Problem B. Fast Pow

Time limit 1000 ms
Memory limit 256MB

Problem Description

You are given three integers a, b, and p. Compute the value of

$$a^b \bmod p.$$

Hint. Notice the following property of exponentiation:

- If b is even, then
$$a^b = a^{b/2} \cdot a^{b/2}.$$
- If b is odd, then
$$a^b = a^{b-1} \cdot a.$$

This recursive idea leads to the well-known method of *binary exponentiation*, which allows computing $a^b \bmod p$ efficiently without ever constructing a^b directly.

Input format

The input consists of a single line containing three integers a, b, and p ($1 \leq a, b, p \leq 10^9$).

Output format

Output a single integer — the value of $a^b \bmod p$.

Subtask score

Subtask	Score	Additional Constraints
1	0	Sample testcases
2	100	No additional constraints

Sample

Sample Input 1

```
3 6 9
```

Sample Output 1

```
0
```