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.
- Initially there are N towers of various heights.
- The players move in alternating turns. In each turn, a player must choose a tower of height X and break it down into Y towers, each of height Z. The numbers Y and Z must satisfy $Y \times Z = X$ and $Y > 1$.
- If the current player is unable to make any move, they lose the game.

Given the value of N and the respective height values for all towers, can you determine who will win, assuming both players always move *optimally*? If the first player wins, print 1; otherwise, print 2.

Input Format

The first line contains an integer, T, denoting the number of test cases.
The $2T$ subsequent lines define the test cases. Each test case is described by two lines:

1. An integer, N, denoting the number of towers.
2. N space-separated integers, $h_0, h_1, \ldots, h_{N-1}$, where each h_i describes the height of tower i.

Constraints

- $1 \leq T \leq 200$
- $1 \leq N \leq 100$
- $1 \leq h_i \leq 10^5$

Output Format

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

Sample Input

```
2
2
1 2
3
1 2 3
```

Sample Output

```
1
2
```

Explanation

In the first test case, the first player simply breaks down the second tower of height 2 into two towers of height 1 and wins.

In the second test case, there are only two possible moves:

- Break the second tower into 2 towers of height 1.
- Break the third tower into 3 towers of height 1.

Whichever move player 1 makes, player 2 can make the other move and win the game.