1 Apple Pie Distribution

1.1 Problem

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 spend an entire week baking her famous apple pie and it's Apple Jack's task to sell the pie in all of Equestria. There is no problem finding buyers, in fact, every pony would love to have as large of a slice as possible, but Apple Jack wants to be fair about the distribution. To every household (several ponies may live in the same house) she sells a (positive) number of pies (but at most one pie per household member, too much pie would give the poor ponies a tummy ache). Apple Jack precuts the pie, such that there is exactly one slice per pony.

She wants to make sure that the smallest slice she has to cut is still as large as possible.

If, for example, there are two pony households of sizes 5 and 7 and Apple Jack has three pies to sell, she can deliver one pie to the first and two pies to the second household. In the first household everypony will get a fifth of a pie, in the second household she can cut the slices such that 3 ponies get a third of a pie and 4 ponies get a fourth of a pie. The smallest slice is a fifth of a cake in this case. No other distribution of the pies or slicing of the pies would allow for a bigger size of the smallest slice.

Your task is to determine the size of the smallest slice Apple Jack has to cut. For simplicity, you should output the inverse of that number, which happens to be the maximum number of slices she will have to make from some cake (this is an integer).

1.2 Input

The first line of input contains one integer T specifying number of test cases to follow $(1 \leq T \leq 256)$. The first line of each test case contains the integers H $(1 \leq H \leq 500000)$, the number of households, and P $(H \leq P \leq 2000000)$, the number of pies[1]. Each of the following H lines contains an integer h_i, $(1 \leq h_i \leq 5000000)$, denoting the number of ponies in every household[2].

1.3 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.

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[1] The apple family sure is a diligent lot.

[2] Only ponies eat apple pie. Spike, the dragon, for example prefers Jewel Cake. Despite that, note that there can be a lot of ponies per household.

1.4 Sample Data

Input	Output
2 2 3 5 7 4 6 120 2680 3400 200	5 1700