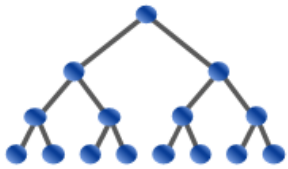

USACO 2023 December Contest, Silver
Problem 1. Bovine Acrobatics

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Time Remaining: **3 hrs, 50 min, 36 sec**

Submitted; Results below show the outcome for each judge test case

* 1 3.4mb 2ms	* 2 3.4mb 1ms	* 3 3.6mb 2ms	* 4 3.6mb 2ms	* 5 3.6mb 2ms	* 6 6.5mb 31ms	* 7 6.5mb 31ms	* 8 10.3mb 56ms	* 9 10.3mb 55ms	* 10 10.3mb 55ms	* 11 10.3mb 48ms	* 12 10.3mb 72ms
* 13 10.3mb 87ms	* 14 10.3mb 85ms	* 15 10.3mb 87ms	* 16 10.3mb 86ms	* 17 10.3mb 77ms							

English (en)

Farmer John has decided to make his cows do some acrobatics! First, FJ weighs his cows and finds that they have N ($1 \le N \le 2 \cdot 10^5$) distinct weights. In particular, for each $i \in [1, N]$, a_i of his cows have a weight of w_i ($1 \le a_i \le 10^9, 1 \le w_i \le 10^9$).

His most popular stunt involves the cows forming *balanced towers*. A *tower* is a sequence of cows where each cow is stacked on top of the next. A tower is *balanced* if every cow with a cow directly above it has weight at least K ($1 \le K \le 10^9$) greater than the weight of the cow directly above it. Any cow can be part of at most one balanced tower.

If FJ wants to create at most M ($1 \le M \le 10^9$) balanced towers of cows, at most how many cows can be part of some tower?

INPUT FORMAT (pipe stdin):

The first line contains three space-separated integers, N, M, and K.

The next N lines contain two space-separated integers, w_i and a_i. It is guaranteed that all w_i are distinct.

OUTPUT FORMAT (pipe stdout):

Output the maximum number of cows in balanced towers if FJ helps the cows form towers optimally.

SAMPLE INPUT:

```
3 5 2
9 4
7 6
5 5
```

SAMPLE OUTPUT:

```
14
```

FJ can create four balanced towers with cows of weights 5, 7, and 9, and one balanced tower with cows of weights 5 and 7.

SAMPLE INPUT:

```
3 5 3
5 5
7 6
9 4
```

SAMPLE OUTPUT:

```
9
```

FJ can create four balanced towers with cows of weights 5 and 9, and one balanced tower with a cow of weight 7. Alternatively, he can create four balanced towers with cows of weights 5 and 9, and one balanced tower with a cow of weight 5.

SCORING:

- In inputs 3-5, $M \le 5000$ and the total number of cows does not exceed 5000.
- In inputs 6-11, the total number of cows does not exceed $2 \cdot 10^5$.
- Inputs 12-17 have no additional constraints.

Problem credits: Eric Hsu