Homework for Dr. Z.'s MathHistory for Lecture 0 (Due Feb. 2, 2017)

Version of Jan. 23, 2017 (thanks to Tyler Volpe)

0. Read and understand Chapter I, summarize it in your HISTORY notebook, in your own words and your own handwriting

The other problems should be in your MATH notebook.

1. Express one hundred (base ten) in base (a) two, (b) three, (c) four, (d) five, (e) six, (f) seven, (g) eight, (h) nine, (i) ten, (j) eleven (denote ten by A), and (k) twelve (denote ten by A and eleven by B)

2. Use the Todd-Zeilberger algorithm (see link in webpage of class) to multiply 101 by 97.

3. Use the base three analog of the Todd-Zeilberger algorithm (see link in webpage of class) to multiply

$$26_{10} \times 80_{10} \quad ,$$

by first converting 26_{10} and 80_{10} to base three, and **then** doing the Todd-Z algorithm for base 3. Leave your answer in base three.

4. Construct a base three chart analog to the guessing game given in class, that includes all the numbers up to 26.

[Hint added Jan. 23, 2017: convert all the integers between 1 and 26 to base 3, and have six boxes: the first with all integers that have 1 in the unit-place, the second with all integers that have 2 in the unit-place, the third with all the integers that have 1 in the 'ten' (i.e. 3^1) place, etc.]