

Problem E. K-transform

Input file: *standard input*
Output file: *standard output*
Time limit: 2 seconds
Memory limit: 256 mebibytes

Let us fix an integer $k \geq 2$ and define a function $f: \mathbb{N} \rightarrow \mathbb{N}$:

$$f(n) = \begin{cases} n/k, & \text{if } k \mid n \\ n - 1, & \text{otherwise} \end{cases}$$

If we take some integer $n \geq 1$ and will apply function f some (possibly 0) times then we will end up with 1. For example, if $k = 3$ then $f(f(f(f(f(16)))))) = f(f(f(f(15)))) = f(f(f(5))) = f(f(4)) = f(3) = 1$.

Your task is to calculate the amount of such n that we will end up with 1 after exactly m iterations. The answer may be very large, so you have to output it modulo mod .

Input

The first line contains three integers separated by spaces: k, m, mod ($2 \leq k \leq 10^4$, $0 \leq m \leq 10^{18}$, $2 \leq mod < 300$). It is guaranteed that mod is prime.

Output

Print one integer: the answer to the problem modulo mod .

Examples

standard input	standard output
2 4 31	5
3 13 59	36

Note

\mathbb{N} is the set of positive integers.