# mathNEWS

**Volume 108, Issue 5** **Friday, November 14th, 2008**



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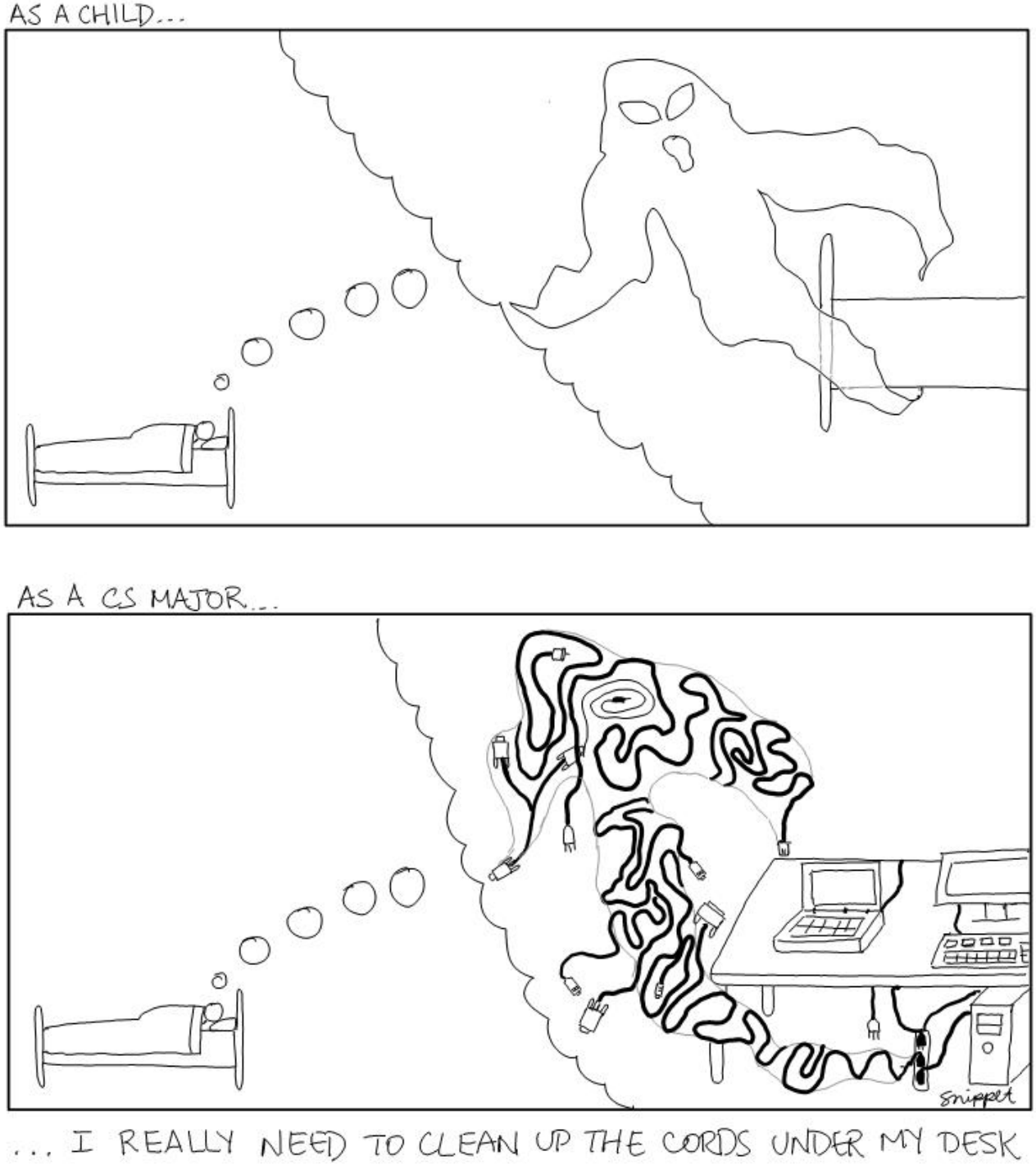
## NIGHTMARES



# *look*AHEAD

| | |
|---|---|
| ***math*NEWS** | |
| November 14 | Issue #5 inspires outrage |
| November 24 | Production Night #6 |
| | Meet at MathSoc at 6:30 |
| November 28 | Issue #6 causes student procrastination |
| **MathSoc** | |
| Wednesdays | Games Night |
| November 17 | Math Idol |
| **Math Faculty** | |
| Questions about some of these? See an academic advisor! | |
| December 1 | Lectures End |
| December 4 | Last Day to Drop a Course w/o Petition |
| December 4 | ELPE (for those who need to write it again) |
| December 5-19 | Exams |
| December 24-31 | University Closes |
| **CECS** | |
| November | Continuous Phase Ongoing |
| **Student Awards & Financial Aid** | |
| November 19 | Last day to fill out Confirmation of Enrollment forms |
| **Miscellaneous** | |
| November 19 | Columbus discovers Puerto Rico (1493) |
| November 20 | Día de la Revolución en México |

# Women in Math

The Women in CS Committee invites female undergraduate and graduate students, faculty and staff in CS and SE to the:
Women in CS Grace Hopper Panel and Social Event
Date: Friday, November 14
Time: Noon - 1:00 p.m.
Place: MC5136

Grad and undergrad students who attended the Grace Hopper Celebration of Women in Computing Conference will speak about their experiences. Their trips were funded by the Women in CS Committee and the Math Endowment Fund. We plan to fund students to attend in 2009 also.
Dessert and beverages will be served!

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Raphael: Michael Perkins
Samael, Azazel, Semyazza: John Stevenson, John Baxter and Rami Finkelshtein

# *mast*HEAD

This week, the editors-in-training finally took over *math*NEWS in what was a rather unexciting, yet bloody, coup. Strangely, we feel that the only real victims are the readers. That, and the three writers who died in battle. We've replaced them now with frosh.

Much like Rome after the death of Julius Caesar, we now have three editors-in-training competing for the prestigious position of *math*NEWS editor. I've already placed armed guards at the pizza drop-off location in order to dispose of Static IP. So, in the spirit of subterfuge and survival, I asked the writers "How would you get past the guards?" Their answers were: cuppycake (Slap him on the face), CODE: (access_granted divide-them-by-zero), Megaton Panda (Lots of kitties!), AntiThor (I first went upstairs, then downstairs, then at the end of the day made electricity with my hands.), 42 (Guards? What guards? You don't mean graphics, do you?), Snippet (Whip them with the cords from under my desk), Matt (Draw a circle around me and declare myself to be outside), Thor (Obama will be tragically slain by the guards, but he will rise from the grave three days later to save mankind), Cypher (We are not the intruders you are looking for), Jeff the πrate (A clever ruse, pillaging a nearby town and sneaking by in the confusion), DaFink (I would jump dramatically through the air confusing them and possibly breaking my legs), The Hee Ho (Use the password Hee Ho) and finally Static IP (By hiding in a cardboard box).

Have it that way, then, Static IP, for your days as editor-in-training are coming swiftly to a close. I will find you and your cardboard box!! Mwuahaha!!

Next fortnight, we'll see which of the editors-in-training has the guts to punch out another editor-in-training. Most likely, this is a prank the real editors play on the us before granting us the secret password to the hidden areas of the *math*NEWS production system. If so, I feel sorry for whoever becomes editor-in-training under me.

Impulse Vector "They're my guards!!"
Editor-In-Training

# Super Smash Bros Brawl Tournament

- What: Super Smash Brawl 1 vs 1 tournament, no items, limited stages
- When: Wednesday, November 19th, 5 a.m. to midnight.
- Who: Hardcore Brawl Players
- Where: The SLC Great Hall
- How Much: $5

Sign up early at www.uwgamers.org.

UWGamers

# The InsideReport

*The news. As I see it.*

So there we have it. The votes have been counted. The Republicans have booed (and quite viciously I must add). And history has been made in America.

But you've already heard that enough, so I'll move on.

This is normally the time of year where bears go into hibernation. However, if you have been watching the markets lately, you will notice that the bears are coming out fiercly this year. Many are advising against getting into the deep woods that are anything more risky than a bank account. In addition, financial advisors from Jellystone Park & Co. are telling me that this is a bad time to invest in pic-a-nic baskets.

A 14-year-old video game addict from Barrie died last week after falling from a tree. After his parents took away his Call of Duty 4 game on Thanksgiving Day, some suspect that he attempted, apparently unsuccessfully, to replicate some of the moves from the game. May this be a lesson to all of the video game addicts reading this paper.

Finally, with tomorrow (read "this past Tuesday") being Remembrance Day, I wish to say, on behalf of all of the *math*NEWS staff that agree, a massive thank you to all of those who have served our country in the various conflicts over the past century. I would not have the courage to do what you have done.

Please, send me more comments! More questions! More angry letters! Though fewer attempts at infecting my computer would be appreciated. Send me an email at `mathNEWS_InsideR@hotmail.com`.

InsideR

PS To address the issue of last issue's *mast*HEAD. I thought the question was "Where were you when we were hiding the bodies?" to which I answered "I fled the country." Now knowing that the question was "What would you call Charity Ball?", I must now change my answer to "Why I fled the country."

# PMAMC&OC

That's right, it's time for SASMS (Short Attention Span Math Seminars) again. If you don't know what it's about: SASMS is an event hosted by the PMC and MathSoc, funded by MathSoc. Students give short (about 30 minutes) seminars on interesting mathematics subjects to their peers. Topics can vary widely, from mathematical games, to programming, relativity, graph theory, knot theory, history of mathematics/mathematicians, and much more. For the most part, topics will require little to no prior experience and hence is accessible to first years. As a side note, there will be food and drinks provided!

Here is the info:

Date: Monday, November 17
Time: 5:00PM – 10:30PM
Location: MC 5158

This will be the final date and time, barring unforeseen circumstances. For more information, drop by our office at MC 3033, e–mail us at pmclub@gmail.com, check out the Facebook event, or visit the SASMS website:

http://www.student.math.uwaterloo.ca/~k2dixon/

The PMC exec

# Prez Sez

Hello Fellow Mathies

We are now approaching the end of term so it's time to start thinking about exams. On the bright side it means we're almost done for the term and soon we can all have a nice holiday.

It is also now time to start thinking about keeping things running for next term. Mathsoc is currently working on electing new executives for the Winter as well as finding student councilors for the 2009 calendar year. If you have managed to miss all the signs that were put up this week then you have until 4:00 this afternoon to apply so hurry up. If it is necessary then next week will be campaigning for the various executive positions and the week after we will be asking you all to vote. The voting system is now completely online so even if you're offstream at the moment you have no excuse for not voting. Anyways, keep an eye on the posters around the building or drop by the Mathsoc office for an update on the state of the elections.

Matthew Woolman
President

# Midnight Capture the Flag

If you showed up last time, that's excellent! Show up again! If you didn't show up last time, show up this time! Come play some capture the flag in the MC. Meet in the comfy at 23:59 on November 23. Tell your friends, or even better, bring your friends with you!

CODE: mctf-is-go <<access granted>>

FREE CONCERT

Alexander to Zoltan
music of 3 centuries

with Concerto Competition winner
**Martin Walker**, flute

**Wolfgang Amadeus Mozart**, Flute Concerto No. 1
**Alexander Borodin**, Symphony No. 2 **Zoltan Kodaly**, Dances of Galanta

8 PM Thursday
November 20, 2008
donations welcome at the door

Humanities Theatre
Hagey Hall, UW
For free tickets call the Theatre Box Office in Hagey Hall, 888-4908.

orchestra @ uwaterloo
*the orchestra for UW students, staff, faculty, & alumni*

Erna Van Daele, Conductor

www.orchestra.uwaterloo.ca

# Thor's Complete Guide to Purchasing Gifts for your Sweetie Using a Personal Computer

*Not Euphemistic at All!*

On Google's website, they justify the "Incognito Mode" on their new Google Chrome web browser as follows: "For times when you want to browse in stealth mode, for example, to plan surprises like gifts or birthdays, Google Chrome offers the incognito browsing mode". This seems like a good start, but it really doesn't cover the full gamut of useful advice for secretive gift purchasing. This article attempts to provide more information about how to go about "buying gifts" without compromising your surprise.

Let me set the scene. Let's say that you have a large collection of media files pertaining to your gift. For example, you might have images of people using the item, text documents describing the features of your present, and videos in various formats of the gift in action. With Valentine's Day fast approaching, you need to make absolutely sure your gift is the best possible, but you obviously don't want the individual in question to know that you're watching hour long documentaries on diamond ring selection. So this is how to do that.

Firstly, for local media, I strongly suggest an encrypted partition. Go download TrueCrypt 6. It's an excellent piece of software that is pretty amazingly fast. It's also cross platform. Now, TrueCrypt lets you just make an encrypted file, but you should really be encrypting an entire partition for your gift related media. FAT32 would be a good choice for the filesystem of this partition unless you have video footage of the gifts in question that exceeds 4GB in size.

Another good idea would be to create a hidden encrypted volume inside the first volume. TrueCrypt gives you this option. You fill the outer volume with sacrificial material, and give it a first password. Then, should you be tortured by the FBI or something (which is more likely these days than you'd think), you'll reveal the password to the outer volume to them. The content of this volume absolutely must be something that looks like it's worth encrypting, or else the FBI will catch on and just keep torturing you. Nobody wants that, so pick something good. Also, consider using different encryption algorithms for the two partitions. I'm not saying that the NSA knows about a back door in AES, but why risk it?

So, once you've got your hidden partition created, you want to be able to access media on that partition in safety. Practically every application under the sun stores some sort of history these days, and you certainly don't want your sweetheart seeing complete_guide_to_diamond_ring_purchasing.avi just sitting around in your history. That could ruin the surprise all on its own.

So head on over to PortableApps.com. This site is incredible for getting applications (Windows ones primarily, sorry). Grab Portable VLC, Portable Firefox, Portable AbiWord, and most importantly, Portable Xenon File Manager. You can also look for a portable image viewer - there's something called Portable Irfanview lying around the net, but I think that Irfanview is actually portable in its default configuration anyway. The key point about so-called "portable" applications is that they don't store any information outside of their allocated folders. This means no history can leak out of that folder.

Xenon File Manager is the kicker, here. You can install it locally and use it as a replacement for Windows Explorer. Getting rid of history in Windows Explorer is pretty easy as it is, but with Portable Xenon on your encrypted drive, you can feel certain that no information is leaking out. You should also configure Xenon to use the other portable apps you installed as the default application for different file extensions. This way, you can use Xenon to browse the media you have without any fear of information getting outside of the encrypted volume. Instead of having to worry about getting your browser to erase all of the tracks it leaves on your computer, you're just centralizing those traces and encrypting them along with everything else.

So, with all of these tips, you should be ready to go out into the world of gift purchasing. Good luck!

Thor

# Interesting Facts from Alexa

*And other interesting facts of life.*

*Because the internet never lies*

Most of you should know what Alexa is right now. Its an internet site that tracks website viewing with a toolbar. Here are some interesting facts:

1. Ireland's 25th most visited website is Google Polska.

2. The United States' war on terror is corellated with a war on no-pornography. While the US has multiple porn sites in their top 50, Palestine's highest viewed porn site is number 61, Iran has no porn, and Iraq, where the American army has the most internet connection has a really really obscure porn site in number 41.

3. The number one shock site is 2girls1cup, closely followed by MeatSpin, lemon party was a way down, and goatse is dissapearing.

4. Comparing math, porn and Christianity, we see that math.com is consistent over the entire year with a break during Christmas. During Christmas, christianity.com finally beats porn.com. Porn is in between the Christianity and math until Valentines day - The Thor Point - where porn jumps from 0.005 to 0.055 percent of the internet. Porn then slowly reduces over the year. I'm sure an entire statistics course could be built around this graph.

5. Also, to my British Counterpart, stop selling toilets on the internet and ruining my conquering of Google. Thor has an equal amount of distaste for his counterpart in Kentucky. Be warned, *math*NEWS will bring you down... down we say!

AntiThor
Thor

# Horrorscopes

*Now with another new author!*

**ACC:**Christmas is sneaking up in a month, and it's the perfect time to test your skills. Given the current economy, figure out how to make money for Christmas presents.

**ACTSCI:** Midterms are over and exams are in a month, so if you're in a lull, find some numbers to entertain you. Marvel at how the temperatures have suddenly dropped. Marvel at how low the Engineering midterm averages are. Aren't numbers great?

**AMATH:** You like numbers, so you should take charge of all the upcoming countdowns. There's Christmas, and exams, and all sorts of things you can countdown to. Your Horrorscope is to be a walking countdown database.

**BBA/BMATH:** With the economy in the toilet, businesses are going to have a tougher time emptying people's already empty bank accounts for Christmas. Prove your future business prowess by predicting how businesses will use Christmas to get **all** our money this year!

**C&OOR:** Use your optimization abilities to find the optimal way to buy Christmas presents. If you can find a way to not seem cheap and still have enough leftover to pay tuition, you win!

**CM:** We won't give you anything to calculate, since you'll just use a computer to do it for you. Don't you ever feel bad for relying on computers? Real mathies don't do that. Go practice doing math without a computer by your side.

**CS:** So, yeah, enjoying Scheme? It's fun, eh? Almost like your program, completely theoretical. Also impractical. Your Horrorscope is learning a real programming languages in your spare time so you'll actually get a job.

**MATH BUS:** You know, business is really more arts than math, so you don't get a seperate Horrorscope. Your Horrorscope is to convince yourself that what you're doing is actually mathematics.

**MATHEMATICAL SCIENCES:***math*NEWS can no longer figure out what to base your horrorscope on. You've got math… and science. yet science is just applied math, yet they have their own program. so basically you're redundant. Your horrorscope is to find a cure for your redundancy.

**PMATH:** As a theoretical master, use your mathematical abilities to predict when we'll actually get snow that stays. We know it's not your specialty, but if you're wrong, you can just blame reality for not properly following theory. Pesky reality.

**SE:** Well, you're probably getting most of your midterm marks back now. Yes, you did bad. But remember, you're half engineer! So disguise your incompetence by riding the bell curve. Go, Curve, Go!

**STAT:** Hey, are you busy? *math*NEWS has a favour to ask. Your mission, should you choose to accept it, is to count how many people show up tomorrow in chicken suits. Then do your usual thing with that data. (if you're wondering what we're talking about, read OTHER)

**UNDECLARED:** We can't give you a Horrorscope. You don't even know what to do with yourself, how are we supposed to figure out your future if you can't? Ask us again when you've made up your mind.

**AHS:** It's getting cold out, and chances are, people are getting sick. But you aren't, are you? Your mysterious expertise in health has given you the ability to stay healthier than the rest of us mere peons, so enjoy it while you can. Your Horrorscope is to smugly gloat to your sick friends.

**ARTS:** Don't you hate the cold? It's definitely cramping your party style. But hey, as long as you don't pass out outside, it's business as usual. Your Horroscope is advising you to find parties close to home.

**ENG:***math*NEWS will make you a deal. If you go do PDENG, we'll give you a Horrorscope. Oh? You don't want a Horrorscope? We thought not.

**SCI:** We've decided to retract your status as a seperate faculty. Science is math. Deep down, you know you're a mathie, and it's time to stop lying to yourself. Your Horrorscope is admitting you've been lying to yourself, and finding yourself an awesome pink tie.

**E:** Your Hippy powers are fading. As winter approaches and nature decides to go sleep, people aren't going to listen to anything you say. Global Warming? doesn't seem so bad when we're all freezing on our way to class. Your Horrorscope is to spend the next 3 months trying to convince Canadians that global warming is bad.

**OTHER:** Does anyone even count under "Other" ? Let's do an experiment. We will beckon you to class tomorrow… in a chicken suit. Then we'll have some stats students count you and see if you actually exist.

Jeff the πrate

# Drivers: Don't Stop

I am trying to cross the road and you slow/stop about 50 feet infront of me and try and wave me over. Don't do that. I was waiting for you to pass me because I saw that there were no cars behind you. Now I think you're turning or there is something else to worry about. I have to take a second to figure out what is happening. I would have been able to walk across faster had you just driven past because of the time it takes you to decelerate and me to realize that afterwards. Just drive on by and realize that if I'm stupid enough to step infront of your car I deserve to get hit.

Apocrypha

# Interesting Math

*Solitary numbers — you know who I'm talking about*

In this article, I will explain briefly what solitary numbers are. To do so, we first need a few definitions. Consider the *divisor function* $\sigma(n)$ on an integer $n$. This is defined to be the sum of all divisors of $n$. For example, 6 has divisors 1, 2, 3, 6, so $\sigma(6) = 12$. As an aside, you may recall that numbers $n$ such that $\sigma(n) = 2n$ are called perfect numbers.

Having defined $\sigma(n)$, now let us define a *friendly pair checker*: $S(n) = \sigma(n)/n$. We say that a pair of distinct numbers $(k, m)$ is a *friendly pair* if $S(k) = S(m)$. In this case, we say that $k$ is a friend of $m$, and conversely, $m$ is a friend of $k$. More generally, a *friend* of $k$ is a number $m$ such that the pair $(k, m)$ is a friendly pair. Notice given a number $k$ with a friend, its friend is not necessarily unique. As an example, (6, 28) is a friendly pair, but so are (6, 496) and (28, 496) (they all have friendly pair checker value of 2).

Finally, a number $n$ is said to be a *solitary number* if $n$ has no friends. Let us consider some examples. For any prime $p$, it is clear that $\sigma(p) = p+1$. Then $S(p) = (p+1)/p$. It should be clear that no other number will satisfy this value. That is, it should be clear that $p$ is a solitary number. Similarly, prime powers will also be solitary numbers. To generalize further, any number that is coprime with its value under the divisor function is a solitary number. This last statement gives a good list of examples: 1, 2, 3, 4, 5, 7, 8, 9, 11, 13, etc. However, this condition is not necessary. For example, 18 is solitary, while $\sigma(18) = 39$ and so $\gcd(18, \sigma(18)) = 3$.

To prove a number is not solitary, we can apply the definition directly and find a friend for it — but this is not always easy to do. The smallest friend for 24 is 91 963 648 for example. Interestingly, the task of determining whether an arbitrary number is solitary is so difficult, that the solitary status of a number as small as 10 is still unknown.

Hmm, I wonder if we can go one step further and generalize this…To do so, let us generalize the concept of friendly pairs to friendly triples, friendly quadruples, and more. As examples, (9360, 21600, 23400) is a friendly triple, (6, 28, 496, 8128) is a friendly quadruple — in fact, it is at least part of a friendly sextuple: (6, 28, 496, 8128, 33550336, 8589869056). Now we can talk about degree $k$ solitary numbers, numbers for which there are no more than $k$ friends. To be honest, I don't know of any degree $k$ solitary numbers for $k > 1$ other than the original solitary numbers (degree 0 solitary numbers), but it appears that 24 has no more than 2 friends: 91963648, and 10200236032, so that 24 is potentially a degree 3 solitary number. Anyone care to prove it?

**Vince's problem of the issue**: It is clear that a lower bound on the density of the solitary numbers is the density of the primes, as they are all solitary. The prime number theorem asserts that the limit of the quotient of the number of primes less than or equal to $x$ over $x/\ln(x)$ is 1 as $x$ approaches infinity. Find a *reasonable* similar lower bound on the density of the solitary numbers. (Hint: start with the condition that if $n$ is coprime to $\sigma(n)$, then $n$ is solitary.)

Vince Chan

# Random Thoughts

*Now with the Markov property*

- I've heard rumours that the new building they're constructing is a nanotech building… but if that's the case, shouldn't it be really really tiny?
- Hey, our math cheating policy actually says, and I quote (seriously, copy and paste right here): "It is not acceptable to take something that isn't yours without permission. Do not do this, ever!". [source: Cheating and Student Academic Discipline Policy, Math Undergraduate Office]
- Yes, I sourced the point above. I don't want any academic violations reported to the Dean of Mathematics, who'd have to chase down people wearing orange trying to find out which one is me.
- Let's talk about coop! They shouldn't call it "round 2 interviews". Usually, round 2 involves the winner from round 1 competing for a better prize. In coop it's the opposite- the losers compete for the worst jobs.
- Then again, they probably shouldn't call it CECS either. It's about as far from what it sounds like as possible. I mean not that I would personally know or anything, but you know what I mean.
- The reason some profs like to say the same thing over and over again is because smart people like to repeat themselves smart people like to repeat themselves.
- It's funny how people who do well on their midterms stop studying because they don't have to (they already did well on the midterm), while people who do bad on their midterms stop studying because they just gave up.
- That way everyone fails, but then they bell curve the marks back to the normal range.
- Except for my mark.
- If I had a dime for every *prof*QUOTE published here that makes fun of engineers proving things by example, I'd be rich enough to pay Bill Gates and the IKEA guy to kiss each other.
- See, if I was in CS, I'd be expelled for making the above point. They love Bill Gates way too much, don't they?
- One extra point: I've been accused of lying in my last bunch of random thoughts. I'd like to clarify the fact that I was not lying, I was merely writing fiction. Big difference there.

Orange Crush

# Thor's C.S. Interview Question of the Fortnight

*Getting you ready for Google, since 1822.*

**This Fortnight's Question:**What is the best way of generating all integer permutations of a given length?

**Last Fortnight's Question:** Imagine you wanted to visit every building on the UW campus. How would you go about deciding a travel plan that would let you visit each building only once while minimizing your total travel distance?

**Its Answer:** OK, I started off with a pretty easy one, primarily because I've been asked variants of this in a few different interviews. 90% of what people want to hear when they ask you this question is "Traveling Salesman". Given a weighted graph (a map of campus with the distances between buildings as weights), find the cycle of minimum cost visiting each vertex exactly once. If you say those two words, you're probably good - you're even better if you can identify it as the most famous NP-hard problem in the universe. After that, I'd ask whether or not an approximate solution would be acceptable. If so, there are loads of heuristics that'll give you decent solutions very quickly, and you can often nest them. Since this particular example is Euclidean (because it's based on Euclidean distance), the Christofides algorithm is one you'd look impressive for knowing the name of (it's based on building a minimum spanning tree). For exact solutions, look into variations on the branch and bound theme. Alternatively, the dynamic programming solution works in $O(n^2 2^n)$ time. And remember what Randall Munroe taught us: eBay is always O(1)!

Thor
uwthor@gmail.com

# Graphics

*With further apologies to Joss Whedon*

Graphics, Graphics
Graphics, Graphics
You're in the lab of Graphics
Getting code to run
Your code is not compiling, so this is no fun
The project deadline's looming
Your patience has fallen
Some matrix math, a coloured dot
With any luck, it's not for nought!

Graphics, Graphics,
Graphics, It's long!
The TA's are all watching and so is the Prof
Anything you do will only make them scoff
So code up something cool
And have a nice sendoff
You cannot drop, you're deep-sixed
It's Oh-God-Why!?
Signed Graphics

42
Who is hungry, but stuck in MC6055

# Dating advice From the Impatient Guy

**He just can't wait to answer your questions!**

Dear Impatient Guy,

There's a guy I like. I mean I don't know him too well, but from what I've heard and seen, he's super funny, and smart, and he's got great hair. I'm not sure he even knows my name though... we're in the same program and we have some mutual friends, but I'm just not really sure what to do. Am I making a big deal out of nothing? Kind of uncertain

Dear Uncertain,

Yes. Talk to him. Next!
Dear Impatient Guy,

Here's the thing... there's this girl who's my friend and I've had a huge crush on her for years, because she's just my dream girl. But she never wanted anything to happen. So I got this girlfriend instead, and we've been together a couple of months, and it's nice and all... but now the first girl thinks that maybe we're right for each other, and I really want to say yes but I feel really bad breaking up with my girlfriend. I don't know what to do... how do I choose? Can't Choose

Dear Can't Choose,

Flip a coin. Next!
Dear Impatient Guy,

Ok, so, like, my significant other (who's really my boyfriend but like he doesn't like me calling him that) is so hot, but there's one thing that's really annoying about him. Whenever he wakes up in my apartment he like goes to the washroom to wash his face and he uses my towel. And like, I heard it's unhealthy and whatever, but I don't really care about that, I just think it's like disgusting. But I don't want to say anything about it because like he'll think I'm not cool, but like I am cool, so yeah. Cool Flower Girl 51

Dear Freaky Girl,

Buy another towel and stop being a freak. Next!
*After the Impatient Guy yelled "No relationship for you, Next!" at 50 people (including our editor), we decided to replace him. Hopefully next time we'll get someone normal for you.*

Orange Crush

## Palin pouts and returns from whence she came.

## Women and Republicans everywhere rejoice.

# The Difference Between LCD Displays

There are currently 3 easily available forms of LCD technology available for consumers. This is a basic rundown of the differences between them.

**TN Film•** Where: Most LCDs use this type of technology.

- Why: It is cheap and very fast. You will see the best response times with this type of LCD. It also tries to use other ways to trick the eye into seeing more colours.

- Why not: TN film technically only uses 6 bits per colour versus the standard 8 bits per colour that any CRT that displayed 24 bit colour. That doesn't seem like much but it's the difference between 256 thousand colours and 16 million colours. Their viewing angle is also relatively limited.

**PVA•** Where: Monitors where people spent more than the average for that size of monitor might be PVA.

- Why: PVA monitors show more colours than TN film does. They also have a larger viewing angle.

- Why not: They cost a few hundred dollars more. Some monitors come with much slower response times and sometimes even input lag which becomes nasty when doing anything that requires fast action.

**IPS•** Where: The most expensive LCD displays. Not all of them though, check first. Apple sells IPS displays.

- Why: These monitors show more colours than any other type of monitor and have response times that are almost as fast as TN film. The viewing angles are also very good.

- Why not: price. A 24" apple cinema display costs over $1000, a 24" TN film monitor costs about $300 to $400.

However, the best advise anyone can give you when looking at monitors is to actually look at them. Pick the one that looks best to you.

Apocrypha

# 12 Things to do if You Go Blank on a Midterm

It happens to the best of us. And the worst of us. We sit down and realize that we've studied absolutely nothing that's on the exam! Or simply that we've studied absolutely nothing. Having never experienced this, I have compiled a list of ways that, should you find yourself in such a situation, you can turn your panic into productivity:

1. Take a deep breath. This probably won't help at all, but at least you'll know you're still alive.

2. Try to spell words with your multiple choice answers.

3. If they ask you to find x, draw giant arrows pointing at x, because it's obviously right there. This one's a classic.

4. Take a nap.

5. Write a nice note to the marker.

6. Write a nice article for *math*NEWS.

7. Take advantage of the fact that you get an escort to the bathroom.

8. If it's a calc exam, take the derivative of something. Anything at all.

9. Use your mind reading skills to extract the answers from people's brains. There's nothing against this in Academic Integrity.

10. Don't cheat! The person beside you probably has the wrong answers anyway.

11. Say a quick prayer, just in case there's Someone out there who might take pity on you. Remember to thank them later.

12. Leave.

So study hard and hopefully you won't have to use any of these suggestions, although you might want to anyway. Good luck on the rest of your midterms!

# The Unlucky 7

*Things I hate seeing when I enter the subway.*

**7. Microphones & Amps**
Why do you want to amplify the weird noises that come out of your mouth?

**6. Guitars**
They usually make the weird noises from (7) even weirder.

**5. Upside-Down Buckets with Sticks**
They give me headaches when excessive contact is made.

**4. Brass Instruments**
Would be nice if they were anywhere near in tune.

**3. Loud Preachers**
I hate when they mistake the Church Avenue station for a place of worship.

**2. Clowns**
Would help if they were either (a) funny or (b) not making noises like an idiot.

**1. Accordians**
If I ever become President of the United States, I would immediately ban those ghastly things.

InsideR

# 10 ways for a guy to get slapped

*What I've learned by hanging out in mathsoc*

Men, Guys, Boys. The weirdest, most complicated human beings on the planet. We, girls, just never get them. Why do we bother? Men, make 'em your b*tches! Whenever you talk to them, they just reply to you in codes. Why men... why???

Here are 10 tips for us, girls, to deal with guys who just don't get us.

10. If he tells you that you waste his time and prefers to be in front of the computer doing nothing, tell him "well, I can find other guys who wants to be with me" and slap him on the face

9. Whine when you don't get what you want and slap him on the face

8. When he goes "Your eyes are pretty" or "You have pretty eyes", slap him on the face, tell him "It doesn't work anymore" and hit him again on the other side of the cheek

7. If they make you cry, hit them on the head until you feel better, punch him on one side of the arm and if none of this works, slap him on the face

6. If he goes "what about you?" or "you're cute?", step on his toes with the highest heels you have and slap him on the face repeatedly

5. If he answers you "yes" given the question "do you think I'm fat?", take a baseball bat to his car, smash his 2 headlights and go up to him, hit him on the knees with the bat and slap him on the face

4. If he gives you a compliment, say "no" with a long 'o' and tell him that he's a liar and slap him on the face

3. If he looks at another girl while with you, spray lemon juice on his eyes and slap him on the face. Special note: if he uses glasses, pretend that you unintentionally dropped them and when he's trying to pick his glasses, spray the lemon juice and slap him on the face. If he's wearing sunglasses, proceed directly to the slap, do not pass go, do not collect $200. Another special note, if a girl walks by and he doesn't check her out, it's because he knows that he's about to be slapped. Grant his wish, slap him anyways

2. If you walk past a guy and he checks you out, check his face, if it is red, he's got a girlfriend and should not be checking you out. Do her a favor and slap him on the face. If his face happens not to be red, do him a favor and slap him on the face. If there's a girl with him, strongly encourage her to slap him and cheer her on when she does

1. We are always right no matter what. Slap him on the face

guy-slapping girl

# How to pick up a mathie

According to the big stores at Conestoga Mall, it's already the holiday season. And as we all know, being lonely at holiday-shopping season is even worse than being lonely in general. So, here's a set of our top 10 MC pick-up-lines, which will help you beat the winter loneliness and finally swoop that special someone off of their feet:

10. Are you the squared root of 3? Because you make me irrational.

9. I like your bell curves. Would you like to see my exponential distribution?

8. Want to go back to my place and play some StarCraft?

7. You know, lots of people think Laurier girls/guys are hotter than the ones we have here at Waterloo. I guess you're the exception that proves the rule.

6. If beauty was a sequence, you'd diverge to infinity.

5. How about you and I find a basis for Rn?

4. I know I look too hot to be true, but don't worry, "i" am not imaginary.

3. Somebody call UW-ACE, looks like they're missing an angel.

2. Your eyes look prettier than a thousand symmetric matrices at sunset.

And our personal favourite:

1. Are you an issue of mathNEWS? Because just thinking about you makes me smile.

**Caution: these lines are super powerful. Use them with discretion!** Note to readers: I know what you're all asking- "If these lines are so great, how come you're still single?" Well, I'm single by choice, so don't you worry. But who knows, maybe one day I'll find my Purple Haze. Spread the love!

Orange Crush

# Horror! Sequels that should never exist!

*But it would be hilarious if they did*

Some movies and games are made in such a way that prevents sequels. That said, with the way Hollywood and game developers are going, everything is eventually going to get a sequel. Saw infinity, anyone? Without futher ado, here's my list of things that should **NEVER** have a sequel (But I'd laugh so hard if it happened)

- **The Departed:** Everyone comes back to life with... A time machine! (Oh wait, Hamlet 2 stole that plot device already)
- **Schindler's List 2:** He was secretly hiding a family of Africans in his other factory
- **Titanic 2:** The ghostbusters did it!
- **Fight Club 2:** We still don't talk about it
- **The Matrix 2:** Oh wai-!

Megaton Panda

# *prof*QUOTES

Part of applied math is managing tedium.

West AMATH 250

This is barely mathematics. It's more like a funny language. Well I guess math is a kind of funny language.

Hill PHYS 234

…mathematical jiggery-pokery to get the eigenvalues out of this guy.

Hill PHYS 234

Not very much math today. It's all qualitative, touchy feely stuff.

Hill PHYS 234

If a spin walked through the door I probably wouldn't recognize it.

Hill PHYS 234

It's everywhere, and it comes when I call it… Schoedinger's dog!

Hill PHYS 234

Prof:"There is no function that doesn't satisfy this."
Student: "What about a line?"
Prof: "Well, that's kind of a stupid function."

Park MATH 137

Software Engineers are WEIRD.

Barry SE 463

A mathematician, a real mathematician, not me, would wince at this.

Balka STAT 206

This is a way we try to prevent suicides among markers.

Purbhoo MATH 239

We'll shame this one. He'll sit here and watch. [about bad projector]

Balka STAT 206

Away with you!! [still about the projector]

Balka STAT 206

I've run out of time. I guess we'll have to wait until Wednesday for me to define truth.

Moosa PMATH 433

I'll just show you one last thing before I send you off into the wild blue yonder. After all, if you love your students, you have to let them go.

Marcoux PMATH 453

A face of a face is a face. Sounds like something Jean Chretien would say.

Marcoux PMATH 453

So you've taken 'shrooms' and the code for the tree actually looks like the tree - 'there's trees in my code, maaaan…'

Kaplan CS 115

We like ambiguity in natural languages. It allows us to say all sorts of things with two different meanings, and is particularily popular during election season.

Shallit CS 462

I'll teach the Interchange Lemma because I feel that into everyone's life, some pain must be served.

Shallit CS 462

Everyone knows what a Hamiltonian cycle is? It's a bike race in Hamilton.

Munro CS 466

Note the confusing similarity between these two words; they're both long and start with 'A.'

Haxell CO 342

In the open source way, I look at the code. I see 20,000 lines of perl and wish the author had written it more nicely. They do have functions in perl, you know.

Cowan CS 452

If you're a group, then one person is really two people.

Cowan CS 452

[draws an integral sign on the board] Now you hate me.

Cowan CS 452

Here's the most interesting part [of the microwave]; the door opens.

Idziak SCI 206

You guys have been attending class pretty well. Even today there are 9 out of the all of you.

Cowan CS 452

You can all scamper out and have a beautiful weekend in the sun.

Cowan CS 452

We all know who Administrators are. Administrators are people who do no work.

Cowan CS 452

Definability, which we will define later...

Mousa PMATH 433

I mean, chemical plants blow up all the time, right?

Cowan CS 452

If the point of the exam was to flunk you all, I could easily do that. Why? Because I am smarter than you. Or, maybe some of you who think you are too smart for that can try REAL hard and get 8%

Forrest MATH 147

'Blowing up' is a well defined term in math. So is 'a building'. So if you see someone reading an article titled 'How to Blow Up a Building', they aren't a potential terrorist, they're just a really nerdy math student.

Park MATH 137

*Has your prof said something quotable? Type it up and send it to* `mathnews@student.math.uwaterloo.ca`*, or write it down and drop it in the* **BLACK BOX** *(located on the MC 3rd floor, between the Comfy and the C&D).*

# 10 Tips for Dealing with Women

*What I've learned so far from my Dad*

Women. Mystical. Demanding. Impossible to understand. Why do we still associate with them? If you were to go onto the street and ask 10 guys why they still put up with women, the answers would get more and more complex, foolish and farfetched. For me, my story begins with a kiss—from my mother. Somewhere in the middle, there was a Pidgeotto flirting it up a Snorlax, and it ends with some seals on a deserted island off the coast of an undiscovered island, but I digress. We just don't want to go there.

In any case, since us guys absolutely positively MUST put up with them, here are the top 10 fantastic tips for dealing with women in any situation.

10. Never follow them home without them knowing, or without their permission, and especially don't follow them home without their explicit consent after sundown.

9. When you get busted by a girl for talking about her behind her back with your own friends, your response is always, "Your eyes are pretty." You may use any language and phrase it however you want, within reason.

8. When in the company of females, think before you say or do. Anything you say can and will be used against you, especially behind your back. Anything you do may be used as a justification for retaliation against you. It may even get to the point when she will physically abuse you for no reason at all.

7. Note, and note well. If you ever, ever decide to let a female in on a piece of information, be prepared to let the entire female population in on your secret. The consequences for not following this rule, well, let's just say: you don't want to know.

6. If you ever have something mean to say, make sure you mix it in with a whole lot of fluff. For example, if you want to say, "You suck," then you really want to say, "I think your eyes are very pretty, you suck, and your hair is very beautiful." Make sure you say the "you suck" part really quickly so they don't hear.

5. Never ask your male friends for advice about women. They know nothing. For the record, you can find this guide reliable, as I am not your friend. I am a professional, so you can trust this article and its author.

4. When faced with a decision, you will always choose wrong , so never make a choice. Instead, ask her what she thinks and be prepared to follow that choice, even if that means missing something you've had scheduled for weeks, months, maybe even years. Else be prepared to get slapped in the face.

3. Don't talk about your penis as if it's a toy. Better yet, just don't talk about your penis. At all. As an afterthought, size may or may not matter, depending on who you ask.

2. Even if it is the most logical thing to do at the time, never threaten a girl. You could get arrested for sexual assault (they can call rape), or you get beat up by their male friends. (Believe me, they had no choice.) Instead, go ahead and threaten her insanely muscular and well-built boyfriend. That way, he'll let you off easy since his girl isn't involved.

1. You are always wrong, so don't bother.

Casanova Jonny

# Ratio Glows

Sigh.... Why so gloomy? Remember in the last issue, I asked "Would you sacrifice your friendship for a significant other?" but no one came to me and let me in on what they think. I think recently, I was kind of watching it from far away as it was happening. Sometimes it's hard to decide on what to do, but just let it be. I think everything will happen when the time is right. For whoever that is, just appreciate it.

So moving on... Remember Mr. Tax/Audit Master? I talked to him sometime ago and told him that I liked him. Gaaahhh it was terrifying although it made me feel so much better. Well, I think that if you like someone, you should tell them how you feel. Even though you think the time is not right, you will never find the right time, at least that's what I've learned. I had the Tax Master syndrome. I was on the 1st stage a.k.a state of glowing. In fact, I was glowing brighter than a glow stick. I didn't get the love syndrome though. I was strong . So now I'll just stick to whatever is going on recently and not expecting anything from anyone. Just let the world go the way it should be and not having expectations that are too high.

A few weeks ago, I caught the flu. I believe right now I'm still at stage 1 of the flu. Still at the state of glowing. Probably a bit of jumping to stage 4 a.k.a writing in *math*NEWS but I'm not at the emo state so I'm good. Seriously, what's with me and rejections? Somehow, everytime I ask for something, the answer is always no. Well, an indirect no. Other people that I know that don't even think about it don't get a no. People just love them! pssshhh... What's this?? (why am I writing nonsense stuff here?)

I think I complain too much in here. I should be happy. Yeah, think of rainbows and bunnies jumping from one corner to the other corner and there'll be a lot of coins that wouldn't hurt the bunnies when they get to the other end. yeah I think that is a good idea. Maybe I should just start to write about love stuff here? (what do you think?) Because I have been complaining so much. and now I don't know what else to write in here. Maybe you should tell me what to write in here next time. yes? Next week hopefully will be better

Before I stop here, I want to address my concern towards myself. Well, that is kind of stupid right? I have a ratio for my syndromes right now. Tax syndrome : flu = 95 : 25. I think that's it for now. Hopefully people will sign up for math idol and we'll have a lot of crazy fun moments there. Cool people participate in math idol. See ya Ciao

glowing cupcake

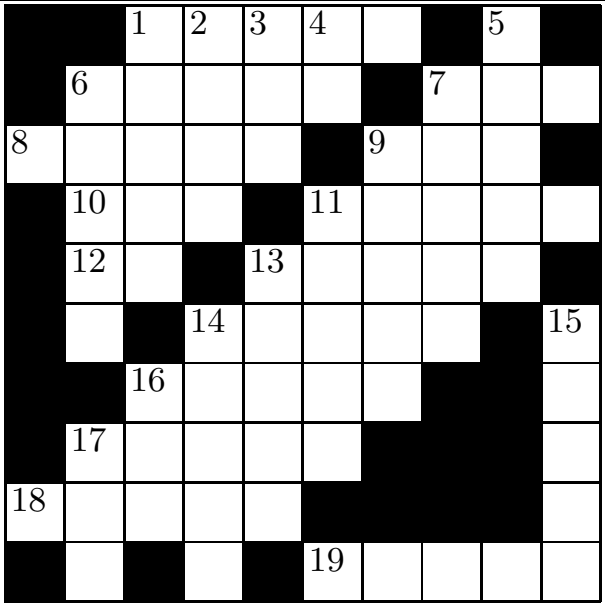
# Katlady Karen's Krazy Krossword Komments

Last week's gridword was pretty cool, wasn't it? Our winner is Nick Murdogh, who answered "Runes for most values of u". (That said, he didn't actually get them all! We're just nice like that!) Come by Mathsoc to pick up your $5 gift certificate to C&D today! So this week's crossword is going to be a little bit different, but we hope you have fun (Impulse and Static are busy being tied up in my basement at the moment). I'm not KRAZY or anything...

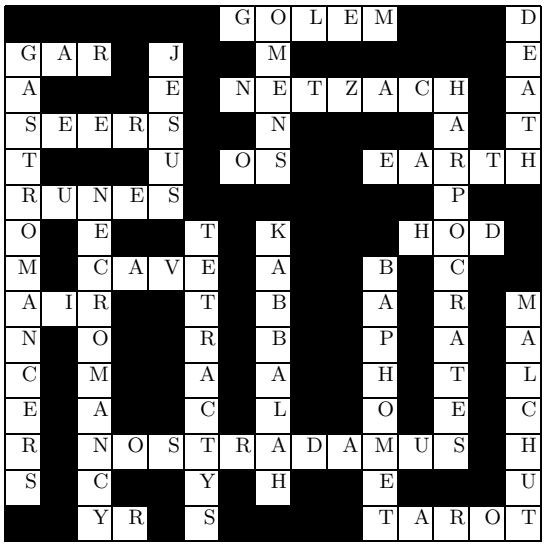
The gridQuestion: i can haz cheezeburger?

Remember, drop your solutions off in the BLACK BOX by the C&D by Monday, Nov 24 for a chance to win the gift cert!

Until next issue!
Megacatlike Panda



## Last week's solution:




Across

1. An adorable term for cat
6. The unused cards in Euchre
7. ___ - Kat bar
8. The combined stakes of the bettors in Pool
9. A frosh gets this during O-week
10. _ _ _ l: Signoff message
11. Eric's mom from the 70's
12. Thank you (abrev)
13. Hello _____ (Franchise)
14. 1945 film directed by Mitchell Leisen
16. Short for "Katherine"
17. Dummer of Mindless Self Indulgence
18. Traditional song on album Red Roses for Me
19. The Swedish translation of Nancy Drew's first name

Down

1. Country musician _____ Wells
2. The _____ bitty spider
3. Short for teletype
4. __ Wishart: Hockey prospect
5. A small fuzzy cat
6. A really adorable kitten
7. Character from Danny Phantom
9. ___ Norville, the main character in urban fantasy novels by Carrie Vaughn
10. Unix command that outputs the name of the current terminal.
11. Pet name of character in Pride and Prejudice
13. A dimunuative felinis familiaris
14. If Shrodinger had one of these, he probably wouldn't have put it in a box
15. Not a Kitty
16. Slang for kitten
17. You should know how to answer this by now

# Signs you should stop Drinking while doing Homework

*Because tequila and transforms never go together*

- You use variable names like fzoop and gaworp
- Your graph theory graphs look like boobies
- Your pen, calculator and paper hold an intervention. "=("
- You're taking answers from artsies, and so your proofs are based on historical trials and examples
- You see integrals and scream either, "Snakes, I hate snakes!", or "I'm tired of these muthaf__king snakes in this muthaf__king equation!"
- You "accidentally" submit a *math*NEWS article to your TA (bonus points if you submit your homework to a *math*NEWS editor)
- Your studying breaks are too long and you need to get back to the bottle.
- You wake up next to someone else's homework
- An enable signal is not a pickup line.

Anti-Thor
Static_IP