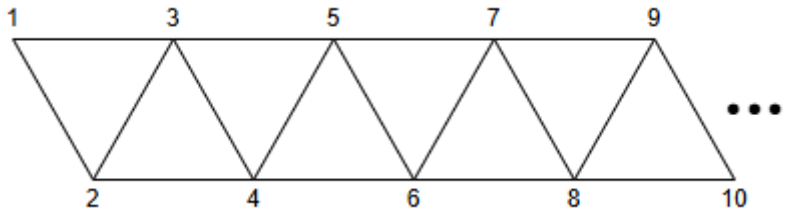
Graceful Triangles

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	1024 mebibytes

Consider the following graph in the shape of n equilateral triangles stitched together horizontally:



This graph has $n+2$ vertices and $2n+1$ edges. The vertices are labeled in the order of increasing horizontal position, as in the image above.

In other words, the graph has $n+2$ vertices labeled from 1 through $n+2$, and $2n+1$ edges connecting all pairs of vertices whose labels differ by at most 2.

A positive integer value is assigned to each vertex. Vertex i has the value of v_i. The value of an edge that connects vertices i and j is $|v_i - v_j|$. Find a way to assign values to all vertices so that for every positive integer k up to $2n+1$ inclusive, exactly one edge has the value of k. The value of any vertex cannot exceed 10^{18}.

Input

The first line contains n, a positive integer.

Output

If a solution exists for the given n, print the values assigned to the vertices $1, 2, \ldots, n+2$ in one line, separated by spaces. The values must be positive integers not exceeding 10^{18}. Otherwise, print -1.

Scoring

- $1 \leq n \leq 200\,000$

Example

standard input	standard output
1	3 1 4