Problem A. Power of Power Partition Function

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	512 mebibytes

Let m be a fixed integer such that $m \geq 2$. For a positive integer n, let $b_m(n)$ denote the number of ways of writing n as a sum of powers of m using non-negative exponents with repetitions allowed and the order of the summands not being taken into account. We also set $b_m(0) = 1$ (there is one empty sum).

For example, the first 10 terms of $\{b_2(n)\}$ are $\{1, 1, 2, 2, 4, 4, 6, 6, 10, 10\}$, and the first 10 terms of $\{b_3(n)\}$ are $\{1, 1, 1, 2, 2, 2, 3, 3, 3, 5\}$.

Let $c_m^k(n)$ be the k-th convolution power of $b_m(n)$, which is defined as follows:

$$c_m^k(n) = \begin{cases} b_m(n), & k = 1 \\ \sum_{i=0}^{n} b_m(i) \cdot c_m^{k-1}(n-i), & k \geq 2 \end{cases}$$

Given n, m and k, Bobo would like to find the value of

$$f(n) = \left(\sum_{i=0}^{n} c_m^k(i) \right) \bmod (10^9 + 7).$$

Input

The first line contains three integers n, m and k ($0 \leq n \leq 10^{18}$, $2 \leq m \leq 10^{18}$, $1 \leq k \leq 10$).

Output

Output an integer denoting the value of $f(n)$.

Examples

standard input	standard output
0 2 1	1
10 2 3	2700
100 2 10	490796617