

F. Tourist

time limit per test: 0.5 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Tourist walks along the X axis. He can choose either of two directions and any speed not exceeding V . He can also stand without moving anywhere. He knows from newspapers that at time t_1 in the point with coordinate x_1 an interesting event will occur, at time t_2 in the point with coordinate x_2 — another one, and so on up to (x_n, t_n) . Interesting events are short so we can assume they are immediate. Event i counts visited if at time t_i tourist was at point with coordinate x_i .

Write program tourist that will find maximum number of events tourist if:

- at the beginning (when time is equal to 0) tourist appears at point 0,
- tourist can choose initial point for himself.

Yes, you should answer on two similar but different questions.

Input

The first line of input contains single integer number N ($1 \leq N \leq 100000$) — number of interesting events. The following N lines contain two integers x_i and t_i — coordinate and time of the i -th event. The last line of the input contains integer V — maximum speed of the tourist. All x_i will be within range $-2 \cdot 10^8 \leq x_i \leq 2 \cdot 10^8$, all t_i will be between 1 and $2 \cdot 10^6$ inclusive. V will be positive and will not exceed 1000. The input may contain events that happen at the same time or in the same place but not in the same place at the same time.

Output

The only line of the output should contain two space-sepatated integers — maximum number of events tourist can visit in he starts moving from point 0 at time 0, and maximum number of events tourist can visit if he chooses the initial point for himself.

Examples

input
3 -1 1 42 7 40 8 2
output
1 2