

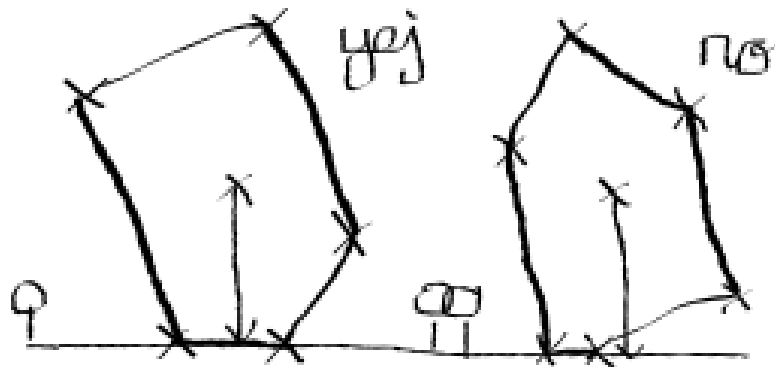
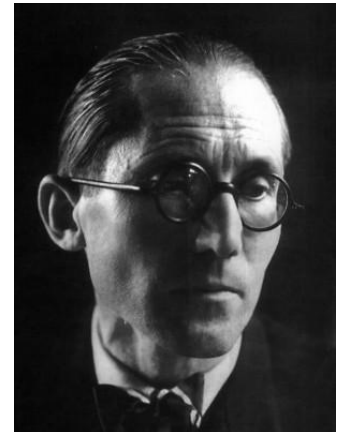
Satan is my Lord!

Statement

When biographers started looking at the sketches and plans that were found in his studio after his death, they discovered that during the last years of his life, and looking back at decades of influential architectural and urban planning work, Charles-Édouard Jeanneret-Gris, most frequently known by his fateful nickname of *Le Corbusier*, had devised a master plan to go beyond what any other brutalist architect had ever been able to.

His idea: to finally get rid of the annoying convention that buildings were constructed to satisfy the needs of people, and create cities where only pure structures of *béton brut* would be erected, as the final correction to what he saw as an inverted hierarchy between humanity and construction material. His ultimate goal: making the Earth a place where his lord Satan would feel comfortable, with the hope of having him closer and being able to go together for the occasional beer or two in bromantic evenings.

The plans contain numerous detailed sketches of buildings in the shape of giant prisms of concrete. However, he also noted that in some cases those building would stand upright (which he annotated as **YEJ**); and in some others the center of gravity of the building was shifted with respect to the base, and the building would have tilted and collapsed (which he marked with **NO**).



Many of the blueprints were never classified, though. Can you help establish order in the legacy of the *majter*?

Input

Input starts with the number of tests cases $n \geq 0$ in its own line. Next come n lines, each one containing the plan of one building. Each line contains the number of points of the blueprint $m \geq 3$, and the coordinates x_i and y_i of each one of them, given in clockwise order. The enumeration may start by any vertex of the polygon. The polygon will be convex and non-degenerate.

Output

For each test case, a line containing **YEJ** if the building would stand upright, and **NO** if it would not and fall.

Sample

6	YEJ
3 0 0 1 1 1 0	NO
3 0 1 1 1 1 0	NO
3 0 0 -1 1 0 2	NO
4 0 0 -1 1 0 2 1.5 1	YEJ
4 1 0 0 1 3 1 2 0	YEJ
5 -3 -2.5 -4 0.5 -1 3.5 1 1.5 2 -2.5	