

G - Fractal Painting

Time Limit: 1 second , Memory limit: 2G

From the 2025 ICPC Pacific Northwest Regional Contest

A fractal painting consists of an infinite number of line segments. The first segment, called A, connects points $(0, 0)$ and (x_0, y_0) .

The next two segments B and C connect (x_0, y_0) to (x_1, y_1) and (x_0, y_0) to (x_2, y_2) , respectively.

The rest of the painting is defined recursively. We draw two segments D and E from (x_1, y_1) so that the segments B, D, E are *similar* to the segments A, B, C. Here, *similar* segments mean that they can be matched point-to-point by performing translating, rotating, and scaling on the original segments.

Similarly, we draw segments F and G from (x_2, y_2) so that the segments C, F, G are similar to the segments A, B, C.

This procedure continues indefinitely.

Find out whether it is possible to find a rectangle (of any size) that contains the entire fractal painting.

Input

The first line of input contains a single integer T ($1 \leq T \leq 10^4$), representing the number of test cases. Each of the next T lines describes a single test case. Each test case consists of a single line with six integers $x_0, y_0, x_1, y_1, x_2,$ and y_2 in order. All coordinates are between -10^4 and 10^4 , inclusive. It is guaranteed that $(0, 0)$, (x_0, y_0) , (x_1, y_1) , and (x_2, y_2) are all distinct points.

Output

For every test case, output YES if the entire fractal painting can fit in some rectangular frame. Output NO if there is no such rectangle.

Sample Input 1

```
3
1 3 -1 3 3 4
1 1 67 0 0 67
67 67 1 0 0 1
```

Sample Output 1

```
YES
NO
YES
```

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