Chief of AUT ICPC public relations offers an honorary visit to AUT ICPC site to lucky winners. It includes acknowledging former members *Agha Hadi*, *smile2ka10* and *AghaReza*; meeting with current members! and an extra workshop to measure the performance of the site's computers. As it is a one time opportunity and everything is going to be renewed soon, many students registered.

Selection mechanism takes registration priority, student intellectuality and their chance into account all at once. There are M bags. Each bag contains a number of similar envelopes some of which contain a lucky ticket. Students know these amounts. They come one by one in order of registration and take one envelope from one of the bags. If it contains a lucky ticket, the student takes it. In either situation the empty envelope is put inside the bag again. The winners are announced after all students tried their chance, so nobody knows the result of the students before him.

nimA is K-th student to try his chance. But he is worried that no lucky tickets are left. So he asked you to compute his chance of winning a lucky ticket assuming all students preceding him are clever enough to take the best action.

Input

First line begins with an integer T ($T \leq 50$), the number of tests. In the first line of each test there are two integers N and K ($1 \leq N, K \leq 10^5$), the number of bags and position of nimA in the queue. Next N lines contain integers t_i and l_i ($0 < t_i$), the total number of envelopes and number of envelopes which contain lucky tickets in the i-th bag.

Output

For each test print the probability of nimA winning a lucky ticket in the form of a fraction p/q such that greatest common divisor of p and q equals to 1. It is guaranteed that such p and q's for nimA and all students preceding him will fit in 32-bit signed integer.

Sample Input

```
3
2 1
1 1
2 1
2 2
2 2
6 4
1 3
6 4
```

Sample Output

```
1/1
2/3
25/54
```