CALIFORNIA STATE UNIVERSITY, LOS ANGELES
PROGFEST 2013

Problem 8

HEX PUZZLE

The hex puzzle board has seven tile positions and each tile position has six edge positions. The edge positions are denoted by the characters a, b, c, d, e and f in clockwise direction with edge a at the top. Each edge position has an integer label chosen from {1,2,3,4,5,6},and labels are not repeated on a tile (i.e., traversing a tile gives a permutation of {1,2,3,4,5,6}.)

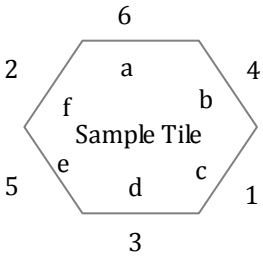
The objective is to place all seven tiles on the board, as shown in the next page, so that adjacent edge positions have the same number labels. For example, the tile in board position 1 should have the same number label on edge d as the number label on edge a of the tile in board position 7.

Input will consist of exactly seven lines of data, one line for each tile. The order of the input determines the tile number. Each line will contain six integer labels for the six edges of the tile. The edge labels are given starting at position a and in clockwise order.

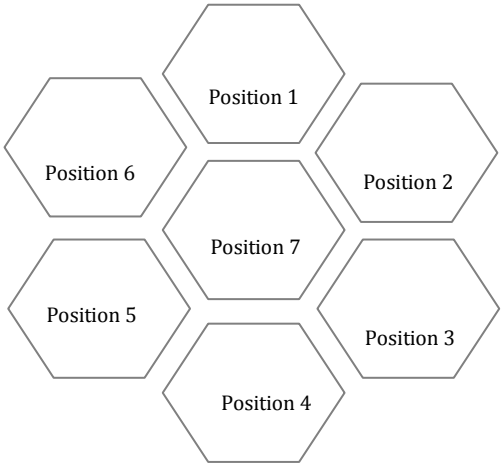
As output, for each tile, print out the board position, and the labels of the tile in order.

You can assume that the input given will have a solution.

Sample Input Tile 1, with given rotation



Board graphical representation



Sample Input

6 4 1 3 5 2
2 1 6 3 4 5
3 5 6 1 4 2
2 3 1 6 5 4
6 3 4 5 1 2
6 4 3 1 2 5
4 5 6 3 1 2

Sample Output

Tile 1 position: 6,rotation: 5 2 6 4 1 3
Tile 2 position: 5,rotation: 4 5 2 1 6 3
Tile 3 position: 7,rotation: 1 4 2 3 5 6
Tile 4 position: 4,rotation: 5 2 6 4 1 3
Tile 5 position: 3,rotation: 6 3 4 5 1 2
Tile 6 position: 2,rotation: 1 2 5 6 4 3
Tile 7 position: 1,rotation: 5 6 3 1 2 4