Competitive Programming SS23

Submit until end of contest

Problem: applepie (5.0 second timelimit)

The apple picking season on Sweet Apple Acres is done and it has been a good year. As always, the entire Apple family has to work hard to make use of all the apples. Granny Smith has spent an entire week baking her famous apple pie and it's Apple Jack's task to sell it to every household in Equestria. To each household she sells at least one pie and at most as many pies as they have ponies. She precuts the pies so that there is exactly one slice for every pony. She wants to make sure that the smallest slice she has to cut is still as large as possible.

Assuming Apple Jack distributes and cuts the pies optimally, output the largest number of slices she will have to make from a single cake.

If, for example, Apple Jack sells 2 pies to a household with 7 ponies, she would cut one pie into three and another into four pieces. If that was the only household, the answer would be 4.

Input The first line of input contains one integer t ($1 \leq t \leq 256$), the number of testcases.

The first line of each test case contains the integers h ($1 \leq h \leq 5 \cdot 10^5$), the number of households, and p ($h \leq p \leq 2 \cdot 10^6$), the number of pies.

Each of the following h lines contains an integer x_i ($1 \leq x_i \leq 5 \cdot 10^6$), denoting the number of ponies in household i[1].

It is guaranteed that the sum of h over all testcases is less than $1.5 \cdot 10^6$. Similarly, the sum of p over all testcases is at most $2.1 \cdot 10^7$.

Output For each testcase, your program should output a single integer, the maximum number of slices that Apple Jack will have to make from some pie.

Sample input

```
2
2 3
5
7
4 6
120
2680
3400
200
```

Sample output

```
5
1700
```

[1]Only ponies eat apple pie. Spike, the dragon, for example prefers Jewel Cake.