Problem B. Colored Graphs

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1 second
Memory limit:	512 mebibytes

You are given a directed graph which is constructed as follows:

- Pick a connected undirected graph with exactly n vertices and n edges. The vertices are numbered 1 through n.
- Convert each undirected edge into a directed edge in such a way that each vertex has outdegree 1.

Additionally, you are given m different colors to color the vertices. Your task is to calculate the number of different colored graphs that can be made.

Two colored graphs A and B are considered the same if and only if there exists a mapping P between their sets of vertices which satisfies the following constraints:

- Vertex u in graph A has the same color as vertex $P(u)$ in graph B.
- For any two different vertices u and v in graph A, $P(u)$ and $P(v)$ are different vertices in graph B.
- For any directed edge $u \to v$ in graph A, there exists a corresponding directed edge $P(u) \to P(v)$ in graph B.

Print the answer modulo $10^9 + 7$.

Input

The first line of the input contains two space-seperated integers n and m ($3 \le n \le 10^5$, $1 \le m \le 10^9$), representing the number of vertices in the graph and the number of colors you have.

Then, n lines follow. The i-th of them contains an integer f_i ($1 \le f_i \le n$, $f_i \ne i$), denoting a directed edge from vertex i to vertex f_i in the given graph.

Output

Print a single line containing the answer.

Example

standard input	standard output
6 3 2 3 4 1 1 3	378