C. Prime Number

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Simon has a prime number x and an array of non-negative integers $a_1, a_2, ..., a_n$.

Simon loves fractions very much. Today he wrote out number on a piece of paper. After Simon led all fractions to a common denominator and summed them up, he got a fraction: , where number t equals $x^{a_1 + a_2 + ... + a_n}$. Now Simon wants to reduce the resulting fraction.

Help him, find the greatest common divisor of numbers s and t. As GCD can be rather large, print it as a remainder after dividing it by number 1000000007 $(10^9 + 7)$.

Input

The first line contains two positive integers n and x $(1 \le n \le 10^5, 2 \le x \le 10^9)$ — the size of the array and the prime number.

The second line contains n space-separated integers $a_1, a_2, ..., a_n$ $(0 \le a_1 \le a_2 \le ... \le a_n \le 10^9)$.

Output

Print a single number — the answer to the problem modulo 1000000007 $(10^9 + 7)$.

Examples

input
2 2 2 2

output
8

input
3 3 1 2 3

output
27

input
2 2 29 29

output
73741817

input
4 5 0 0 0 0

output
1

Note

In the first sample . Thus, the answer to the problem is 8.

In the second sample, . The answer to the problem is 27, as $351 = 13 \cdot 27$, $729 = 27 \cdot 27$.

In the third sample the answer to the problem is $1073741824 \ mod \ 1000000007 = 73741817$.

In the fourth sample . Thus, the answer to the problem is 1.