Problem AE. Geometric Progression

Time Limit 2000 ms

Problem Statement

Given integers A, X, and M, find $\sum_{i=0}^{X-1} A^i$, modulo M.

Constraints

- $1 \leq A, M \leq 10^9$
- $1 \leq X \leq 10^{12}$
- All values in the input are integers.

Input

The input is given from Standard Input in the following format:

```
A X M
```

Output

Print the answer.

Sample 1

Input	Output
3 4 7	5

$3^0 + 3^1 + 3^2 + 3^3 = 40$, which equals 5 modulo 7, so 5 should be printed.

Sample 2

Input	Output
8 10 9	0

Sample 3

Input	Output
1000000000 1000000000000 998244353	919667211