# Baba And Fitness Revolution

| | |
|---|---|
| Input file: | `standard input` |
| Output file: | `standard output` |
| Time limit: | 2 seconds |
| Memory limit: | 64 megabytes |

Majumdar has started a fitness revolution in his wing. He (and his friends) have sworn not to eat junk food and to exercise regularly. All that remains is coming up with a Training Plan for the same purpose. So he approaches *BabaSevaDal* for help regarding the Training Plan. Training involves jogging around IIIT. We have a directed graph representation of IIIT.

IIIT's graph representation contains $N$ nodes for places and $M$ edges for roads. A training plan should consist of *good* places only. A place $u$ is *good* if there exists a path of the form

$$u, a_1, a_2, ..., a_k, u \quad : a_i \neq a_j \ \forall \ i, j \ \&\& \ a_i \neq u \ \forall \ i \ \&\& \ k \geq 1$$

Now while Baba comes up with a plan, he would like you to evaluate the product of indices of all *good* nodes.

## Input

First line contains $T(1 \leq T \leq 10^5)$, the number of test cases. For every test case the first line contains 3 integers $N(1 \leq N \leq 10^5)$, $M(1 \leq M \leq 2 \times 10^5)$ and $MOD(1 \leq MOD \leq 10^{18})$. The next $M$ lines contain 2 integers each $X$ and $Y$ $(X \neq Y)$, denoting that there is a directed edge between $X$ and $Y$.

## Output

For every test case output a single integer in a new line, the value of the product modulo $MOD$. If there is no *good* node in the graph, output $-1$.

## Example

| standard input | standard output |
|---|---|
| 2 | 12 |
| 4 4 32 | 3 |
| 2 1 | |
| 3 4 | |
| 4 1 | |
| 1 3 | |
| 7 14 29 | |
| 6 3 | |
| 2 7 | |
| 4 6 | |
| 3 5 | |
| 3 1 | |
| 1 6 | |
| 6 7 | |
| 4 5 | |
| 1 3 | |
| 2 4 | |
| 6 1 | |
| 4 3 | |
| 5 1 | |
| 1 5 | |

## Note

$1 \leq$ Sum of $N$ over all test cases $\leq 5 \times 10^5$

$1 \leq$ Sum of $M$ over all test cases $\leq 10^6$