Computational Number Theory
Programming HW 1

Due Date: 24/08/2025

Implement the extended Euclid's algorithm for the following.

Input: The input is a csv file with each line having a pair a, b of numbers, each being a non-negative integer at most 100 digits long.

Output: For each pair (a, b), print integers x, y, c such that $ax + by = c$, and $c = gcd(a, b)$. Print each output on a new line to the standard output (screen).

Output for the sample input file (input-gcd.csv):

```
x=-9,y=2,c=1
x=2,y=-1,c=21
x=-458,y=649,c=2
x=-32,y=1,c=31
x=-24184859,y=1067122,c=25
x=-568434188608080148696904296875 0,y=1,c=48828124
x=57272855485221053492816565093175089061872344593868805298142291550122142132093 14,
y=-160344340907989664269681014566462576908243027827991762396134350925422180024586 47,
c=2
```

Note 1: You may use any programming language. For large integer arithmetic in C or C++, use the GMP library (sample code attached).

Note 2: Put your input file in the same folder as your code. Refer to the filename in your program as it is and without the local path in your computer; alternatively get the filename from the user.