

Problem HEAPADDICT: Heap-Addiction

In his lectures about algorithms little Joe has learned about a new data structure called binary heap, which he likes quite a lot. For those of you, who did not pay enough attention in the algorithm lectures: A heap is a tree in which the heap-property holds. The heap-property is fulfilled, if for every node the parent node has a greater value than the node. Or the other way round: all the successors of a node must have smaller values than the node itself. A binary heap is a heap, that consists of a binary tree fulfilling the shape property: The tree is either a perfectly balanced binary tree (all leaves are at the same level), or, if the last level of the tree is not complete, the nodes are filled from left to right.

Because little Joe really loves those heaps, he keeps constructing heaps of different sizes. After Joe has already constructed over 200 valid heaps with the numbers 1, 2, 3, 4, 5, 6, 7, 8, his parents fear, that their son might get addicted to his new hobby. Hence they ask you how many more heaps of size 8 he will construct.

Psychologists already warn, that there will be a mass of heap-construct-addicts. So instead of writing the program only for heaps of size 8, you better write a more general program, that reads a size s from stdin and outputs the number of different valid heaps, that can be constructed with the numbers 1.. s .

Psychologists, who do not have an understanding of what heaps are, are only able to construct the two possible valid heaps of size 3:

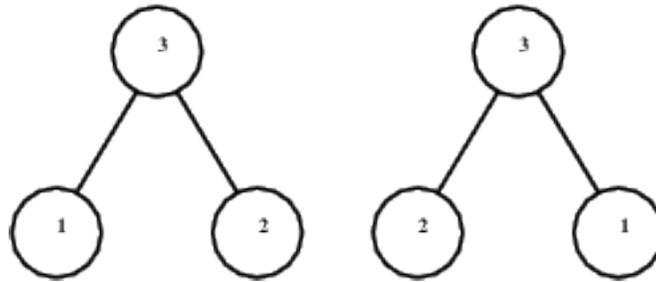


Figure 1: heaps of size 3

Hint: Don't let your program get addicted too!

Input

Input will contain several testcases. Each testcase consists of a single line with one integer value s ($1 \leq s \leq 27$). Input is terminated by *EOF*.

Output

For each testcase output the number of valid heaps. You may safely assume that this value is strictly less than 2^{63} .

(Sample Input and Output are provided on the next page)

Sample Input 1

1
2
3
8

Sample Output 1

1
1
2
210