**4. Lee-Fi**

**Description**

Professor Lee just invented a new mobile internet system, which he named “Lee-Fi.” He made routers (routers are machines which provide internet connections) providing “Lee-Fi” connections. These routers are named . Then, he placed each router in position .

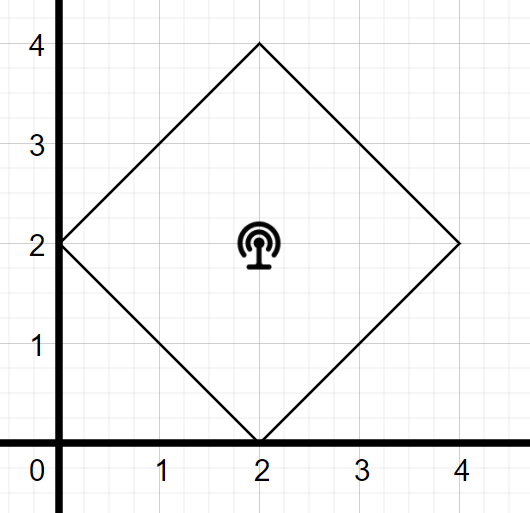
“Lee-Fi” has some special properties.

1. The altitude of users/routers doesn’t matter. So, we can consider the world as a 2D-plane.

2. Each router can serve the internet up to distance , measured in **‘manhattan distance’**. ()

3. A single user can connect to multiple routers.

For example, think about a router placed on and service distance . The area user can connect to this router is drawn as below.



Your task is to calculate the total area a user can connect to all routers.

**Constraints**

**All are even integers. Therefore, final answer (total area) is guaranteed to be natural number or zero. That is, you don’t have to worry about decimal places.**

**Input**

On the first line, the number of routers is given.

On the next lines, information of routers is given. Specifically, on the -th line, three integers are given.(separated by space), which is information of router .

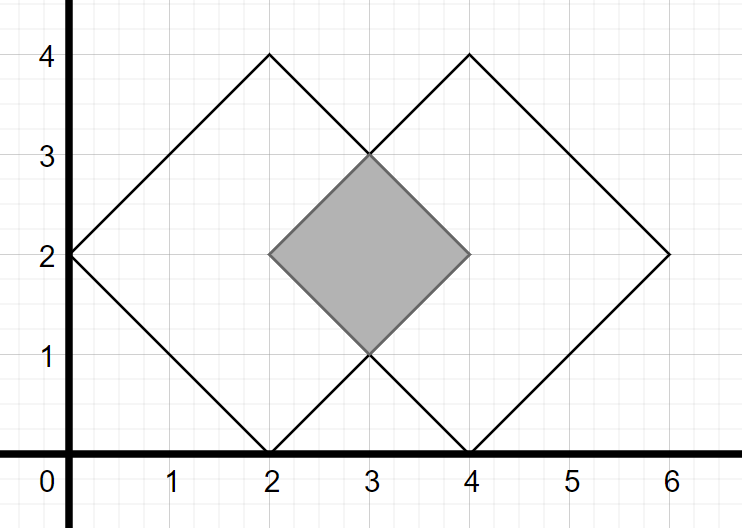
**Output**

Print one integer, which is the total area where a user can connect to all routers. It is guaranteed that this value is a natural number or zero.

**Example**

|  |  |
| --- | --- |
| **Input** | **Output** |
| 2  2 2 2  4 2 2 | 2 |
| 2  0 0 4  4 4 4 | 0 |
| 2  0 0 4  2 2 2 | 4 |
| 3  0 0 2  0 0 4  2 0 2 | 2 |
| 3  -2 0 100  0 0 100  0 0 2 | 8 |

Diagram of first example.



Connectable area of two routers is drawn as large squares. A user can connect to both routers if he/she is in gray area. Therefore, the answer is 2.