

Given an undirected graph of the following form with n nodes, $1 \leq n \leq 76$:



Your task is to calculate the number of subsets of nodes of the graph with the following properties:

- no nodes in the subset should be connected
- it shouldn't be possible to add further nodes to the subset without violating the first condition

For a graph with 5 nodes the number of subsets which fulfill the above conditions is 4. The subsets are $\{1,3,5\}, \{2,4\}, \{2,5\}, \{1,4\}$.

Input

The input will consist of a sequence of numbers n , $1 \leq n \leq 76$. Each number will be on a separate line. The input will be terminated by EOF.

Output

Output the number of subsets as described above on a single line. The number of all subsets will be less than 2^{31} .

Sample Input

```
1
2
3
4
5
30
```

Sample Output

```
1
2
2
3
4
4410
```