Problem D
Dice Betting

Problem ID: dicebetting
CPU Time limit: 1 second
Memory limit: 1024 MB

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Source: KTH Challenge 2016

Gunnar and his friends like games which involve rolling dice. Gunnar has a huge collection of 6-sided, 12-sided and 20-sided dice. All the games with dice started to bore him, so he came up with a new game. He rolls an s-sided die n times and wins if at least k different numbers appear in the n throws. An s-sided die contains s distinct numbers $1, \ldots, s$ on its sides.

Since this is a game only for one person, Gunnar and his friends decided to make it more fun by letting other people bet on a particular game. Before you bet on a particular game, you would like to know how probable it is to throw at least k different numbers in n throws with an s-sided die. We assume that all numbers have the same probability of being thrown in each throw.

Input

The input consists of a single line with three integers n, s, and k ($1 \leq n \leq 10\,000, 1 \leq k \leq s \leq 500$). n is the number of throws, k the number of different numbers that are needed to win and s is the number of sides the die has.

Output

Output one line with the probability that a player throws at least k different numbers within n throws with an s-sided die. Your answer should be within absolute or relative error at most 10^{-7}.

Sample Input 1

```
3 3 2
```

Sample Output 1

```
0.888888889
```

Sample Input 2

```
3 3 3
```

Sample Output 2

```
0.222222222
```