E - Distribute Bunnies   Editorial (/contests/abc434/tasks/abc434_e/editorial)   🔴 / 🇬🇧

Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 500 points

Problem Statement

There are N rabbits numbered 1 to N on a number line. Rabbit i is at coordinate X_i.
Multiple rabbits may be at the same coordinate.

Each rabbit has a parameter called **jumping power**, and rabbit i has jumping power R_i.

Now, all rabbits will jump exactly once. When a rabbit at coordinate x with jumping power r
jumps, it moves to coordinate $x + r$ or coordinate $x - r$.

If you can freely choose which coordinate each rabbit jumps to, find the maximum possible
number of distinct coordinates where rabbits are present after all rabbits have jumped.

Constraints

- $1 \le N \le 2 \times 10^5$
- $-10^9 \le X_i \le 10^9$
- $1 \le R_i \le 10^9$
- All input values are integers.

Input

The input is given from Standard Input in the following format:

```
N
X_1  R_1
X_2  R_2
⋮
X_N  R_N
```

Output

Output the maximum possible number of distinct coordinates where rabbits are present after jumping.

Sample Input 1 [Copy]

```
3
4 1
2 3
4 5
```

Sample Output 1 [Copy]

```
3
```

If each rabbit moves as shown below, it is possible to achieve 3 as the number of distinct coordinates where rabbits are present after jumping, and this is the maximum possible.

- Rabbit 1 moves to $4 - 1 = 3$.
- Rabbit 2 moves to $2 + 3 = 5$.
- Rabbit 3 moves to $4 - 5 = -1$.

Sample Input 2 [Copy]

```
6
2 1
3 2
6 1
5 2
4 3
4 1
```

Sample Output 2 [Copy]

```
4
```

If each rabbit moves as shown below, it is possible to achieve 4 as the number of distinct coordinates where rabbits are present after jumping, and this is the maximum possible.

- Rabbit 1 moves to $2 - 1 = 1$.
- Rabbit 2 moves to $3 + 2 = 5$.
- Rabbit 3 moves to $6 + 1 = 7$.
- Rabbit 4 moves to $5 + 2 = 7$.
- Rabbit 5 moves to $4 - 3 = 1$.
- Rabbit 6 moves to $4 - 1 = 3$.

Sample Input 3 Copy

Copy
```
10
1000000000 1000000000
1000000000 1
-1000000000 1000000000
-1000000000 1
0 1
2 1
1 2
4 1
3 2
4 3
```

Sample Output 3 Copy

Copy
```
9
```

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2026-01-02 (Fri)
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