1077 – How Many Points?

Given two points **A** and **B** on the **X-Y** plane, output the number of the lattice points on the segment **AB**. Note that **A** and **B** are also lattice point. Those who are confused with the definition of lattice point, lattice points are those points which have both **x** and **y** co-ordinate as integer.

For example, for **A (3, 3)** and **B (-1, -1)** the output is **5**. The points are: **(-1, -1), (0, 0), (1, 1), (2, 2) and (3, 3)**.

Input

Input starts with an integer **T (≤ 125)**, denoting the number of test cases.

Each case contains four integers, $\mathbf{A_x}$, $\mathbf{A_y}$, $\mathbf{B_x}$ and $\mathbf{B_y}$. Each of them will be fit into a **32** bit signed integer.

Output

For each test case, print the case number and the number of lattice points between **AB**.

Sample Input	Output for Sample Input
2 3 3 -1 -1 0 0 5 2	Case 1: 5 Case 2: 2