MAT137 - Week 2, Lecture 2

- **Reminder:** Tutorials start next week. Make sure you are enrolled in one.
- **Reminder:** Problem Set 1 is available on the course website, and is due **Thursday, September 26 by 11:59pm**.
  - You will get an email about a week before it's due telling you how to submit it online.
- My office hours today have been moved to **KP 113**. Just for this week.
- Today's lecture will assume you have watched up to and including video 1.9.

  For tomorrow's lecture, watch videos 1.10 through 1.13.

Quick warm-up: Conditionals

Problem 1. True or false?

Let x be a real number.

1. If $x \geq 0$, then $x > 0$.
2. If $x > 0$, then $x \geq 0$.

Problem 2. True or false?

If $0 = 1$, then there are no students in this room.

Some negations

Write down the negations of the following statements as simply as you can:

1. Every student in this room has a cellphone.
2. There is a province in Canada with fewer than 1000 inhabitants.
3. Ivan likes coffee and tea.
4. Every building at UofT contains a classroom with no windows.

More on conditionals

Four cards are in front of you. You know that each card has a letter on one side and a number on the other.

At the moment, you can read the symbols E, P, 3, and 8 on the sides facing up. I tell you:

> *"If a card has a vowel on one side,*
> *then it has an odd number on the other side."*

Which (if any) cards do you need to flip over in order to verify whether I am telling the truth or not?

Negating conditional statements

Here's a great way of thinking about negating conditional statements. Suppose I made you the following promise:

> *"If you get an A (or better) in MAT137, I will give you cake."*

Under what circumstances would I have lied to you? Under what circumstances would I have kept my word?

For example, if...

- ...you get a C, and I don't give you cake?
- ...I just give everyone cake?
- ...you get an A+, and I don't give you cake?

Problem. What is the negation of the quoted statement?