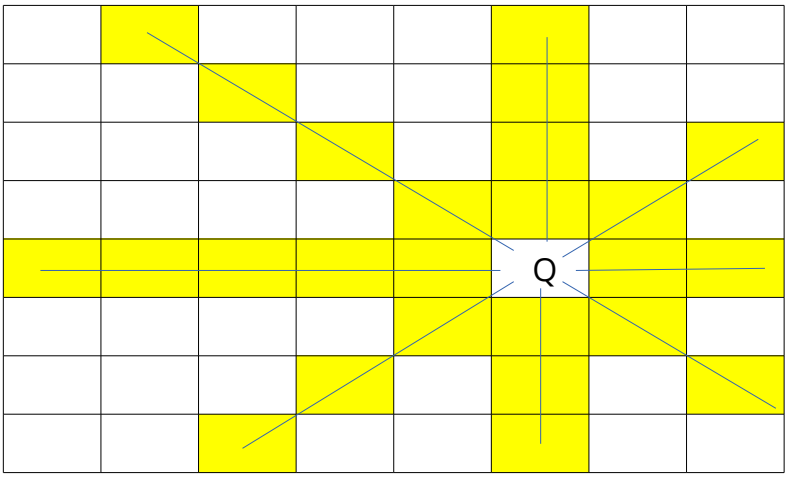
n-Queen

Time limit: 1 sec

A puzzle game called n-Queen is a chess puzzle. The game asks a player to place **N** pieces of queen onto an **N** x **N** chessboard in a way that none of the queens can attack each other. A queen in a chess game can attack other piece if the other piece is on the same row or on the same column or on diagonal line. In the next figure, the yellow cell is the cell that can be attacked by the queen placed in the cell labelled 'Q'.



In this problem, you have to count the number of different ways to place **N** queens on an **N** x **N** chessboard.

Input

- The first line of input contains the number of queen. (1 ≤ **N** ≤ 12)

Output

The only line of output contains the number of different ways to place **N** queens.

Example

Input	Output
4	2
8	92