MAT137 - Lecture 2

- Course website: http://uoft.me/MAT137
  My page: Course website → Resources → click on my name
  Precalc review: http://uoft.me/precalc

- Reminder: Tutorials start next week.

- Office hours: Wednesday 3-5 in PG003

- Join Piazza, our online help forum. Seriously, it's great.

- Today's lecture will assume you have watched videos 1.7 through 1.9.
  For next Monday's lecture, watch videos 1.10 through 1.15.

Making lectures more productive

- Watch the videos before lecture
- Participate in lecture (attempt the problems, communicate with your classmates, share your answer)

Making lectures more productive

- Watch the videos before lecture
- Participate in lecture (attempt the problems, communicate with your classmates, share your answer)
- If we moved on to another problem and you still have questions about the previous problem, talk to me after class or in OH.
- Best time for a tiny 1 on 1 talk with me is when everyone is working on a problem.
- Focus with me when I raise my hand.

Anonymous Feedback

You can share your thoughts and give me anonymous feedback on the lectures here: my webpage.

Order of quantifiers matters! A lot!

The following two statements are identical *except* for the order of the two quantifiers:

$$\forall x \in \mathbb{R}, \exists y \in \mathbb{R} \text{ such that } x < y.$$

$$\exists y \in \mathbb{R} \text{ such that } \forall x \in \mathbb{R}, x < y$$

Try to phrase each of these statements as simple English sentences.
Do the two statements say the same thing?

Problem 1: True or false?

Let x be a real number.

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

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.

Four cards lie on the table 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 that are up. I tell you:

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

Which cards do you need to turn over in order to verify whether I am telling the truth or not?

The only way you can find if I am lying is if you find a card with a vowel on one side and an even number on the other side. So the answer: E and 8. If the other side of E is even or if the other side of 8 is a vowel, then I am lying.

I am posting this for extra practice but we didn't cover it in lecture
Four cards lie on the table in front of you. You know that each card has a letter on one side and a number on the other.
Negate the following statement:

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