|  |  |  |  |
| --- | --- | --- | --- |
| 0 | 2 | 3 | 1 |
| 1 | 2 | 3 | 3 |
| 1 | 3 | 0 | 2 |
| 1 | 2 | 0 | 1 |

**PROBLEM**: Given an array containing the digits 0 – 3 to direct a walker along a path, find the ending location of the walker. This problem will use a 4x4 array. In the diagram below, location (1, 1) is at the upper left hand corner of the array and contains a 0. If the walker encounters a 0, he moves to the right. If he encounters a 1, he moves to the left. If he encounters a 2, he moves up. If he encounters a 3 he moves down. After leaving a cell, the cell value increments by 1. A 3 becomes a 0. If a cell value directs a walker to a boundary of the array, he is transported to the opposite side of the array. Ex: a walker at (2, 4) who must move right would move to (2, 1).

**INPUT**: There will be 6 lines of input. The first line will contain 4 numerical character strings that will give the array values. If the string has fewer than 4 characters, add 0’s on the left side of the string. The first string will fill the top row of the array. The 0 in that top row is at location (1, 1). The next 5 lines of input will each have 2 integers giving the ordered pair starting location (row, col). Always revert back to the original array to start each walk.

**OUTPUT**: For each line of input (2 - 6) print the final location of the walker in row/col order after 6 moves.

**SAMPLE INPUT** **SAMPLE OUTPUT**

1. 231, 1233, 1302, 1201

2. 1, 1

3. 2, 4

4. 3, 2

5. 4, 4

6. 2, 2

1. 2, 2

2. 3, 3

3. 3, 4

4. 4, 4

5. 2, 2

TEST DATA

TEST INPUT TEST OUTPUT

1. 31, 203, 1, 3120 1. 4, 1

2. 3, 4 2. 3, 3

3. 1, 1 3. 3, 2

4. 3, 2 4. 2, 1

5. 2, 3 5. 2, 4

6. 4, 4