

Sum is Integer

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 1024 megabytes

You are given $2N$ positive integers $(p_1, q_1, p_2, q_2, \dots, p_N, q_N)$.
Find the number of pairs of integers (l, r) that satisfy the following conditions:

- $1 \leq l \leq r \leq N$
- $\sum_{i=l}^r \frac{p_i}{q_i}$ is an integer.

Input

The input is given from Standard Input in the following format:

N
$p_1 \ q_1$
$p_2 \ q_2$
$\vdots$
$p_N \ q_N$

- All values in the input are integers.
- $1 \leq N \leq 2 \times 10^5$
- $1 \leq p_i \leq q_i \leq 10^5 \ (1 \leq i \leq N)$

Output

Output the answer.

Examples

standard input	standard output
4 1 6 1 3 1 2 1 2	2
5 1 1 2 2 3 3 4 4 5 5	15
2 1 99999 99999 100000	0

Note

In the first example, there are two pairs (l, r) that satisfy the conditions: $(l, r) = (1, 3), (3, 4)$. In fact,

$$\bullet \sum_{i=1}^3 \frac{p_i}{q_i} = \frac{1}{6} + \frac{1}{3} + \frac{1}{2} = 1$$

$$\bullet \sum_{i=3}^4 \frac{p_i}{q_i} = \frac{1}{2} + \frac{1}{2} = 1$$

In the second example, all pairs of integers (l, r) with $1 \leq l \leq r \leq 5$ satisfy the condition.

In the third example, $\sum_{i=1}^2 \frac{p_i}{q_i} = \frac{1}{99999} + \frac{99999}{100000} = \frac{9999900001}{9999900000} = 1.00000000010000100001\dots$ is not an integer.