Swap two knights

Cost: 16 | Solved: 14

Memory limit: 256 MBs

Time limit: 1 s

Input: standard input

Output: standard output

Task:

Two knights are staying in an 8*8 chessboard.

Swap their positions.

These two knights can't stay in one cell simultaneously.

It is known that at the start the first knight makes a move, and then both go by turns.

Input:

The first line contains coordinates (x_1, y_1) of the cell the first knight stands in.

The second line contains coordinates (x_2, y_2) of the cell the second knight stands in.

Output:

The first line should contain the minimal number of turns ***k*.**

The next ***k*** lines should contain three numbers each – firstly – the number of the knight making his move (either 1 or 2), secondly – the *x* coordinate of the move, thirdly – the *y* coordinate of the move.

If it's impossible to swap the knights, write -1.

Example:

Input	Output

3 2 1 1	6 1 2 4 2 2 3 1 3 2 2 4 4 1 1 1 2 3 2
8 6 8 1	6 1 7 4 2 7 3 1 6 2 2 6 5 1 8 1 2 8 6