

Mathematical Expectation



[Chinese Version](#)

[Russian Version](#)

Let's consider a random permutation p_1, p_2, \dots, p_N of numbers $1, 2, \dots, N$ and calculate the value $F = (X_2 + \dots + X_{N-1})^K$, where X_i equals 1 if one of the following two conditions holds: $p_{i-1} < p_i > p_{i+1}$ or $p_{i-1} > p_i < p_{i+1}$ and X_i equals 0 otherwise. What is the expected value of F ?

Input Format:

The first line contains two integers K and N .

Output Format:

Print the expected value of F as an irreducible fraction p / q . Follow sample input for more clarification.

Constraints:

$1000 \leq N \leq 10^9$

$1 \leq K \leq 5$

Sample input

```
1 1000
```

Sample Output

```
1996 / 3
```