

## Problem I. Convex Polygon

Input file: *standard input*  
Output file: *standard output*  
Time limit: 1 second  
Memory limit: 256 mebibytes

Snuke wants to draw a convex  $n$ -gon on a grid paper with dimensions  $10^6 \times 10^6$ .  
Output one example of  $(x_1, y_1), \dots, (x_n, y_n)$  that satisfies the following conditions.

- $(x_1, y_1), \dots, (x_n, y_n)$  are vertices of a convex  $n$ -gon in counterclockwise order  
(In particular, no three points are on the same line)
- $0 \leq x_i, y_i \leq 10^6$
- $x_i, y_i$  are integers

### Input

Input file contains one integer  $n$ .

Constraints:

- $3 \leq n \leq 10^5$

### Output

If there is no polygon that satisfies the conditions, print “NO” in a single line. Otherwise, print “YES”, then print  $n$  lines,  $i$ 'th of them contains coordinates of  $i$ -th vertice of polygon. Vertices must be listed in the counterclockwise order.

### Examples

| standard input | standard output   |
|----------------|---|
| 4              | YES<br>0 0<br>1000000 0<br>1000000 1000000<br>0 1000000 |
| 100000         | NO  |