

E. Reachability from the Capital

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

There are n cities and m roads in Berland. Each road connects a pair of cities. The roads in Berland are one-way.

What is the minimum number of new roads that need to be built to make all the cities reachable from the capital?

New roads will also be one-way.

Input

The first line of input consists of three integers n , m and s ($1 \leq n \leq 5000$, $0 \leq m \leq 5000$, $1 \leq s \leq n$) — the number of cities, the number of roads and the index of the capital. Cities are indexed from 1 to n .

The following m lines contain roads: road i is given as a pair of cities u_i, v_i ($1 \leq u_i, v_i \leq n$, $u_i \neq v_i$). For each pair of cities (u, v) , there can be at most one road from u to v . Roads in opposite directions between a pair of cities are allowed (i.e. from u to v and from v to u).

Output

Print one integer — the minimum number of extra roads needed to make all the cities reachable from city s . If all the cities are already reachable from s , print 0.

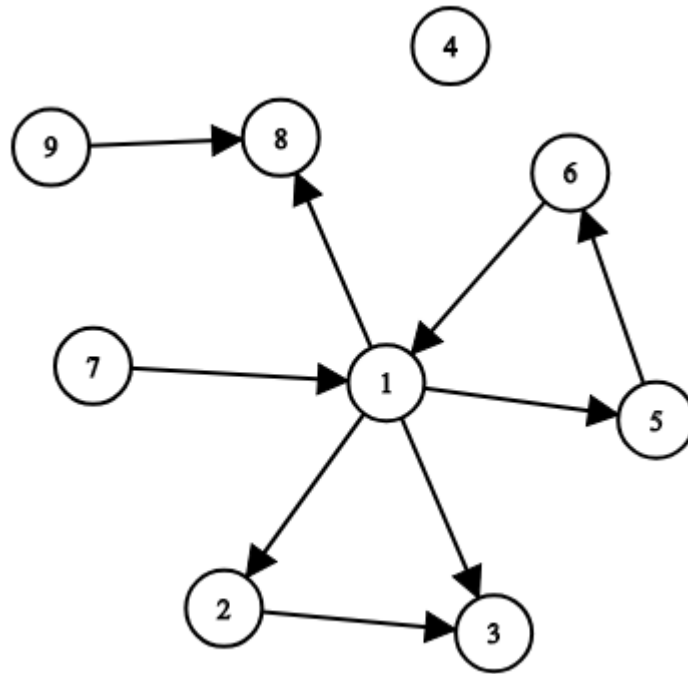
Examples

input
9 9 1 1 2 1 3 2 3 1 5 5 6 6 1 1 8 9 8 7 1
output
3

input
5 4 5 1 2 2 3 3 4 4 1
output
1

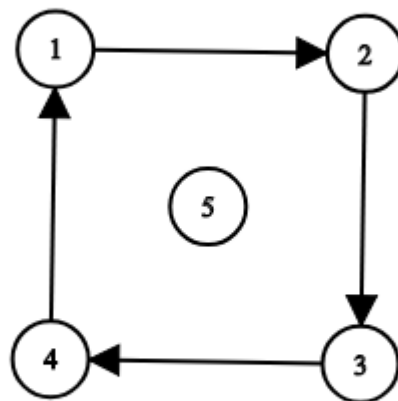
Note

The first example is illustrated by the following:



For example, you can add roads (6, 4), (7, 9), (1, 7) to make all the cities reachable from $s = 1$.

The second example is illustrated by the following:



In this example, you can add any one of the roads (5, 1), (5, 2), (5, 3), (5, 4) to make all the cities reachable from $s = 5$.