Magic Numbers

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Today is Oski's birthday. So he got a present — a magic number a. However, his favorite number is b.

Since these numbers are magic, he can change them. There are n operations that Oski can perform. In the i-th operation, he can either add c_i or remove c_i from the number he has. Oski can perform any operation as many times as he wants or not perform it at all.

Oski wants to finish as soon as possible, so help him find the minimum number of operations he needs to perform in order to get his favorite number b from number a.

Input

The first line contains three integers a, b, and n ($0 \le a, b, n \le 10^6$, $a \ne b$) — the magic number Oski has, the most favorite number, and the number of operations Oski can perform.

The second line contains n integers $c_1, c_2, \ldots, c_n$ ($0 \le c_i \le 10^6$).

Output

Print the minimum number of operations he needs to perform. If it is impossible to get such number, print -1.