

## D. Ratings and Reality Shows

time limit per test: 2 seconds  
memory limit per test: 256 megabytes  
input: standard input  
output: standard output

There are two main kinds of events in the life of top-model: fashion shows and photo shoots. Participating in any of these events affects the rating of appropriate top-model. After each photo shoot model's rating increases by  $a$  and after each fashion show decreases by  $b$  (designers do too many experiments nowadays). Moreover, sometimes top-models participate in talk shows. After participating in talk show model becomes more popular and increasing of her rating after photo shoots become  $c$  and decreasing of her rating after fashion show becomes  $d$ .

Izabella wants to participate in a talk show, but she wants to do it in such a way that her rating will never become negative. Help her to find a suitable moment for participating in the talk show.

Let's assume that model's career begins in moment 0. At that moment Izabella's rating was equal to  $start$ . If talk show happens in moment  $t$  it will affect all events in model's life in interval of time  $[t..t + len)$  (including  $t$  and not including  $t + len$ ), where  $len$  is duration of influence.

Izabella wants to participate in a talk show, but she wants to do it in such a way that her rating will not become negative before talk show or during period of influence of talk show. Help her to find a suitable moment for participating in the talk show.

### Input

In first line there are 7 positive integers  $n, a, b, c, d, start, len$  ( $1 \leq n \leq 3 \cdot 10^5$ ,  $0 \leq start \leq 10^9$ ,  $1 \leq a, b, c, d, len \leq 10^9$ ), where  $n$  is a number of fashion shows and photo shoots,  $a, b, c$  and  $d$  are rating changes described above,  $start$  is an initial rating of model and  $len$  is a duration of influence of talk show.

In next  $n$  lines descriptions of events are given. Each of those lines contains two integers  $t_i$  and  $q_i$  ( $1 \leq t_i \leq 10^9$ ,  $0 \leq q_i \leq 1$ ) — moment, in which event happens and type of this event. Type 0 corresponds to the fashion show and type 1 — to photo shoot.

Events are given in order of increasing  $t_i$ , all  $t_i$  are different.

### Output

Print one non-negative integer  $t$  — the moment of time in which talk show should happen to make Izabella's rating non-negative before talk show and during period of influence of talk show. If there are multiple answers print smallest of them. If there are no such moments, print  $-1$ .

### Examples

input
5 1 1 1 4 0 5 1 1 2 1 3 1 4 0 5 0
output
6

  

input
1 1 2 1 2 1 2 1 0
output

