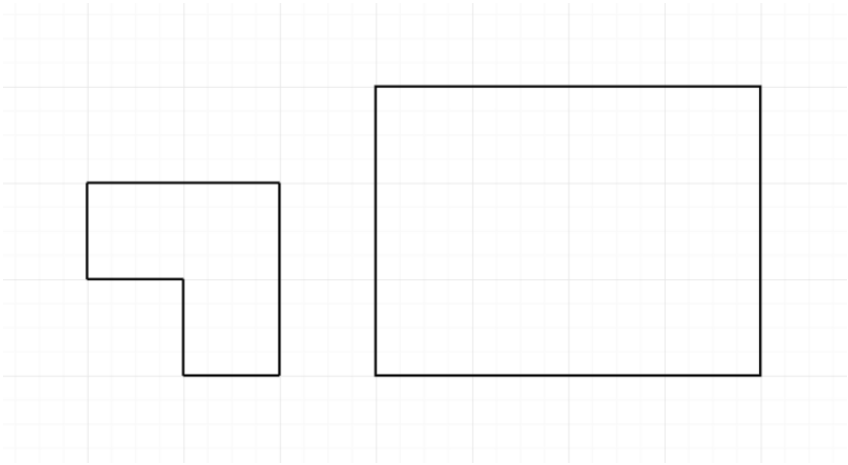
A. Filling Shapes

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

You have a given integer n. Find the number of ways to fill all $3 \times n$ tiles with the shape described in the picture below. Upon filling, no empty spaces are allowed. Shapes cannot overlap.



This picture describes when $n = 4$. The left one is the shape and the right one is $3 \times n$ tiles.

Input

The only line contains one integer n ($1 \leq n \leq 60$) — the length.

Output

Print the number of ways to fill.

Examples

input	Copy
4	

output	Copy
4	

input	Copy
1	

output	Copy
0	

Note

In the first example, there are 4 possible cases of filling.

In the second example, you cannot fill the shapes in 3×1 tiles.