Geometry Queries

There are N lines. Each line has an index between 1 and N. The slope of each line is negative, i.e. it goes from upper-left to lower-right.

There are Q queries. Each of them is in the format `L R x y`, and you should output whether there is any line with index between L and R and the point (x, y) is under it. If there is, then the answer is `YES`, otherwise `NO`.

As you know, any line splits an infinite plane into two regions. The point (x, y) is under the line if that point is at the same region with point $(-\infty, -\infty)$. If the point lies on the line it does not count.

Input Format
The first line contains N, the number of lines. The following N lines each contains two integers m and n that describes the line $mx + n = y$.

The next line contains Q, the number of queries. Each subsequent line contains 4 integers L, R, x, y.

Output Format
For each query, output one line containing either `YES` or `NO`.

Constraints
$1 \leq N \leq 10^5$ (Number of lines)
$1 \leq Q \leq 10^5$ (Number of queries)
$-10^9 \leq x \leq 10^9$
$-10^9 \leq y \leq 10^9$
$-10^9 \leq m < 0$
$-10^9 \leq n \leq 10^9$
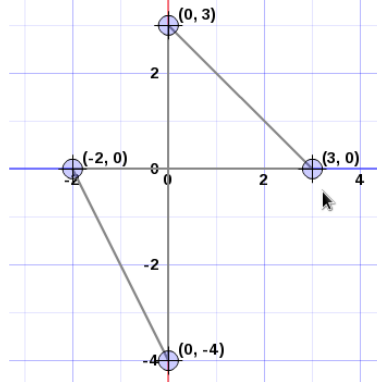$1 \leq L \leq R \leq N$

Sample Input

```
2
-1 3
-2 -4
3
1 2 0 0
1 1 0 0
2 2 0 0
```

Sample Output

```
YES
YES
NO
```

Explanation
The image shows the two lines of the sample input.

Time Limits: C/C++ 1 sec, Java/C# 2 sec, other languages follow standard TL given in Environment