

6308 Airline Companies

A country named *Acmland* is very famous because of its convenient air traveling. Acmland has n cities, namely c_1, \dots, c_n . Two different cities may be connected by an *air corridor*. For example, we use $e_{i,j}$ to denote the air corridor between city c_i and c_j . Because an air corridor is bi-directional, we can go from city c_i to c_j , and from city c_j to c_i , if the air corridor $e_{i,j}$ exists. Acmland has m air corridors, and for ease of notation we always assume that $i < j$ when we describe an air corridor $e_{i,j}$.

The air corridors in Acmland form an *air corridor network*. An air corridor network has the following characteristic — if there is a cycle of length greater than three, then there will be a *shortcut* air corridor connecting two cities with this cycle. For example, Figure 3 illustrates an air corridor network of 16 cities and 20 air corridors. We find a cycle of length 5 in this air corridor network, namely c_3, c_5, c_8, c_7 , and c_{16} , then we can find a shortcut air corridor, e.g. $e_{5,7}$, to connect c_5 and c_7 . Now consider a cycle of length 4, c_3, c_5, c_7 , and c_{16} . Again we find a shortcut air corridor, $e_{5,16}$ that connects c_5, c_{16} .

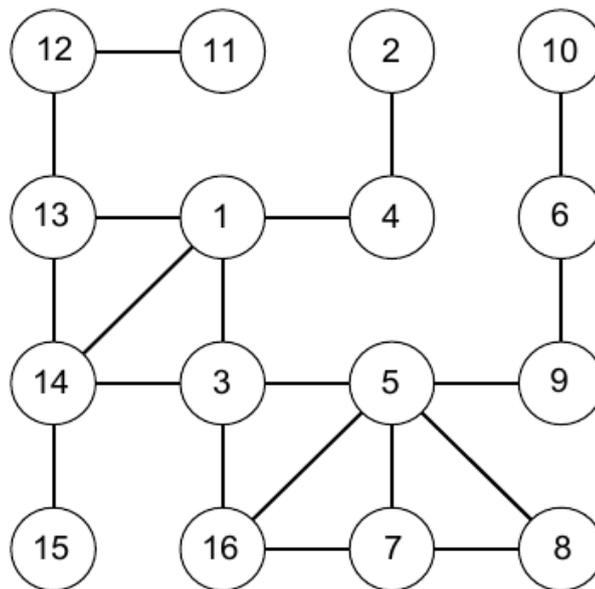


Figure 3: An example of air corridor network

Acmland has k airline companies. Each airline company is located in a unique city. That is, no two airline companies are located in the same city.

Now a financial crisis is hitting Acmland and all airline companies are in trouble. The Acmland government wants to help airline companies by providing financial aids to them. Although the government wants to help as many airline companies as possible, the government regulation says that the government can only help *independent* airline companies. Two airline companies are *independent* if and only if they are located in two cities that are not connected by a air corridor. For example airline company A , B , and C are located at cities 3, 9, and 6. Then airline company A and B are independent, because air corridor $e_{3,9}$ does not exist. On the other hand, airline company B and C are not independent because air corridor $e_{6,9}$ does exist.

Now given the air corridor network and the cities all airline companies are located, please compute the maximum number of airline companies that the Acmland government can provide financial aids.

Input

An instance of the problem consists of

1. the number of cities n ,
2. the number of air corridors m ,
3. the number of airline companies k ,
4. the indexes of cities of every air corridor, i and j , where $1 \leq i, j \leq n$ and an air corridor will appear exactly once,
5. and the indexes of cities all airline companies are located.

These data are stored in $2 + m$ lines in the input file.

1. The first line has integer n , m , and k .
2. The following m lines are the the indexes of cities of every air corridor, i and j , where $1 \leq i < j \leq n$.
3. The next line has the indexes of cities where all airline companies are located.

In this problem, we assume that $1 < n, m \leq 100000$, and $1 \leq k \leq 10000$. Note that a test data file may contain more than one instance. The last instance is followed by a line containing a single '0'.

Output

The output for each instance is one integers N , which is the maximum number of airline companies that the Acmland government can provide financial aids.

Sample Input

```
16 20 3
11 12
12 13
13 14
14 15
3 14
1 13
1 14
1 3
1 4
2 4
3 5
3 16
5 16
5 7
7 16
7 8
5 8
5 9
6 9
6 10
3 6 9
0
```

Sample Output

2