Judged response for input B-large: Correct!

code jam
hello, world!

Practice Mode

Round 1C 2009

Contest Analysis

Questions asked 1

Problem C. Bribe the Prisoners

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the Quick-Start Guide to get started.

Small input 15 points	Solve C-small
Large input 35 points	Solve C-large

- Submissions

All Your Base

8pt	Not attempted **2176/2473 users** correct (88%)
15pt	Not attempted **1441/2203 users** correct (65%)

Center of Mass

10pt	Not attempted **823/1428 users** correct (58%)
17pt	Not attempted **737/913 users** correct (81%)

Bribe the Prisoners

15pt	Not attempted **1061/1579 users** correct (67%)
35pt	Not attempted **302/735 users** correct (41%)

- Top Scores

tikitikirevenge	100
Progbeat	100
Zeroline	100
maojm	100
WSX	100
Onufry	100
Imba	100
ZhukovDmitry	100
Al.Cash	100
Ostap	100

Problem

In a kingdom there are prison cells (numbered 1 to **P**) built to form a straight line segment. Cells number **i** and **i+1** are adjacent, and prisoners in adjacent cells are called "neighbours." A wall with a window separates adjacent cells, and neighbours can communicate through that window.

All prisoners live in peace until a prisoner is released. When that happens, the released prisoner's neighbours find out, and each communicates this to his other neighbour. That prisoner passes it on to *his* other neighbour, and so on until they reach a prisoner with no other neighbour (because he is in cell 1, or in cell **P**, or the other adjacent cell is empty). A prisoner who discovers that another prisoner has been released will angrily break everything in his cell, unless he is bribed with a gold coin. So, after releasing a prisoner in cell **A**, all prisoners housed on either side of cell **A** - until cell 1, cell **P** or an empty cell - need to be bribed.

Assume that each prison cell is initially occupied by exactly one prisoner, and that only one prisoner can be released per day. Given the list of **Q** prisoners to be released in **Q** days, find the minimum total number of gold coins needed as bribes if the prisoners may be released in any order.

Note that each bribe only has an effect for one day. If a prisoner who was bribed yesterday hears about another released prisoner today, then he needs to be bribed again.

Input

The first line of input gives the number of cases, **N**. **N** test cases follow. Each case consists of 2 lines. The first line is formatted as

```
P Q
```

where **P** is the number of prison cells and **Q** is the number of prisoners to be released. This will be followed by a line with **Q** distinct cell numbers (of the prisoners to be released), space separated, sorted in ascending order.

Output

For each test case, output one line in the format

```
Case #X: C
```

where **X** is the case number, starting from 1, and **C** is the minimum number of gold coins needed as bribes.

Limits

$1 \le \mathbf{N} \le 100$
$\mathbf{Q} \le \mathbf{P}$
Each cell number is between 1 and **P**, inclusive.

Small dataset

$1 \le \mathbf{P} \le 100$
$1 \le \mathbf{Q} \le 5$

Large dataset

$1 \le \mathbf{P} \le 10000$
$1 \le \mathbf{Q} \le 100$

Sample

Input	Output
2 8 1 3 20 3 3 6 14	Case #1: 7 Case #2: 35

Note

In the second sample case, you first release the person in cell 14, then cell 6, then cell 3. The number of gold coins needed is 19 + 12 + 4 = 35. If you instead release the person in cell 6 first, the cost will be 19 + 4 + 13 = 36.