

Problem NIMRELOAD: Nim Reloaded

Nim Reloaded is a game played by two players who alternate turns. n coins are arranged in a pack. A valid move consists of removing exactly X coins from the pack, where X is an element of the set moves. If a player cannot perform a valid move during his turn, he loses the game, and the other player, of course, wins.

You are given the set moves, and you are also given an integer $maxN$. Compute the number of different values of n between 1 and $maxN$, inclusive, that make the game possible to win for the second player (assuming both players play optimally).

Input

The first line of the input gives the number of testcases. Each testcase consists of one line containing $maxN$ and the set of moves ($1 \leq maxN \leq 10^9$). The set contains at most 22 elements (second number of the line), each element is an integer e_i ($1 \leq e_i \leq 22$). The set is sorted and it does not contain duplicates.

Output

For each testcase, output the number of different values as described above.

Sample Input 1

```
4
20 3 1 2 3
999 1 1
1000000000 2 1 2
6543 5 2 4 7 11 20
```

Sample Output 1

```
5
499
333333333
1637
```