

Xander Cage has a list of cities he can visit on his new top-secret mission. He represents each city as a tuple of (*latitude, longitude, height, points*). The values of *latitude*, *longitude*, and *height* are distinct across all cities.

We define a mission as a sequence of cities,  $c_1, c_2, c_3, \dots, c_k$ , that he visits. We define the total *points* of such a mission to be the sum of the *points* of all the cities in his mission list.

Being eccentric, he abides by the following rules on any mission:

- He can choose the number of cities he will visit (if any).
- He can start the mission from any city.
- He visits cities in order of strictly increasing *height*.
- The absolute difference in *latitude* between adjacent visited cities in his mission must be *at most*  $d_{lat}$ .
- The absolute difference in *longitude* between adjacent visited cities in his mission must be *at most*  $d_{long}$ .

Given  $d_{lat}$ ,  $d_{long}$ , and the definitions for  $n$  cities, find and print the maximum possible total *points* that Xander can earn on a mission.

### Input Format

The first line contains three space-separated integers describing the respective values of  $n$ ,  $d_{lat}$ , and  $d_{long}$ .

Each line  $i$  of the  $n$  subsequent lines contains four space-separated integers denoting the respective *latitude*, *longitude*, *height*, and *points* for a city.

### Constraints

- $1 \leq n \leq 2 \times 10^5$
- $1 \leq d_{lat}, d_{long} \leq 2 \times 10^5$
- $1 \leq \text{latitude}, \text{longitude}, \text{height} \leq 2 \times 10^5$
- $-2 \times 10^5 \leq \text{points} \leq 2 \times 10^5$

### Output Format

Print a single integer denoting the maximum possible *points* that Xander can earn on a mission.

### Sample Input 0

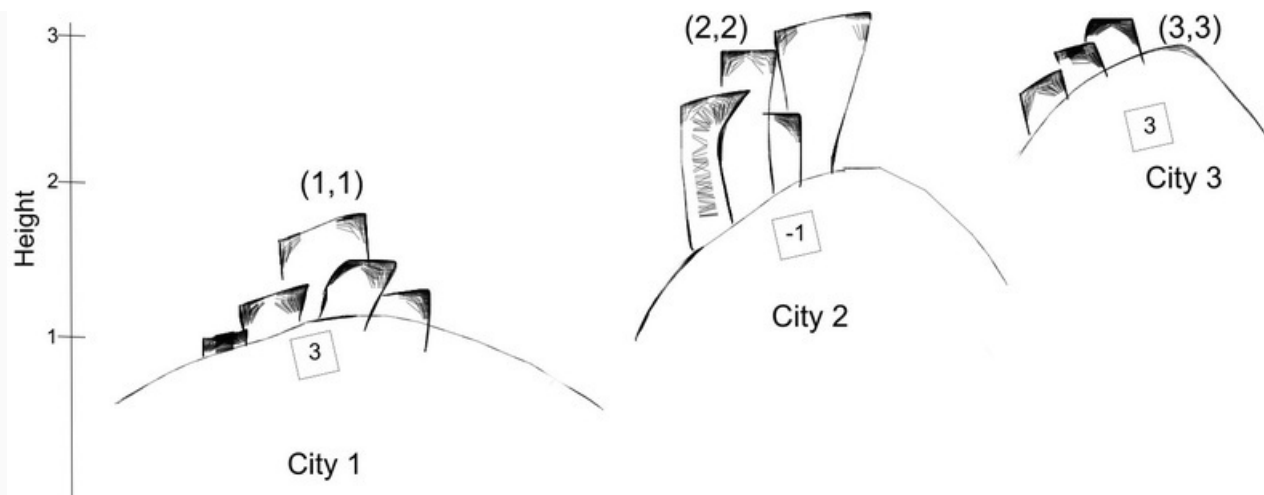
```
3 1 1
1 1 1 3
2 2 2 -1
3 3 3 3
```

### Sample Output 0

```
5
```

### Explanation 0

Xander can start at city **1**, then go to city **2**, and then go to city **3** for a maximum value of total *points* =  $3 + -1 + 3 = 5$



Note that he cannot go directly from city **1** to city **3** as that would violate his rules that the absolute difference in *latitude* between adjacent visited cities be  $\leq d_{lat}$  and the absolute difference in *longitude* between adjacent visited cities be  $\leq d_{long}$ . Because  $d_{lat} = 1$  and  $d_{long} = 1$ , he cannot directly travel between those cities.