1 2 3 GO!

22nd-23rd-24th September, 2012
Time Duration: 80 minutes

By Rohan Rao

INSTRUCTION BOOKLET

Championship Page: http://logicmastersindia.com/M201209P2/

Points

Instant Grading will be enabled for this test. Using Instant Grading, a solver will immediately know if the submitted solution is correct or not. The puzzle points will reduce with every incorrect submission.

Puzzle points

1 incorrect submission ---> 80% of puzzle points
2 incorrect submissions ---> 50% of puzzle points
3 incorrect submissions ---> 20% of puzzle points
4 incorrect submissions or more ---> 0 points

Time Bonus of { 2 * (Minutes saved) * (19 – No. of incorrect submissions) / 19 } will be awarded to every player who submits all 19 puzzles correctly.

Puzzle	Points	Puzzle	Points
Arithmetic Box	4	Number Snake	10
Battleships	10	Nurikabe	5
Doors	6	One Two And Three	5
Fence	3	Polyominos	12
Fillomino	11	Simple Loop	5
Kakuro Triplet	9	Strong Hitori	8
Magic Snail	4	Tapa	4
Masyu	3	Trimino Hunt	9
Minesweeper	7	Water Fun	4
No Touch Diagonal Sudoku	4	**Total**	**123**

Thanks to Nikola Zivanovic for testing

Arithmetic Box

Place a number from **the given set** into each of the nine cells such that all six equations are satisfied. Equations are read left-to-right and top-to-bottom and follow BODMAS rule.

$$\Box - \Box + \Box = 2$$
$$+ \quad / \quad /$$
$$\Box + \Box - \Box = 9$$
$$- \quad \times \quad +$$
$$\Box + \Box - \Box = 2$$
$$= \quad = \quad =$$
$$8 \quad 5 \quad 7$$

$$5 - 6 + 3 = 2$$
$$+ \quad / \quad /$$
$$6 + 6 - 3 = 9$$
$$- \quad \times \quad +$$
$$3 + 5 - 6 = 2$$
$$= \quad = \quad =$$
$$8 \quad 5 \quad 7$$

Number Set = { 3, 5, 6 }

Answer Key: Enter the nine digits from left-to-right, top-to-bottom (Example: 563663356)


Battleships

Place the given Battleship fleet in the grid (with/without rotation) such that the ships do not touch each other, not even diagonally. Numbers given outside the grid indicate the number of cells in the corresponding row/column containing ship segments. Some cells are marked as water and cannot contain any ship segment.
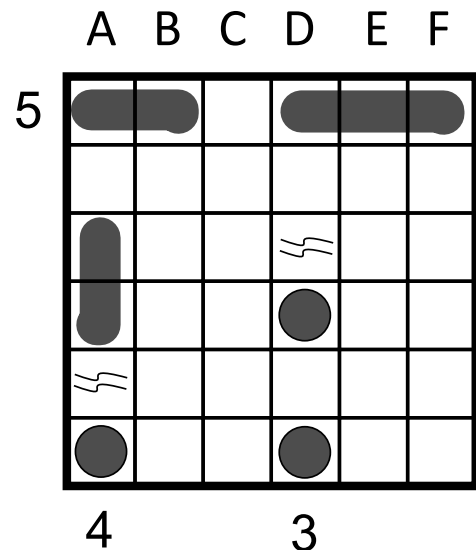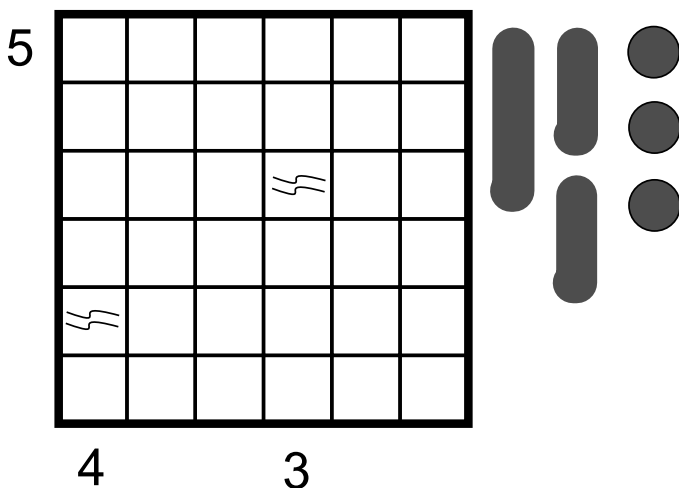
Answer Key: Enter the left-most column (or X) having a ship segment for each row (Example: AXAAXA)

Doors

Each cell represents a room. All rooms are connected (by a horizontal-vertical path) and they are separated by doors. Some doors are closed while some are open. The number in a cell indicates the amount of rooms visible from that cell (excluding the cell itself) in all four directions.

3	1	3	1
4	2	4	2
3	2	3	3
1	2	1	3

→

3	1	3	1
4	2	4	2
3	2	3	3
1	2	1	3
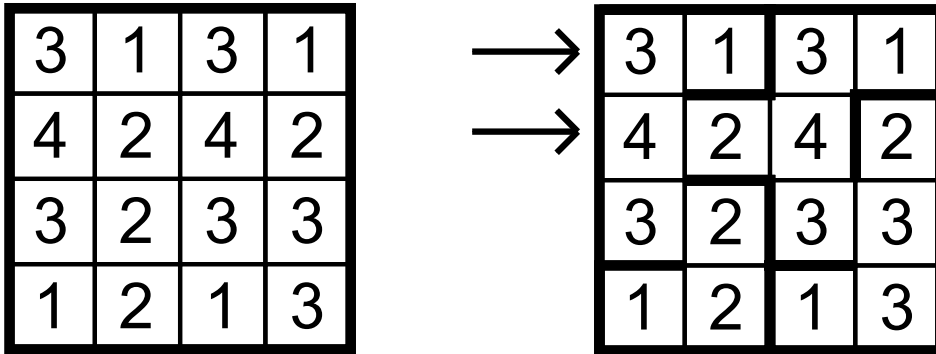
Answer Key: Enter '1' for closed door and '0' for open door in marked row/column (Example: 010, 001)

Fence

Draw a single closed loop connecting adjacent dots horizontally or vertically. A number in a cell indicates the amount of line segments surrounding that cell.

	1	
1		2
0	3	
3		

→

	1	
1		2
0	3	
3		
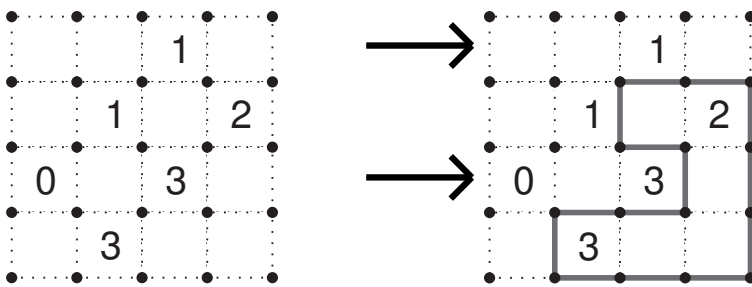
Answer Key: Enter '1' for segment and '0' for no segment in marked row/column (Example: 00000, 00011)

Fillomino

Divide the grid into polyominos such that each number 'N' is part of a polyomino of size N. No two polyominos of the same size are orthogonally adjacent.

	3	4	
1			2
3			2
	3	4	

→
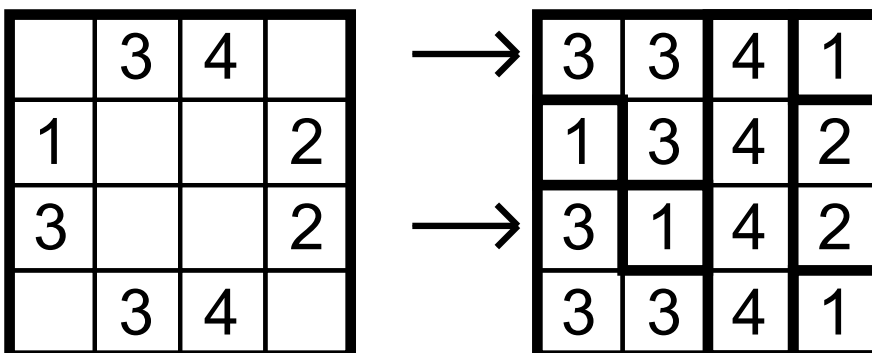
3	3	4	1
1	3	4	2
3	1	4	2
3	3	4	1

Answer Key: Enter (unit's) digit of polyominos along the marked row/column (Example: 3341, 3142)

Kakuro Triplet

Fill each cell with the number 1, 2 or 3 such that the sum of digits in each row and the sum of digits in each column equals the values given. **Adjacent cells cannot contain the same digit, but the digits can repeat for a given sum.**
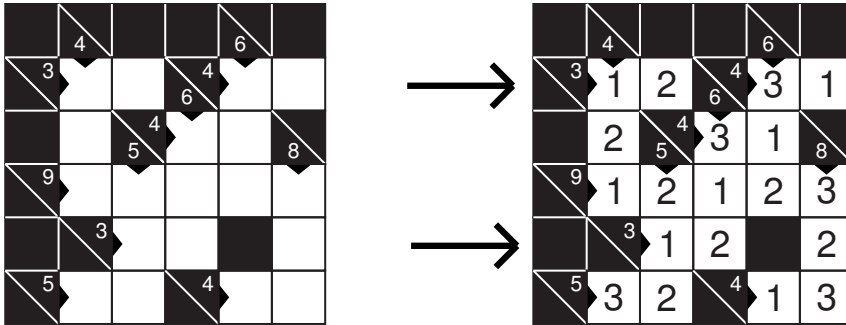
Answer Key: Enter digits (ignoring spaces) in marked row/column (Example: 1231, 122)

Magic Snail

Enter a digit from 1 to 3 in some empty cells such that every digit appears exactly once in each row and column. Digits must occur in order 1-2-3-1-2-3-1-… along the spiral from out to in. Shaded cells cannot contain a digit.
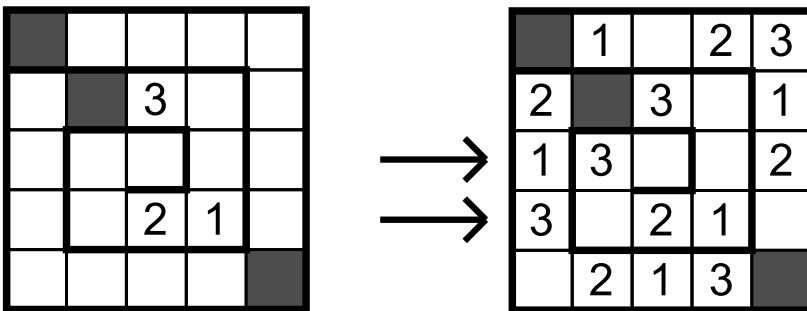
Answer Key: Enter digits ('0' for empty cells) along marked row/column (Example: 13002, 30210)

Masyu

Draw a single closed loop using horizontal and vertical segments such that it does not cross or overlap itself, and it may not visit all cells. The loop makes a 90-degree turn at every cell with a black circle, but does not make a turn immediately before or after. The loop goes straight at every cell with a white circle, but makes a 90-degree turn immediately before or after or both.
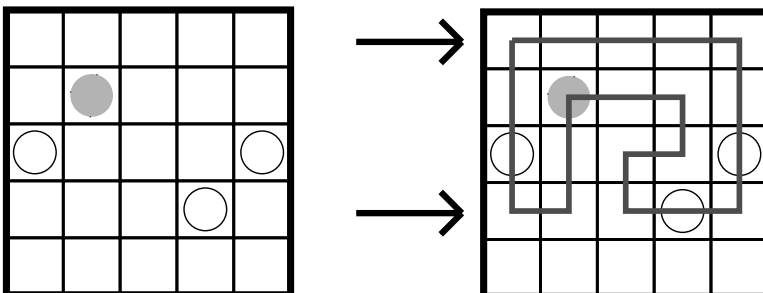
Answer Key: Enter number of turns in marked row/column (Example: 2, 4)

Minesweeper

Place mines into empty cells such that the numbers given in the grid represent the amount of mines in its neighbouring cells.
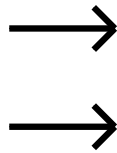
		1	
	3		2
2		4	
	1		

Answer Key: Enter number of mines in each row (Example: 0221)

No-Touch Diagonal Sudoku

Place numbers 1~3 in the grid such that every row, column, 2x3 box and two diagonals contains each number exactly once. Same numbers cannot touch other diagonally.

Answer Key: Enter digits ('0' for empty cells) along marked row/column (Example: 010032, 201300)

Number Snake

Draw a snake in the grid starting from the given '1' and ending at the given '3'. The snake does not touch itself even at a point. The snake segments are numbered 1-2-3-1-2-3-1… in order. The numbers given inside the grid represent the sum of the snake segments in its neighbouring cells. Cells with given sums cannot be part of the snake.

**Answer Key: Enter number of '1's in each row (Example: 110211)**

Nurikabe

Shade cells in the grid such that the shaded cells are connected and there are no 2×2 area of shaded cells. The remaining unshaded cells should form several connected islands. Each island should contain exactly one of the given numbers in the grid, and this number represents the number of cells in its corresponding island. Given numbers cannot be shaded.
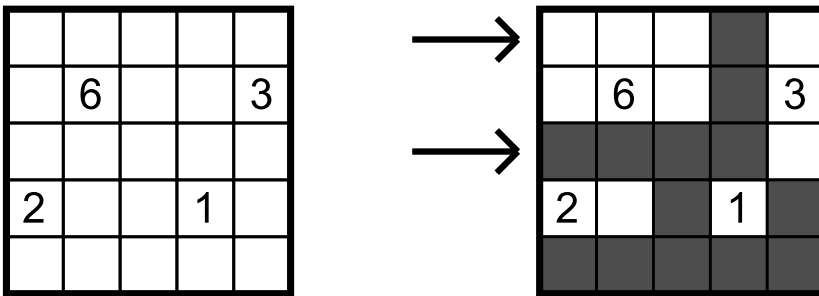
Answer Key: Enter '1' for shaded cells and '0' for unshaded cells in marked row/column (Example: 00010, 11110)

One Two And Three

Fill in the grid with digits 1, 2 or 3 such that all cells with '1' are connected, all cells with '2' are connected and all cells with '3' are connected. No 2x2 region can contain all four cells with the same digit.
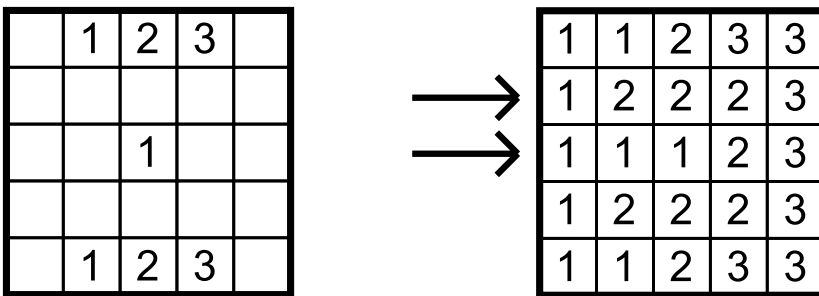
Answer Key: Enter digits in marked row/column (Example: 12223, 11123)

Polyominos

Place the given set of polyominos **(reflection not allowed, rotation allowed)** in the grid such that no two polyominos touch each other, not even diagonally. The given numbers represent the amount of cells containing a polyomino segment from its neighbouring cells. Given numbers are not part of any polyomino.
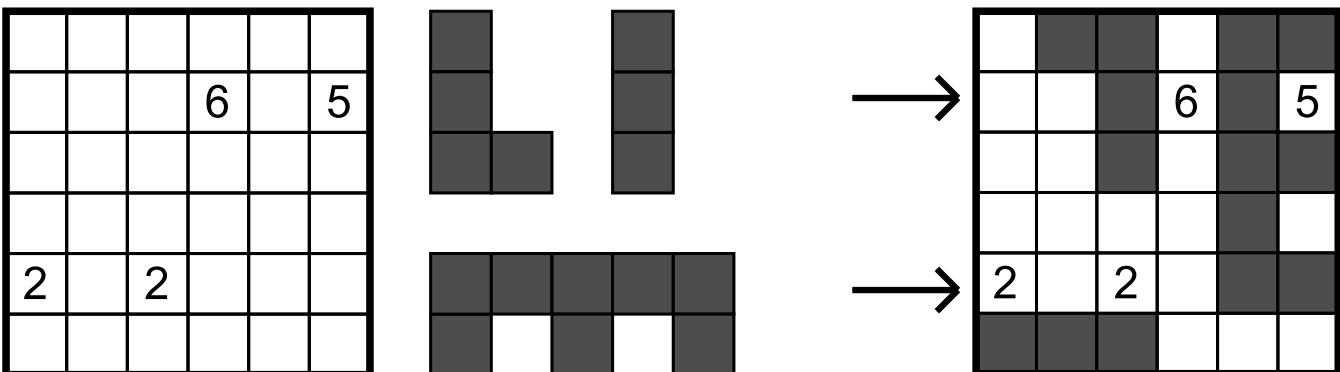
Answer Key: Enter amount of shaded cells in marked row/column (Example: 2, 2)

Simple Loop

Draw a single closed loop such that it does not cross or overlap itself and visits all empty cells of the grid.
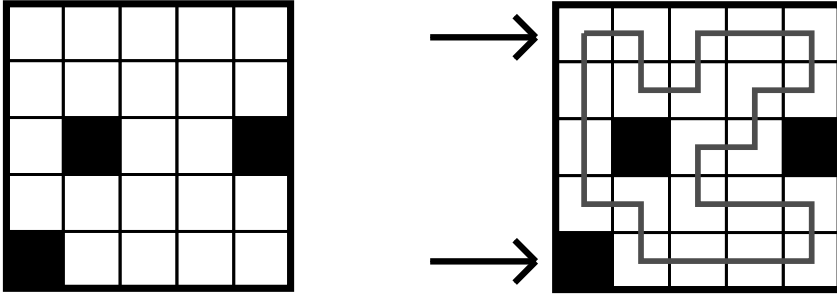
Answer Key: Enter number of turns in marked row/column (Example: 4, 2)

Strong Hitori

Shade some of the digits in the grid so that each row and each column contains distinct digits in remaining cells. It must be possible to visit any white cell from another white cell using horizontal or vertical paths.
**Every row and every column must contain at least one unshaded cell.**

4	2	4	8
8	6	6	8
4	2	6	6
2	2	6	6

4	2	4	8
8	6	6	8
4	2	6	6
2	2	6	6

Answer Key: Enter '1' for shaded cells and '0' for unshaded cells in the two main diagonals (top-left to bottom-right and top-right to bottom-left) (Example: 1011, 0110)

Tapa

Paint some empty cells black to create a continuous wall. Number/s in a cell indicate the length of black blocks on its neighbouring cells. If a cell has more than one number, there must be at least one white cell between the black blocks. No 2x2 square can contain only painted cells.
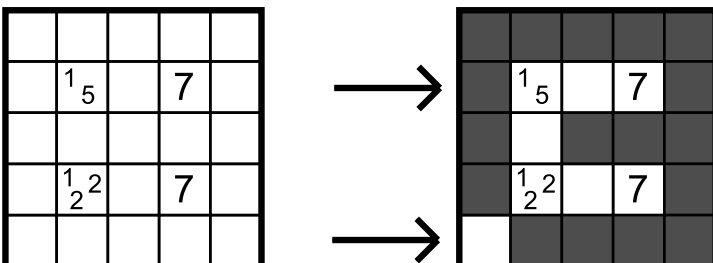
Answer Key: Enter '1' for shaded cells and '0' for unshaded cells in marked row/column (Example: 10001, 01111)

Trimino Hunt

The grid contains the given set of triminoes without any overlapping. Draw its edges.

3	1	3	3	3	2	1	3	2
2	1	3	3	2	3	1	2	1
2	2	2	3	3	2	3	1	1
1	3	3	2	1	1	3	2	2
1	2	2	3	2	3	1	1	3
1	1	2	2	3	1	1	2	1

3	1	3	3	3	2	1	3	2
2	1	3	3	2	3	1	2	1
2	2	2	3	3	2	3	1	1
1	3	3	2	1	1	3	2	2
1	2	2	3	2	3	1	1	3
1	1	2	2	3	1	1	2	1

111   121   131   212   223   313

112   122   132   213   232   323

113   123   133   222   233   333

Answer Key: Enter number of horizontal triminoes in each row (Example: 211122)

Water Fun

Fill water in some cells of the grid. The numbers below and next to the grid indicate the amount of cells of the corresponding row or column that contains water. Every thick-outlined region must have same surface height of water everywhere.
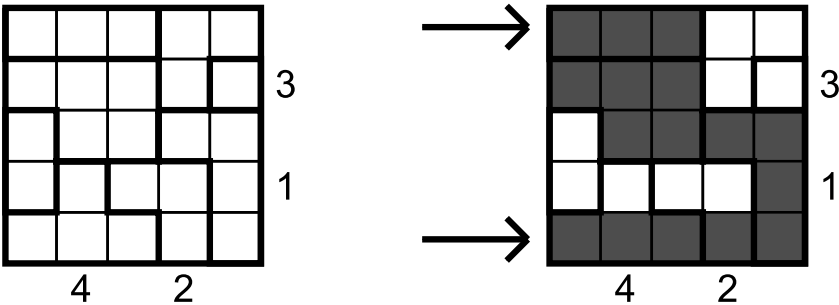
Answer Key: Enter '1' for shaded cells and '0' for unshaded cells in marked row/column (Example: 11100, 11111)