Garbage Collection

The north sea is littered with N pieces of garbage, numbered $1 \ldots N$. The i'th piece is at position (x_i, y_i) and has a weight of w_i. As part of a cleanup effort, all garbage within a rectangular area will be collected. This area has a width of W and a height of H, but its location has not yet been decided.

Determine the maximum total weight of garbage that will be collected if the cleanup area is positioned optimally.

Input

The first line contains the integers N, W and H.

The i'th of the next N lines contains the integers x_i, y_i and w_i.

Output

Your program should output a single integer: The maximum total weight of garbage that can be collected.

Constraints

- $1 \leq N \leq 10^5$.
- $1 \leq W, H \leq 10^9$.
- $0 \leq x_i, y_i < 10^9$ for all $i : 1 \leq i \leq N$.
- $1 \leq w_i \leq 10^9$ for all $i : 1 \leq i \leq N$.

Subtasks

1. (10 points) $N \leq 400$.
2. (12 points) $W, H, x_i, y_i < 2000$ for all $i : 1 \leq i \leq N$.
3. (15 points) $N \leq 2000$.
4. (22 points) $H = 10^9$.
5. (23 points) $W, H, x_i, y_i < 10^5$ for all $i : 1 \leq i \leq N$.
6. (18 points) *No additional constraints.*

Example

Input

```
5 3 2
3 1 10
2 1 5
1 0 5
0 2 10
1 3 5
```

Output

20

Explanation

The optimal area is the one covering the garbage at $(3, 1)$, $(2, 1)$ and $(1, 0)$ with a total weight of $10 + 5 + 5 = 20$.

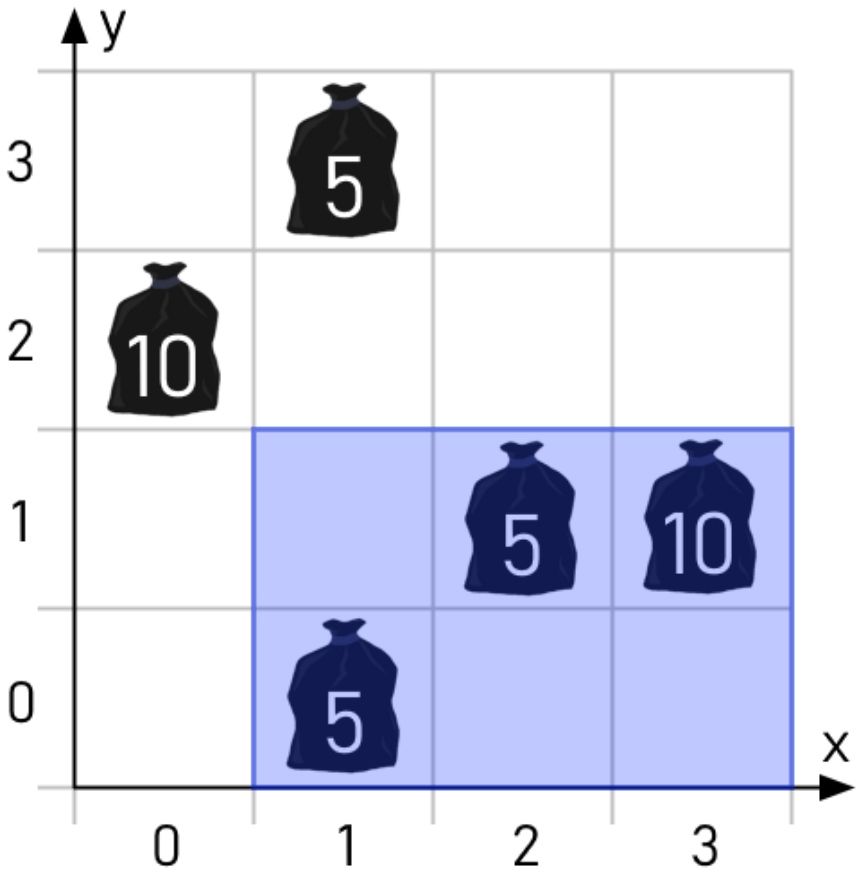

Figure 1: example