Tower Breakers

Two players 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 a move, they lose the game.

Given the values of n and m, determine which player will win. If the first player wins, return 1. Otherwise, return 2.

For example, there are $n = 2$ towers, each $m = 6$ high. Player 1 can remove 3 pieces from a tower to leave 3 as $6\%3 = 0$. Player 1 can also remove 5 pieces leaving 1. Let Player 1 remove 3. Player 2 matches the move. Now Player 1 has only one move: remove 2 pieces leaving 1. Player 2 matches again leaving Player 1 with no move.

Function Description

Complete the *towerBreakers* function in the editor below. It should return an integer that represents the winning player.

towerBreakers has the following paramter(s):

- *n*: an integer that represents the number of towers
- *m*: an integer that represents the height of each tower

Input Format

The first line contains a single integer t, the number of test cases.
Each of the next t lines describes a test case in the form of 2 space-separated integers, n and m.

Constraints

- $1 \leq t \leq 100$
- $1 \leq n, m \leq 10^6$

Output Format

For each test case, if the first player wins, return 1. Otherwise, return 2.

Sample Input

```
2
2 2
1 4
```

Sample Output

```
2
1
```

Explanation

We'll refer to player 1 as $P1$ and player 2 as $P2$

In the first test case, $P1$ chooses one of the two towers and reduces it to 1. Then $P2$ reduces the remaining tower to a height of 1. As both towers now have height 1, $P1$ cannot make a move so $P2$ is the winner.

In the second test case, there is only one tower of height 4. $P1$ can reduce it to a height of either 1 or 2. $P1$ chooses 1 as both players always choose optimally. Because $P2$ has no possible move, $P1$ wins.