09/04/2024, 13:55 Problem - G - Codeforces





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# G. GCD on a grid

time limit per test: 3 seconds memory limit per test: 256 megabytes input: standard input output: standard output

Not long ago, Egor learned about the Euclidean algorithm for finding the greatest common divisor of two numbers. The greatest common divisor of two numbers a and b is the largest number that divides both a and b without leaving a remainder. With this knowledge, Egor can solve a problem that he once couldn't.

Vasily has a grid with n rows and m columns, and the integer  $a_{ij}$  is located at the intersection of the i-th row and the j-th column. Egor wants to go from the top left corner (at the intersection of the first row and the first column) to the bottom right corner (at the intersection of the last row and the last column) and find the greatest common divisor of all the numbers along the path. He is only allowed to move down and to the right. Egor has written down several paths and obtained different GCD values. He became interested in finding the maximum possible GCD.

Unfortunately, Egor is tired of calculating GCDs, so he asks for your help in finding the maximum GCD of the integers along the path from the top left corner to the bottom right corner of the grid.

#### Input

The first line contains an integer t ( $1 \le t \le 10^4$ ) — the number of test cases.

The first line of each test case contains two integers n and m ( $1 \le n, m \le 100$ ) — the number of rows and columns of the grid.

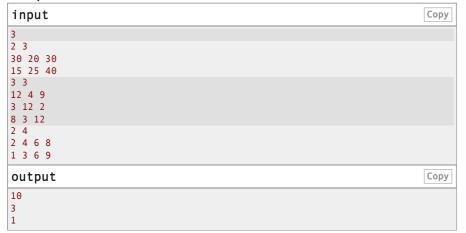
Then, there are n lines, where the i-th line contains m integers  $(1 \le a_{i,j} \le 10^6)$  — the integers written in the i-th row and the j-th column of the grid.

It is guaranteed that the sum of  $n \cdot m$  does not exceed  $2 \cdot 10^5$  over all test cases.

## Output

For each test case, output the maximum possible GCD along the path from the top left cell to the bottom right cell in a separate line.

## Example



### Codeforces Round 938 (Div. 3)

### **Finished**

#### → Practice?

Want to solve the contest problems after the official contest ends? Just register for practice and you will be able to submit solutions.

Register for practice

## → Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest



# → Contest materials

Announcement

Codeforces (c) Copyright 2010-2024 Mike Mirzayanov The only programming contests Web 2.0 platform Server time: Apr/09/2024 13:55:24<sup>UTC+5.5</sup> (h2).