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#####C/C++/Rust/Pascal 8#####16#
#####C/C++/Rust/Pascal 512 M#####1024 M
64bit IO Format: %lld
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In 2024, team "Moon Cat" trained hundreds of hours together, walked through a lot of places, ended with regret of loss, but experienced many good things and memories, unpredicted and sparkling in mind as if a dream.
SATSKY remembers, whenever the team was heading to somewhere, in the streets or metro station or anywhere, it often occurs that laurxh "walks away without looking back, as if he had made some determination"(goes far ahead), while Genius_dream concentrates on her phone and drops too far behind. In this case, SATSKY prefers to track the middle point of two teammates' locations, or at least find a place where he can see his teammates both, especially when around the corner and they can't see each other.

Now SATSKY transformed this into a programming geometry problem, in commemoration of the memorable year with them, the treasure of his life.

Formally:

- Give you an n -sided polygon P , of which each point $P_{1\sim n}$ is of integer coordinates and given in **counterclockwise order**;
- And give you two more integer points A and B , inside the polygon (**boundary not included**) **guaranteed**;
- Call "point X can be seen from point Y (in P)" **if and only if the whole segment connecting two points, except two endpoints, is inside P strictly (and doesn't intersect with any of edge of P naturally) ;**
- You need to find out:
 - For each point of polygon (i from 1 to n), can it (P_i) be seen from point A ?
 - For each point of polygon (i from 1 to n), can it (P_i) be seen from point B ?
 - Is there a point C inside the polygon (**boundary not included**) **to see A and B simultaneously ?**

####:

The first line contains the number of test cases t ($1 \leq t \leq 2 \times 10^5$). The description of the test cases follows.

The first line contains two integers n ($3 \leq n \leq 2 \times 10^5$), indicating the number of points of P ;

The second line contains four integers x_A, y_A, x_B, y_B , representing the x and y coordinates of point A and B ;

Then following n lines, the i -th line contains two integers x_i, y_i . representing the x and y coordinates of

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