# **Electrons and Positrons**



There are x electrons and y positrons on a two-dimensional plane. They can only move parallel to the rectangular coordinate axis at a speed of 1 unit per second.

You assign a direction of movement, *Up*, *Down*, *Left*, or *Right*, to each individual particle before they start moving. Once movement starts, an electron colliding with a positron has two options:

- Ignore the positron and continue moving.
- React with the positron and vanish, taking the positron along with it.

You are given q queries, where each query consists of the set of cartesian coordinates for all the electrons and positrons on a plane. For each query, assign a direction to each individual particle such that when they start moving at time t=0, the number of vanished particles is maximized at time  $t=\infty$ . Then print the maximum possible number of electrons that chose to react and vanish on a new line.

**Note:** Multiple electrons and positrons may initially be colliding at t=0.

# **Input Format**

The first line contains an integer, q, denoting the number of queries. The subsequent lines describe each query in the following format:

- 1. The first line contains two space-separated integers describing the respective values of x (the number of electrons) and y (the number of positrons).
- 2. Next, each line i of the x subsequent lines contains two space-separated integers describing the the cartesian coordinate of electron  $x_i$ .
- 3. Next, each line j of the y subsequent lines contains two space-separated integers describing the cartesian coordinate of positron  $y_j$ .

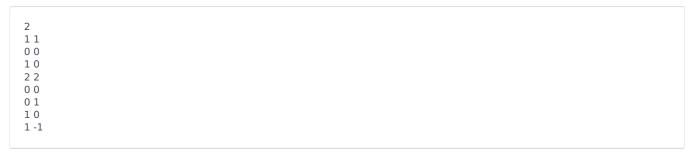
# Constraints

- $1 \le q \le 5$
- $2 \le x + y \le 2000$
- $-10^9 \le x_i, \ y_i \le 10^9$

# **Output Format**

For each query, print an integer denoting the maximum number of electrons that choose to react and vanish with a positron as time approaches  $\infty$ .

### Sample Input 0





# **Explanation 0**

We perform the following  ${\it q}=2$  queries:

- 1. We have an electron at (0,0) and a positron at (1,0). We can move the electron in the *Right* direction and the positron in the *Left* direction to ensure that they collide and the electron chooses to react and vanish itself and the positron. Because one vanish reaction occured, we print 1 on a new line
- 2. We have two electrons located at (0,0) and (0,1), and two positrons located at (1,0) and (1,-1). We can assign the *Down* direction to both electrons and the *Left* direction to both positrons. Once time starts, both electrons will eventually collide with a positron, and both of them will choose to react and vanish. Because two react and vanishes occur, we print 2 on a new line.