Killer Testcase
Problem ID: killertestcase

Thuan is helping his teacher generate testcases for a contest. The hardest problem of this contest is a geometry one where the input is a **convex** polygon. Thuan wants to generate a **convex polygon** such that:

- It has exactly n vertices.
- No three consecutive vertices are collinear.
- All vertices' coordinates are **integers** between -10^6 and 10^6, inclusive.
- The length of all n sides are **positive integers**.

Your task is to help Thuan generate such a killer testcase.

Input

The input consists of only one integer n ($1 \leq n \leq 1000$) — the number of vertices of the polygon.

Output

In the first line, you should print `YES` or `NO` indicating whether or not such a polygon exists. If it does, you should print n more lines, each line consists of two integers x_i and y_i ($0 \leq |x_i|, |y_i| \leq 10^6$) — the coordinates of the i^{th} vertex. Vertices should be listed in clock-wise order.

If there are multiple valid polygons, you can output any of them.

Sample Input 1	Sample Output 1
3	YES 0 0 0 3 4 0

Sample Input 2	Sample Output 2
4	YES 0 0 0 4 4 4 4 0