D. Polygon

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Polycarpus loves convex polygons, especially if all their angles are the same and all their sides are different. Draw for him any such polygon with the given number of vertexes.

Input

The input contains a single integer n ($3 \le n \le 100$) — the number of the polygon vertexes.

Output

Print n lines, containing the coordinates of the vertexes of the n-gon "$x_i\ y_i$" in the counter clockwise order. The coordinates of the vertexes shouldn't exceed 10^6 in their absolute value. The side lengths should fit within limits $[1, 1000]$ (not necessarily integer). Mutual comparing sides and angles of your polygon during the test will go with precision of 10^{-3}.

If there is no solution, print "No solution" (without the quotes).

Examples

input
8

output
1.000 0.000 7.000 0.000 9.000 2.000 9.000 3.000 5.000 7.000 3.000 7.000 0.000 4.000 0.000 1.000