

Homework for Dr. Z.'s MathHistory for Lecture 1

0. Read and understand Chapter II, sections 1-3 (pp. 13-23) summarize its content in your own words and your own handwriting, and write it in your HISTORY notebook, [You should have at least the equivalent of two typed pages]

The other problems should be either hand-written or typed and sent as .pdf file (PLEASE no other formats) or if you prefer .txt file, to DrZlinear@gmail.com by 8:00pm Sunday, Sept. 12, 2021 ,

Subject: hw1

with an attachment: hw1FirstLast.pdf (or hw1FirstLast.txt)

1. Read and **understand**, and write-down, in *your own words*, the beautiful proof of the Chinese Remainder Theorem (Special Version) given in today's handout

<http://www.math.rutgers.edu/~zeilberg/Hist21/crt.pdf> .

2. Convert the following Egyptian fraction

$$\frac{1}{2} + \frac{1}{3} + \frac{1}{5}$$

into a usual fraction, i.e. compute its value. Use the **greedy algorithm** to express it as another Egyptian fraction. Interpret both ways in terms of equally dividing pizzas among people, and say which way is better.

3.

(a) Find the smallest two integers that have the property that

- it leaves remainder 2 when divided by 3
- it leaves remainder 6 when divided by 7

(b) Find the smallest two integers that have the property that

- it leaves remainder 1 when divided by 3
- it leaves remainder 4 when divided by 7

(c) Find the smallest two integers that have the property that

- it leaves remainder 0 when divided by 3
- it leaves remainder 2 when divided by 7