

6994 Robot Movement

Consider a $K \times K$ square made of K^2 unit squares. The center of the lowermost, leftmost unit square has coordinates $(0,0)$ and the center of the rightmost, uppermost unit square has coordinates $((K - 1), (K - 1))$. Consider a robot that can move only in a straight line and cannot change its direction once it starts moving. If the robot starts from the center (p,q) of a unit square to retrieve an object from the center (r,s) of another unit square, what is the number of unit squares it has to pass through? Note that touching any boundary point on a unit square also counts as passing through that unit square.

Input

The first line contains the number of test cases N ($0 < N \leq 3$).

For each test case, the first line contains K ($1 < K \leq 10000$), the dimension of the grid. The second line contains the x and y coordinates (in that order, separated by one or more spaces) of the starting point of the robot. The third line contains the x and y coordinates (in that order, separated by one or more spaces) of the destination point of the robot.

Output

For each test case, print the case number, followed by a colon, followed by a single space, followed by a single integer indicating the number of unit squares passed.

Sample Input

```
3
8
0 7
3 0
8
1 0
7 1
8
3 3
7 7
```

Sample Output

```
Case 1: 12
Case 2: 8
Case 3: 13
```