

Round 3 2010

[A. De-RNG-ed](#)

B. Fence

[C. Hot Dog Proliferation](#)

[D. Different Sum](#)

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Submissions

De-RNG-ed

4pt	Not attempted 273/325 users correct (84%)
10pt	Not attempted 179/231 users correct (77%)

Fence

7pt	Not attempted 250/299 users correct (84%)
22pt	Not attempted 77/177 users correct (44%)

Hot Dog Proliferation

6pt	Not attempted 217/249 users correct (87%)
22pt	Not attempted 20/95 users correct (21%)

Different Sum

7pt	Not attempted 102/125 users correct (82%)
22pt	Not attempted 23/47 users correct (49%)

Top Scores

Burunduk1	100
winger	100
Eryx	100
RAVEman	78
Gennady.Korotkevich	78
nika	78
eatmore	78
pashka	78
Vasyl	78
jakubr	72

Problem B. Fence

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
7 points

Solve B-small

Large input
22 points

Solve B-large

Problem

We are looking into building a very long fence. We have already found a nice place to build it, and all that remains is to collect the materials.

From local hardware stores, we can buy unlimited numbers of wooden boards, each of which can come in a variety of different lengths. To avoid waste, we want to make sure that the total length of these boards is *exactly* equal to the length of the fence we are trying to build.

Given the length of the fence, and the possible board lengths that we can use, what is the minimum number of boards that we need to purchase in order to get exactly the right length?

Beware: the fence is going to be very long!

Input

The first line of the input file contains the number of cases, **T**. **T** test cases follow.

Each test case consists of two lines. The first line contains space-separated integers **L** and **N**. These represent the total length of the fence, and the number of different board lengths that can be purchased. The second line contains **N** space-separated integers **B₁**, **B₂**, ..., **B_N**, representing all the possible board lengths.

Output

For each test case, output one line containing "Case #x: M", where x is the case number (starting from 1) and M is as follows:

- If it is possible to purchase one or more boards so that their total length is exactly equal to **L**, then M should be the minimum number of boards required to do this.
- Otherwise, M should be the string "IMPOSSIBLE".

Limits

$1 \leq T \leq 50.$
 $10^{10} \leq L \leq 10^{18}.$
 $1 \leq N \leq 100.$

Small dataset

$1 \leq B_i \leq 100.$

Large dataset

$1 \leq B_i \leq 100000.$

Sample

Input	Output
2	Case #1: 100000004
100000000001 3	Case #2: IMPOSSIBLE
23 51 100	
100000000001 3	
100 52 22	

Explanation

In the first example, the optimal strategy is to use 2 boards of length 23, 5 boards of length 51, and 99999997 boards of length 100. Of course, you could use just 100000001 boards of length 100 to get a total *greater* than **L**, but that is not allowed.

In the second example, it is only possible to get even lengths.

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