

Problem L. Truth Teller And Liars 101

Time Limit 1000 ms

Code Length Limit 50000 B

OS Linux

You are a traveler and you are at a junction of 2 paths - one leads to eternal happiness, the other to certain doom.

There are a total of $N + M$ people, N of which always tell the truth, while the remaining M may tell the truth or lie. All of them are aware of which path leads to where.

You don't know who is a truth teller and who is not. You will ask some randomly chosen X people the following question :

- Which among the 2 paths leads to eternal happiness?

Is it possible for you to be sure which paths leads to eternal happiness?

If it is possible, find the minimal X where you can be sure of the path regardless of which X people you end up asking. Otherwise, print -1 .

Input Format

- The first line of input will contain a single integer T , denoting the number of test cases.
- Each test case contains two space-separated integers N and M - the number of truth tellers, and the number of people who may or may not tell the truth.

Output Format

For each test case, output the following :

- -1 if there is no way to figure out which path is the path to happiness.
- Otherwise, print an integer X ($1 \leq X \leq N + M$), where X is the minimum integer such that you can be sure of the path after asking any X people.

Constraints

- $1 \leq T \leq 100$

- $1 \leq N, M \leq 10$

Sample 1

Input	Output
2 2 1 1 2	3 -1

Test case 1 : It can be proven that asking 2 people is not sufficient as one of them could be the liar and give a different answer than the truth teller, and you can't know who is lying and who is not.

With all 3 responses, it is possible to figure out the correct path. For example, suppose the responses were Path 1, Path 1 and Path 2. Then you know that the correct path is Path 1.

Test case 2 : It can be proven to be impossible to figure out the correct path.