

## A. Little Pony and Expected Maximum

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

Twilight Sparkle was playing Ludo with her friends Rainbow Dash, Apple Jack and Flutter Shy. But she kept losing. Having returned to the castle, Twilight Sparkle became interested in the dice that were used in the game.

The dice has  $m$  faces: the first face of the dice contains a dot, the second one contains two dots, and so on, the  $m$ -th face contains  $m$  dots. Twilight Sparkle is sure that when the dice is tossed, each face appears with probability  $\frac{1}{m}$ . Also she knows that each toss is independent from others. Help her to calculate the expected maximum number of dots she could get after tossing the dice  $n$  times.

### Input

A single line contains two integers  $m$  and  $n$  ( $1 \leq m, n \leq 10^5$ ).

### Output

Output a single real number corresponding to the expected maximum. The answer will be considered correct if its relative or absolute error doesn't exceed  $10^{-4}$ .

### Examples

<b>input</b>
6 1
<b>output</b>
3.500000000000
<b>input</b>
6 3
<b>output</b>
4.958333333333
<b>input</b>
2 2
<b>output</b>
1.750000000000

### Note

Consider the third test example. If you've made two tosses:

1. You can get 1 in the first toss, and 2 in the second. Maximum equals to 2.
2. You can get 1 in the first toss, and 1 in the second. Maximum equals to 1.
3. You can get 2 in the first toss, and 1 in the second. Maximum equals to 2.
4. You can get 2 in the first toss, and 2 in the second. Maximum equals to 2.

The probability of each outcome is 0.25, that is expectation equals to:

You can read about expectation using the following link:

[http://en.wikipedia.org/wiki/Expected\\_value](http://en.wikipedia.org/wiki/Expected_value)

### Codeforces Round #259 (Div. 1)

Finished

#### → Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.



Start virtual contest

#### → Problem tags

probabilities

No tag edit access

#### → Contest materials

- Announcement 
- Tutorial 

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