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# J. Energy exchange

time limit per test: 2 seconds<sup>2</sup> memory limit per test: 256 megabytes

It is well known that the planet suffers from the energy crisis. Little Petya doesn't like that and wants to save the world. For this purpose he needs every accumulator to contain the same amount of energy. Initially every accumulator has some amount of energy: the i-th accumulator has  $a_i$  units of energy. Energy can be transferred from one accumulator to the other. Every time x units of energy are transferred (x is not necessarily an integer) k percent of it is lost. That is, if x units were transferred from one accumulator to the other, amount of energy in the first one decreased by x units and in other increased by  $x - \frac{xk}{100}$  units.

Your task is to help Petya find what maximum equal amount of energy can be stored in each accumulator after the transfers.

#### Input

First line of the input contains two integers n and k ( $1 \le n \le 10000, 0 \le k \le 99$ ) — number of accumulators and the percent of energy that is lost during transfers.

Next line contains n integers  $a_1, a_2, \ldots, a_n$  — amounts of energy in the first, second, ..., n-th accumulator respectively  $(0 \le a_i \le 1000, 1 \le i \le n)$ .

### **Output**

Output maximum possible amount of energy that can remain in each of accumulators after the transfers of energy.

The absolute or relative error in the answer should not exceed  $10^{-6}$ .

### **Examples**

1.909090909

input	Сору
3 50 4 2 1	
output	Сору
2.000000000	
input	Сору
2 90	
1 11	
output	Сору

### → Attention

The package for this problem was not updated by the problem writer or Codeforces administration after we've upgraded the judging servers. To adjust the time limit constraint, a solution execution time will be multiplied by 2. For example, if your solution works for 400 ms on judging servers, then the value 800 ms will be displayed and used to determine the verdict.

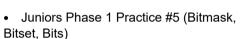
#### <u>ICPC Assiut University Training -</u> <u>Juniors Phase 1 Sheets-2022</u>

#### **Public**

### **Participant**



### → Group Contests



- Juniors Phase 1 Practice #4 ( Binary search , Two pointers )
- Juniors Phase 1 Practice #3 ( STL 2 )
- Juniors Phase 1 Practice #2 (STL 1)
- Juniors Phase 1 Practice #1 ( Prefix sum , Frequency Array )

## Juniors Phase 1 Practice #4 ( Binary search, Two pointers)

## **Finished**

## Practice



# → About Time Scaling

This contest uses time limits scaling policy (depending on a programming language). The system automatically adjusts time limits by the following multipliers for some languages. Despite scaling (adjustment), the time limit cannot be more than 30 seconds. Read the details by the <a href="link">link</a>.

## $\rightarrow$ 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 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

## → Submit?

Language: GNU G++20 13.2 (64 bit, win ♥