

## 7193 Maximum Spanning Forest

In graph theory, a **maximum spanning tree** is a subgraph that is a tree and connects all the vertices with maximum weight sum. And a **maximum spanning forest** is the union of maximum spanning trees of each connected component in the graph.

A big undirected graph  $G = (V, E)$  is given, which  $V = \{(x, y) : 1 \leq x, y \leq 2,000,000,000; x, y \in \mathbb{Z}\}$  and  $E = \{\}$  initially. Your task is to write a program that support operation  $x_1, y_1, x_2, y_2, c$ :

- First, add some edges in  $G$ . You should add an edge between  $(a_1, b_1)$  and  $(a_2, b_2)$  with weight  $c$  if  $x_1 \leq a_1, a_2 \leq x_2, y_1 \leq b_1, b_2 \leq y_2$  and  $|a_1 - a_2| + |b_1 - b_2| = 1$ .
- Second, calculate the maximum spanning forest of  $G$  after edges added.

### Input

The first line of input contains an integer  $T$  indicating the total number of test cases.

The first line of each test case has an integer  $n$ , indicating the number of operations. The  $n$  lines that follow describe the operations. Each of these lines has 5 integers  $x_1, y_1, x_2, y_2, c$ , separated by a single space.

Limitations:

- $1 \leq T \leq 500$
- $1 \leq n \leq 100$
- $1 \leq x_1 \leq x_2 \leq 2,000,000,000$
- $1 \leq y_1 \leq y_2 \leq 2,000,000,000$
- $1 \leq c \leq 1,000,000,000$
- There are at most 20 testcases with  $n > 50$ .

### Output

For each operation, output a number in a line that indicates the weight of maximum spanning forest  $\text{mod } 10^9 + 7$ .

### Sample Input

```
2
3
2 2 3 3 1
1 2 2 3 2
1 1 1 3 5
1
1 1 2000000000 2000000000 1000000000
```

**Sample Output**

3

8

16

999998642