Problem A. Strange Device

Time limit:	4 seconds
Memory limit:	512 megabytes

Archaeologists have found a strange device that was probably created by some ancient civilization. The device has a screen that displays two integers: x and y.

After exploring the device the scientists have made a conclusion that the device is kind of a clock. It measures time t passed from some moment in the past, but shows it in some weird way, probably used by the creators of the device. If the time passed is an integer t, the two integers displayed are: $x = ((t + \lfloor \frac{t}{B} \rfloor) \bmod A)$, and $y = (t \bmod B)$. Here $\lfloor x \rfloor$ is the *floor function* — the greatest integer less or equal to x.

The archaeologists have studied the device and found out that its screen wasn't turned on all the time. Actually it was only working during n continuous periods of time, the i-th of them was from the moment l_i to the moment r_i, inclusive. Now the scientists would like to calculate how many distinct pairs (x, y) were shown by the device when its screen was on.

Two pairs (x_1, y_1) and (x_2, y_2) are distinct if $x_1 \neq x_2$ or $y_1 \neq y_2$.

Input

The first line contains three integers n, A, and B ($1 \leq n \leq 10^6$; $1 \leq A, B \leq 10^{18}$).

Each of the following n lines contains two integers l_i and r_i, the beginning and the end of the i-th segment $[l_i, r_i]$ when the device screen was turned on ($0 \leq l_i \leq r_i \leq 10^{18}$; $r_i < l_{i+1}$).

Output

Output the number of distinct pairs (x, y) that were shown on the device screen when it was turned on.

Scoring

Let $S = \sum_{i=1}^{n} (r_i - l_i + 1)$ and $L = \max_{i=1}^{n} (r_i - l_i + 1)$.

Subtask 1 (points: 10)

$S \leq 10^6$.

Subtask 2 (points: 5)

$n = 1$.

Subtask 3 (points: 5)

$A \cdot B \leq 10^6$.

Subtask 4 (points: 5)

$B = 1$.

Subtask 5 (points: 5)

$B \leq 3$.

Subtask 6 (points: 20)

$B \leq 10^6$.

Subtask 7 (points: 20)

$L \leq B$.

Subtask 8 (points: 30)

No additional constraint.

Examples

input	output
3 3 3 4 4 7 9 17 18	4
3 5 10 1 20 50 68 89 98	31
2 16 13 2 5 18 18	5

Note

In the first test, the device screen shows the following integers.

t	(x, y)
4	$(2, 1)$
7	$(0, 1)$
8	$(1, 2)$
9	$(0, 0)$
17	$(1, 2)$
18	$(0, 0)$

So there are four distinct pairs $(0, 0), (0, 1), (1, 2), (2, 1)$.