

Problem A – Purrfect View

Input file: **standard input**
Output file: **standard output**
Time limit: **3 seconds**
Memory limit: **256 megabytes**

Star's two adorable kittens, Mango and Lychee, are playing in her living room! She owns N toy mice and M hair ties, all of which are currently scattered across her living room floor. It's a mess, but keeping the apartment tidy is no easy task with these two kittens around.

Mango likes chewing on toy mice, while Lychee prefers batting around hair ties. Today, they would each like to choose a toy they enjoy, but, being best buddies, they also insist on being able to see each other while playing. Unfortunately, a large circular pillar stands in the middle of the living room, ruining an otherwise purrfect view!

Model the top-view of the living room floor plan as a 2D plane. The pillar occupies a circular disk with centre (x_c, y_c) and radius r . All toys are located at distinct points outside the pillar.

The kittens are very tiny, so when a kitten plays with a toy, treat the kitten as just a point at that toy's location. The kittens can see each other if the line segment connecting them neither touches nor passes through the pillar. Other toys do not block their view.

Star wonders how many ways Mango can choose a toy mouse and Lychee can choose a hair tie so that they can see each other while playing. Help her count the number of such pairs.

Input

The first line contains two integers N and M ($1 \leq N, M \leq 10^5$), the numbers of toy mice and hair ties, respectively.

The second line contains three integers x_c , y_c , and r ($|x_c|, |y_c| \leq 10^4$; $1 \leq r \leq 10^4$), describing the pillar.

Each of the next N lines contains two integers x_i and y_i ($|x_i|, |y_i| \leq 10^4$), describing the coordinates of a toy mouse.

Each of the next M lines contains two integers x_i and y_i ($|x_i|, |y_i| \leq 10^4$), describing the coordinates of a hair tie.

All $N + M$ toy locations are distinct. All toys lie outside the pillar and at least 10^{-6} units from its boundary.

It is also guaranteed that moving any two toys by a Euclidean distance of at most 10^{-6} each, in any directions, does not change whether the line segment connecting them touches or passes through the pillar.

Output

Output a single integer: the number of ways for the kittens to choose a pair of their preferred toys to play with such that they can see each other.

Examples

standard input	standard output
3 3 0 0 2 -4 3 4 3 0 -4 -4 -3 4 -3 0 4	6
1 2 2 -1 3 5 0 5 2 -2 -1	1
1 1 0 0 1 -2 0 2 0	0