Lecture 1

Andy (Dr Andrew Tonks)

Organisation:

Approx. 3h of recorded lectures per week

Lecture notes (typed)

Also on blackboard:

PDF handwritten notes from these lectures

Some "new" videos
some "recycled" from Leicester recordings ~ 2019

Discussion Forum:

— ask questions on Blackboard (anonymously if you want)

Tutorials — Ben

Workbook — collection of exercises

Try all

Some exercises must be submitted for grading — we will tell you which ones later!

Sem 2

(5) Integration

(6) Differential Equations (easier)

(7) Series

(8) Multi-variable continuity & differentiation

Topic 1

A set is a collection of elements

$S = \{2, 10, 19\}$

Defining sets: $S = \{1, 2, 3, \ldots\}$

$S = \{x : x \text{ is a whole number}\}$

constructor → x is between 2 and 7 inclusive

$= \{2, 3, 4, 5, 6, 7\}$

listing →

Examples

$\mathbb{Z} = \{x : x \text{ is whole number}\}$

integers $= \{\ldots, -2, -1, 0, 1, 2, \ldots\}$

$\mathbb{R}$ all real numbers

$\mathbb{N}$ natural numbers

$\mathbb{N} = \{x \in \mathbb{Z} : x \geq 0\}$

$= \{0, 1, 2, \ldots\}$

Warning Some people say

$\mathbb{N} = \{1, 2, 3, \ldots\}$

$\in$ "is an element of"

$0 \in \mathbb{N}$ or $0 \notin \mathbb{N}$

✓ ✗

$-1 \notin \mathbb{N}$ $3.5 \notin \mathbb{Z}$