

## Problem E

### Fishermen

Input File: standard input  
Output File: standard output  
Time Limit: 0.5 seconds (C/C++)  
Memory Limit: 256 megabytes

The ocean can be represented as the first quarter of the Cartesian plane. There are  $n$  fish in the ocean. Each fish has its own coordinates. There may be several fish at one point.

There are also  $m$  fishermen. Each fisherman has its own  $x$ -coordinate. The  $y$ -coordinate of each fisherman is equal to 0.

Each fisherman has a fishing rod of length  $l$ . Therefore, he can catch a fish at a distance less than or equal to  $l$ . The distance between a fisherman in position  $x$  and a fish in position  $(a, b)$  is  $|a - x| + b$ .

Find for each fisherman how many fish he can catch.

#### Input

The first line contains three integers  $n$ ,  $m$ , and  $l$  ( $1 \leq n, m \leq 2 \cdot 10^5, 1 \leq l \leq 10^9$ ) — the number of fish, the number of fishermen, and the length of the fishing rod, respectively.

Each of the next  $n$  lines contains two integers  $x_i$  and  $y_i$  ( $1 \leq x_i, y_i \leq 10^9$ ) — the fish coordinates.

Next line contains  $m$  integers  $a_i$  ( $1 \leq a_i \leq 10^9$ ) — the fishermen coordinates.

#### Output

For each fisherman, output the number of fish that he can catch, on a separate line.

Sample input	Sample output
8 4 4	2
7 2	2
3 3	3
4 5	2
5 1	
2 2	
1 4	
8 4	
9 4	
6 1 4 9	

#### Note

The picture illustrates for the above example the area on which the third fisherman can catch fish.

