

7400 An Easy Physics Problem

On an infinite smooth table, there's a big round fixed cylinder and a little ball whose volume can be ignored.

Currently the ball stands still at point A , then we'll give it an initial speed and a direction. If the ball hits the cylinder, it will bounce back with no energy losses.

We're just curious about whether the ball will pass point B after some time.

Input

First line contains an integer T , which indicates the number of test cases.

Every test case contains three lines.

The first line contains three integers O_x , O_y and r , indicating the center of cylinder is (O_x, O_y) and its radius is r .

The second line contains four integers A_x , A_y , V_x and V_y , indicating the coordinate of A is (A_x, A_y) and the initial direction vector is (V_x, V_y) .

The last line contains two integers B_x and B_y , indicating the coordinate of point B is (B_x, B_y) .

Output

For every test case, you should output 'Case # x : y ', where x indicates the case number and counts from 1. y is 'Yes' if the ball will pass point B after some time, otherwise y is 'No'.

Restrictions:

- $1 \leq T \leq 100$.
- $|O_x|, |O_y| \leq 1000$.
- $1 \leq r \leq 100$.
- $|A_x|, |A_y|, |B_x|, |B_y| \leq 1000$.
- $|V_x|, |V_y| \leq 1000$.
- $V_x \neq 0$ or $V_y \neq 0$.
- both A and B are outside of the cylinder and they are not at same position.

Sample Input

```
2
0 0 1
2 2 0 1
-1 -1
0 0 1
-1 2 1 -1
1 2
```

Sample Output

```
Case #1: No
Case #2: Yes
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