

H: Chess Paladin

Garry enjoys chess and has an idea for a new chess piece: the paladin! The paladin moves similarly to a knight, but can also move K spaces vertically or horizontally. (In chess, a knight moves in an L-shaped pattern, as shown in the diagram to the right. The knight, at square S, can move to any of the squares marked "1" in one move.)

		1		1	
1					1
			S		
1					1
	1			1	

Garry is curious as to how quickly his new chess piece can move around the board, so he has given you the task of figuring out the minimum number of moves required for a paladin at point (A, B) to move to point (C, D) on an NxN chess board. In the diagram shown on the right, for K = 2, starting at square 1,1, the paladin can reach all the squares marked with a "1" on its first move, cells marked with "2" on the second move, and so on. Unlike standard chess, he wants the board to be really large.

S	1	1	2	2	3	3	4
1	2	1	2	2	3	3	4
1	1	2	2	2	3	3	4
2	2	2	2	3	3	3	4
2	2	2	3	3	3	4	4
3	3	3	3	3	4	4	4
3	3	3	3	4	4	4	5
4	4	4	4	4	4	5	5

Input

Input begins with the number of test cases T ($1 \leq T \leq 10$). Each test case will contain the following values, each separated by a space: the size of the board N ($1 < N \leq 500$), the value of K ($0 \leq K < N$), the row and column coordinates A,B where the paladin is to start ($1 \leq A, B \leq N$), and the row and column coordinates C, D where the paladin is to finish ($1 \leq C, D \leq N$).

Output

For each test case, print out the minimum number of moves it takes the paladin to move from (A,B) to (C,D) on an NxN chess board. Your output should follow the exact format shown in the sample output below.

Sample Input

```
2
8 2 1 1 8 8
2 1 1 1 2 2
```

Sample Output

```
5
2
```