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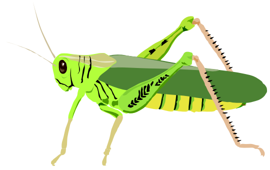
CTU Open Contest 2012

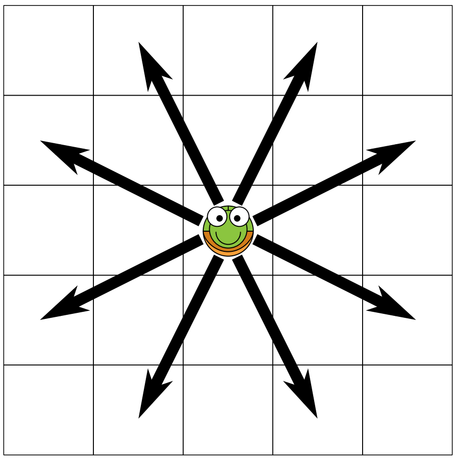
Gregory the Grasshopper



`grasshop.c`, `grasshop.cpp`, `Grasshop.java`

Gregory is a grasshopper. His favourite food are clover leafs — he can simply never have enough of them. Whenever he spots such a leaf, he wants to eat it as quickly as possible. Gregory is also lazy, so he wants to move to the leaf with minimal effort. Your task is to help him to find the shortest way to a clover leaf.

For simplicity, we will assume that Gregory lives on a rectangular grid consisting of unit squares. As a grasshopper, he prefers to move by jumping (or, more exactly, *hopping*) from one square to the other. Each hop takes him to a square that is in the adjacent row or column in one direction, and two columns or rows away in the other direction. So, his hops resemble the moves of a knight on a chessboard.



Input Specification

The input consists of several test cases, each of them specified by six integer numbers on one line: R, C, G_R, G_C, L_R, and L_C. R and C specify the size of the grid in unit squares, $1 \leq R, C \leq 100$. Gregory cannot hop outside a rectangle of this size, because it would be too dangerous. The values of G_R, G_C are the coordinates of the square that Gregory is standing on, and L_R, L_C are the coordinates of the square with the delicious clover leaf. ($1 \leq G_R, L_R \leq R$; $1 \leq G_C, L_C \leq C$)

Output Specification

For each test case, print one integer number — the minimal number of hops that Gregory needs to reach the square with his beloved delicacy. If it is not possible to reach that square at all, print the word “`impossible`” instead.

Sample Input

```
10 10 10 10 1 1
2 2 1 1 1 2
8 8 1 1 1 2
```

Output for Sample Input

```
6
impossible
3
```