

C. Pythagorean Triples

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

Katya studies in a fifth grade. Recently her class studied right triangles and the Pythagorean theorem. It appeared, that there are triples of positive integers such that you can construct a right triangle with segments of lengths corresponding to triple. Such triples are called *Pythagorean triples*.

For example, triples (3, 4, 5), (5, 12, 13) and (6, 8, 10) are Pythagorean triples.

Here Katya wondered if she can specify the length of some side of right triangle and find any Pythagorean triple corresponding to such length? Note that the side which length is specified can be a cathetus as well as hypotenuse.

Katya had no problems with completing this task. Will you do the same?

Input

The only line of the input contains single integer n ($1 \leq n \leq 10^9$) — the length of some side of a right triangle.

Output

Print two integers m and k ($1 \leq m, k \leq 10^{18}$), such that n , m and k form a Pythagorean triple, in the only line.

In case if there is no any Pythagorean triple containing integer n , print -1 in the only line. If there are many answers, print any of them.

Examples

input
3
output
4 5
input
6
output
8 10
input
1
output
-1
input
17
output
144 145
input
67
output
2244 2245

Codeforces Round #368 (Div. 2)

Finished

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→ Problem tags

math number theory

No tag edit access

→ Contest materials

• Tutorial

Note

Illustration for the first sample.

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