

C. Modified GCD

time limit per test: 2 seconds
memory limit per test: 256 megabytes

Well, here is another math class task. In mathematics, GCD is the greatest common divisor, and it's an easy task to calculate the GCD between two positive integers.

A common divisor for two positive numbers is a number which both numbers are divisible by.

But your teacher wants to give you a harder task, in this task you have to find the greatest common divisor d between two integers a and b that is in a given range from low to $high$ (inclusive), i.e. $low \leq d \leq high$. It is possible that there is no common divisor in the given range.

You will be given the two integers a and b , then n queries. Each query is a range from low to $high$ and you have to answer each query.

Input

The first line contains two integers a and b , the two integers as described above ($1 \leq a, b \leq 10^9$). The second line contains one integer n , the number of queries ($1 \leq n \leq 10^4$). Then n lines follow, each line contains one query consisting of two integers, low and $high$ ($1 \leq low \leq high \leq 10^9$).

Output

Print n lines. The i -th of them should contain the result of the i -th query in the input. If there is no common divisor in the given range for any query, you should print -1 as a result for this query.

Examples

input	Copy
9 27 3 1 5 10 11 9 11	
output	Copy
3 -1 9	


→ Attention

The package for this problem was not updated by the problem writer or Codeforces administration after we've upgraded the judging servers. To adjust the time limit constraint, a solution execution time will be multiplied by 2. For example, if your solution works for 400 ms on judging servers, then the value 800 ms will be displayed and used to determine the verdict.

Codeforces Beta Round 67 (Div. 2).

Finished

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

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
249098207	Mar/01/2024 17:23	Accepted
249098070	Mar/01/2024 17:22	Compilation error
248721682	Feb/28/2024 12:48	Accepted
248720494	Feb/28/2024 12:38	Wrong answer on test 2

→ Problem tags

binary search number theory *1600

No tag edit access

→ Contest materials

Announcement