
Inventory

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

Fish was retired from programming, and now he goes back home and runs a shop.

There are N kinds of goods in sale in his shop, and the i -th goods will be sold exactly x_i pieces everyday. However, as his inventory shelf has a fixed and limited volume V , he has to manage the distribution of these goods. To do so, he wants to assign a real value v_i to i -th goods as its maximum quantity storing in the shelf such that $\sum v_i = V$. When one kind of goods is sold out, he can refill the shelf with this goods to its maximum quantity. As a result, for i -th goods, he will refill $\frac{x_i}{v_i}$ times per day.

Please help Fish determine the v_i for all goods so that the number of times he use to refill all the goods everyday is minimum.

Input

The first line of input contains an integer T , representing the number of test cases.

Then for each test case:

The first line contains two integers N, V as mentioned above.

The second line contains N integers x_1, x_2, \dots, x_N as mentioned above.

All numbers in the same line are separated by one space.

Output

For each test case, you should output **Case x : y** , where x indicates the case number starting from 1, and y is the minimum number of times he refills the goods of all kinds in one day.

Your answer will be considered correct if its absolute error does not exceed 10^{-6} .

Example

standard input	standard output
2	Case 1: 2.000000
2 2	Case 2: 9.000000
1 1	
2 2	
2 8	

Note

$$1 \leq T \leq 100$$

$$1 \leq N \leq 10^5$$

$$1 \leq V \leq 10^9$$

For 90% test cases: $N \leq 100$