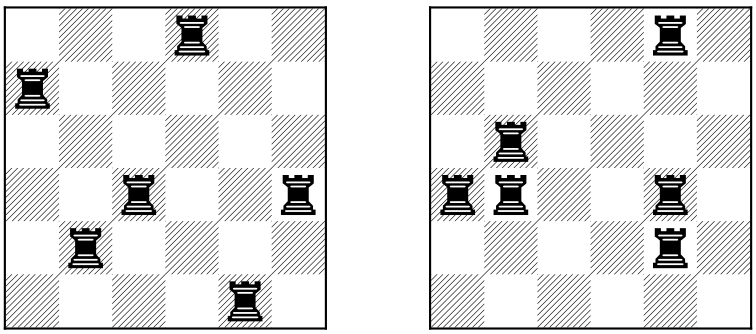
Aggressive rooks P94143_en

Consider a chessboard with n rows and n columns. In how many ways can we place n rooks so that at least two rooks threaten each other?

For instance, these are two of the ways for $n = 6$:



Input

Input consists of several numbers $1 \leq n \leq 6$. A special case with $n = 0$ marks the end of input.

Output

For every n, print the number of different ways to place n rooks on a chessboard $n \times n$ so that at least two rooks threaten each other. For every $1 \leq n \leq 6$, this number has less than 10 digits.

Sample input 1

```
2
3
0
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Sample output 1

```
4
78
```

Problem information

Author: Salvador Roura
Translator: Carlos Molina

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