

Tower Breakers

Two players (numbered **1** and **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.
- 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 $1 \leq Y < X$ 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 **2** space-separated integers describing the respective values for N and M .

Constraints

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

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

```
2
2 2
1 4
```

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.

