# Choosing UKM

| Time Limit | 1s |
|---|---|
| Memory Limit | 64MB |

## Description

Tony is a first-year student in School of Electric Engineering and Informatics. He is very exicted to join UKM (*Unit Kegiatan Mahasiswa*) in ITB. At OHU (*Open House Unit*), he registered to $N$ UKM. However, he is afraid that his time will be spent too much on UKM. He still needs to learn many competitive programming skills so he can compete in the next ICPC Regional (and get many foods as he wants).

So, he wants to drop some of his UKMs (maybe you should follow Tony's decision too).

Now he wonders. How many configuration possible if the number of his UKMs left is $K$? Two configuration is different if there is an UKM in first confguration that is not in the second configuration, vice versa.

Because the answer may be incredibly large, print the answer modulo $M$. $M$ is not necessarily prime.

## Input Format

The first and only line is consists of $N$, $K$, and $M$.

## Output Format

Output only one integer, denoting how many configuration possible.

## Constraint

- $1 \leq N, M \leq 10^9$
- $1 \leq K \leq 1.000$
- $K \leq N$
- $gcd(K!, M) = 1$

## Sample Input 1

5 2 7

## Sample Output 1

3

## Sample Input 2

10 3 49

## Sample Output 2

22

## Explanation

In the first example, if the UKM is A, B, C, D, E, the possibility is:

- A and B
- A and C
- A and D
- A and E
- B and C
- B and D
- B and E
- C and D
- C and E
- D and E

Because there are 10 possibilities, $10 \mod 7 = 3$, the answer is 3.