HARBOUR.SPACE
UNIVERSITY

HOME   TOP   CONTESTS   GYM   PROBLEMSET   GROUPS   RATING   API   HELP   HONORCUP 🏆   CALENDAR   🔍

PROBLEMS   SUBMIT CODE   MY SUBMISSIONS   STATUS   HACKS   STANDINGS   CUSTOM INVOCATION

C. Standard Free2play

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

You are playing a game where your character should overcome different obstacles. The current problem is to come down from a cliff. The cliff has height h, and there is a moving platform on each height x from 1 to h.

Each platform is either hidden inside the cliff or moved out. At first, there are n moved out platforms on heights $p_1, p_2, \ldots, p_n$. The platform on height h is moved out (and the character is initially standing there).

If you character is standing on some moved out platform on height x, then he can pull a special lever, which switches the state of **two platforms: on height x and $x - 1$**. In other words, the platform you are currently standing on will hide in the cliff and the platform one unit below will change it state: it will hide if it was moved out or move out if it was hidden. In the second case, you will safely land on it. Note that this is the only way to move from one platform to another.

Your character is quite fragile, so it can safely fall from the height no more than 2. In other words falling from the platform x to platform $x - 2$ is okay, but falling from x to $x - 3$ (or lower) is certain death.

Sometimes it's not possible to come down from the cliff, but you can always buy (for donate currency) several magic crystals. Each magic crystal can be used to change the state of any single platform (except platform on height h, which is unaffected by the crystals). After being used, the crystal disappears.

What is the minimum number of magic crystal you need to buy to safely land on the 0 ground level?

Input

The first line contains one integer q ($1 \le q \le 100$) — the number of queries. Each query contains two lines and is independent of all other queries.

The first line of each query contains two integers h and n ($1 \le h \le 10^9$, $1 \le n \le \min(h, 2 \cdot 10^5)$) — the height of the cliff and the number of moved out platforms.

The second line contains n integers $p_1, p_2, \ldots, p_n$ ($h = p_1 > p_2 > \cdots > p_n \ge 1$) — the corresponding moved out platforms in the descending order of their heights.

The sum of n over all queries does not exceed $2 \cdot 10^5$.

Output

For each query print one integer — the minimum number of magic crystals you have to spend to safely come down on the ground level (with height 0).

Example

```
input                                                        Copy
4
3 2
3 1
8 6
8 7 6 5 3 2
9 6
9 8 5 4 3 1
1 1
1
```

```
output                                                       Copy
0
1
```

Educational Codeforces Round 74 (Rated for Div. 2)

Finished

Practice

⭐

→ **Virtual participation**

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ **Practice**

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

→ **Clone Contest to Mashup**

You can clone this contest to a mashup.

Clone Contest

→ **Submit?**

Language: GNU G++11 5.1.0   ▼

Choose file: 选择文件   未选择任何文件

Submit

→ **Problem tags**

greedy   math

No tag edit access

→ **Contest materials**

- Announcement #1 (en)   ✕
- Announcement #2 (ru)   ✕

```
2
0
```