

# math

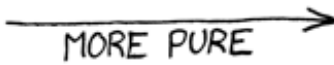
# NEWS

Volume 107, Issue 2

Friday, June 13th, 2008



FIELDS ARRANGED BY PURITY



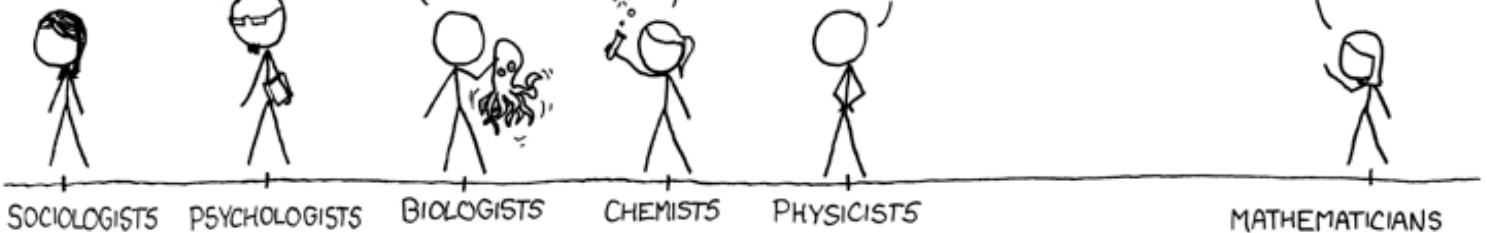
SOCIOLOGY IS  
JUST APPLIED  
PSYCHOLOGY

PSYCHOLOGY IS  
JUST APPLIED  
BIOLOGY.

BIOLOGY IS  
JUST APPLIED  
CHEMISTRY

WHICH IS JUST  
APPLIED PHYSICS.  
IT'S NICE TO  
BE ON TOP.

OH, HEY, I DIDN'T  
SEE YOU GUYS ALL  
THE WAY OVER THERE.



by Randall Munroe  
<http://www.xkcd.com>



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**lookAHEAD****mathNEWS**

June 13	Issue #2 breaks the speed of apathy
June 23	Production Night #3 6:30 PM
Meet at the Math Soc office	
June 27	Issue #3 gains sentience

**Math Soc**

Wednesdays	Games night!
Thursdays	Movies night!

**Math Faculty**

Questions about some of these? See an academic advisor!	
June 15	AMC-Programming Contest
June 23-29	Pre-enrolment for Winter 2009
June 27	Last day to WD from a course
July 30	Lectures end... so far... away...

**CECS**

see [www.cecs.uwaterloo.ca/students/datesS08.php](http://www.cecs.uwaterloo.ca/students/datesS08.php) for details

**Feds**

see [feds.ca/events](http://feds.ca/events) for details

**Miscellaneous**

June 13	Friday the 13 <sup>th</sup> for the chicken shit
June 15	Power of a Smile Day
June 23	Typewriter invented
June 24	Second Futurama movie release date

**Programming contest!**

Waterloo Professor Ondrej Lhot?k will be running an ACM-style programming contest on Sunday June 15<sup>th</sup>! Everyone is welcomed, just be sure to bring your Scheme, C, C++, Java or Pascal skills with you! Full details are available at <http://plg.uwaterloo.ca/~acm00/>.

**VPAS Sez**

Hey guys! Are you patriotic? Are you proud of your born (or assumed) nationality as a Canadian? Would you like to help ameliorate Canada Day 2008 celebrations at UW? Do you have no plans for Canada Day? Do you live too far away and is the trip home too costly? And most importantly, do you like kids? Volunteer to help run MathSoc Kiddie Korner. Contact details follow later in this issue.

You may be wondering why there haven't been any big events yet this term. Expect to see some events later in this month... I'm not telling you what yet.

Games Night is happening every week on Wednesday nights. Meet in MathSoc at 6:30 to decide on what games to play, which will be played in the Comfy. Movies Nights will be up later this month (after Midterm season dies down) and other Math Soc activities will pick up.

Lastly, have fun, kids and good luck surviving through midterms.

Ammar Naseer  
Math Soc VPAS, S08

**mastHEAD**

This week would have been a lot better if our only editor didn't decide to get sick. Now we can all learn a valuable lesson about picking up strangers and having your way with them: make sure they don't have your phone number or any idea where you live. It hasn't been bad all week, though. The one and only editor has had the most pussy sleeping in my bed when compared to my roommates. That's right. The fucking cats learned they can sleep in my bed and I learned just how allergic I am to the little fuckers.

As tempting as it was to grate the cats into a fine powder and serve them to the local PETA chapter, it was more effort than getting out of my bed so I kept to torturing the cats with Enya. Being high on painkillers, it had little effect on my other than my hallucinations. What you think may really be *mathNEWS* is really just a report of my tripping. I encountered many reveries during my brief, hippie-ES state and asked "404 - why are you not found?" And they responded: DaFink "Because I am trapped in the closet with ... R Kelly", MJB "403 - Forbidden Answer", Nadz "I don't really remember, but it involves matches, a screwdriver, and lots of cotton", Thor "Sorry, I syned your ach when you synached my syn", Mar<sup>2</sup> "Because Police Services will not take in humans", Megaton Panda "Because I'm too busy being a playable character in Soul Calibur IV for no reason", Niner "I'm still stuck on Top Gun. Can someone let me down?", Insider "400 - Bad request", The Producers "Because the *mathNEWS* vector space is infinite", *mathEYE* "The future is coming! THE FUTURE IS COMING!", Penguin "Zerg Rush!! KEKEKE!!!", perkins "Because I used PuTTY to proofread from Toronto"; DanG "I am the lovechild of Carmen San Diego and Waldo."

I would like thank graphics for putting this together in an unreasonably short amount of time. Extra thanks go out to General Mills' whole grain extra strength Ibuprofen Charms, the breakfast of over-the-counter-drug addicts! Honourable grumblng goes to sleep deprivation, androgyny for bring men and women closer together in the most horrific way possible and double standards, the two bladed sword with both blades on the same side! Assuming I don't die

Michaelangelo 'AngelED' Finistauri "I'm a sniper and BOOM!  
HEADSHOT!"

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*mathNEWS* is normally a fortnightly publication funded by and responsible to the undergraduate math students of the University of Waterloo, as represented by the Mathematics Society of the University of Waterloo, hereafter referred to as MathSoc. *mathNEWS* is editorially independent of MathSoc. Content is the responsibility of the *mathNEWS* editors; however, any opinions expressed herein are those of the authors and not necessarily those of MathSoc or *mathNEWS*. Current and back issues of *mathNEWS* are available electronically via the World Wide Web at <http://www.mathnews.uwaterloo.ca/>. Send your correspondence to: *mathNEWS*, MC3046, University of Waterloo, 200 University Ave. W., Waterloo, Ontario, Canada, N2L 3G1, or to [useridmathnews@student.math.uwaterloo.ca](mailto:useridmathnews@student.math.uwaterloo.ca) on the Internet.

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Rihanna's Umbrella: Michaelangelo Finistauri

## elseWHEN

25 Years Ago in mathNEWS

Welcome, friends. And enemies. And AngelED. We are now going to take you back to the good ol' days of *mathNEWS*. We are going to explore Volume 2<sup>2</sup>2<sup>+2/2</sup>, Issue 2, originally published June 17, 1983.

InsideR

### Waterloo's Co-op Program Featured in The Wall Street Journal

A 22-year-old student decided that working in alternating terms was more important than large scholarships from what were then considered the top universities in Canada:

"You work up a lot of good contacts working in co-op," [UW Student John] Gibson explains. "When you come out of university you don't have to take the first job."

The article even notes that UW "isn't a party school". How times haven't changed...

#### In Other News

- Tien Hoa Inn (Weber @ Bridgeport) is described as European Food trying to masquerade as Oriental. For shame.
- Real Programmers Don't Write Specs. Among other things. How lazy.
- Integration becomes a form of mind control. As if that's news...
- And Alfred Ed is desperate for articles for his next issue. Will his quest be successful? Find out next time!

## Mario Kart of the Ages

UW Gamers honouring the classic series

On **Wednesday, June 18<sup>th</sup>**, UW Gamers will be celebrating the Mario Kart Series. In the **SLC Great Hall** starting at **5pm**, we will have every version of Mario Kart, from the Super Nintendo to the Wii. We will even have mini tournaments! Also expect to see 8 player Mario Kart Double Dash. As usual, keep up with UW Gamers at our website, [www.uwgamers.org](http://www.uwgamers.org)

UW Gamers Dude

## Do you like free food?

How about a free t-shirt?

Who are you kidding if you said no?

Here's the catch: volunteer for at least 4 hours at the **MathSoc Canada Day booth** called Childrens' Fun Fest!

We run a series of events for young kids at the University's Canada Day party. UW throws the region a Canada Day party every year, and there had better be some events when they get there! We'll be up at the Columbia Lake Fields from 2 until 8 on July 1<sup>st</sup>.

This year Canada Day falls on the Tuesday and so both Monday, June 30<sup>th</sup> and Tuesday, July 1<sup>st</sup> are university holidays. You could have a 3 day weekend and still be back to help!

Interested? Email [canadaday@mathsoc.uwaterloo.ca](mailto:canadaday@mathsoc.uwaterloo.ca). Don't like kids but want to help out? There are completely different shifts the day of, and setup and takedown shifts the day before and the day after. See [www.canadaday.uwaterloo.ca](http://www.canadaday.uwaterloo.ca) to sign up for these shifts.

Kaitlyn Holman  
Canada Day Director

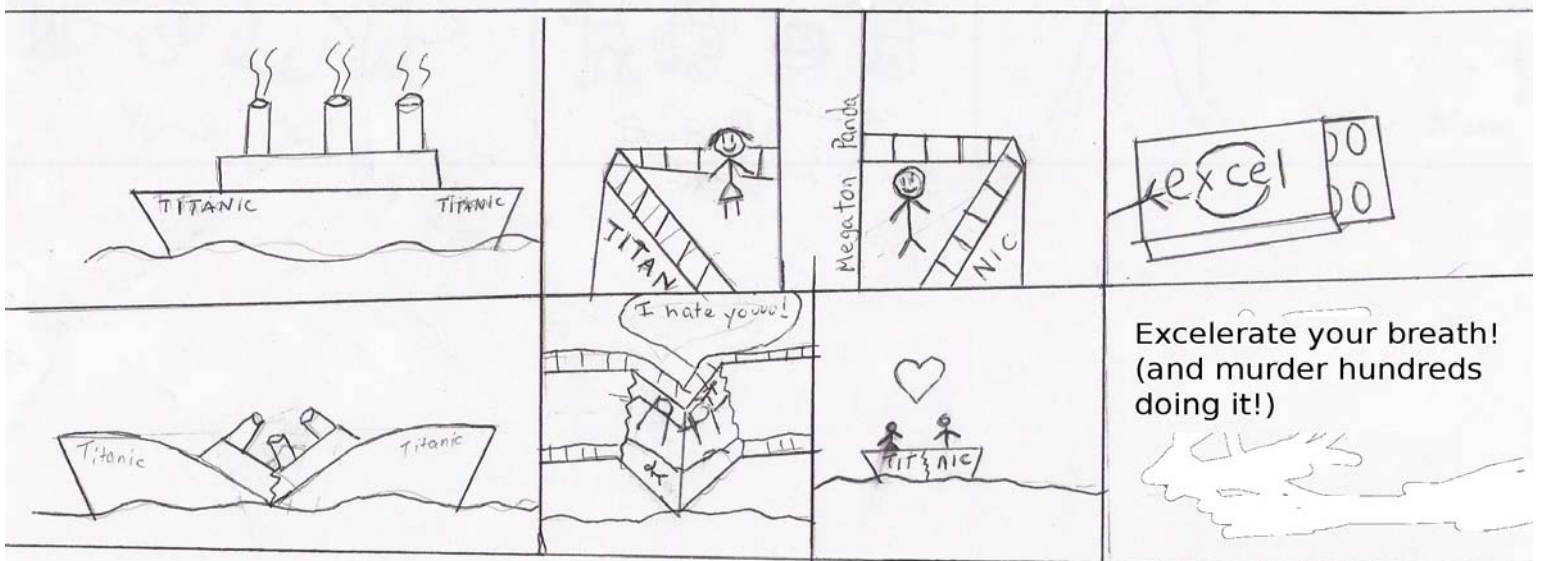
## From the PMC

Canadian Undergraduate Math Conference!

Are you interested in math? Do you want to share this interest with others? Then the Canadian Undergraduate Math Conference is the place for you! From July 9<sup>th</sup> to the 13<sup>th</sup>, take the short trip to Toronto to meet enthusiastic math students from across the country, attend student and professor talks, give your own talk (if you want), and have fun! Early bird registration ends this Sunday (June 15<sup>th</sup>) for a cost of only \$75. You can still register later for \$90. Go to <http://cumc.math.ca/> for more details and registration. Residence rooms are also available to rent for \$31 each night. Also, we will most likely get some funding to cover most of these costs.

Also, this term's Short Attention Span Math Seminars (SASMS) will be held on Wednesday July 2<sup>nd</sup>. This is a series of student talks each limited to half an hour. This is a great opportunity to practice a CUMC talk in front of an audience and see some interesting talks. (More details to come, stay tuned)

PMC executive council



## Horrorscopes

*What happens when George Lucas combines astrology and a movie... maybe that was just Episode 3...*

### ACC

While you sit around relaxing the summer away, you happen to notice that suddenly no one wants you around. Don't worry too much because you will be needed again next tax season

Your lucky number is 8 more months of being useless.

### ACTSCI

The DOW fell down 400 points last Friday, the subprime mortgage market is blowing up, we are not about to hit a freaking recession. Why aren't you hedging your losses? WHY?

Your lucky number is \$10,000 lost while reading horrorscopes

### AMATH

Predictive modeling will get you down on the ropes this week when you find out that an undergraduate degree is probably not enough for you. Don't worry you will eventually get to a meaningful academia position ... eventually.

Your lucky number is 5 years of post graduate education

### BBA/BMATH

Since pluto is no longer a planet your relationship zone is completely empty ignore the horoscope from last issue... we were lying.

Your lucky number is half the Laurier girls that dumped you

### CM

You wake up sweating in the middle of the night when you realize that your program is just an over-glorified mix of math and CS. You fall back asleep since you convince yourself that you are better than both normal mathies and cs students.

Your lucky number is 1 giant delusion

### C&O

Counting has never been so much fun and you are getting so incredibly efficient at it. Just keep going and you might eventually find the largest integer.

Your lucky hypothetical number is infinity

### CS

Your code works but takes about an hour to compile. This poses a problem since your TA has a short attention span. Guess you have to go spend another 10 hours making it work in a relatively timely manner.

Your unlucky number is  $O(n^2!)$

### MATH/BUS

In your possession lies that one thing to fool them all—pro forma statements! A small legion of accounting students will help you to leverage your newfound tool of ultimate POWER!

Your lucky number is a 20% inflated stock price in your company.

### MATHEMATICAL SCIENCES

Your time is running out. Soon you will become extinct. Do not fear, the great void. Instead fear the horrible, unrelenting pain associated with it. Otherwise, not existing is a pleasant experience.

Your lucky number is 1.585 dimensions of blissful agony.

### OR

Life has brought you to a bridge with a troll that prevents passage. The troll requires that you answer a hundred questions before stepping aside. Now is the time to decide if you want to take the test or turn back. Now is the time to test your strength.

Your lucky number is 79 questions left.

### PMATH

Face your fear of numbers. As humans, we are afraid of that which we are unfamiliar with. However, you are now the shell

of a human who has been locked away in the smallest office in the furthest corner of the MC.

Your lucky number is MC 6094Aii air compartment 20

### SE

The value you place on yourself is greater than the going rate for a person of equal value. One would think that you have the potential to drive the price upward, but it is likely more viable for you ask an Accounting student about the Lower of Cost or Market principal.

Your lucky number is one desperately needed discount.

### STAT

You see the truth behind the Numb3rs, but little do you know that it's a misspelling and has no impact on reality. The next time you try to pretend that you can solve real life problems with Numb3rs, try spelling it correctly and prepare for a big surprise!

Your lucky number is 95% Incompetence Interval.

### UNDECLARED

Just go for Mathematical Sciences already! You don't have to worry about vague references to your future or prose describing what could something ostensibly good or ferociously evil in your future because at this point in time, you are looking for a tie-dye shirt that got lost in with the darks.

Your lucky number is 1 big decision.

### AHS

You will die a horrible, horrible death. One horrible isn't enough to describe it sufficiently, and 1.5 is like what's going to happen to Courtney Love in a few years, but look on the bright side. I mean literally, it's going to involve an explosion.

Your lucky number is a pack of C-4 in a pear tree.

### ARTS

The moment is right for you to get off your back and do something productive! Run a cross-legged race for a week and see about how that affects your seating arrangement in the world. Despite what your past experiences may tell you, most people don't start the hunt for a decent job on their knees in what can at best be described as begging.

You don't get a lucky number.

### ENG

A monument will be built to commemorate your new brethren's arrival. The place will largely give praise to all that is small, bringing a newfound shield against jokes regarding feeling inadequate and over compensating with a tool. That is, of course, until you realize that your brethren are only there to pay for the monument itself.

Your lucky number is minus 1 beautiful field for frisbee.

### ES

Explore your horizons by finding a local busker festival. You can take advantage of all the useful things that you learned and gauge its usefulness by the amount of money is thrown in your hat.

Your lucky number is \$4.10 for the week!

### SCI

Watching National Geographic does not constitute studying for you exams, no matter how much the behaviour of your fellow classmates resembles the wild monkeys armed with poo. If anything you can compare the mating habits of the wild walrus versus the abstinence of the city walrus.

Your lucky number is 4 really good episodes.

## Interesting Math

### *The (approx.) 1.585<sup>th</sup> Dimension*

No, that's not a typo, I do mean something in between 1 dimension and 2 dimensions. However, I admit my use of the word "dimension" is somewhat of a misnomer, what I'm really talking about is a fractal dimension. Now there are many definitions of the fractal dimension, and; although, they are equivalent for most classical examples, they are not in general. I will go over briefly the Hausdorff dimension, which I like to employ more in theoretical applications, as well as the box dimension, which is an easier way of generating the fractal dimension and what some of you may have seen in your analysis courses.

Consider the unit hypercube in  $n$ -dimensional Euclidean space. We know (or would like) it to be  $n$ -dimensional. Fix some length  $l$  that divides 1 into a whole number of pieces. Count how many miniature copies of linear size  $l$  are used to completely cover (with no overlap) the original hypercube, and call this value  $N(l)$ . Now the dimension will be defined to be the ratio of  $\log N(l)$  to  $\log (1/l)$ . For example, consider the 3D cube, and set  $l = 1/3$ . It should be clear that 27 cubes of side length  $1/3$  are required to fill the cube. So the dimension is  $\log 27/\log 3 = 3$ , as we would expect. As a generalization, we define the box dimension to be the ratio of  $\log N(l)$  to  $\log (1/l)$ , as  $l$  tends to 0.

Let's look at Sierpinski's triangle: take a triangle (without loss of generality, of side length 1) on the first step. Step 2, make four copies of the triangle of side length  $1/2$  inside the original triangle (you should have three triangles of one orientation and the fourth in the opposite orientation). We will only consider the three triangles on the outside to be part of the figure for step 2, so we have effectively removed the middle triangle. Repeat this process of removing the interior triangle (removing  $1/4$ th of the triangle) for each triangle, yielding 9 triangles of side length  $1/4$ . Sierpinski's triangle is formed by considering the limit of this

process. What is its box dimension, you may ask? Well on step  $k$ , we need  $3^k$  copies of side length  $1/2^k$ , so we get that the box dimension is simply  $\log 3/\log 2$ , approximately 1.585 — and there you have it, the 1.585<sup>th</sup> dimension (very loosely speaking). Try applying this box dimension to show that the Cantor set has box dimension  $\log 2/\log 3$ , approximately 0.631.

We can also consider the Hausdorff dimension, which for the cases above, can be shown to be equivalent to the box dimension. We define the  $d$ -dimensional Hausdorff content of  $S$  by taking the infimum of the sum of  $r_i^d$  where there is a cover of  $S$  by balls of radii  $r_i$ . Then the Hausdorff dimension is simply the infimum of all non-negative  $d$  with zero Hausdorff content. Take this time to convince yourself that the Hausdorff dimension of  $n$ -dimensional Euclidean space is  $n$  as we would hope. This definition allows us to look at many more examples than the box dimension, but is much harder to work with in general.

For interest's sake, the coastline of Great Britain has a (henceforth, I will use dimension to denote Hausdorff dimension, and all values are approximate) dimension of 1.24, cauliflower has a dimension of 2.33, and the surface of the human brain has a dimension of 2.79. For more concrete examples that you can work out, try showing Sierpinski's tetrahedron (obtained as in the triangle, by replacing each tetrahedron with 4 smaller copies of the tetrahedron, one at each corner) has dimension 2, and the Koch snowflake (obtained by starting with a triangle, and on each step dividing each line into three equal segments, drawing an equilateral triangle that has as its base the middle segment and is pointing outwards, then removing the base) has dimension  $\log 4/\log 3$ . Try creating your own fractals and calculating their dimension!

Vince Chan

## You know you're a nerd when...

You prank call someone and the conversation goes like it this:

YOU: Hello. Is your refrigerator running?

SUCKER: Yes, yes it is.

YOU: Is that on a discrete-time or a continuous-time basis?

SUCKER: Well, I was basing my response on finitely-many, discrete observations.

YOU: Then you better linearly interpolate its functional form based on your data so that you can estimate its future performance.

SUCKER: ... I just got served...

AngelED

## In the next episode of *mathNEWS*...

See what happens when Niner's new watch turns.

InsideR uses The Single Guy's dating advice. And fails miserably.

And what did Angelo do that unleashed the wrath of Snuggles?

Tune in in two weeks, same time, same paper!

The Producers

## The Hee Ho's Half-Assed Music Review

### *Etro Anime – See the Sound*

Every so often a very unique sounding band comes along and tells the conventions to go hide a large, metal pole in very awkward areas. Etro Anime is one such band. The best way to describe them is "fusion jazz", which sounds like an atomic bomb going off at a Ray Charles concert, but actually is a very good thing.

The group has a very advanced sense of rhythm and amazing technique. The band hails from New York City and has a large cult following. Their single *Danger* was featured as the intro music to the video game *Shin Megami Tensei: Digital Devil Saga*. The single *Summer Rain* reached number 20 on the U.S. Dance charts way back in March 2004. The album is available on Amazon.ca for a very reasonable price. If you like listening to jazz music with a very nice sounding twist, then *Etro Anime* is the band for you.

The Hee Ho

**This space reserved for Nano-  
technology building.**

## MathCooks!

*This time: simple dinner solutions!*

For many of us, cooking is intimidating because we usually have visions of having many pots on the stove elements at once, each bubbling over with its own portion of one dinner. Very often, the difficulty associated with cooking a complete meal will overshadow the urge to taste something of our own creation, especially on a weeknight. For that, I present you with some one-skillet meal ideas!

The idea behind the one skillet meals is that you will be cooking both the main dish and the side dish in one pan. Meat, veggies and your starch, all in one pan and all happy together! Let's take a look at a sample idea:

### Simple Chicken Skillet

- 1 Chicken Breast - chopped to cubes or strips
- A handful of chopped vegetables: Carrots, Celery, Mushrooms, etc.
- A scoop of chopped onion
- Chicken broth
- A portion of a box of instant rice (Or normal rice if you know what you are doing)
- Some oil
- Teaspoon of chopped Garlic
- Salt, pepper to taste

To start the process, you need to heat the oil (probably about a tablespoonful here) in a skillet or a pan or something over medium heat. Make sure the pan is deep enough to hold liquids!

Add the chopped onion and the garlic and stir it around with a spatula until the onion starts to soften and brown (while releasing a really nice smell). Then add the chicken and cook that until it's nicely browned on the outside (or it looks no longer pink).

Once this is down, stir in the chicken broth and add the rice. The amount of broth to add here will depend on the instant rice's instructions. (Or for a straight measure that isn't always the best, use 2 cups of broth for every cup of rice you will be using. 1 cup of rice should serve 2-3) Add the veggies in and then stir to mix thoroughly.

Bring the skillet to a boil, then reduce heat to low and cover. Here is a good time to add salt and pepper as your tastebuds would like to season it. Cook until the rice is done. (Stir once in awhile to avoid the stuff sticking to the bottom) This process will take anywhere between 5 to 20 minutes, so make sure you keep an eye on your skillet!

To serve, just scoop it out onto a plate or into a bowl. You can even just eat out of the skillet if you so desire! Experiment with different meats and sauces (For example, salsa and ground beef can make a very fiesta-y kind of skillet, while going with cream of mushroom soup and spaghetti over rice could make a simple pasta dish! I hope I've piqued your interest in cooking, and let me know how it goes!

Curious Chef Panda

## Diary of the Dead

*Similar to repeatedly micro-waving a hamster*

To go with the allusion of putting a hamster in a microwave, it's key to realize that it's fun the first couple of times, but shortly after the little bugger explodes you can't really expect it to do anything interesting except leave a nasty stain in your kitchen. That's exactly what the movie *Diary of the Dead* is like. Initially, the concept of zombies is inherently amusing! However, after seeing several movies of the genre you have to wonder just how stupid the people in the movies are.

*Diary of the Dead* starts off during a college media class' movie shoot. Within moments you begin to realize that these are the type of people who spent their time in highschool out in the back, smoking near the rafters in lieu of having any dream of an actual future. Lo and behold they are now in college, making a small horror flick when all of a sudden every radio station begins transmitting reports of the dead walking. Everyone seems disturbed and worried by the reports while the audience is left wondering why the bastard main character spends all of his time holding his camera and shooting everything.

The story progression is as usual: the first third of the movie is spent with people not believing that it's happening despite seeing people coming back from the dead and taking multiple gun shots without falling to the floor while crying like a muppet on fire. Every so often, the characters take a break from running for their lives to yell at the main character for constantly recording everything on his video camera and being a useless twat.

Despite its shortcomings, the movie isn't terrible. When there are action scenes, they are relentless. Including a guy ramming a scythe through his face to get the zombie biting him from behind

and a zombie taking a jar of acid to the face. This is the type of movie that you'll sit down to watch with your girlfriend who you plan on breaking up with and afterward compare the movie to your love life. She won't understand and you'll explain that your conversations seem forced and trite when you aren't trying to beat her to death with random objects. If they took out the angsty yelling at the main character and just threw the camera out of their vehicle's window then the movie would have been much better. Mostly because it would have been finished after that because the entire movie is what was recorded by the group of survivors.

AngeLED

## Nine ways to ruin your day

*Without even trying*

1. Get stuck on a roller coaster twice. Climb off via ladder.
2. Verify that it is Thursday. Watch the world blow up.
3. Fall and miss the ground. Hit the floor below.
4. Get hit by *mathEYE*'s crystal orb.
5. Gum in your hair.
6. Miss the free pizza (*mathNEWS* version or otherwise) because your clock is off by an hour.
7. Land in the RoboRally factory after dark. Get stepped on by Twonky.
8. Read Imprint.
9. Be a side character in a slasher film.

Niner

## profQUOTES

I hope it's right, otherwise I would have spent 10 minutes making an ass of myself.

Till, ACTSC232

Those terrible frowns are a good indicator of whether I screwed up. Continue them, please.

Till, ACTSC232

The irony of skipping a class to study for its own midterm...

Till, ACTSC232

Some notations you'll see from the Society of Actuaries... in general, don't use this.

Till, ACTSC232

Extra office hours this week are good for me. My in—laws are in town.

Till, ACTSC232

This eraser is making a funny sound, almost like an otter.

Bergeron, STAT340

If you keep talking like this, you will not be able to hear my sexy, sexy voice.

Bergeron, STAT340

So here we've got this marvelous theorem! It's got only one case, but it's a theorem.

Celmins, CO380

I forgot to tell you who I was... or who I am. Who I was is someone completely different.

Celmins, CO380

You just have to find one particular insult that makes the problem go away.

Celmins, CO380

This gets worse, I'm not even going to bother. We all agree that this isn't worth writing down? ... Even though I just did..."

Celmins, CO380

I condone that pirating MATLAB, but...

Orchard, CS370

When I say "jump," you say "how high?" When I say "round," you say "how many digits?"

Orchard, CS370

Nobody uses three digits of accuracy anymore... well, maybe science students. Are there any science students in this class? [Four students raise their hands] Oh...

Orchard, CS370

You shouldn't do that with a live person... but a dead person—no problem!

Orchard, CS370

Connect—the?Dots is piecewise, linear interpolation. You can say to a second-grader: "You know, you're doing piecewise, linear interpolation," and they'll be like "Yeah... but it's ONLY linear."

Orchard, CS370

I hear a lot of chatting, and I'm sure you're talking about putting people in blenders...

Orchard, CS370

Ok, now I'm going to retract some of the things I said, but you're going to have to decide which ones.

Orchard, CS370

That's why a pivot is called a pivot. It's a pivot.

Dunbar, MATH136

You have to wait until Calculus 3 to take a bite out of your donut.

New, MATH138

Sperm is cheap. Give it to women, give it to men, give it to tin cans!

Dea, PHIL202

If I write "pregnant sex" on my notes, do you think I'll remember what it means?

Dea, PHIL202

Partial relation means not all elements are related. You and me are not related. At least I don't think so.

Ng, MATH146

Don't do as Windows does, because it's dumb.

Davis, CS246

I'm creative enough to make new assignments every term.

Cowan, CS251

Let's go back to grade 4. This was when you were too young to figure out which buttons to press on the calculator.

Cowan, CS251

What I'm not going to do is give you a mathematically rigorous definition of what "mathematically rigorous" is. They tried it 100 years ago, and everything blew up.

Lhot?k, CS241

So here's an ACM-Style programming contest. Apparently, I'm organizing it.

Lhot?k, CS241

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

**WARNING!**  
**MGS4 Spoiler!**

*Snake kills Dumbledore*

# The Living Dead and You

*First in a four part mini-series*

The living dead, animated flesh, re-deads, or flesh hungry psychopaths no matter what form the army of zombies manifests itself in, will you be ready? As a concerned citizen I feel it's important to share some survival advice with you to better prepare the world for the End of Days. In the following series we will help by identifying types of zombies, survival in the short-run, survival in the long-run, and Zombies and the UW campus.

This week I will discuss the important issue of zombie identification. First, know your enemy. Through the ages there have been many tellings of zombie stories each with different attributes and weaknesses. I am not going to discard any possible scenario because in the event the dead are walking who knows anything anymore. I don't see a great importance in speaking of the creation of these subspecies of the undead but I will give fictional references from time to time. It is very rare that you are at ground zero of a break out and even more rare for the average person to have the power to stop it. Just try to stay alive and keep others the same.

The first form of zombies I am going to examine is faux-zombies. This is a breakout where the infected are actually still alive but bloodthirsty and cannibalistic. The *28 Days Later* movie series is an example. Infected ones are highly contagious, a spit of saliva or a drop of blood, but theoretically curable. This event has a strong moral dilemma, where to save yourself you may have to kill infected that could one day be cured. The good news is they will die like a normal person; the bad news is they are so pumped with adrenaline they will not go down easily.

Next, the classic shambler. They move slowly and are very dead. This is the most popular class of zombie common in many fantasy novels and cult films, *Night of the Living Dead* being one of the most famous. These guys are stubborn, it is most popularly illustrated that destroying the brain deals with these foes rather easily. A few warnings about this:

1. The skull can be hard and difficult to crack at times.
2. Just because it looks down doesn't mean it will stay down
3. A dead zombie is still infectious
4. Sometimes destroying the brain is not enough

## *dissed*CONNECTION

Remember me from The Grill? You got that lovely burger. Now come with me so I can pickle your onions.

Hamburgler

You are the key in my dictionary. Tell me the value of your happiness.

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To the bloke who wrote here last week (about the oasis). Your request to meet me has not been authenticated. And will never be. It's over!

Dry as a desert's ass

To the girl that I met in Phil's. After you puked in my shoes, got me to buy you drinks and then went off to dance like a straggly hooker with every guy you saw. I think we have some form of future together. Mostly because I get turned on by women who treat me like shit. Call me. Please? I'll buy you more drinks and bring more guys for you to dance with.

Douche

Though they move slow and are easily avoided, these creatures are tireless. You will be at your weakest when you sleep. Always be on your guard, you are never safe. A variation from the shambler is a very similar zombie with similar attributes but the ability to move at a healthy pace depending on the condition of their bodies. This is most prevalent in the *Dawn of the Dead* remake, released in 2004. Never make assumptions. Your enemy is full of surprises. Furthermore, there is potential mutation angle. *Resident Evil* is big on this type of zombie. In this event you can expect your zombies to mutate over time becoming more dangerous. This is a highly precarious outcome because this could lead to a lengthening of the zombies' lifespan and abilities. Most zombies should be fully mobile for about 7 years at which point rotting of muscles and flesh should stop them. Hope for this but don't expect it especially if mutation starts occurring.

Finally, the least likely but most dangerous, animated dead. Highly contagious, fast, and almost impossible to kill. Their image is reflected in the original *Return of the Living Dead* movie. This contagion animates individual cells, meaning you cut off a limb both the limb and the body will remain moving. Destruction is almost impossible as fire may lead to the disease spreading through the ashes. The best you can hope for is that this never happens or containment.

In conclusion, when the zombie wars begin, do not be surprised to see any combination or permutation from the species discussed above. Never assume you have control, never let your guard down and try to stay alive. Fully understand your enemy and never get close unless it is absolutely necessary. If someone is bitten, common signs of infections are flu like symptoms, unexpected death and movement after death. Deal with these individuals with caution. If someone dies of natural causes they may still join the army of the re-deads.

That's all for this fortnight, next week I will talk about the start of a breakout, how to prepare and signs in the media. Keep your guard up and let's all hope there is no zombie invasion until Fall term when we will all be prepared, and do not eat the dead.

Eat the Dead

## How to save money

*In times of inflation*

Math Soc saves money by catching those who violate the terms of their refund agreements. Thankis to the ten people who fell for that last issue. MathSoc could not run without you.

Now how can you save money?

- **Buy store-brand products at the grocery store.** Buying name-brand only pays people to tell you to buy name-brand.
- **Eat out less.** Read MathCooks for the latest recipes.
- **Walk where possible.** Why are you driving to Keats Way? You need the exercise. You don't need to empty your fuel tank. Win-Win.
- **Get a part-time job.** You can earn a couple hundred bucks, and put it on your resume.
- **Write for mathNEWS.** Win \$25 if AngelED likes your article [*Sleeping with me also gets you points — AngelED*].

InsideR



## In defense of Windows Vista

Allow me to begin this rant/article with the following preface: I am not “just some Windows Fanboy”. My first computer was a Macintosh Classic, and I’ve been a Mac user before it was cool to be one [And long after it became a stain on your value as a person, apparently — AngeLED]. I’ve been using Linux since mid 2005, and I downloaded a relatively unknown Debian fork called Hoary Hedgehog back before Ubuntu release names were alphabetical. In fact, I consider the entire notion of “OS Fanboyism” to be about as stupid as its near cousin “Programming Language Fanboyism”.

The thing that I mostly hate about people that are blind advocates of one OS (or one programming language, for that matter) is that they’re rarely people with any real world experience. If they had real world experience, they’d probably accept that business considerations are more important than technical ones, and that different tools are good for different jobs.

My credentials for writing this article? I’ve just reached my one year anniversary running Windows Vista - I dare you to find any Vista basher who has used the OS for even a tenth that length of time. My reason for writing the article? Mostly, I’m just sick of people buying into the bullshit “Everything Microsoft Sucks” mind-set of many tech-savvy people. I’d rather people formed opinions about operating systems using their brains, instead of relying on Apple’s ad agency telling them what to think.

### *Vista is better than XP*

XP is usable and all, but it’s old. You need to install and configure a whole lot to make XP usable. Vista comes with a lot more things pre-configured for usability. Vista has cool integrated features like built-in start menu search to locate applications that you need third-party applications for in XP. The OS is also attractive without just being needlessly showy (\*cough\*CompizFusion\*cough\*).

Two things that you’ve heard from people who’ve probably never even touched the operating system are that Vista is unstable and that it has driver issues. I’m here to tell you that neither of these are remotely true. Vista isn’t Debian Stable, but it’s also not Windows 98. It’s actually a very hard OS to crash. And Vista’s driver support beats any other OS hands down. Even XP, at this point, is hard pressed to have better device compatibility than Vista.

### *Other things people are wrong about*

**Vista’s Security Model annoys me!** Vista comes configured for your grandmother to use. UAC actually is a substantial security gain that has destroyed the effectiveness of most XP rootkits, but if you’re a power user (like most *mathNEWS* readers), you are also hereby allowed to turn it off. So suck it up and be glad that Microsoft has actually started having a decent security model to annoy people who aren’t power users when they do something stupid.

**Vista is too slow.** No, it really isn’t. Your computer is too slow. People with this complaint apparently don’t remember any of: Windows 3.1, Windows 95, Windows 98, or even XP, because all of those operating systems introduced a bigger jump in performance requirements than Vista. And for that matter, OSX Leopard and Ubuntu Hardy aren’t great on older OSes either. The fact that you have an old computer doesn’t give you valid grounds to criticize the product.

**Vista uses too much memory** This is possibly the most common thing people are wrong about. OK, 1) Who cares? Why are you evaluating an OS based on how much memory it can pointlessly leave free? and 2) Yes, you will notice very little free memory in Vista. It’s a technology called SuperFetch. It creates a cache in memory to speed up computing. Vista also releases that memory if you need it for something intensive, like a game. Please actually use the operating system before you spout meaningless statistics at me.

### *Some things people are actually right about*

The Vista versions actually are crazy. I have Home Premium, mostly because Home Basic is total crap, and the Business versions aren’t really interesting to me. Ultimate is just useless and overpriced.

Vista introduced way too many changed and new features all at once, and that lead to major problems for everyone. Dramatic changes in OS feature sets are a bad idea. When I upgraded to Hardy Heron a while ago, I didn’t even notice a change. It wasn’t until a week later when I read the changelist that I found out what new features I’d gotten - and they were pretty irrelevant to me. Regular updates are better than huge ones every five years.

Value. That is the most legitimate Vista complaint that anyone will ever manage to bring up. Windows Vista just doesn’t feel like it’s worth the money. I wrote a whole bloody article on it, and I still wouldn’t pay money for it over XP. It’s better than XP, sure, but it’s not better enough to warrant the upgrade. Almost all of Vista’s features can be replicated on XP using third party applications. I completely understand people who haven’t switched because they don’t see Vista being worth the money. It is the raving hordes of Linux and Macintosh zealots whose reasons are irrational.

Thor



# Soul Calibur IV Update

More Star Wars characters revealed; Captain Picard to follow

A new character was revealed for Soul Calibur IV's rosters recently: the apprentice from the next Star Wars game (Star Wars: Force Unleashed). He joins the nonsensical cast of Yoda and Darth Vader in the list of characters who simply don't fit in a game. While we're at it, here are some other ideas for upcoming games:

- Resident Evil 5: Along with Chris and his mysterious female companion, another warrior will join the battle against evil "zombies": Mario! His fireball will provide great range against the otherwise difficult undead.
- Battlefield: Bad Company: While the soldiers are going off to war, they will be aided by the electric powers of Pikachu! His volt tackle will pulverize any soldier who gets too close and he's excellent at disabling tanks!
- NHL 09: With the release of an actual career mode, gamers will be able to take the ice as a hot prospect, such as Samus Aran! She might not skate as fast as Jason Blake, but her cannon will be great when dealing with a rock solid goalie who's blocking the pucks from the net!
- Star Wars: Force Unleashed: As the apprentice rises to power, gamers will be given the option to play as Darth Vader's other apprentice: Pac-Man! His gobbling powers will give him an edge in crowd clearing and his yellow body should appeal to many.

Soon, random character injections will rule the world!

Megaton Panda

## mathHELP

From everyone's favourite Softie

**Dear InsiderR** – I can't concentrate during lectures because my class is causing a ruckus. I'm not normally distracted so easily from a lecture situation, but it gets to the point where I can't hear the prof from the second row! What can I do?

Only Listener

**Dear Listener** – I feel your pain. I understand the anger that results from the jerks who treat classrooms like chatrooms. If you don't feel like beating them relentlessly, ask your prof to assist with crowd control. This may include having him wait for quiet or requesting people to leave.

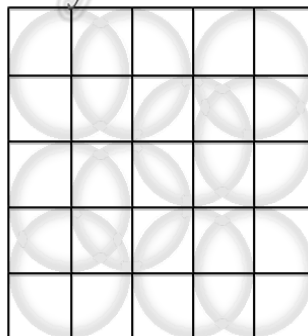
InsiderR

**Dear InsiderR** – I had four interviews today, and it was horrible! I choked on the technical questions! And these were beast jobs! My life is over!

Pwnd by Interview

**Dear Pwnd** – You sound exactly like my friend last week. How uncanny. But anyhow, you need to better prepare for these. If you get stumped on a technical question, make an educated guess. Even if you're not right, you show the ability to reason well. For more interview tips, talk to someone in CECS.

InsiderR



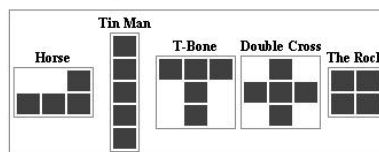
Place the following 10 squares on the 10 circles so that the overlapping numbers match up.

15	23	06	83
78	70	23	15
33	10	37	11
51	87	94	18
82	79		
37	48		



The precious 10x8 grid that we call home has been infiltrated. Signals intelligence tells us that the following agents are somewhere nearby, all they can tell us about their locations is

- How many squares in a row or column are occupied
- They've been ordered to disperse so they aren't touching, not even diagonally.
- Remember: they can rotate.



										2
										3
										1
										7
										0
										0
										1
										3
										1
										0
3	1	0	4	4	4	1	1			



"Listen up. Our client isn't picky, as long as each square has the right number of walls surrounding it. Sounds a little tricky, but we didn't get to be the #3 drywall outfit in town by being lazy."

Also:

- There's a wall around the outside
- They want exactly 12 rooms

2	1	1	1	2	3	2	3	2	2
1	0	0	1	2	4	3	3	3	2
1	0	1	2	1	1	1	1	2	2
1	0	1	1	0	0	0	0	1	2
2	1	2	1	0	0	0	0	1	2
2	1	2	1	0	0	0	0	1	2
2	1	2	1	0	0	0	0	1	2
2	1	2	2	1	1	1	1	2	2
2	1	2	3	2	2	3	4	3	2
3	2	2	3	3	2	2	2	2	3

**Dear InsiderR** – I was disturbed in reading last week's Imprint. I mean, who writes those absurd features? It's ridiculous! Make them stop!

Imprint Hater

**Dear Hater** – I agree! Let us revolt!

InsiderR

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## Sudoku

2			1	6						3			1	7	
4				3				8	3		1			5	
5	6			8	4	2	7		4	9	5			2	
	9					5	8		8						
	5	2	3		8	1	9		6		8			4	
	1	4					3							9	
	3	8	5	2			1	7		1		6		2	9
				8				5		9		4		3	1
					3	7		9		2	8			1	