Problem D. Distance in Crosses

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	512 mebibytes

Consider a plane partitioned into squares with side 1. Let us choose a square and draw coordinate axes from its center parallel to its sides.

Next, let us draw a cross consisting of the central square and its four neighbors: the squares which share a side with it. Then pick the square centered at point $(2, 1)$ and draw another cross consisting of this square and its four neighbors. Tile the whole plane with such crosses: their centers will be in points with coordinates $(2i + j, i - 2j)$ for all possible integer i and j. The tiling is shown alongside the examples.

Emilia stands at the center of some square on the plane. In one step, she can move from a square to one of its neighbors. If a step brings her to a different cross of the tiling, she has to pay one coin for this step. Steps such that Emilia remains in the same cross are free.

Let the *distance in crosses* between two squares A and B be the minimum possible number of coins that Emilia has to pay in order to get from A to B. You are given the coordinates of two points on the plane: center of the initial square and center of the target square. Find the distance in crosses between them.

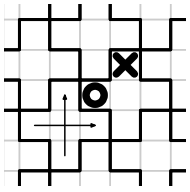
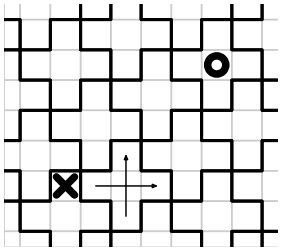
Input

The first line contains two integers x_1 and y_1, the coordinates of the initial square. The second line contains two integers x_2 and y_2, the coordinates of the destination square. All given coordinates do not exceed 10^9 by absolute value.

Output

Print one integer: the distance in crosses from the initial square to the destination square.

Examples

standard input	standard output	Notes
1 1 2 2	0	
3 4 -2 0	4	
4 3 0 -2	3