

Your submission will run against only preliminary test cases. Full test cases will run at the end of the day.

Problem Statement

You're standing on a shore of a river. You'd like to reach the opposite shore.

The river can be described with two straight lines on the Cartesian plane, describing the shores. The shore you're standing on is Y=0 and another one is Y=H.

There are some rocks in the river. Each rock is described with its coordinates and the number of points you'll gain in case you step on this rock.

You can choose the starting position arbitrarily on the first shore. Then, you will make jumps. More precisely, you can jump to the position (X_2,Y_2) from the position (X_1,Y_1) in case $|Y_2-Y_1| \leq dH$, $|X_2-X_1| \leq dW$ and $Y_2>Y_1$. You can jump only on the rocks and the shores.

What is the maximal sum of scores of all the used rocks you can obtain so that you cross the river, i.e. get to the opposite shore?

Input Format

The first line contains four single space-separated integer numbers, N, H, dH, dW, denoting the number of rocks, the distance to the opposite shore, and the jump parameters dW and dH, respectively.

Each of the following N lines describe the rocks in the format Y_i X_i Z_i , where Y_i and X_i are the coordinates of the rock and Z_i is the number of points you'll gain in case you'll jump at this rock.

Constraints

$$1 \le N \le 10^5$$
 $1 \le H \le 10^7$
 $1 \le dH < H$
 $1 \le dW \le 10^5$
 $1 \le Y_i < H$
 $0 \le X_i \le 10^5$
 $-10^4 \le Z_i \le 10^4$

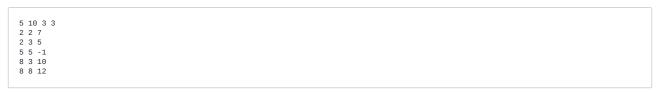
No two rocks share the same position.

There is always at least one way to cross the river.

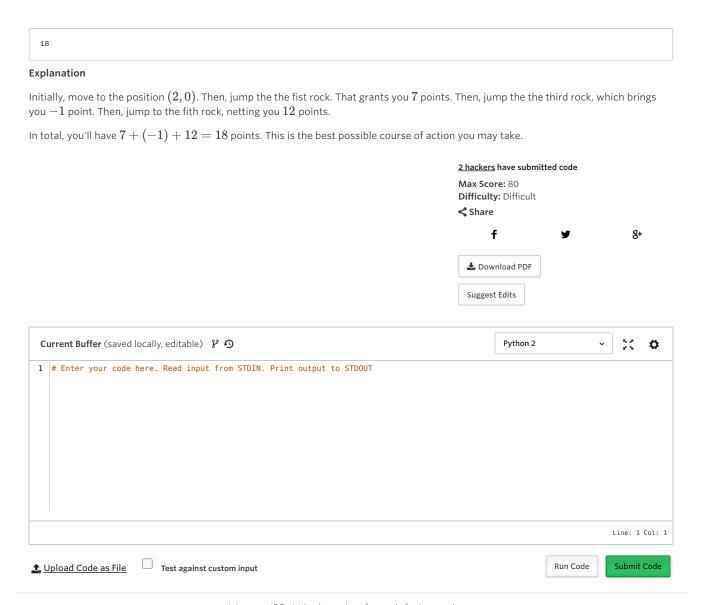
Output Format

Output the maximum possible score on a single line.

Sample Input



Sample Output



Join us on IRC at #hackerrank on freenode for hugs or bugs.

Contest Calendar | Blog | Scoring | Environment | FAQ | About Us | Support | Careers | Privacy Policy | Request a Feature