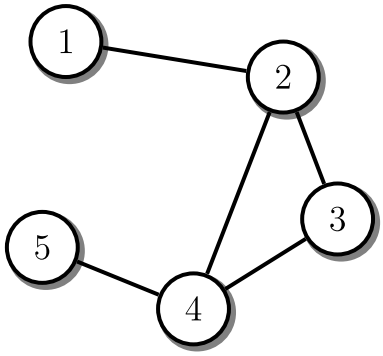
DWITE '07 R2 #5 - Bridges In A Graph

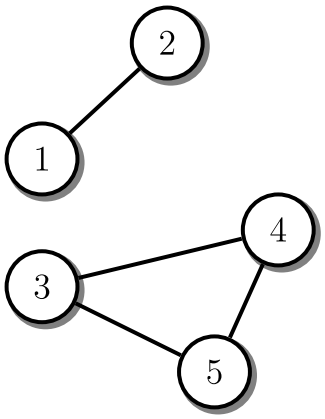
Time limit: 1.0s **Memory limit:** 64M

DWITE Online Computer Programming Contest, November 2007, Problem 5

A **graph** is a collection of nodes, called **vertices**, connected to each other in some fashion by **edges**. A graph is called **connected** if it is possible to find a path along edges from every point to every other point.

Below are two graphs:

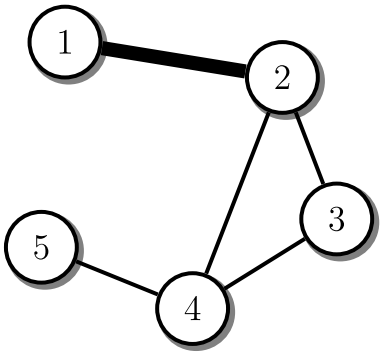


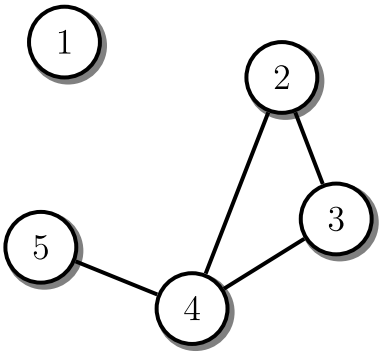


One on the left is *connected*, while the one on the right is *not connected* (there is no path from node 1 to node 3).

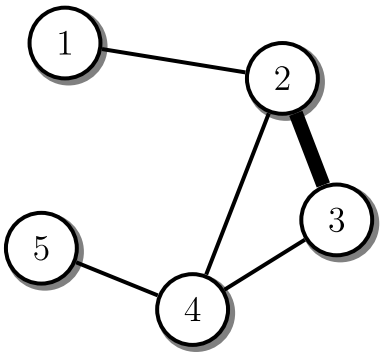
An edge of a graph is called a **bridge** if by removing that edge the graph is no longer connected.

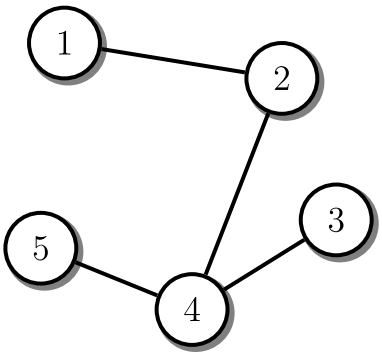
Edge 1-2 in the following graph is a bridge, since by removing it, the graph is no longer connected (no path from node 1 to any other node):





Edge 2-3 however, is not a bridge:





You are tasked with finding the number of edges, in a graph, that are bridges. You will be given 5 connected graphs, and you will output 5 single integers for the number of bridges found in graphs.

First line will contain a single integer N, number of vertices. Vertices will be numbered 1 to N. $1 \leq N \leq 100$. Second line will contain a single integer M, number of edges. $0 \leq M \leq 1000$. Followed by M lines, each describing an edge. An edge is described by two integers, separated by a space. All edges are valid. This format will be repeated 5 times (that is, a line after the last edge of the 1st graph, will be a single integer, describing a number of vertices in the 2nd graph).

The output will contain 5 lines, a single integer per line – the number of bridges in the described graph.

Sample Input 1

```
6
7
1 2
1 3
1 4
1 5
3 5
6 2
6 1
```

Sample Output 1

```
1
```

Problem Resource: DWITE