Cashier

Time Limit 2 seconds

Vasya has recently got a job as a cashier at a local store. His day at work is L minutes long. Vasya has already memorized n regular customers, the i-th of which comes after ti minutes after the beginning of the day, and his service consumes l_i minutes. It is guaranteed that no customer will arrive while Vasya is servicing another customer.

Vasya is a bit lazy, so he likes taking smoke breaks for a Minute each. Those breaks may go one after another, but Vasya must be present at work during all the time periods he must serve regular customers, otherwise one of them may alert his boss. What is the maximum number of breaks Vasya can take during the day?

Input

The first line contains three integer's n, L and a ($0 \leq n \leq 10^5$, $1 \leq L \leq 10^9$, $1 \leq a \leq L$).

The i-th of the next n lines contains two integers' t_i and l_i

($0 \leq t_i \leq L - 1$, $1 \leq l_i \leq L$). It is guaranteed that $t_i + l_i \leq t_{i+1}$ and $t_n + l_n \leq L$.

Output

Output one integer — the maximum number of breaks.

Examples

Sample Input	Sample Output
2 11 3 0 1 1 1 0 5 2	3 2

Note:

In the first sample, Vasya can take 3 breaks starting after 2, 5 and 8 minutes after the beginning of the day. In the second sample, Vasya can take 2 breaks starting after 0 and 2 minutes after the beginning of the day. In the third sample, Vasya cannot take any breaks.