

Your boss is re-tiling his bathroom and wishes to know how many unique ways there are to arrange an arbitrary number of tiles on the wall. He has assigned you to figure this out, but won't tell you how many tiles he has.

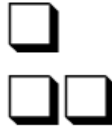
Input and Output

Design a program that accepts the number of tiles and returns the number of unique different arrangements. An arrangement is unique if it cannot be rotated in two dimensions to match any other arrangement.

For example, if there were 3 tiles, there are 2 possible arrangements:



Note that the following arrangement does not count because it can be rotated on a plane into one of the previous shapes:



Also note that the following two arrangements are different because they cannot be rotated into the same shape:



Sample Input

3

Sample Output

2