Long long ago in a far far away land there were two great cities and The Great Caravan Road between them. Many robber gangs "worked" on that road.

By an old custom the i-th band robbed all merchants that dared to travel between a_i and b_i miles of The Great Caravan Road. The custom was old, but a clever one, as there were no two distinct i and j such that $a_i \leq a_j$ and $b_j \leq b_i$. Still when intervals controlled by two gangs intersected, bloody fights erupted occasionally. Gang leaders decided to end those wars. They decided to assign each gang a new interval such that all new intervals do not intersect (to avoid bloodshed), for each gang their new interval is subinterval of the old one (to respect the old custom), and all new intervals are of equal length (to keep things fair).

You are hired to compute the maximal possible length of an interval that each gang would control after redistribution.

Input

The input will contain several test cases, each of them as described below.

The first line contains n ($1 \leq n \leq 100000$) — the number of gangs. Each of the next n lines contains information about one of the gangs — two integer numbers a_i and b_i ($0 \leq a_i < b_i \leq 1000000$). Data provided in the input file conforms to the conditions laid out in the problem statement.

Output

For each test case, write to the output on a line by itself.

Output the maximal possible length of an interval in miles as an irreducible fraction p/q.

Note for the sample:

In the above example, one possible set of new intervals that each gang would control after redistribution is given below.

- The first gang would control an interval between $7/2 = 3.5$ and $12/2 = 6$ miles which has length of $5/2$ and is a subinterval of its original $(2, 6)$.

- The second gang would control an interval between $2/2 = 1$ and $7/2 = 3.5$ miles which has length of $5/2$ and is a subinterval of its original $(1, 4)$.

- The third gang would control an interval between $16/2 = 8$ and $21/2 = 10.5$ miles which has length of $5/2$ and is a subinterval of its original $(8, 12)$.

Sample Input

```
3
2 6
1 4
8 12
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Sample Output

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5/2
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