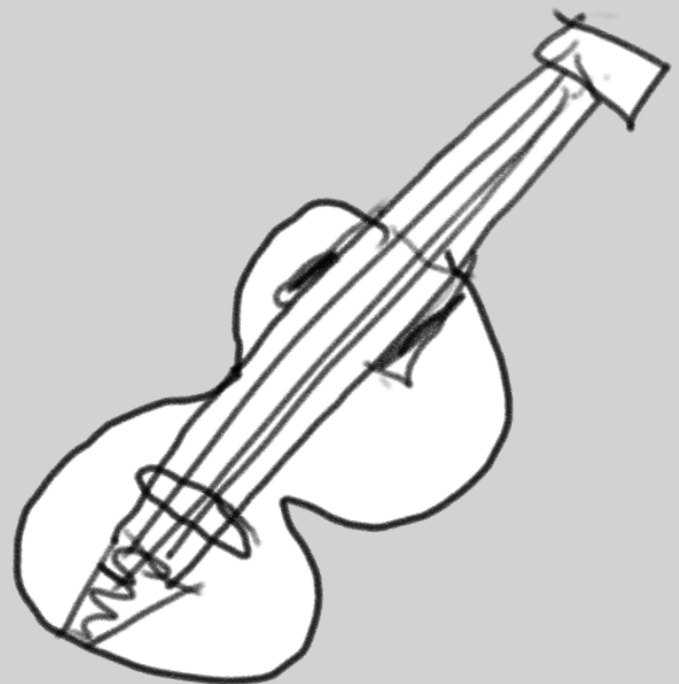
Wordress didn't flinch this time as the door to the lab flew open. The same tall, lanky man stood in the doorway. The bags under his eyes had receded, and he seemed considerably more chipper as he again waited for Wordress to speak. There was some music coming from the lab, and some excited shouting, but Wordress ignored it.

“Uh, hi again!”

“Still don't have that door code?” The man asked. Wordress started to think of some excuse. “It's okay. Lots of us just knock anyways; since we know each other it's all right. Find your WatCard?”

“Umm, no, sorry. Sarah, uh,” Wordress gestured at Sarah, “couldn't find hers either... But we, um, dug up our hard hats and pink ties?” Wordress ruffled around in her backpack, produced her orientation pink tie and borrowed hard hat, and meekly proffered them for inspection. Sarah did the same, albeit with significantly more gusto.

## GRATE VIOLIN PICTURE



“Oh, to be a first year again! That'll do.” The man chuckled, and waved for them to enter. “So sorry about last week, but rules are rules, ya know? I didn't quite catch your names either.”

“Uh, I'm Wordpress.”

“Ya, name's Sarah, pleased to meet ya.”

“Mine's Aaron. Hope you like the lab! Let me know if you have any questions about Software Engineering—us upper years have been through a few terms of the program and might be able to help.”



They were in. But as Wordpress walked in, she saw the room wasn't quite the same as last Friday. Gone was any semblance of studiousness. Instead, garish posters were up on the walls, of fantastic monsters, heroes, and bloody red text: *Carnage of Glory*, available for download on the mobile platform of one's choice.

Throbbing electronic music shook the ground. Half the lights were off—someone had set up a colourful laser projector on a table in the centre of the room, and dazzling patterns scoured the ceiling. SE students were seated at the tables along the walls, and shouted fervently at monitors upon which flurries of dizzying animations and movement exploded. Ten more students were seated at the centre table, five to a side, facing each other. They were engrossed in their phones, tapping furiously and shouting back and forth with the others beside them.

“What's, um, up with the getup?” Wordpress said after a shocked moment.

“SE midterms are done, so it's time for the 2019 Software Engineering *Carnage of Glory* Championships!” Aaron shouted over the noise. He didn't notice the bewildered expression Wordpress' wore.

“Uh, doesn't the sign on the door, like, say no video games?”

“*Carnage of Glory* isn't a video game. It's *sport*. It's *art*. It's the greatest mobile game of the century!”

Wordpress couldn't comprehend how she and Sarah needed solid proof to get in, but the SE students could host a *gaming tournament* in a lab that clearly stated they weren't allowed to. Nonetheless, she didn't feel like she was in a position to argue, given that the rules said that she wasn't exactly supposed to be here either.

“Ya, *Carna' jo' Glory* is tha greatest!” Sarah yelled back. “Wordy, I've been tellin' ya ta try it! Now's ya chance!”

Wordpress looked at the absurdly different room she'd just walked into. She looked at Sarah, whose eyes and mouth were wide with excitement. She looked at Aaron, ecstatically cheering at something that had just happened on a screen across the room. She took in the lights. The music. *The energy*.

And Wordpress realized she wasn't going to get any more studying done today.

CC

## 10 IMPORTANT WORDS AND THE ADVICE THAT COMES WITH THEM

*If you only had 10 words to pass on the most important pieces of advice that you've learned so far, what would they be?*

**Hug them more.**—This may not exactly be relevant if you're not a huggy person like I am, but you really never know how long the people in your life will be around. Hug those you care about more, and treasure the happy memories you make while you have them in your life. This kitty still misses her big cat even years on (see **mathNEWS'** “A Dose of Real Life” in v128i6), but those extra hugs are worth holding on to.

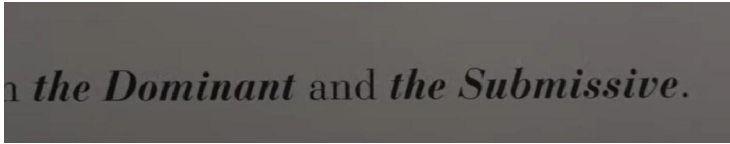
**Trust your instincts.**—I have never regretted dropping the courses I felt I needed to, or taking the time I needed to heal when I just KNEW something was wrong. I have only ever regretted not following through on some of those feelings, and having some unpleasant consequences as a result (failing courses is not fun, and neither is being unwell and trying to “push through” when it's just not happening). Your instincts are worth listening to...especially when it's your wellbeing on the line.

**You'll change. Embrace it.**—I am definitely not the same person I was when I graduated high school. I've been through a LOT in the time since then, and have a lot more experiences and insights to inform any future decisions. No doubt you will have your own unique experiences as time progresses, and it may feel really strange to look back on the person you were without some of them. Those experiences you have had however help make you the you that you are right now, and it is worth seeing yourself and how far you've come with all you've accomplished. Who knows where you'll be in N years in the future, but it will be no doubt filled with all sorts of changes that can be for the “better” (through information, awareness, or even just healing) and worth embracing. It is ok to change your goals too if you realize there's something else you wish more in the future than your present self does. Embrace that change.

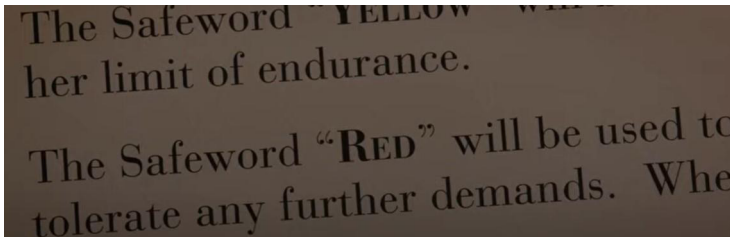
*A Mediocre Kitty*

# FIFTY SHADES MORE DISTASTEFUL: DRESSED IN LATEX

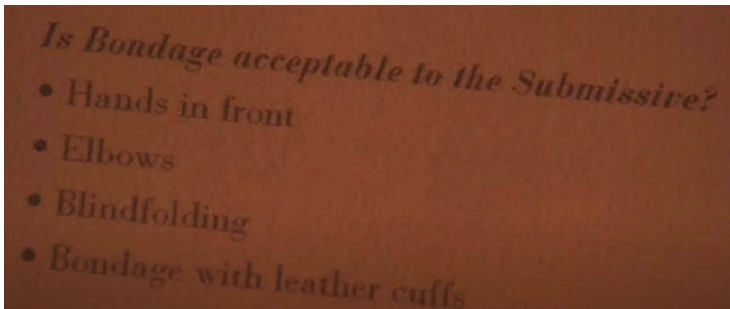
While researching for a previous fifty shades article, a funny little tidbit caught your humble author's attentive eye. During the montage when our scrappy heroine is learning about Christian Grey's unique interests, we glimpse but a few frames of the controversial BDSM contract. But despite its stigmatized role in popular culture, the most revealing aspect of that document is arguably its uncanny similarity to the Computer Modern typeface (famously known for its default use in LaTeX). Consider these carefully captured screenshots, obtained after hours of painstakingly combing through the trilogy entirely for purposes of journalistic integrity:



FIFTY SHADES CONTRACT: ITALICS, BOLD, AND REGULAR STYLE



FIFTY SHADES CONTRACT: SMALL-CAPS BOLD STYLE



FIFTY SHADES CONTRACT: POSSIBLE ENUMERATE ENVIRONMENT?

*the Dominant and the Submissive.*

The Safeword “**RED**” will be used to tolerate any further demands.

*Discipline are acceptable to*

- Whipping
- Genital clamps

*Is Bondage acceptable to the Submissive?*

- Hands in front
- Elbows
- Blindfolding
- Bondage with leather cuffs

## POSSIBLE LATEX MODELLING OF THE AVAILABLE STYLES SEEN IN THE MOVIE

Only the most hawk-eyed individuals can spot the differences. When this was brought to attention at the mathNEWS investigative platform, a number of minute discrepancies were pointed out. However, this of course sparked a query into the hidden intent behind the director's creative choices. Was this a subtle nod to the correlated name of the formatting language to the BDSM community? Does Christian Grey have a background in mathematics education? Or, and this is hypothesized to be the likeliest conclusion, does LaTeX fundamentally provide the best typesetting for all document writing, both inside and outside the scope of math?

The incredible thesis of this article may be that, as LaTeX gains a wider audience, its infinite uses outside of mathematics will become both apparent and normalized. As it should be.

While the contract was likely not written entirely in Computer Modern (a social setback, evidently), a great amount of research led to the discovery of the little-known font **Bauer Bodoni** that was used in the movie. However, as this particular font does not have a small-caps bold style, the precise formatting of Christian Grey's contract is still in question.

E.L. James' third cousin twice removed



A EDITOR

# BOLDBLAZER'S FAVOURITE PART OF HALLOWEEN, PRE-PANDEMIC

Story Time!!!

Once upon a time, way back in my younger days, I went out in the neighbourhood for Halloween with my mom, my brother, my mom's friend and her kid. As the night progressed, both moms ended up being surprised by just the sheer number of people I came across in the streets who knew me. I assume that they expected some people who were in my class or grade to know me, but not to the extent that even people I didn't know myself at school knew me. By the end of the night, my mom's friend would ask if I was in some school mafia. I didn't know what to say; even I was surprised by the number of people who actually did know me. That was quite the experience, I'd say, and it still remains one of my favourite memories of Halloween, considering that it's one of the few things I remember about Halloween to begin with.

[This has been an [Editor's note: **failed**] experiment in writing an entire article for a **mastHEAD** entry.]

boldblazer



alyssnya

## NEWS™

One of the reasons **mathNEWS** contains so little news is because all articles featured in this paper have to be submitted 5 days in advance of publication, in order to give the editors enough time to do whatever mysterious editing work they are paid to do [Editor's Note: *Damn, we're getting paid?*]. This means that any potential news published would be pretty outdated by the time it was publicly available. This obstacle is very much a roadblock for most, however, I have found a workaround. I just have to predict future news. Easy enough.

And what better subject is there to predict than one that we have all already seen play out.

As of writing this, there have been two new confirmed cases of COVID on the Waterloo campus, bringing our total up to three. This is a shamefully small number when compared to Laurier, but alas, what are you gonna do. Anyway, my prediction for future news (which is now either present or past news) is that by the end of next weekend, after the 25<sup>th</sup> of October, there will be ten confirmed cases of COVID on campus. Hell, we probably have more than ten active cases right now (as of writing), but those people have not been tested. Two weeks after that we will be up to at least fifty. Who knows how long campus will be open after that.

Some more news that is new for you and future for me: the NDP has won the BC general election, I received 11% on my CS midterm, and UWP was destroyed in an asteroid impact at 12:31 A.M. on the 27<sup>th</sup> of October. Attempts made by the university to commemorate the incident function as super-spreader events.

A **mathNEWS** writer who acquired a crystal ball under completely legal circumstances

## CS STUDENT WRITES ECHO \$(CAT ...) IN BASH SCRIPT, DIES



"Finally," everyone exclaimed.

jeff

# WAITING FOR THE CALM AFTER THE STORM

## gridCOMMENT 144.3

Hey, everyone. Reading week passed by in a blur and we've been thrown back into school in a jolt (at least I assume I'm not the only one who felt like there was a weird time distortion and reading week was suddenly over). I hope everyone's midterms went well/are going well/go well.

I have once again received a single correct solution submitted for last issue's crossword (and once again only one submission total). This submission was by none other than the same person as last time, NitricAcid. Their answer to last week's gridQUESTION, "What do sheep count to fall asleep?" was

"Sheep are mathematicians, so clearly they count ordinals."

This gridWORD's theme is "Mystery of the Century". The gridQUESTION for this issue is "What would your ideal mythical creature look like?".

Please email your gridWORD solution attempt to [mathnews@gmail.com](mailto:mathnews@gmail.com) with your name or a moniker, and your answer to this issue's gridQUESTION.

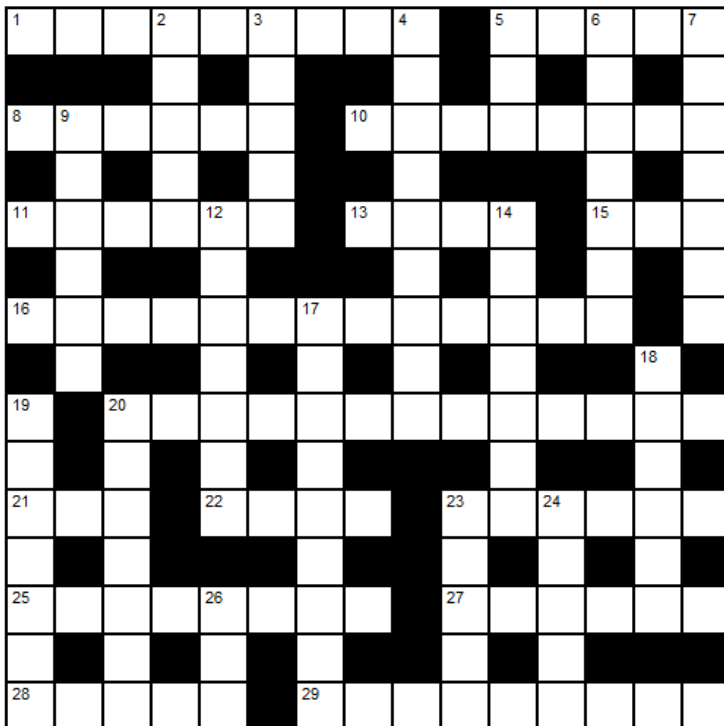
Cloak and Vorpal Dagger

### ACROSS

1. With company and a nun, a percussive instrument leads to a quandary (9)
5. Startle a siren (5)
8. Partly managed lying of old age (6)
10. Supporting framework keels bizarrely, not left (8)
11. False turn meanders between Uruguay and Ecuador (6)
13. Guest heeded, held you (4)
15. Back talk leads to reward (3)
16. Story about death from mixed red rye rum reported to contain mist (6,7)
20. A belgian detective fixes our helicopter (7,6)
21. Some cruel regret (3)
22. Who oddly hid part of a sweatshirt (4)
23. Call for aid when prime minister secretly injured heel (4,2)
25. Detach nets back by a fun commotion (8)
27. Confession mixes-up SWAT, I am torn between sides (2,3,1)
28. Actively loves to work out (5)
29. Adept at arranging mule rafts (9)

### DOWN

2. Ends plunder below (5)
3. Yodel excitedly at detective writer (5)
4. Hurry to create flavour, replacing them with him (4,5)
5. Hurt in a sailboat (3)
6. Body examination with short psychological by car (7)
7. Affluent enemy, do convert (7)
9. Group around me shows brilliance (6)
12. Discover one french planet (7)
14. See pit through peephole (7)
17. Museum holds each old email service and a crypt (9)
18. Consulting detective sees first loss in houses (6)
19. Mortuaries don't humor guests, essentially (7)
20. Mindful to take notice fully, without ending (7)
23. He is the start of robbery (5)
24. Almost scowl at bottommost (5)
26. View large lake, say (3)



## LAST ISSUE'S gridSOLUTION

C	O	N	S	P	I	R	A	C	Y		B		P				
A		A		R			U			J		E	R				
M	U	R	D	E	R		K			R	A	V	A	G	E		
E		W		Y		B		G		G		G		D			
L		H				E		U		U		L		A			
	J	A	Y			P	A	R	L	I	A	M	E	N	T		
C		L		Y	A	K		L		R		S		O			
A						W				G				R			
S		F		A		G		H	A	M		P		S			
S	A	L	A	M	A	N	D	E	R		A	R	F				
O		I		B		U		R				I		C			
W		P		U		S		D			B		C		H		
A	S	P	I	S	H			E			C	A	C	K	L	E	
R		E		H				L			L		L		W		
Y		R						U	N	K	I	N	D	N	E	S	S

Send your  
gridWORD  
solutions to  
[mathnews@  
gmail.com!](mailto:mathnews@gmail.com)

A VERY LONELY  
mathNEWS EDITOR WHO  
DESPERATELY CRAVES  
HUMAN INTERACTION

# lookAHEAD

SUN OCT 25

MON OCT 26

TUE OCT 27

WED OCT 28

THU OCT 29

FRI OCT 30

SAT OCT 31

Tuition and fee refund  
deadline (50%)

🎃 Halloween 🎃

SUN NOV 1

MON NOV 2

TUE NOV 3

WED NOV 4

THU NOV 5

FRI NOV 6

SAT NOV 7

mathNEWS 144.4  
production night

Election Day (U.S.)

Watch the U.S. burn day  
(Worldwide)

Course selection period  
ends

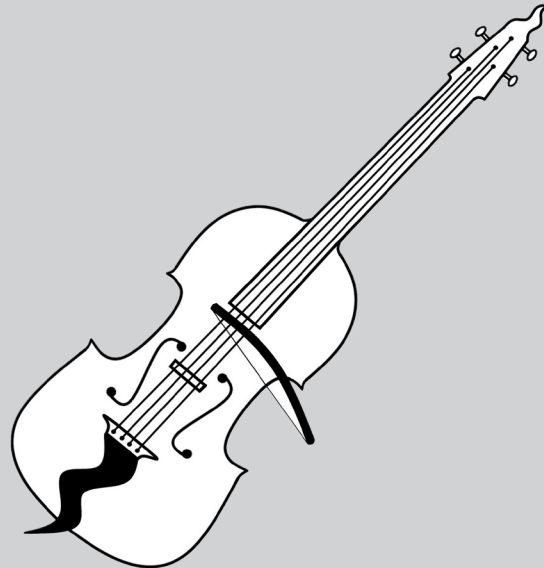
mathNEWS 144.4 released

## GREY VIOLIN



Joe Biden

## VILE-LIN



Gavin Orok

## THIS TOOK 3 YEARS



George Lambrou