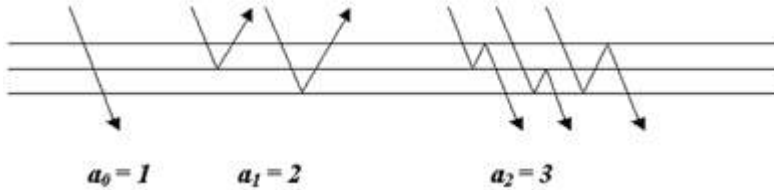


Suppose we put two panes of glass back-to-back. How many ways a_n are there for light rays to pass through or be reflected after changing direction n times? Following figure shows the situations when the value of n is 0, 1 and 2.



Input

It is a set of lines with an integer n where $0 \leq n \leq 1000$ in each of them.

Output

For every one of these integers a line containing a_n as described above.

Sample Input

0
1
2

Sample Output

1
2
3