Sherlock and Geometry

by darkshadows

Problem Submissions Leaderboard Discussions

Watson gives a circle and a triangle in a 2-dimensional plane to Sherlock. Sherlock has to tell if they intersect/touch each other.
The circle is centered at (x_c, y_c) and has radius R.

Input Format

The first line contains T, the number of test cases.
Each test case consists of x_c, y_c and R in one line.
The next three lines each contains x_i, y_i denoting the vertices of the triangle.

Output Format

For each test case, print `YES` if the triangle touches or intersects the circle; otherwise, print `NO`.

Constraints

$1 \leq T \leq 30000$
$1 \leq R \leq 2000$
$-2000 \leq x_c, y_c \leq 2000$
$-5000 \leq x_i, y_i \leq 5000$
Note: There will be no degenerate triangles (i.e. triangles with area 0)

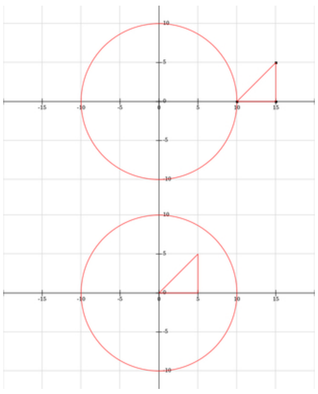
Sample Input

```
2
0 0 10
10 0
15 0
15 5
0 0 10
0 0
5 0
5 5
```

Sample Output

```
YES
NO
```

Explanation



In the first case, the triangle is touching the circle. In the second case, it neither touches nor intersects the circle.

Contest ends in 2 months

Submissions: 11
Max Score: 100

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Current Buffer (saved locally, editable) Python 3

```python
#!/bin/python3

import os
import sys

# Complete the solve function below.
def solve(x, y, r, t1, t2, t3):

if __name__ == '__main__':
    fptr = open(os.environ['OUTPUT_PATH'], 'w')

    t = int(input())

    for t_itr in range(t):
        xyr = input().split()

        x = int(xyr[0])

        y = int(xyr[1])

        r = int(xyr[2])

        t1 = list(map(int, input().rstrip().split()))

        t2 = list(map(int, input().rstrip().split()))

        t3 = list(map(int, input().rstrip().split()))

        result = solve(x, y, r, t1, t2, t3)

        fptr.write(result + '\n')

    fptr.close()

```

Line: 1 Col: 1

Upload Code as File Test against custom input Run Code Submit Code