

Save the Queen!

The kingdom of Zokoria is under attack! The invaders wish to capture the Queen and conquer Zokoria. Aware of the danger, Heldorf, the captain of the Zokorian army must devise an exit strategy for the Queen.

In order to do so, the invaders must be kept at bay for a period of time. There are n invaders who must be engaged in fight for as long as possible. The army has k soldiers, with each having the capability to fight for a total of a_i seconds. The soldiers can fight against any invader at any time i.e. they can move to fight with another invader by dropping the current fight.

Heldorf wants you to find out how long does he have to help the Queen escape. You have to find the maximum possible time for which all the n invaders can be kept busy?

Input Format

The first line of input contains two numbers n and k - the number of invaders and the number of soldiers respectively.

The next line contains k numbers, each integer representing the time for which the respective soldier can engage in a fight.

Constraints

- $1 \leq n \leq k \leq 10^4$
- The time for which each soldier can fight, a_i , lies between 1 and 10^6 .

Output Format

Print the maximum possible time for which the n invaders can be engaged in a fight. The number should be accurate up to 10^{-4} absolute precision.

Sample Input 0

```
3 4
1000 100 100 100
```

Sample Output 0

```
150.0000000000
```

Explanation 0

- Soldier 1 can fight invader 1 from time 0 to time 1000.
- Soldier 2 can fight invader 2 from time 0 to time 50.0.
- Soldier 3 can fight invader 2 from time 50.0 to time 150.0.
- Soldier 4 can fight invader 3 from time 0.0 to time 100.0.
- Soldier 2 can fight invader 3 from time 100.0 to 150.0.

Sample Input 1

```
3 4
10 15 10 100
```

Sample Output 1

```
17.5000000000
```

Explanation 1

- Soldier **2** can fight invader **1** from time **0** to time **7.5**.
- Soldier **1** can fight invader **1** from time **7.5** to time **17.5**.
- Soldier **3** can fight invader **2** from time **0** to time **10**.
- Soldier **2** can fight invader **2** from time **10** to time **17.5**.
- Soldier **4** can fight invader **3** from time **0** to time **100**.