MATH 470 Homework 1 (Due August 30 **on Gradescope**)

Instructions:

- The writing of your homework submission should be done entirely on your own and you should be able to justify all of your writing in your own words.

- Show your work and write legibly. If there is any difficulty in reading or understanding your submission, or if any nontrivial steps are missing in your work, then points may be deducted.

- When you upload your submission to Gradescope, **make sure you match the correct page(s) for each question**. Otherwise your submission may not be graded, or points may be deducted.

- For questions marked $*$ (e.g. 6^*.), you may write your own code (in any standard language) to solve the problem. But in this case you must write the code **from scratch** and attach a copy or screenshot of the working code together with the output in your submission.
  The only "built-in" mathematical functions you can use in the code are:
    - basic arithmetic operations: add, subtract, multiply, quotient, remainder

  Any other mathematical function you want to use must be built by you using the above.
  If your submission uses other built-in library functions (e.g. gcd in numpy), you will get 0. If it is noticed that the output of your submitted code does not match your answer, this will be considered a violation of the Aggie Honor Code.

Required problems: (submit on Gradescope)

1. (5 points) Decode the following Caesar salad:

   EREKK MIHSI WRSXP MIGLI EXSVW XIEPS VXSPI VEXIX LSWIA LSHS

2. (5 points) 1.3(a)

3. (5 points) 1.6(b)

4. (5 points) 1.9(a) (do this by hand and show each step of your calculations)

5. (10 points) 1.11(a,b)

6^*. (Bonus 5 points) Find the gcd of the following two numbers:

$$a = 123456789012345678901234567890123456789012345678901234567890123456789,$$
$$b = 23456789012345678901234567890123456789012345678901234567890123456789.$$

Suggested practice problems (do not submit): 1.7-1.8(a), 1.11(c)(d), 1.14