E. Optimize!

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Manao is solving a problem with the following statement:

He came up with a solution that produces the correct answers but is too slow. You are given the pseudocode of his solution, where the function getAnswer calculates the answer to the problem:

```
getAnswer(a[1..n], b[1..len], h)
  answer = 0
  for i = 1 to n-len+1
    answer = answer + f(a[i..i+len-1], b, h, 1)
  return answer

f(s[1..len], b[1..len], h, index)
  if index = len+1 then
    return 1
  for i = 1 to len
    if s[index] + b[i] >= h
      mem = b[i]
      b[i] = 0
      res = f(s, b, h, index + 1)
      b[i] = mem
      if res > 0
        return 1
  return 0
```

Your task is to help Manao optimize his algorithm.

Input

The first line contains space-separated integers n, len and h ($1 \le len \le n \le 150000$; $1 \le h \le 10^9$). The second line contains len space-separated integers $b_1, b_2, ..., b_{len}$ ($1 \le b_i \le 10^9$). The third line contains n space-separated integers $a_1, a_2, ..., a_n$ ($1 \le a_i \le 10^9$).

Output

Print a single number — the answer to Manao's problem.

Examples

input
5 2 10 5 3 1 8 5 5 7
output
2