Kings on an Infinite Chessboard

Given an infinite chess board and a starting position (r1, c1) find how many moves a traditional chess king will need to move to another position (r2, c2). In case you do not know how a chess king moves, a traditional chess king can go to any of its 8 adjacent cells in a single move as shown in the picture below:

[illegible] (r1, c1) [illegible], [illegible] (r2, c2) [illegible], [illegible]

Kings move in chess board

Input

The first line of input file contains the number of test cases T (T ≤ 50), then T lines follow. Each line contains 4 integers: r1, c1, r2, c2, where, (r1, c1) is the co-ordinate of the starting cell and (r2, c2) is the co-ordinate of the destination cell (0 ≤ r1, c1, r2, c2 ≤ 1000).

[illegible] T (T≤50), [illegible] T [illegible] 4[illegible]: r1,c1,r2,c2, [illegible], (r1,c1) [illegible] (r2, c2) [illegible] (0 ≤ r1, c1, r2, c2 ≤ 1000).

Output

For each case, print a line containing “Case X: Y”, without the quotes, where X is the test case number starting from 1, and Y is the number of moves a traditional chess king will need to reach (r2, c2) from (r1, c1). Check sample input and output sections for more details.

[illegible] “Case X: Y” [illegible], [illegible] X [illegible] 1 [illegible] [illegible] Y [illegible] (r1, c1) [illegible] (r2, c2) [illegible]

Example

Input:

3
1 1 3 3
1 2 6 9
42 468 335 501

Output:

Case 1: 2
Case 2: 7
Case 3: 293