

Shake Shake Shaky

Shaky has N ($1 \leq N \leq 50000$) candy boxes each of them contains a non-zero number of candies (between 1 and 1000000000). Shaky want to distribute these candies among his K ($1 \leq K \leq 1000000000$) IIT-Delhi students. He want to distribute them in a way such that:

1. All students get equal number of candies.
2. All the candies which a student get must be from a single box only.

As he want to make all of them happy so he want to give as many candies as possible. Help Shaky in finding out what is the maximum number of candies which a student can get.

Input

First line contains $1 \leq T \leq 20$ the number of test cases. Then T test cases follow. First line of each test case contains N and K . Next line contains N integers, i th of which is the number of candies in i th box.

Output

For each test case print the required answer in a separate line.

Example

Input:

```
2
3 2
3 1 4
4 1
3 2 3 9
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Output:

```
3
9
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