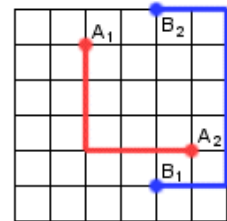


Problem B

Connect

When constructing electric circuits one has to connect pairs of points using wire, preferable as short as possible. In this problem we have an empty circuit board of size $N \times M$ where we want to connect the two points A_1 and A_2 with each other using one wire, and the two points B_1 and B_2 with each other using another wire. The wires must go along the horizontal and vertical edges of the grid (see figure), and the two wires may not share a common vertex. Determine the minimum length of wire needed to do so. The wire may not go outside the circuit board.



Input specifications

The first line contains two integers, N ($2 \leq N \leq 100$) and M ($2 \leq M \leq 100$), the grid size of the circuit board.

Then follows four lines containing the coordinates for the points A_1 , A_2 , B_1 and B_2 , respectively. Each coordinate pair will be described using two integers and will correspond to an intersection point in the grid. The first coordinate will be between 0 and N inclusive and the second coordinate between 0 and M inclusive. All coordinate pairs will be unique.

Output specifications

A single line containing the minimum length of wire needed to connect the points, or "IMPOSSIBLE" if it's not possible to do so.

Sample input 1	Sample output 1
6 6 2 1 5 4 4 0 4 5	15

Sample input 2	Sample output 2
6 3 2 3 4 0 0 2 6 1	IMPOSSIBLE