

# **Tower Breakers ■**



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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.
- ullet Initially there are  $oldsymbol{N}$  towers, where each tower is of height  $oldsymbol{M}$ .
- 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 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  ${\bf 1}$  or  ${\bf 2}$ ) denoting the winner on a new line.

## **Sample Input**

- 2
- 2 2

## **Sample Output**

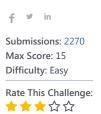
2

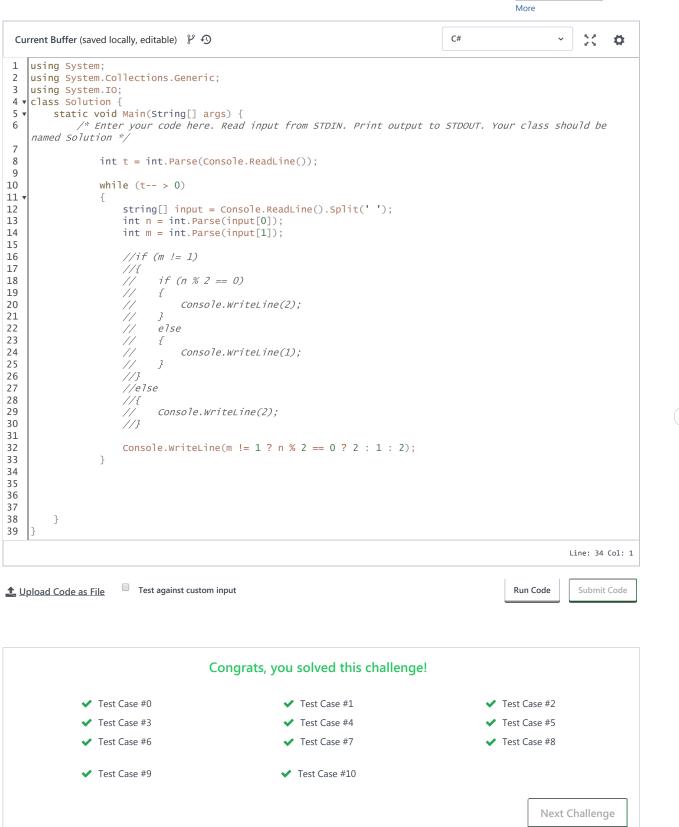
## Explanation

We'll refer to player  ${f 1}$  as  ${m P_1}$  and player  ${f 2}$  as  ${m P_2}$ 

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.





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