Problem L. Lottery

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

You are a big fan of Korea's biggest rockstar, Koosaga. Excitingly, Koosaga has announced a lottery event offering fans a once-in-a-lifetime opportunity for a one-on-one meeting.

Koosaga sells n kinds of albums. When you purchase the i-th kind of album, it costs you a_i won, and you get b_i lottery tickets. You can purchase multiple copies of the same album if you wish.

On the day of the draw, a large roulette wheel containing cells with participant names will decide the winner. Every cell on the wheel has an equal chance of being selected. The number of cells with your name corresponds to the number of lottery tickets you've amassed.

Koosaga will give the wheel a single spin to pick the winner. But if luck isn't on your side initially, there's still hope! By paying r won, you can request Koosaga to spin the wheel again. You can pay for as many re-spins as you desire.

Armed with insider knowledge, you've learned that the cumulative number of cells attributed to other participants is s. Importantly, none of them will opt for a re-spin.

Your challenge is to find an optimal strategy to win with the minimum expected cost.

Input

The first line contains three integers: n, s, and r ($1 \le n \le 10^5$; $1 \le s \le 10^6$; $1 \le r \le 10^6$). The i-th of the next n lines contains two integers: a_i and b_i ($1 \le a_i \le 300$; $1 \le b_i \le 5000$).

Output

Print a single line with two positive integers x and y which must be coprime. The value $\frac{x}{y}$ must be the minimum expected cost to win. It is guaranteed that the minimum expected cost can be expressed in this format.

Example

standard input	*standard output*
3 11 3 1 3 2 7 5 13	63 10