https://cses.fi/problemset/task/1620/
A factory has nnn machines which can be used to make products. Your goal is to make a total of ttt products.

For each machine, you know the number of seconds it needs to make a single product. The machines can work simultaneously, and you can freely decide their schedule.

What is the shortest time needed to make ttt products?

Input

The first input line has two integers nnn and ttt: the number of machines and products.

The next line has nnn integers k1,k2,…,knk_1,k_2,\dots,k_nk1,k2,…,kn: the time needed to make a product using each machine.

Output

Print one integer: the minimum time needed to make ttt products.

Constraints

- 1≤n≤2·1051 \le n \le 2 \cdot 10^51≤n≤2·105
- 1≤t≤1091 \le t \le 10^91≤t≤109
- 1≤ki≤1091 \le k_i \le 10^91≤ki≤109

Example

Input:

```
3 7
3 2 5
```

Output:

```
8
```

Explanation: Machine 1 makes two products, machine 2 makes four products and machine 3 makes one product.

```cpp
#include <bits/stdc++.h>
using namespace std;
```

```cpp
long long minTimeToProduce(int arr[], int n, int t) {
    long long l = 1;  // Lower bound, minimum time is 1 second
    long long h = 1e18;  // Upper bound, large enough to cover maximum
time
    long long result = h;

    while (l <= h) {
        long long mid = l + (h - l) / 2;
        long long product = 0;

        // Calculate how many products can be made in `mid` seconds
        for (int i = 0; i < n; i++) {
            product += mid / arr[i];
            if (product >= t) break;  // No need to continue if we
already hit the target
        }

        // If we can produce at least `t` products in `mid` seconds
        if (product >= t) {
            result = mid;  // Record this as a potential result
            h = mid - 1;   // Try to find a smaller valid time
        } else {
            l = mid + 1;  // Otherwise, increase the time
        }
    }

    return result;
}

int main() {
    ios_base::sync_with_stdio(0), cin.tie(0), cout.tie(0);

    int n, t;
    cin >> n >> t;
    int arr[n];
    for (int i = 0; i < n; i++) cin >> arr[i];

    long long ans = minTimeToProduce(arr, n, t);
    cout << ans << endl;

    return 0;
}
```