MARATHON

ONE WEEK · MANY PUZZLES · HUGE SIZES

ABOUT THE TEST

This is a differently designed LMI test.
- All puzzle grids in this test are marathon grids, i.e. they are much bigger in size than usual.
- There is no *fixed* time limit for any puzzle. The challenge for solvers is to solve all of them in least amount of time.
- The test will be open for more than a week, with the idea that everyone can get around to solve all puzzles conveniently.
- Each puzzle can be started, solved and submitted independent of others, and in any order, anytime during the week.

SCORING

Each puzzle is worth 50 points. A correct submission for a puzzle will be awarded with 50 points. Additionally bonus points will be awarded for submitting a puzzle correctly within an hour. See the forum thread for exact details about bonus points.

There are 12 puzzles. Total score for a player will be computed by summing individual puzzle scores. For players who submit more than 10 puzzles correctly, their best 10 results will be considered for ranking.

INSTANT GRADING

Instant Grading is built-in in this test, which means no player will get 0 for solving the big puzzle correctly, but making an error while keying the answer. Each submission will be marked as "correct" or "wrong".

Following penalty rules will be applicable for wrong submissions
- 1.5 minutes will be added to your final submission time for each of the first two wrong submissions
- 3 minutes will be added to your final submission time for each of the subsequent wrong submissions

Note that there is no penalty to the fixed 50 points, in case of wrong submissions.

PUZZLE PDFS

Each puzzle will have a separate password protected pdf, the passwords being different from each other. All pdfs will be available to download hours before the test starts. Since the grids are large, they will not include the example grids.
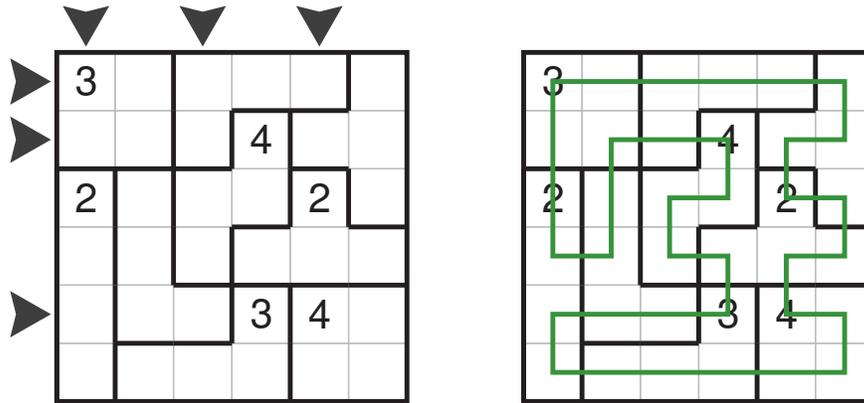
NOTES ABOUT ANSWER KEYS

1) Please note that each answer key is of "fixed length". That means if red warning is displayed while submitting, the submission can never be correct.
2) All answer keys follow top to bottom and left to right direction
3) If both rows and columns are marked, row answer key need to be entered first
4) If any row/cell has a double digit answer key, only the unit (right-most digit) digit should be entered. (This rule is applicable to Masyu, Maxi Loop, Graffiti Snake, Mintonette, Araf).

Fill some cells with stars so that each row, column, and bold region contains the indicated number of stars. Stars may not touch each other, not even diagonally.

Answer key: Starting from top to bottom, for each row, enter the column containing the left-most star in that row. For the example, the answer key is BEAECADBD

A B C D E F G H I

A B C D E F G H I

★ ★

Draw a single, non-intersecting loop that passes through all circled cells. The loop must go straight through the cells with white circles, with a turn in at least one of the cells immediately before/after each white circle. The loop must make a turn in all the black circles, but must go straight in both cells immediately before/after each black circle.

Answer key 1: For each marked row, enter the lengths of the longest horizontal loop segment. For the example, answer key is 403
*Answer key 2: For each marked column, enter the lengths of the longest vertical loop segment. For the example, answer key is 023*

MULTI SKYSCRAPERS

Standard skyscraper rules apply: Insert a digit from 1 to 5 into each cell in each 5X5 grid so that no digit repeats in any row or column inside a grid. Also, each number in the grid represents the height of a building and the clues on the outside of the grid indicate how many buildings can be "seen" when looking from that direction. Taller buildings block the view of smaller buildings.

Additionally, fill in digits in the shaded cells outside the grids and they must be valid skyscraper clues for both the adjoining grids. Some of them are already given.

(Ignore the circles while solving)

Answer key: Enter the digits in circled cells from left to right. For the example, the answer key is 253323

GAPPED KAKURO

Place a digit from 1 to 9 in some cells so that the sum of each horizontal/vertical group of cells equals the number given on its left/top. Digits must not repeat within any sum. Blank cells cannot be orthogonally adjacent to each other.

(Ignore the circles while solving)

Answer key: Enter the digits in circled cells from left to right. Enter X for blank cells. For the example the answer key is 916X

MAXI LOOP

Draw a single, non-intersecting loop that passes through all cells. The numbers in the boldly marked area indicate the highest amount of cells that the loop goes through consecutively in that area.

Answer key 1: For each marked row, enter the lengths of the longest horizontal loop segment. For the example, answer key is 523
Answer key 2: For each marked column, enter the lengths of the longest vertical loop segment. For the example, answer key is 311

GRAFFITI SNAKE

Paint some cells black to create walls. The numbers outside the grid indicate the lengths of blackened cell blocks in the corresponding directions, in order; as in a Paint By Number puzzle. If there is more than one blackened block in a row or column, there must be at least one white cell between the blocks. After all black cells are determined, a snake should travel through all the unoccupied cells, moving horizontally or vertically without touching itself, even diagonally. The head and the tail of the snake are given in circles.

Answer key: For each marked row, enter the number of cells in the longest continuous horizontal group belonging to the snake in that row, starting from the top and continuing to the bottom.
For the example, the answer key is 331
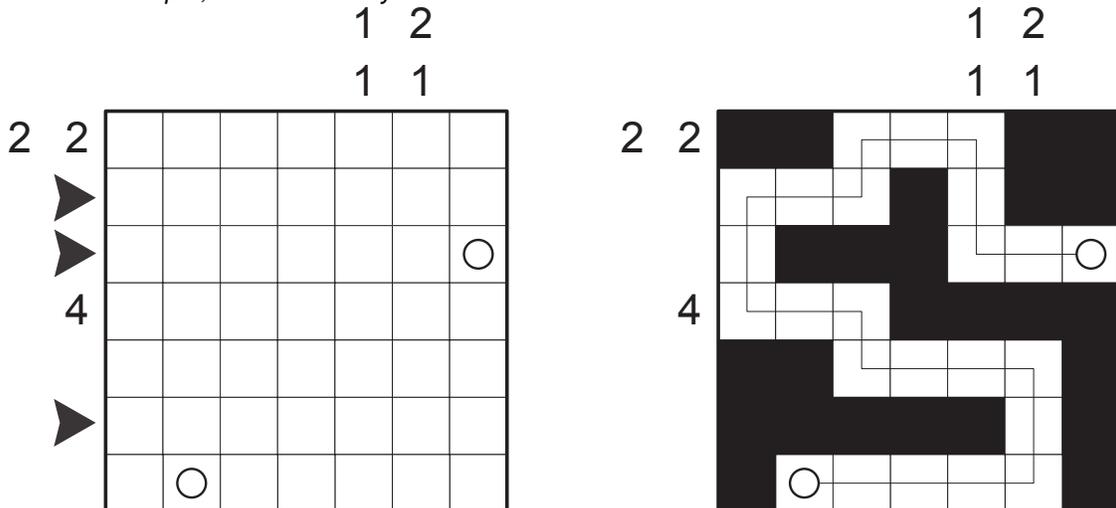
LIAR DIAGONAL SLITHERLINK

Draw a continuous loop in the grid. Digits in the grid indicate how many of four edges of the cell are used by the loop. However, exactly one number in each row and each column is wrong (value of that number doesn't correspond with number of square edges used by loop).
Moreover, each square with wrong number should be crossed by loop diagonally.

Answer key: Enter the number of edges used by loop, for each cell with wrong clue, from left to right. For the example, the answer key is 111102

```
2 2 2 2 3 3        2 2 2 2 3 3
2 0 1 1 1 3        2 0 1 1 1 3
3 2 1 0 0 3        3 2 1 0 0 3
1 2 2 3 1 3        1 2 2 3 1 3
2 2 3 1 1 0        2 2 3 1 1 0
3 1 3 1 2 3        3 1 3 1 2 3
```

MINTONETTE

The circles are connected in pairs by lines traveling through the center of cells. All cells are used by the lines connecting the circles. In some circles a number is given, representing the number of turns that the path must take connecting that circle to its pair.

Answer key: For each marked column, enter the lengths of the longest vertical path segment. For the example, answer key is 131

ARAF

Divide the grid into some regions formed of adjacent squares. Each region should contain exactly two given numbers. The size of each region should be a value (in unit squares) between the two numbers inside that region. Some regions may be drawn.

(Ignore the circles while solving)

Answer key: For each circled cell from left to right, enter the size of region the cell belongs to. For the example, the answer key is 3663.

Write numbers in some of the cells. All numbers in a region must be same. The given number in a region denotes how many cells in this region contain a number (at least one). Same numbers must not be orthogonally adjacent across region boundaries. Numbered cells must not cover an area of size 2x2 or larger. All numbered cells must form a single orthogonally continuous area.

NANRO

(Ignore the circles while solving)

Answer key: Enter the digits in circled cells from left to right. Enter X for blank cells. For the example the answer key is X12X
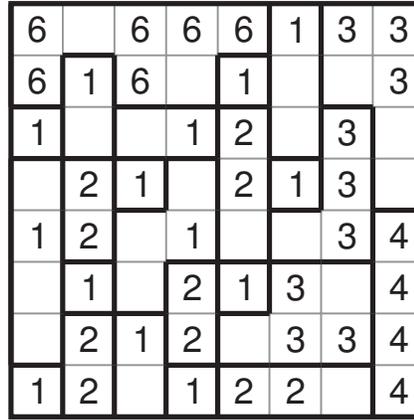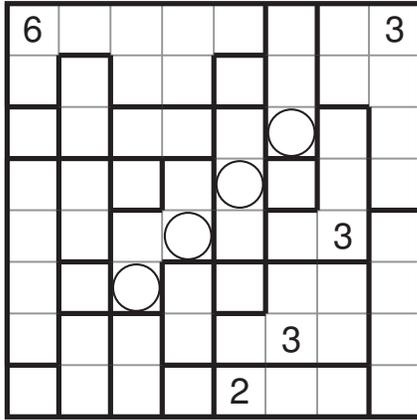
Each circle should have 1, 2 or 3 arrows of given lengths. The arrows could point vertically, horizontally or diagonally from the circles. The arrows could not touch to each other or to other circles. Each empty cell of the grid should contain exactly one arrow.

WATCHES

Answer key 1: For each cell in marked row A, enter the length of the arrow in the cell. Ignore the cells with clues. For the example, the answer key is 5333
*Answer key 2: For each cell in marked column B, enter the length of the arrow in the cell. Ignore the cells with clues. For the example, the answer key is 21213*
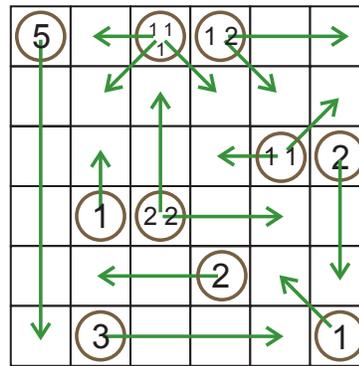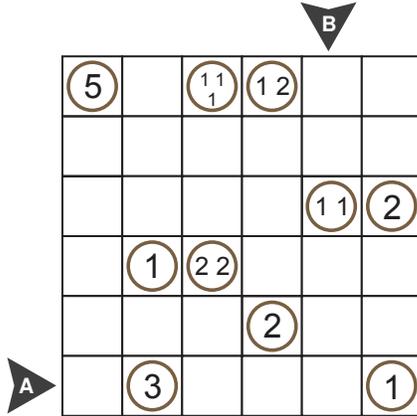
Paint some more triangles so that every equilateral hexagon that consists of six small triangles has three painted triangles and three white triangles.

FIFTY FIFTY

Answer key: Starting with A, for each letter, enter 1 if the triangle is painted, 0 otherwise. For the example, the answer key is 0110
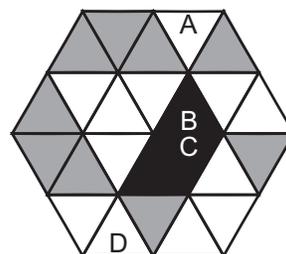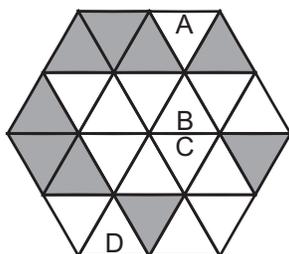
"BEGIN" GAME   Here is the list of authors who have written puzzles for Marathon 2013. But how well do you know them?

Author			Clue
Amit Sowani	A	◯	Marathon 2012 was his first competition as an author
Bram de Laat	B	◯	best puzzle solver in his country, as per WPC ranks
Fred Coughlin	C	◯	can make puzzles like a robot
Giulia Franceschini	D	◯	has a missing 'e' in his email id
Jakub Hrazdira	E	◯	has contributed to Nikoli as a 7th grader
Matus Demiger	F	◯	has never missed an LMI test since 2011
Nagata Yuta	G	◯	has separate blog site for puzzles and sudokus
Prasanna Seshadri	H	◯	has written several books on puzzles and sudokus
Serkan Yurekli	I	◯	has written 3 sudoku tests at LMI
Thomas Snyder	J	◯	is a journalism student
Yuki Kawabe	K	◯	is a judge at puzzlepicnic.com
Zoltan Horvath	L	◯	is the only lady author in this list

Do you know the right answer to this `puzzle`? Post in the forum.