Fearless Rebels

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

n rebels are surrounded by enemy soldiers and cannot win. Their leader yells, "We will die rather than surrender!". They line up in a circle and systematically kill either the next or the next to next rebel (details below), going around and around, until only one rebel is left – who .. cheats and surrenders!

On an odd turn, the killer rebel kills the next rebel after him/her in the circle. On an even turn, the killer rebel kills the next to next rebel after him/her in the circle. Notice that in the even case, when there are 2 rebels left, the killer rebel kills him/herself.

The first killer is the leader, let us number his position as '1'. The remaining rebels are numbered around the circle, i.e. the rebel after the leader is number '2', the one after this rebel is number '3' and so on.

Which rebel survives?

Input

Single number n where $1 \leq n \leq 10^6$

Output

Print a single number, which rebel survives

Note

Testcase explanation: n = 5.

Turn	Killer	Dies
1	1	2
2	3	5
3	4	1
4	3	3

Rebel who survives = 4