To Infinity and Beyond

Holly Bee lives at location $(0,0,0)$ in a *3D* Cartesian space and wants to go to Infinity, a tea shop franchise where each shop is located at some (x_i, y_i, z_i). To get there, she must perform a series of *moves* in the following forms:

- *Walk*. This only applies when Holly is on the ground (i.e., when $z = 0$). If Holly is at $(x, y, 0)$, then she can go to either $(x+1, y, 0)$ or $(x, y+1, 0)$ in one move.
- *Fly*. If Holly is at (x, y, z), then she can go to (X, Y, Z) as long as $x < X$, $y < Y$, and $z < Z$.

Note that Holly Bee *must* be on a lattice point after each move.

Holly Bee has t Infinity shops near her meadow. She knows that there are many paths she can take to reach each Infinity shop, but she wants to know the *exact* number of paths she can take to each shop. Given the *3D* coordinates for t Infinity shops, find and print the number of ways for Holly Bee to get to each shop on a new line. Recall that Holly Bee always starts at location $(0,0,0)$.

Input Format

The first line contains an integer, t, denoting the number of Infinity shops.
Each line i of the t subsequent lines describes the location of an Infinity tea shop in the form of three space-separated integers denoting the respective x_i, y_i, and z_i values of the shop's location.

Constraints

For 20% of the maximum score:

- $1 \le t \le 50$
- $x_i, y_i, z_i \ge 1$
- $x_i \times y_i \le 10^6$
- $z_i \le 10^{12}$

For the remaining 80% the maximum score:

- $1 \le t \le 5$
- $x_i, y_i, z_i \ge 1$
- $x_i \times y_i \le 10^{12}$
- $z_i \le 10^{12}$

Output Format

For each Infinity tea shop location i, print the number of different paths from $(0,0,0)$ to (x_i, y_i, z_i) using some sequence of *walk* and *fly* moves described above. As this number can be very large, your answer must be modulo $(10^9 + 7)$.

Sample Input

```
4
3 1 4
1 4 3
2 2 2
11 24 69
```

Sample Output

```
3
4
6
909000199
```

Explanation

There are $n = 4$ Infinity tea shops near Holly Bee's meadow. For the purposes of this explanation, $\rightarrow$ represents *walk* and $\Rightarrow$ represents *fly*.

For the first tea shop, there are three different paths to location $(3, 1, 4)$:

1. $(0,0,0) \rightarrow (1,0,0) \rightarrow (2,0,0) \Rightarrow (3,1,4)$
2. $(0,0,0) \rightarrow (1,0,0) \Rightarrow (3,1,4)$
3. $(0,0,0) \Rightarrow (3,1,4)$

Thus, we print $3 \,\%\, (10^9 + 7) = 3$ on a new line as our first line of output. Note that something like $(0,0,0) \rightarrow (0,1,0) \Rightarrow (3,1,4)$ would *not* be a valid sequence of moves because the fly movement does not satisfy the condition that $x < X$.

For the third tea shop, there are six different paths to location $(2, 2, 2)$:

$$
\begin{aligned}
&(0,0,0) \Rightarrow (2,2,2) \\
&(0,0,0) \rightarrow (0,1,0) \Rightarrow (2,2,2) \\
&(0,0,0) \rightarrow (1,0,0) \Rightarrow (2,2,2) \\
&(0,0,0) \rightarrow (0,1,0) \rightarrow (1,1,0) \Rightarrow (2,2,2) \\
&(0,0,0) \rightarrow (1,0,0) \rightarrow (1,1,0) \Rightarrow (2,2,2) \\
&(0,0,0) \Rightarrow (1,1,1) \Rightarrow (2,2,2)
\end{aligned}
$$

Thus, we print $6 \,\%\, (10^9 + 7) = 6$ on a new line as our third line of output.