

# Computer Graphics

Sammy is taking up a course on Computer Graphics this semester. He likes algorithms and so he likes this course too! He came across a problem. The problem is - given a 2D figure on a 2D cartesian coordinate system and another point in the same system, how to find if that point is inside that figure? A point is considered to be inside a figure if it is on the boundary or inside its boundaries. He seems stuck in this problem, can you help him?

## Input

First line of input contains an integer "T", the number of test cases.

Each of the next "T" lines contains any of following type of operations:

Type1: It is described as "1 x1 y1 x2 y2 x3 y3 x4 y4 x y" where 1 means operation type 1 followed by (x,y) coordinates of 4 points of a simple convex quadrilateral in order, followed by the query point.

Type2: It is described as "2 x1 y1 x2 y2 x3 y3 x y" where 2 means operation type 2 followed by (x,y) coordinates of 3 points of a valid triangle. Followed by the query point.

Type3: It is described as "3 x1 y1 R x y" where 3 means operation type 3 followed by (x,y) coordinates of center of a circle and R as it's radius. Followed by the query point.

All values are integers.

## Output

Corresponding to every Operation type, output "YES" if the query point lies in that figure. Output "NO" otherwise.

## Example

### Input:

```
1
1 3 4 10 11 10 2 1 1 3 3
```

### Output:

```
YES
```

### Constraints:

$1 \leq T \leq 100$

All figures drawn on 2D plane will be such that they will not have any part outside the rectangle

by these 4 points in order – (-1000,-1000), (1000,-1000), (1000,1000), (-1000,1000).

Query points will also be within the above described rectangle.