

CSC165 fall 2019

Mathematical expression

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Web page:

<http://www.teach.cs.toronto.edu/~heap/165/F19/>

Using Course notes: Prologue, Mathematical Expression

Outline

Introduction

sets

functions

sums and products

propositional logic

notes

what's CSC165?

a course about expression (communication):

- ▶ with and through programs
- ▶ with developers
- ▶ knowing what **you** mean
- ▶ understanding what **others** mean
- ▶ analyzing arguments, programs
- ▶ understanding cool domains (number theory, graphs, l..)

objectives

by the end of this course you will be able to

- ▶ express mathematical ideas precisely
- ▶ read and understand other people's proofs
- ▶ read and identify flaws in incorrect proofs
- ▶ express your own proofs
- ▶ analyze (some) program complexity
- ▶ engage with number theory, graph theory

doing well in CSC165

Doing well has two aspects: one being recognized as doing well by being awarded credit (grades), another being able to retain concepts and tools for use later on. Here's how to do both:

- ▶ build a network of **good** peers
- ▶ read the course web page, and emails, regularly; understand the course information sheet.
- ▶ spend enough time; we assume an average of 8 hours/week — 4 in lecture/problem sessions, 4 reviewing preparing assignments
- ▶ ask questions; make your own annotations.

typical week workflow

- ▶ reading and prep
- ▶ lectures
- ▶ work sheet(s)
- ▶ problem sets — start early!
- ▶ tests — study groups!

NB: This exam for this course is based on... this course! The best preparation is re-working all the materials listed above **not** old exams...

building sets...in math

English prose

list elements

set comprehension

specify functions

- ▶ ordered pairs
- ▶ pictures
- ▶ rule

propositional logic

- ▶ statements, variables

- ▶ operators

Notes

