Problem D. Driving

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	512 mebibytes

There are N cities and M bidirectional roads. The cities are numbered 1 through N, and the roads are numbered 1 through M. The road i connects cities A_i and B_i, and its length is 2^i. It is guaranteed that you can reach from any city to any city using these roads.

Snuke wants to go driving. He wants to start from city 1, pass through each road at least once, and return to city 1. Compute the shortest possible length of his route, modulo $10^9 + 7$.

Input

N M
A_1 B_1
$\vdots$
A_M B_M

- $2 \leq N \leq 400000$
- $1 \leq M \leq 500000$
- $1 \leq A_i, B_i \leq N$
- $A_i \neq B_i$
- It is possible to reach from any city to any city using roads.
- No two roads connect the same pair of cities.

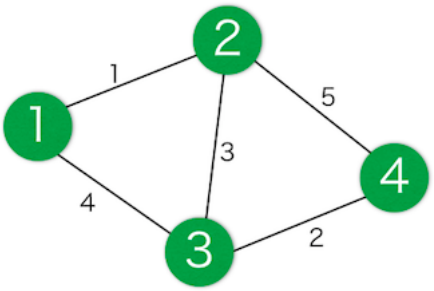
Output

Print the shortest possible length of Snuke's route, modulo $10^9 + 7$.

Example

standard input	standard output
4 5 1 2 3 4 2 3 1 3 2 4	70
6 10 4 6 4 5 3 6 5 2 3 2 1 2 3 4 6 1 2 4 1 3	2132

Note



For example, in sample 1 one optimal route is $1 \to 2 \to 3 \to 4 \to 2 \to 3 \to 1$.