



PROBLEMS

programming task grade a IX-a

Problem 1 - asteptare

100 points

Let n be a natural number and a square parking lot with $n*n$ lots displayed as below. Today at the entrance of the parking there are $n*n$ cars in order $1,2,3,\dots,n*n$.

The waiting operation consists of two actions:

- entry of the cars in the parking and arranging them in a 45 degree zig-zag;
- exit of the cars in a 90 degree zig-zag;

For example for $n=3$

The cars are in the queue in order $1,2,3,4,5,6,7,8,9$

After their entering in the parking, the parking lot looks like this:

1	3	4
2	5	8
6	7	9

After their exit the cars are in this order: $1,2,6,7,5,3,4,8,9$

The waiting operation is repeated

The cars are in the queue in order: $1,2,6,7,5,3,4,8,9$

After they enter in the parking lot, the arrangement looks like this:

1	6	7
2	5	8
3	4	9

After the cars are out of the parking lot they are in this order: $1,2,3,4,5,6,7,8,9$

Task

For a given n , compute the minimum number of waiting operations that have to be conducted repeatedly such that at the end the order of the cars at the exit is the initial one, that is $1,2,3,\dots,n*n$.

Input data

The input file `asteptare.in` contains on the first line number n .

Output data

The output file `asteptare.out` contains only one line with the minimum waiting turns.

Constraints

$2 \leq n \leq 100$

For any input data the minimum waiting turns is not more than 2 at 63. (2^{63})

Example

<code>asteptare.in</code>	<code>asteptare.out</code>
3	2

Maximum execution time/test: 0.5 seconds

Memory limit: total available memory 5 Mb.