Flying Safely

Due to budget cuts, even spies have to use commercial airlines nowadays to travel between cities in the world. Although this mode of travel can be very convenient for a spy, it also raises a problem: the spy has to trust the pilot. And we know how much spies hate to trust anyone. Even worse, sometimes there is no direct flight between some pairs of cities, so the spy has to take multiple flights to get to the desired location, and thus has to trust multiple pilots!

Your help is requested to limit the trust issues to a minimum. Given the flight schedule, figure out the smallest set of pilots that need to be trusted, such that the spy can safely travel between all cities.

Input

The first line contains one positive integer $T \leq 100$ representing the number of test cases. Then, for each of the T test cases that follow, the input contains

- one line with two numbers n and m, separated by a space, and such that $2 \leq n \leq 1000$ and $1 \leq m \leq 10000$, representing the number of cities and pilots, respectively; followed by

- m lines, each with two numbers a and b, with $1 \leq a, b \leq n$ and $a \neq b$, representing a pilot flying regular flights back and forth between city a and city b.

It is always possible to go from any city to any other city using one or more flights. In other words, the flight schedule defines a connected graph over the cities.

Output

One line for each test case, with one integer representing the minimum number of pilots that a spy has to trust to be able to travel between any pair of cities.

Sample input 1

```
2
3 3
1 2
2 3
1 3
5 4
2 1
2 3
4 3
4 5
```

Sample output 1

```
2
4
```

Limits

Time limit is 1 second.

Memory limit is 256 megabytes.