

Problem 2 : Pipes in factory

Problem

Mr. Hash Magendra is the plant manager of Thunderbird Chemicals Inc. In his plant, there are several chemical reactors. The reactors are connected with pipes to transfer chemicals from one reactor to another. However, each pipe can carry chemical in one direction only. It is possible to transfer chemicals from a reactor to another reactor via more than one pipes in the plant.

In the course of rapid expansion of the plant, several new reactors were added to the plant, and in order to connect these reactors more pipes were laid in the factory. After the expansion project was over, Mr. Magendra felt that the number of pipes is too much. He wants to reduce the number of pipes in the factory. However, there is one constraint. If it is possible to transfer chemicals from a reactor X to another reactor Y in the plant, then after removing the pipes also it should be possible to transfer chemicals from reactor X to reactor Y . Mr. Magendra wants you to calculate the number of pipes that will remain in the factory after removing all the unnecessary pipes, subject to this constraint.

Input

The first line of the input will specify the number of plants under the supervision of Mr. Magendra. The next few lines will have the specification of the plants. For each plant, the first line will give n , the number of reactors in the plant and p , the number of pipes used for interconnecting the reactors. Reactors in the plant are numbered from 0 to $n - 1$. Next p lines will contain two numbers $r1$ and $r2$, which means that there is a pipe connecting $r1$ to $r2$, and carries chemicals in the direction $r1$ to $r2$. There will be no blank lines in the input. The plants under the supervision of Mr. Magendra can have upto a thousand reactors and several thousand pipes.

Output

For each plant, print the smallest possible number of pipes Mr. Magendra can have in the factory, subject to the constraint mentioned above. For each plant the output should appear on a new line.

Sample Input

```
2
3 3
0 1
1 2
2 0
5 8
0 1
0 2
1 2
1 4
2 0
2 4
```

3 0

4 3

Sample Output

3

5