Cyclic Quadruples



You need to count the number of quadruples of integers (X_1, X_2, X_3, X_4) , such that $L_i \le X_i \le R_i$ for i = 1, 2, 3, 4 and $X_1 \ne X_2, X_2 \ne X_3, X_3 \ne X_4, X_4 \ne X_1$.

The answer could be quite large.

Hence you should output it modulo $(10^9 + 7)$.

That is, you need to find the remainder of the answer by $(10^9 + 7)$.

Input Format

The first line of the input contains an integer T denoting the number of test cases. The description of T test cases follows. The only line of each test case contains 8 space-separated integers L_1 , R_1 , L_2 , R_2 , L_3 , R_3 , L_4 , R_4 , in order.

Output Format

For each test case, output a single line containing the number of required quadruples modulo $(10^9 + 7)$.

Constraints

 $1 \le T \le 1000$ $1 \le L_i \le R_i \le 10^9$

Sample Input

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

Sample Output

```
8
10
23
6
5
```

Explanation

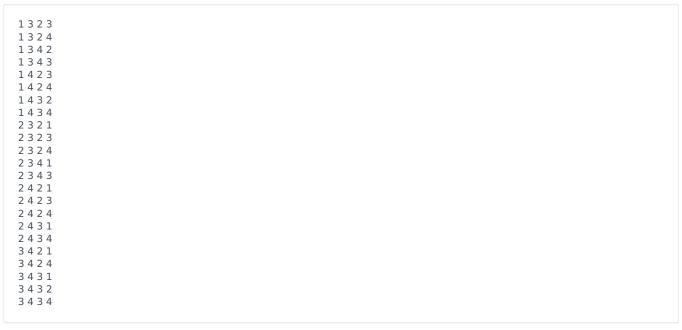
Example case 1. All quadruples in this case are

```
1214
1314
1324
2124
2314
2324
3124
3214
```

Example case 2. All quadruples in this case are

```
1213
1214
1234
2123
2124
2134
3124
3134
3214
```

Example case 3. All quadruples in this case are



Example case 4. All quadruples in this case are

```
1234
1323
1324
1423
1424
1434
```

Example case 5. All quadruples in this case are

```
3121
3131
3132
3231
3232
```