D. GCD Table

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

Consider a table G of size $n \times m$ such that $G(i,j) = GCD(i,j)$ for all $1 \le i \le n$, $1 \le j \le m$. $GCD(a, b)$ is the greatest common divisor of numbers a and b.

You have a sequence of positive integer numbers $a_1, a_2, ..., a_k$. We say that this sequence occurs in table G if it coincides with consecutive elements in some row, starting from some position. More formally, such numbers $1 \le i \le n$ and $1 \le j \le m - k + 1$ should exist that $G(i, j + l - 1) = a_l$ for all $1 \le l \le k$.

Determine if the sequence a occurs in table G.

Input

The first line contains three space-separated integers n, m and k ($1 \le n, m \le 10^{12}$; $1 \le k \le 10000$). The second line contains k space-separated integers $a_1, a_2, ..., a_k$ ($1 \le a_i \le 10^{12}$).

Output

Print a single word "YES", if the given sequence occurs in table G, otherwise print "NO".

Examples

input
100 100 5 5 2 1 2 1
output
YES

input
100 8 5 5 2 1 2 1
output
NO

input
100 100 7 1 2 3 4 5 6 7
output
NO

Note

Sample 1. The tenth row of table G starts from sequence {1, 2, 1, 2, 5, 2, 1, 2, 1, 10}. As you can see, elements from fifth to ninth coincide with sequence a.

Sample 2. This time the width of table G equals 8. Sequence a doesn't occur there.