# **Tower Breakers**



Two players (numbered  ${f 1}$  and  ${f 2}$ ) are playing a game of Tower Breakers! The rules of the game are as follows:

- Player 1 always moves first, and both players always play optimally.
- ullet Initially there are N towers, where each tower is of height M.
- The players move in alternating turns. In each turn, a player can choose a tower of height X and reduce its height to Y, where  $1 \le Y < X$  and Y evenly divides X.
- If the current player is unable to make any move, they lose the game.

Given the values of N and M, can you determine who will win? If the first player wins, print 1; otherwise, print 2.

#### **Input Format**

The first line contains a single integer, T, denoting the number of test cases.

Each of the T subsequent lines describes a test case in the form of  $\mathbf 2$  space-separated integers describing the respective values for N and M.

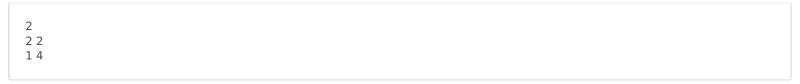
#### **Constraints**

- $1 \le T \le 100$
- $1 \le N, M \le 10^6$

#### **Output Format**

For each test case, print a single integer (i.e., either 1 or 2) denoting the winner on a new line.

#### **Sample Input**



## Sample Output

2 1

## **Explanation**

We'll refer to player 1 as  $P_1$  and player 2 as  $P_2$ 

In the first test case,  $P_1$  chooses one of the two towers and reduces it to 1. Then  $P_2$  reduces the remaining tower to a height of 1. As both towers now have height 1,  $P_1$  cannot make a move so  $P_2$  is the winner and we print 2 on a new line.

In the second test case, there is only one tower of height 4.  $P_1$  can reduce it to a height of either 1 or 2, but  $P_1$  chooses 1 as both players always choose optimally. Because  $P_2$  has no possible move,  $P_1$  wins and we print 1 on a new line.