Problem A - Sales Tax

Time Limit	Memory Limit
1 second (No Bonus Time)	512 MB

Description

While traveling in a new city, Albert noticed something in his receipts. The city's currency is dollars, but cents (c), representing 1/100 of dollars, are also used. That is, 100 cents is equal to 1 dollar, and no smaller unit than a cent is used.

For instance, if the price of an item is 4.30, then it is 4 dollars and 30 cents; if the price is 5.00, then it is 5 dollars, or 500 cents, or 3 dollars and 200 cents.

One receipt that Albert took a look at included the prices of N items that Albert purchased as well as the total sales price including the sales tax. Let P[i] be the price of the i-th item.

An item's price does not include the sale tax, but the total sales price X includes the sum of the prices of N items plus the sales tax which is equal to F% of the sum of the prices -- it is known that F is a non-negative integer. Unfortunately, Albert's receipt is slightly ripped and the cents part of X are not legible.

For instance, suppose N=3, X=13 and P=[2.00,4.49,3.51]__.

- If F=25__: The sum of item prices is 10 dollars, and the sales tax is 25% of the sum, which is 2.50. Hence, the total sales price will be 12.50.
- If F=30__: The sum of item prices is 10 dollars, and the sales tax is 30% of the sum, which is 3.00. Hence, the total sales price will be 13.00.

- If F=39: The sum of item prices is 10 dollars, and the sales tax is 39% of the sum, which is 3.90. Hence, the total sales price will be 13.90.
- If F=40: The sum of item prices is 10 dollars, and the sales tax is 40% of the sum, which is 4.00. Hence, the total sales price will be 14.00.

In this example, because we know that X=13, we can deduce that F must be no less than 30 but less than 40.

While checking another receipt, Albert learned of another fact. As mentioned earlier, because no smaller unit than a cent is used, if the sales tax contains a fraction of cents, then each store can elect to round up or down to the nearest cent -- but the election is not written on the receipt, giving Albert trouble.

Consider a different example where N=3, X=19 and P=[1.98,9.99,4.99].

- First, the sum of item prices is 16.96.
- If F=10: The sales tax will be 1.696, yet since the last digit "6" is 6/10 cents, it can be either rounded down to 1.69 or up to 1.70. In this case, the final sales price must be either 18.65 or 18.66. Yet, because X=19 according to the receipt, the sales tax rate cannot be 10%.
- If F=12: The sales tax will be 2.0352, which means it must be rounded down to 2.03 or up to 2.04. Hence, the final sales price will be either 18.99 or 19.00. According to the receipt, the sales tax rate could be 12%.
- If F=17: The sales tax will be 2.8834, which means it must be rounded down to 2.88 or up to 2.89. Hence, the final sales price will be either 19.84 or 19.85. According to the receipt, the sales tax rate could be 17%.

In this example, we can confirm that if F is between 12 and 17 (inclusive), then the (dollar part of the) final sales price will be consistent with Albert's receipt.

Given N, X, and P on Albert's receipt, compute the smallest and biggest possible sales tax rate F that will be consistent with the dollar part of the final sales price, X.

Input

The first line will contain T, the number of test cases.

Each test case's first line will contain two integers N and X, separated by whitespace.
The following N lines will contain the price of each item, P_i. The price of each item will always include the decimal point ('.') followed by two digits (for the cents part) -- see sample test cases.
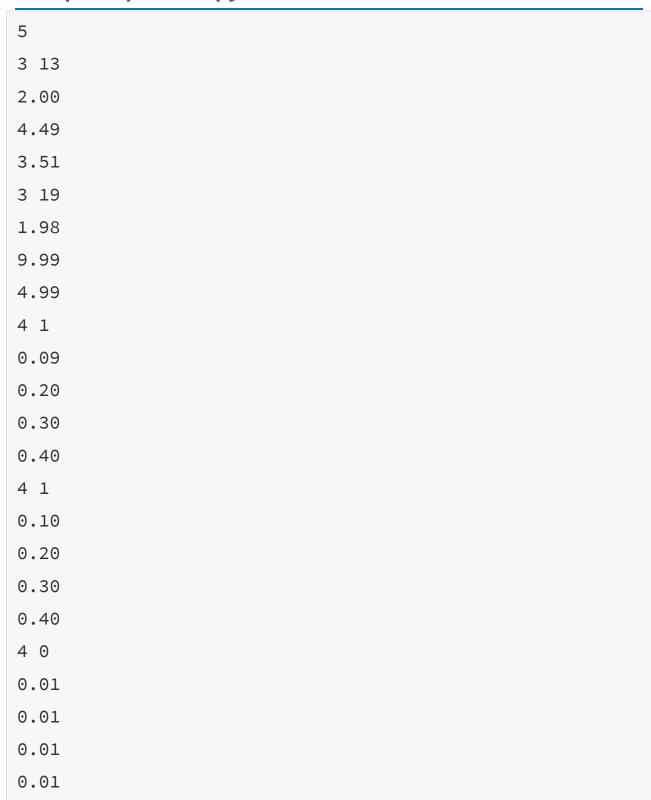
Output

For each test case, output in a single line the minimum and maximum possible sales tax rate, separated by whitespace.

Limit

- $1 \leq T \leq 10$
- $1 \leq N \leq 105$
- $0 \leq X \leq 108$
- For each i with $1 \leq i \leq N$, $0.01 \leq P_i \leq 9.99$
- It is guaranteed that the correct minimum & maximum sales tax rates will be between 0 and 104, inclusive, for every test case.

Sample Input 1 Copy

```
5
3 13
2.00
4.49
3.51
3 19
1.98
9.99
4.99
4 1
0.09
0.20
0.30
0.40
4 1
0.10
0.20
0.30
0.40
4 0
0.01
0.01
0.01
0.01
```

Sample Output 1 Copy

```
30 39
12 17
1 102
0 99
0 2399
```

Case 1: Described in the problem statement.

Case 2: Described in the problem statement.

Case 3: If sales tax rate is 102%, then the final total will be either 1.99 or 2.00.

Case 4: No explanation provided.

Case 5: If sales tax rate is 2399%, then the final total will be either 0.99 or 1.00.