- Course website: http://uoft.me/MAT137
 My page: Course website → Resources → click on my name Precalc review: http://uoft.me/precalc
- 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.
- Join Piazza, our online help forum. Seriously, it's great.
- Today's lecture will assume you have watched videos 1.1 through 1.3. For next Tuesday's lecture, watch videos 1.4 through 1.6.

Describe the following sets in the simplest terms you can.

- $\textcircled{1} [2,4] \cup (3,10)$
- 2 [2, 4] ∩ (3, 10)
- [7,7]
- **(**7,7)
- **6** $A = \{ x \in \mathbb{R} : x^2 < 7 \}$
- $B = \left\{ \, x \in \mathbb{Z} \, : \, x^2 < 7 \, \right\}$
- **8** $C = \{ x \in \mathbb{N} : x^2 < 7 \}$

We skipped over this slide in lecture. I'm posting it here as extra practice.

Given two sets A and B, we define:

•
$$A \setminus B = \{ x \in A : x \notin B \}.$$

We usually read this as "A without B" or similar. It's the set consisting of all elements of A that are not elements of B.

•
$$A \triangle B = (A \setminus B) \cup (B \setminus A).$$

We usually read this as "the symmetric difference between A and B". It's the set of all elements A or B but not both.

To check your understanding of this notation, convince yourself that

$$A \triangle B = (A \cup B) \setminus (A \cap B).$$

We skipped over this slide in lecture. I'm posting it here as extra practice.

Problem. Define the following two sets:

- $A = \{18 \text{ year old students in this class}\}$
- *B* = {students sitting in the first two rows of this class}

What are the sets $A \setminus B$, $B \setminus A$, and $A \triangle B$?

Problem 1. Describe the following sets in the simplest terms you can.

- **1** $A = \{ x \in \mathbb{R} : \forall y \in [5,7], x < y \}.$
- ② $B = \{ x \in \mathbb{R} : \exists y \in [5,7] \text{ such that } x < y \}$
- $C = \{ x \in [5,7] : \forall y \in [5,7], x < y \}.$
- $D = \{ x \in [5,7] : \exists y \in [5,7] \text{ such that } x < y \}$
- **●** $E = \{ x \in [5,7] : \exists y \in \mathbb{R} \text{ such that } x < y \}$
- **6** $F = \{ x \in [5,7] : y \in \mathbb{R}, x < y \}$