Bonus Problem – Catalan Numbers

Catalan numbers form a sequence of natural numbers that occur in various counting problems, often involving recursively defined objects. The formula for calculating the **n-th** number is:

$$C_n = \frac{1}{n+1}\binom{2n}{n} = \frac{(2n)!}{(n+1)!\,n!} = \prod_{k=2}^{n}\frac{n+k}{k} \qquad \text{for } n \geq 0.$$

Your task is to write a program that finds half of the **n-th** Catalan number with **maximum 76 characters in your source code**. A simple JavaScript solution can be found here:

http://rosettacode.org/wiki/Catalan_numbers#JavaScript

Input

Input data is being read from the console.

The number **N** is on the first input line.

The input data will always be valid and in the format described. There is no need to check it explicitly.

Output

The output data must be printed on the console.

On the only output line you must print the half of the **N-th** Catalan number.

Do not write new line on the final result and do not put new line at the end of your source code.

Constraints

- **N** will be between 0 and 12, inclusive.
- Allowed source code length: 76 characters
- Allowed working time for your program: 0.10 seconds.
- Allowed memory: 16 MB.

Example

Input Example	Output Example
7	214.5