Problem J. Unpredictable Story

Input file:	unpredictable.in
Output file:	unpredictable.out
Time limit:	5 seconds
Memory limit:	256 megabytes

Making great movies is great. It's even better if the movie has an unpredictable story, because one can insert advertisement every time the viewers are eager to know what happens next.

We can represent all possible stories as a directed graph, with vertices corresponding to possible scenes, and arcs corresponding to possible transitions between them. Exactly one vertex in this graph is the final scene, and the movie must end with that scene. Choosing all other scenes for the movie is up in the air, but the movie must be a valid path in this graph, and this path must not have more than k scenes (because the movie length is limited).

We will call a scene in the movie *unpredictable* when there's at least two ways to pick the next scene and still arrive at the final scene afterwards within the total of k scenes per movie.

What is the maximum possible number of unpredictable scenes in a movie? Note that the same scene might appear several times in a movie, in this case each its appearance is counted separately.

Input

The first line of the input file contains three integers n, m and k ($1 \le n \le 100$, $1 \le m \le 9900$, $1 \le k \le 10^{18}$), denoting the number of scenes, the number of possible transitions, and the maximum length of the movie. The final scene is scene number n.

The next m lines describe the transitions, and contain two integers a_i and b_i each ($1 \le a_i \le n - 1$, $1 \le b_i \le n$, $a_i \ne b_i$), denoting a possible transition from scene a_i to scene b_i. Note that there are no transitions from the final scene. There will be at most one transition from each scene to each other scene, however there might be transitions in both directions for some pairs of scenes.

Output

Print the maximum possible number of unpredictable scenes in a movie.

Examples

unpredictable.in	unpredictable.out
7 8 10 1 2 2 3 3 4 4 5 5 1 4 6 6 1 6 7	2

Note

Here's one sequence of scenes for the example testcase: 2 3 4 6 1 2 3 4 6 7. It has 2 unpredictable scenes: the first appearance of scene 4, and the first appearance of scene 6. Note that the second appearances of those scenes are not unpredictable, since it would be impossible to end the movie in time had we chosen a different continuation.