MAYnipulation - LMI May Puzzle Test

14th and 15th May, 2011

Puzzles by: Murat Can Tonta

Submission Link : http://logicmastersindia.com/M201105P

About the Test:

The theme of this test is diagram manipulation; such as rotation, superimposition and the like. Many of the puzzles also contain some form of symmetry.

Thanks to:

Serkan Yürekli, Bram de Laat and Fred Coughlin for test-solving and advice.

LMI team for hosting and help with booklets.

PuzzlePicnic for allowing the use of their graphics.

Points Table

Puzzle Type	**Points**
Negative Masyu	10 + 10
Deformable Kropki	35 + 90
First Seen Corral Rotator	35 + 40
Symmetric Loop	20 + 30
Ambigram Skyscrapers	115
Spiral Galaxies	40 + 85
The Persistence of Memory	20 + 40
Disjointed Tapa	60
4x4 Diamonds	4 X 22
Superimposed Loop	2 X 40
Clone Battle	90
Total	**888**
+ Time Bonus per minute (if all correct)	**8**
Total Time	**101 minutes**

Some puzzle ideas are obtained as follows:

Ambigram Skyscrapers from Cihan Altay's Ambigram Sudoku.

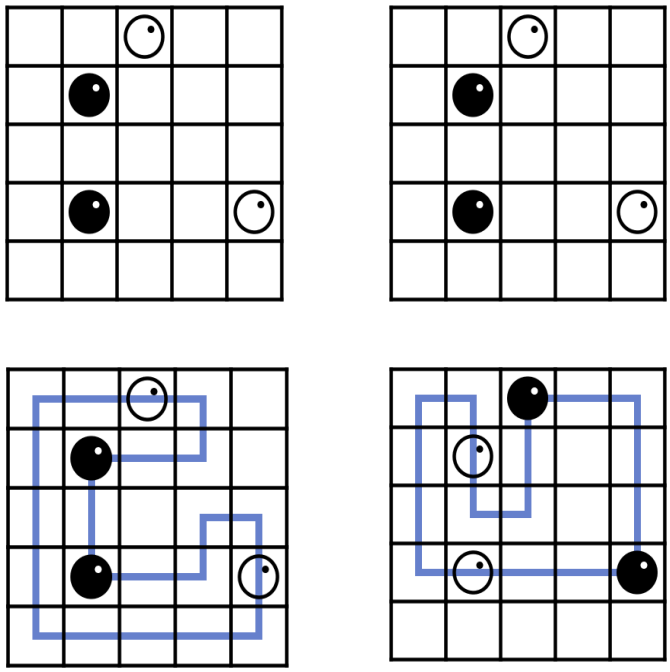
The Persistence of Memory from OAPC 5, created by Serkan Yürekli & Gülce Özkütük Yürekli.

Clone Battle from Bram de Laat.

Negative Masyu

Given two grids are the same. Solve one, then reverse all colors mentally and solve the other. Draw a loop visiting every circle. White circles must be traveled straight through, but the loop must turn in the previous and/or next cell in its path. Black circles must be turned upon, but the loop must travel straight through the next and previous cells in its path.

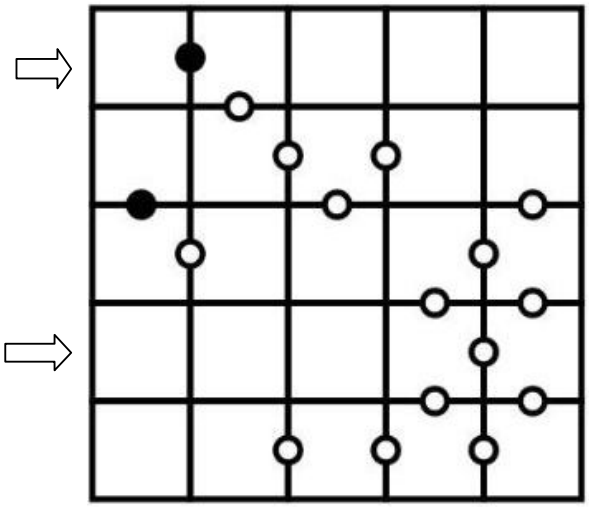
Answer key: Starting with the top row, enter the number of cells not visited by the loop in each row. For the example, the answer is 11100, 01105.

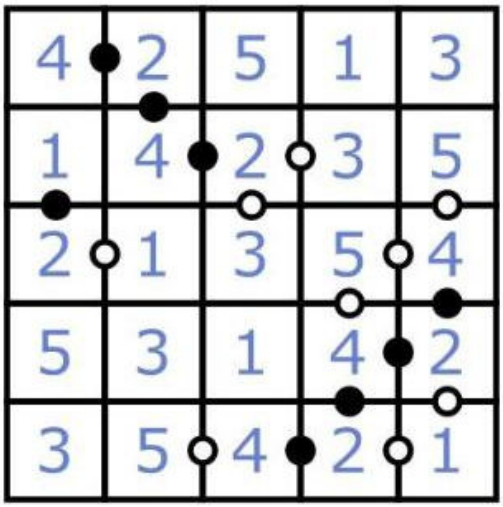


Deformable Kropki

Enter digits 1 through 6 (1-7 for the second puzzle, 1-5 for the example) in the grid such that every row and column contains each digit exactly once. If one of two neighbouring digits is twice the other, there is a black circle between them. If two neighbouring digits are consecutive, there is a white circle between them. Some white circles may be filled in, becoming black circles.

Answer key: Enter the digits for the marked rows. For the example, the answer is 42513, 53142.



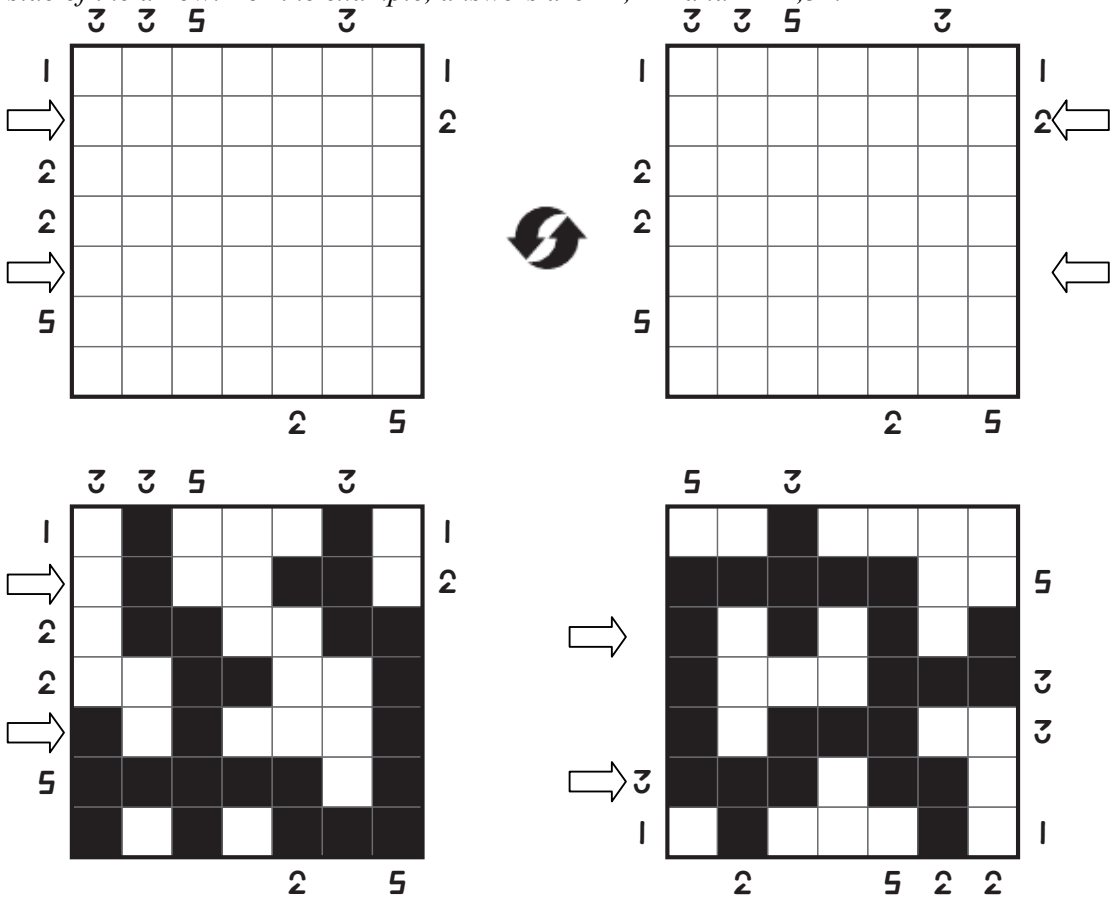


First Seen Corral Rotator

1234567890

Given two grids are the same. Solve one, then turn the page upside down and solve the other. Fill in some cells to create a connected shape which does not touch itself diagonally and does not contain 2x2 fully filled cells. The clues outside the grids represent the length of the first filled cell block in that direction. Filled cells may create closed off areas provided that they do not violate the rules.

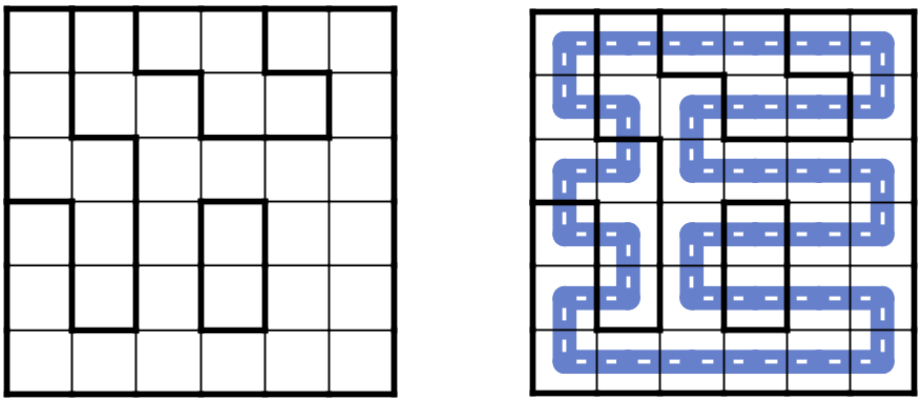
Answer key: Write the lengths of separate blackened cell blocks in the marked rows/columns, starting from the side of the arrow. For the example, answers are 12,111 and 1111,32.



Symmetric Loop

Draw a loop going through all cells. In the outlined regions, the appearance of the loop is rotationally symmetric.

Answer key: Starting with the top row, enter the number of turns the loop makes in each row. For the example, the answer is 244442.

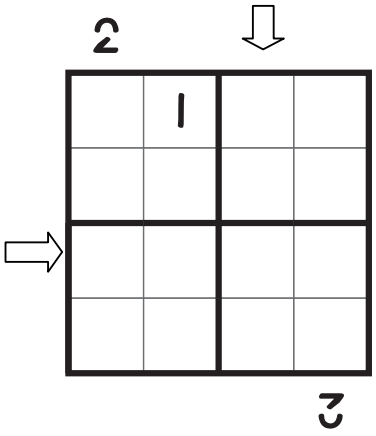


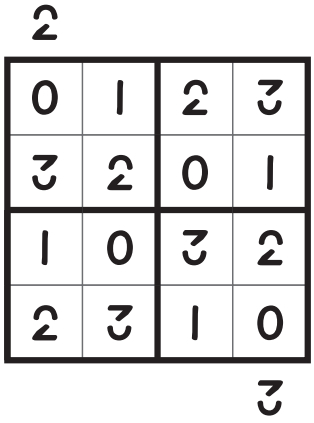
Ambigram Skyscrapers

1234567890

Enter digits- which represent heights of the skyscrapers- 0 through 9 (0-3 for the example) in the grid so that every row, column and outlined region contains every digit exactly once. Some digits are given. The numbers outside the grid indicate how many skyscrapers are visible from that direction. A 0-high "skyscraper" is counted if it is visible. The solution, if written in the above notation, must look the same when the page is turned upside down.

Answer key: Enter the digits for the marked row, then for the marked column. For the example, the answer is 1032,2031

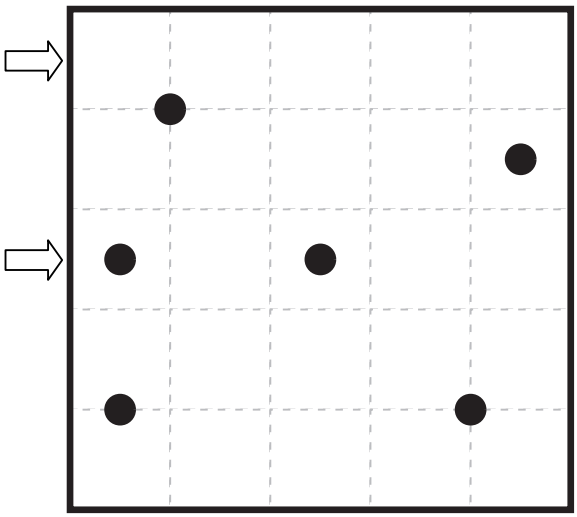


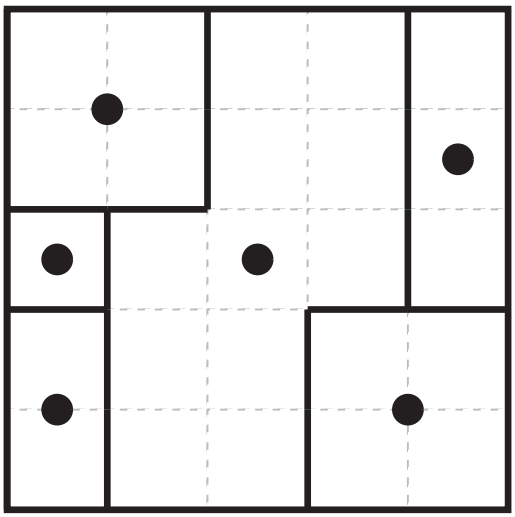


Spiral Galaxies

Divide the grid into shapes such that every shape contains exactly one spiral (black dot) which is its 180° rotational symmetry center.

Answer key: For each marked row, enter the lengths of different shapes in the row. For the example, answer is 221,131

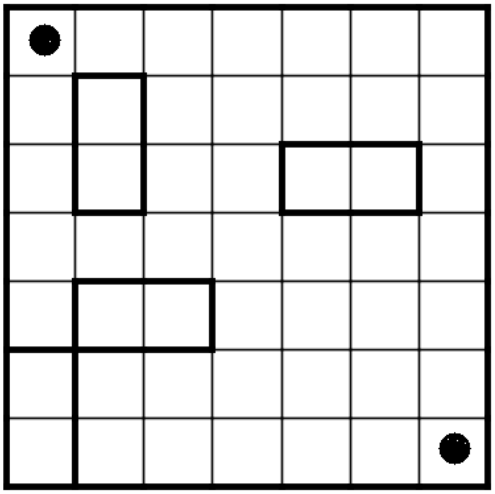


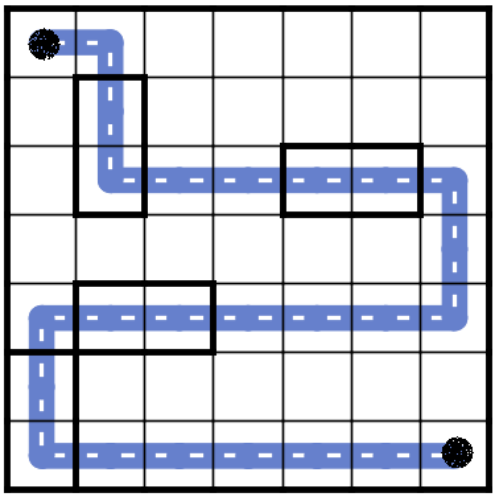


The Persistence of Memory

Locate a snake in the grid that travels horizontally and vertically, without touching itself even at a point. The regions having the same shape should always contain snake parts which have the same appearance. The head and tail of the snake are given. Shapes need to contain at least one part of the snake.

Answer key: Starting with the top row, enter the number of cells used by the snake in each row. For the example, the answer is 2161717.

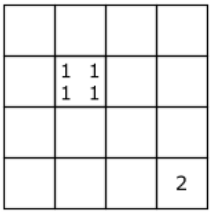


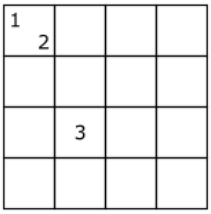


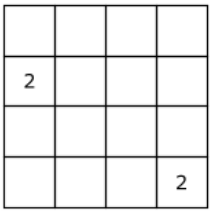
Disjointed Tapa

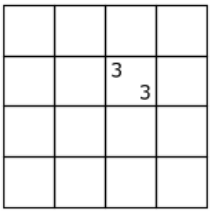
Place the pieces in the diagram, without any rotations or reflections. They cannot overlap. Then solve the tapa puzzle.

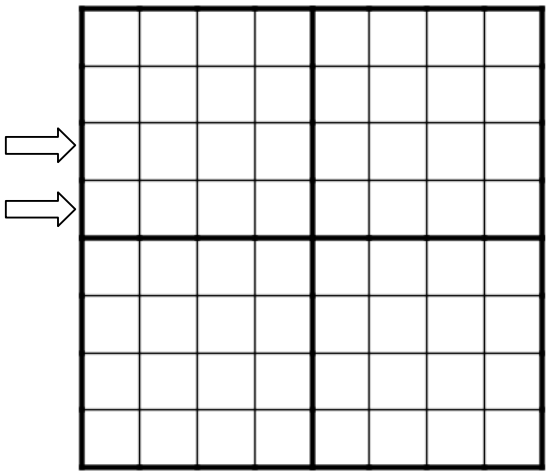
Answer key: Write the lengths of separate blackened cell blocks in the marked rows. For the example, the answer is 12,33.

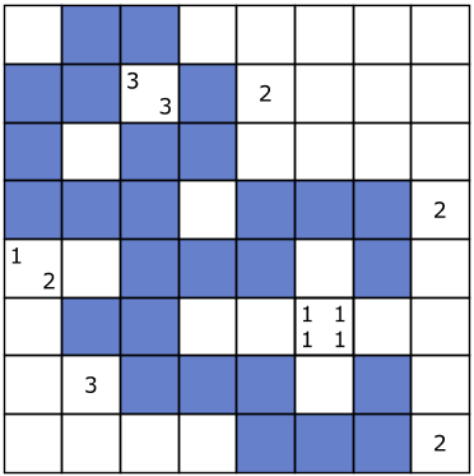








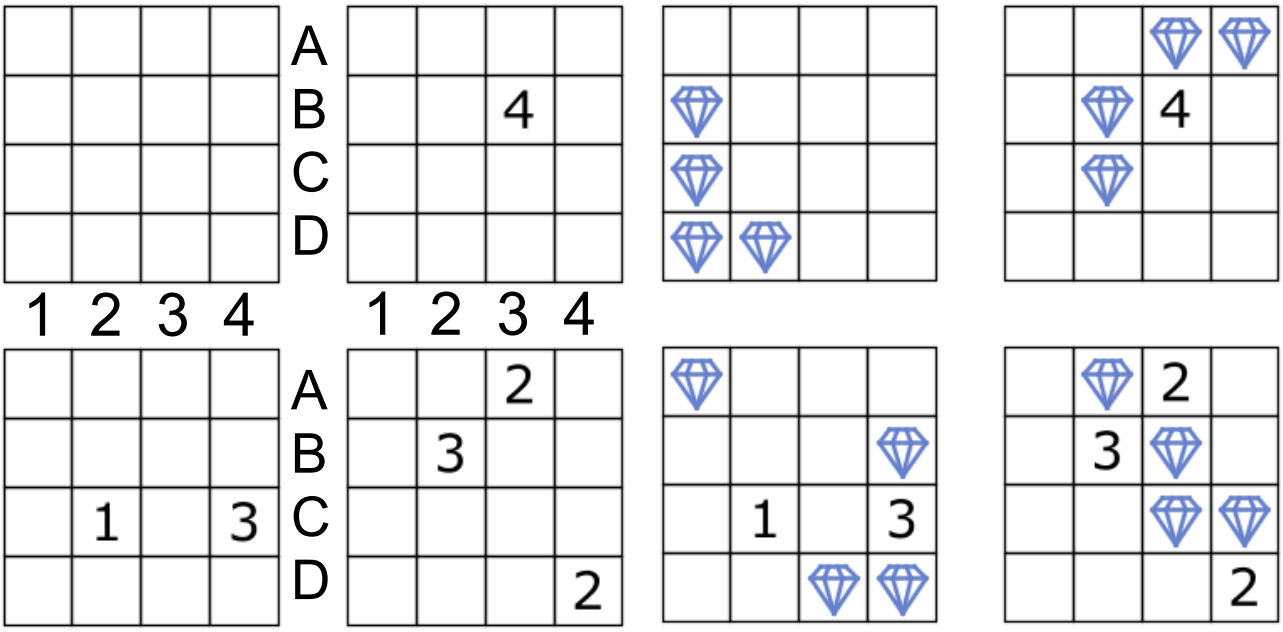




4x4 Diamonds

Locate an equal amount of diamonds in each grid. Among the four grids, each coordinate must contain exactly one diamond. Clues indicate how many (vertical, horizontal and diagonal) neighbouring cells contain a diamond. Cells with clues are empty.

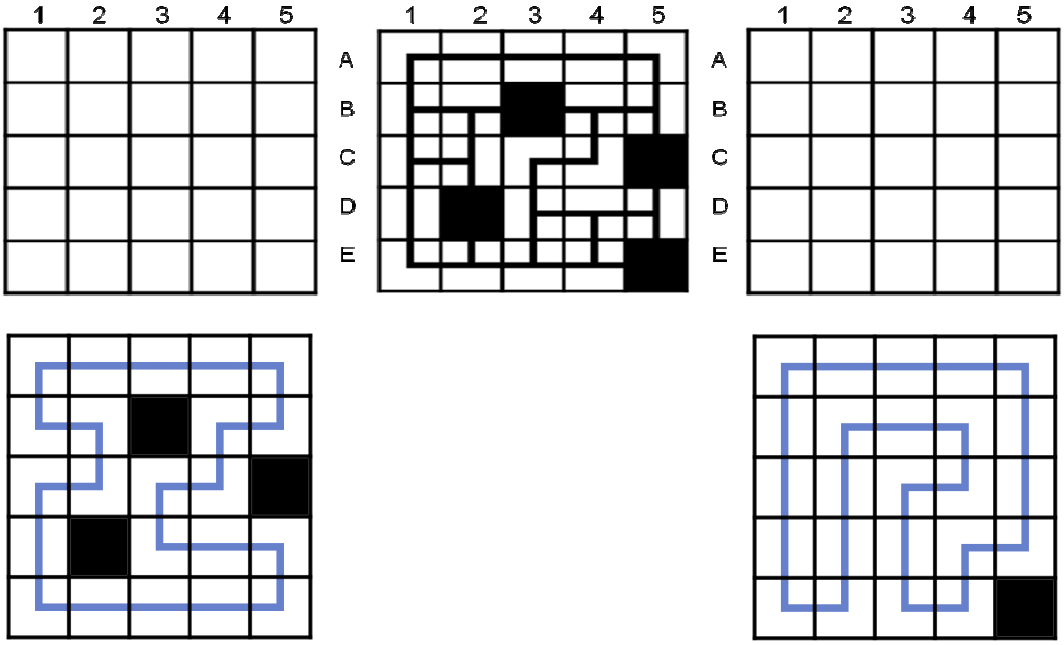
Answer key: For each grid, starting with the top row, enter the number of diamonds in each row. For the example, the answer is 0112,2110,1102,1120.



Superimposed Loop

The given diagram is the superimposition of two grids. In both, some cells are blackened and a loop is drawn visiting all remaining cells. Then one is put on top of the other without rotating or reflecting either and the result is given. Restore the original grids.

Answer key: Starting with the top row, enter the number of turns the loop makes in each row. For the example, the answers are 24422,22224. The order of the answers is unimportant.



Clone Battle

Place three (two for the example) stars in every row, column and outlined region. Cells with stars are allowed to touch. Grids have identical solutions.

Answer key: For each row, enter the column number of the first star in the row. Then for each row, enter the column number of the last star in the row. For the example, the answer is 14312,25534.