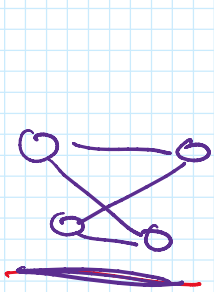
CS 173 "Lecture 0": Introduction

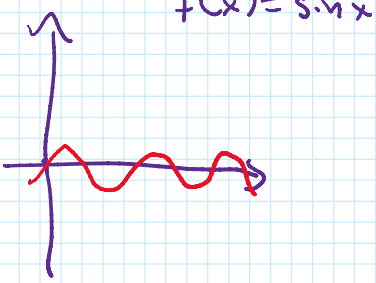
Monday, 15 June, 2020 11:08

① Why Discrete Math?

- Formal Aspects of CS
  CS 374, CS 421, CS 446
- CS deals with discrete objects
  - bits
  - data
  - model



vs.



② Who is Patrick?

- PhD student in CS @ UIUC
- Graph Algorithms

③ Logistics:

- very fast paced
- readings, videos, practice

Schedule

	A	B
week	reading/videos (learning)	
	discussions/HW (practice)	reading/videos
week		discussion/HW
	combined examlet (check)	

Websites:

course website

Course website

- http://courses.engr.illinois.edu/cs173/su2020/

  Syllabus, Schedule (videos, deadlines, practice problems),

  Help & Resources.

- Moodle

  Readings (linked Perusall), HW, Examlets.

- Piazza

  Announcements, Q&A

(Here we looked at the websites)

Little Bit of Math Review

$\mathbb{Z}$: set of integers $\ldots, -2, -1, 0, 1, 2, \ldots$

$\mathbb{N}$: set of natural numbers $0, 1, 2, \ldots$

$\mathbb{Q}$: set of rational numbers

$\frac{a}{b}$ a, b are integers & $b \neq 0$

$\mathbb{R}$: e.g. $\pi = 3.14159\ldots$

$e = 2.71828\ldots$

$\sqrt{2} = 1.414\ldots$

(includes all the rationals)

$\mathbb{C}$: $a + bi$ a, b are real numbers

$i = \sqrt{-1}$

$\sum$ summation.

ex. $\sum_{i=1}^{3} i = 1 + 2 + 3$

$\prod$ product

$\prod_{i=1}$ product

$$\prod_{i=1}^{3} i^2 = 1^2 \cdot 2^2 \cdot 3^2$$

exponents and logarithms

$2^3 = 2 \cdot 2 \cdot 2$

$b^{(\log_b a)} = a$

$2^a 2^b = 2^{a+b}$

$\log_b(xy) = \log_b x + \log_b y$

change of base formula