Approximation of e — P11916_en

The Taylor series of the function e^x is

$$e^x = \sum_{i \geq 0} \frac{x^i}{i!} \ .$$

Note that this series has an infinite number of terms. However, for any x we can get an approximation of e^x by adding some of the first terms of the series (of course, the more terms, the better the result). In particular, chosing $x = 1$ gives us a method to compute $e \simeq 2'71828182845904523536$:

$$e = \sum_{i \geq 0} \frac{1}{i!} \ .$$

Write a program that, for every given natural number n, prints the approximation of e that we get by adding the n first terms of the series above.

Input

Input consists of several natural numbers n between 0 and 20.

Output

For every given n, print with 10 digits after the decimal point the approximation of e that we get by adding the n first terms of the series above.

Observation

Because of overflow reasons, do all the computations for this exercise using real numbers.

Sample input

```
0
1
3
20
```

Sample output

```
With 0 term(s) we get 0.0000000000.
With 1 term(s) we get 1.0000000000.
With 3 term(s) we get 2.5000000000.
With 20 term(s) we get 2.7182818285.
```

Problem information

Author : Salvador Roura
Translator : Carlos Molina
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