

Problem I. Matrix

Input file: `matrix.in`
Output file: `matrix.out`
Time limit: 2 seconds
Memory limit: 256 megabytes

Find number of nonsingular (determinant is non-zero) 2×2 matrices with elements from \mathbb{Z}_n .

Input

The first line of the input file contains n and m ($1 \leq n \leq 10^{14}$, $1 \leq m \leq 10^9$).

Output

In the single line of the output file print one number — the answer modulo m .

Example

<code>matrix.in</code>	<code>matrix.out</code>
3 1000000000	48