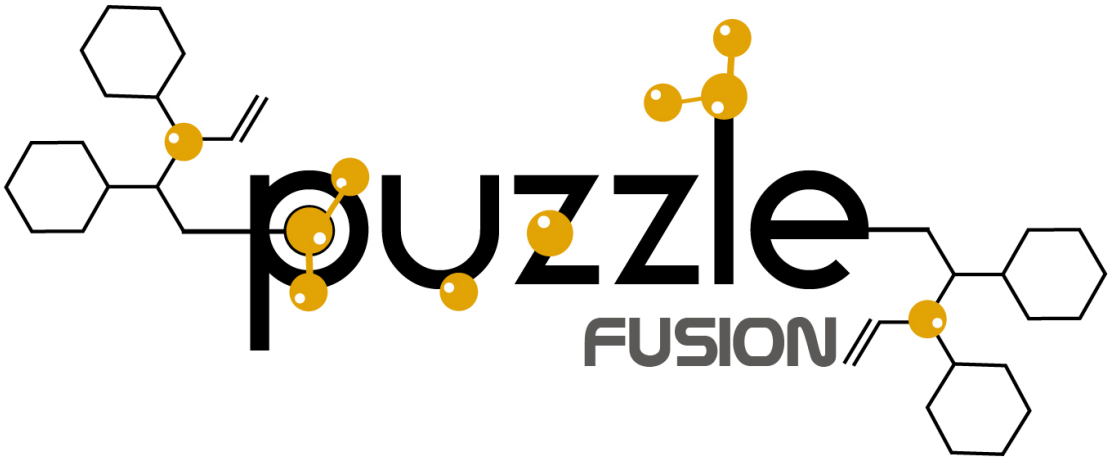


Logic Masters India
Puzzle Fusion
Author: Tawan Sunathvanichkul
Date: 19–20th November 2011

Instructions Booklet

It was going to be another typical puzzle test with assorted classics. However, while the world championships are going on, the long wait in the shed had the puzzles interacting with each other uncontrollably. Kropki dots jumped into the Kakuro grid, Masyu and Yajilin decided to fuse and we even have light bulbs suddenly appearing in the Number Skeleton. Madness!

Acknowledgments

Puzzle Fusion could only happen with the help of Deb Mohanty and his amazing work at Logic Masters India. Puzzle ideas were obtained from: Nikoli, Dave Tuller (Searchdoku), Thomas Snyder (Make Room for Tapa), Palmer Mebane and Grant Filkes (Greater Than Fillomino).

Instructions

Puzzle Fusion contains 24 puzzles presented in sets of three; first two being the reactants while the third shows the product after the fusion. Scores are based on point values of each puzzle along with the time bonus. Time bonus can be gained by all 24 puzzles and halting the puzzle test to claim a bonus of 4 points per full minute saved. Submission times will be used to break any ties.

The actual competition puzzle booklet will contain 17 pages including one cover page with the points distribution table. The time limit for this test is 120 minutes. There is no penalty for incorrect submissions.

Puzzle Types

1

Kropki
\+ Kakuro
Kropkuro

2

Anglers
\+ Battleships
Fishermen at War

3

Akari
\+ Nansuke
Akasuke

4

Word Search
\+ Sudoku
Searchdoku

5

Make Room for Tapa
\+ Minesweepers
Regional Minesweepers

6

LITS
\+ LITS
LITS^2

7

Masyu
\+ Yajilin
Majilin

8

Fillomino
\+ Futoshiki
Greater Than Fillomino

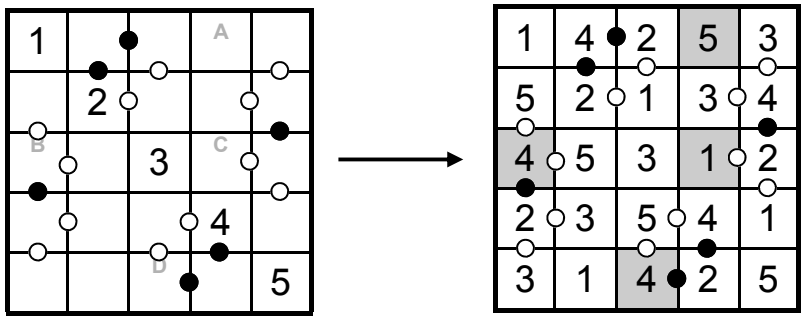
Points Table

1A	Kropki	20
1B	Kakuro	20
1C	Kropkuro	40
2A	Anglers	10
2B	Battleships	15
2C	Fisherman at War	30
3A	Akari	10
3B	Nansuke	25
3C	Akasuke	40
4A	Word Search	10
4B	Sudoku	10
4C	Searchdoku	35

5A	Make Room for Tapa	20
5B	Minesweepers	10
5C	Regional Minesweepers	20
6A	LITS	15
6B	LITS	15
6C	LITS^2	25
7A	Masyu	10
7B	Yajilin	20
7C	Majilin	35
8A	Fillomino	15
8B	Futoshiki	20
8C	Greater Than Fillomino	25

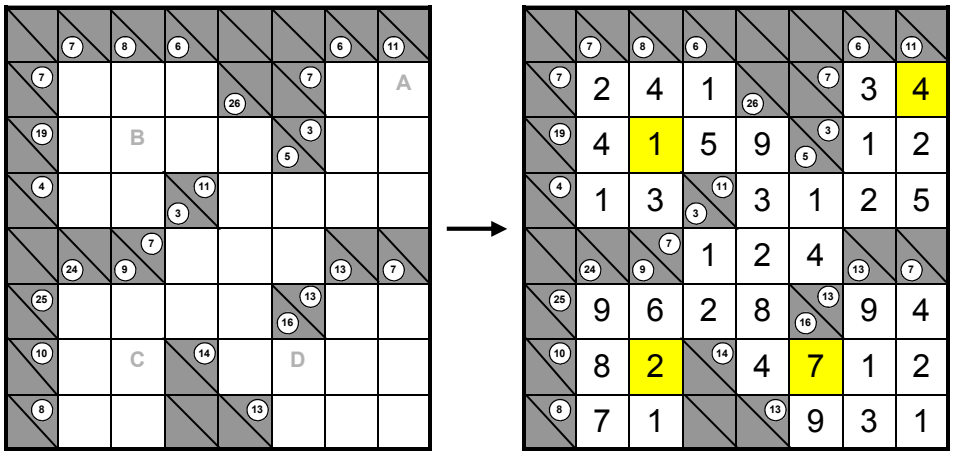
1A Kropki

Fill in the grid with numbers 1-8 (1-5 in the example) so that each number appears once in each row and column. A white dot is given when the two neighbouring cells contain consecutive digits. A black dot separates two numbers where one is twice the other. 1 and 2 may be separated by any coloured dot. All dots are given.
Answer Format: Enter the marked digits in alphabetical order. (Eg. 5414)



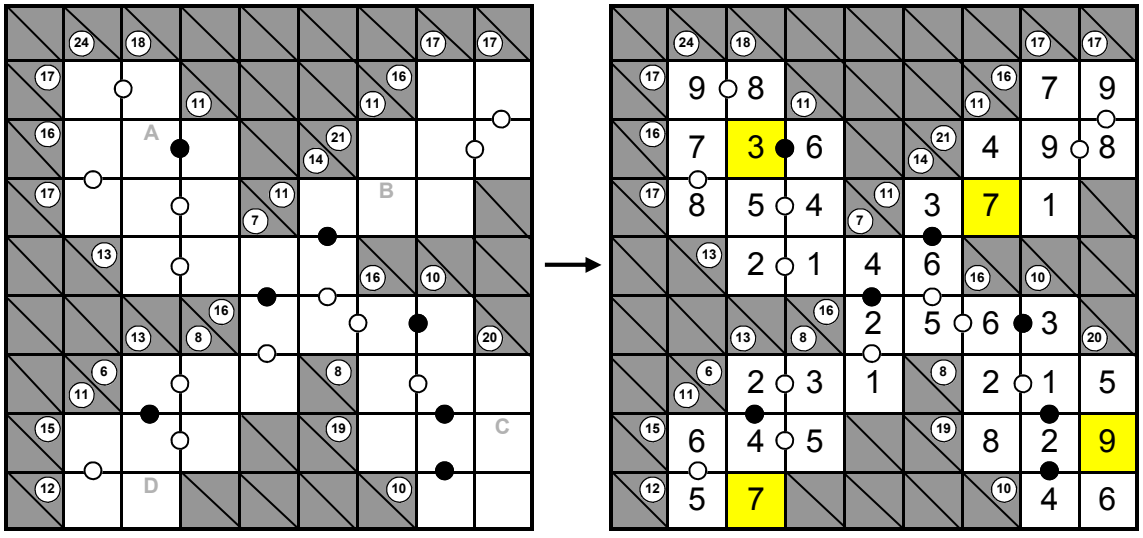
1B Kakuro

Fill in the grid with numbers 1-9 so that each number adds up to the given sum for that row or column. No number may repeat within a single entry.
Answer Format: Enter the marked digits in alphabetical order. (Eg. 4127)



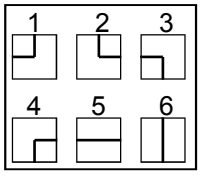
1C Kropkuro

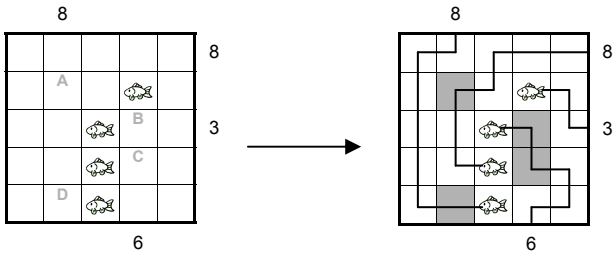
Standard Kakuro rules apply, additionally all Kropki dots are given.
Answer Format: Enter the marked digits in alphabetical order. (Eg. 3797)



2A Anglers

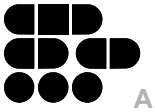
Each number outside the grid represents the length of a fisherman's rod. Draw vertical and horizontal lines going into grid so that each fisherman gets his own fish and rods cannot be entangled. All cells are used once.
Answer Format: Enter the content of the marked cells, using the given notation table, in alphabetical order. (Eg. 4325)

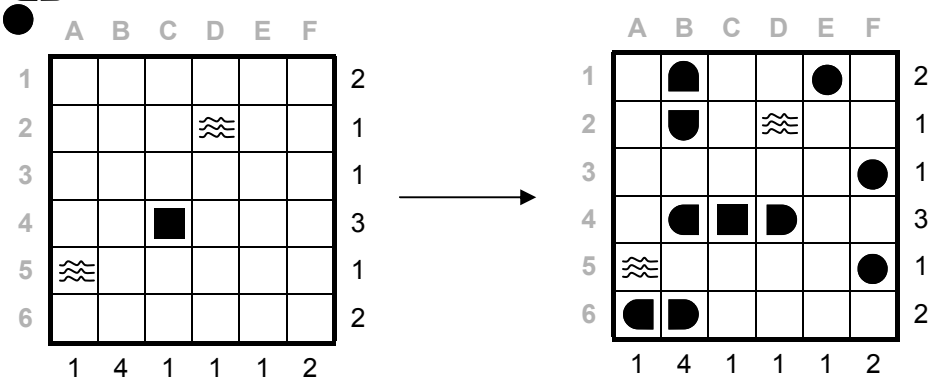




2B Battleships

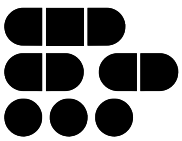
Locate the ships in the grid. Numbers under and to the right of the grid indicate how many ship segments are in that row or column. Ships may not touch each other, not even diagonally. Ship segments cannot occupy cells with waves.
Answer Format: Enter the positions of the 1-unit submarines from left-right and top-bottom. (Eg. E1,F3,F5)

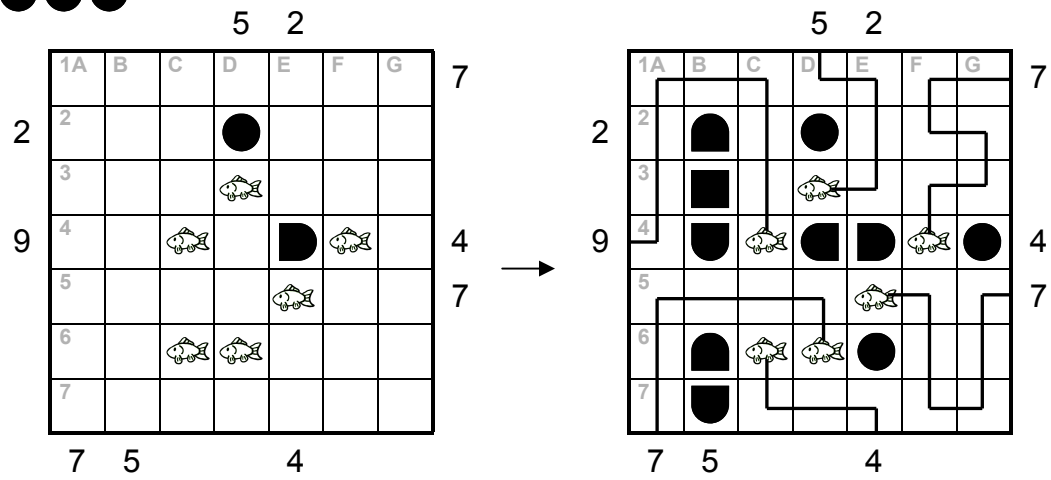




2C Fishermen at War

Standard Anglers rule apply. Numbers outside the grid that are not used becomes Battleship clues. Ship segments occupy all unused cells in the grid. Ships may not touch other, not even diagonally.
Answer Format: Enter the positions of the 1-unit submarines from left-right and top-bottom. (Eg. D2,G4,E6)

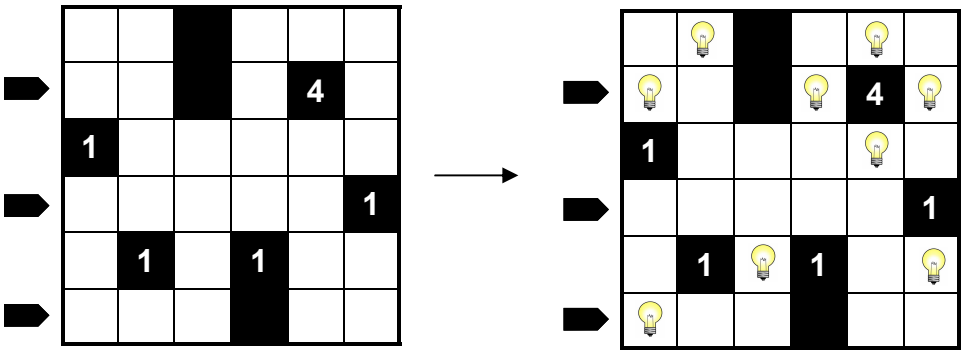




3A Akari

Place some light bulbs into the grid so that every square is lighted up. A bulb lights all squares in the same row and column until it is blocked by a black square or the edge. Bulbs cannot light another bulb. Numbered squares indicate the number of bulbs that are orthogonally adjacent to that square.

Answer Format: Enter the number of light bulbs in the marked rows from top to bottom. (Eg. 301)



3B Nansuke

Fill the grid with the listed numbers. All listed entries are used exactly once.

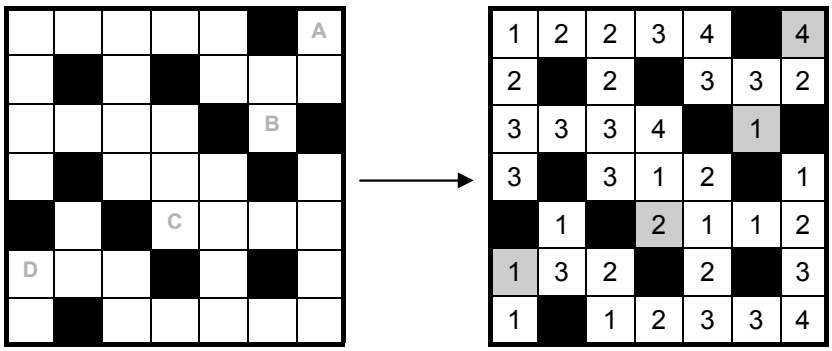
Answer Format: Enter the content of the lettered cells in alphabetical order. (Eg. 4121)

11
13
21
31
42
43

1234
2112
2123
2233
3334

12234
12334

132
312
332
412
1233

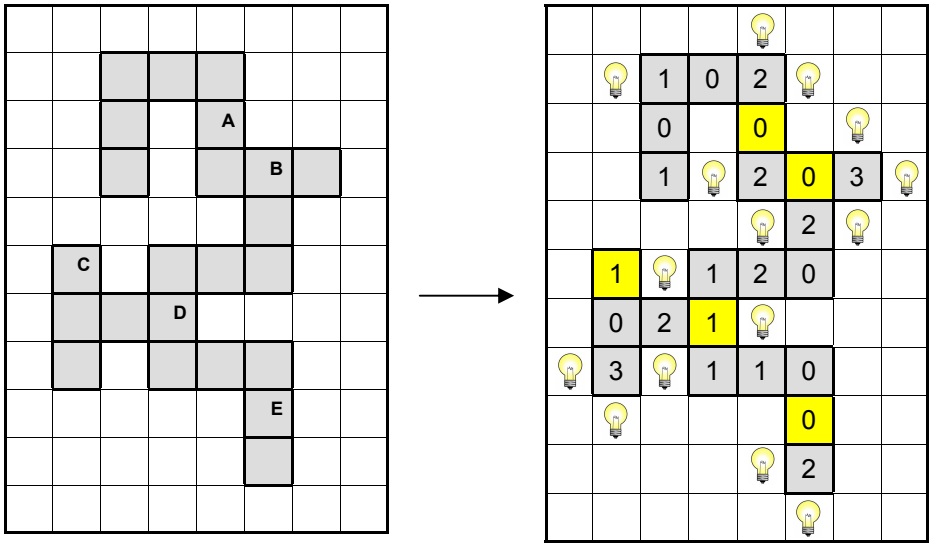


3C Akasuke

Fill in the grid of shaded cells with the listed numbers. Afterwards, the numbers become Akari clues, which are used to solve Akari in the usual manner.

Answer Format: Enter the content of the lettered cells in alphabetical order. (Eg. 00110)

002
020
021
101
102
103
110
111
120
202
203

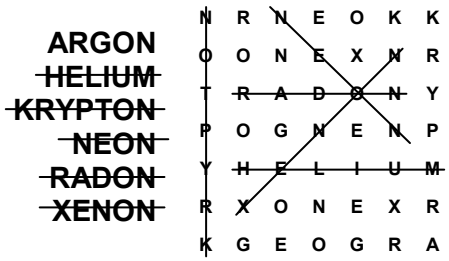


4A Word Search

Find the listed word in the grid going in any straight direction. One word cannot be found.
Answer Format: Enter the unhidden word. (Eg. ARGON)

ARGON
HELIUM
KRYPTON
NEON
RADON
XENON

N	R	N	E	O	K	K
O	O	N	E	X	N	R
T	R	A	D	O	N	Y
P	O	G	N	E	N	P
Y	H	E	L	I	U	M
R	X	O	N	E	X	R
K	G	E	O	G	R	A



4B Sudoku

Fill in the grid with numbers 1-9 so that each number appears once in each row, column and bolded region.
Answer Format: Enter the marked digits in alphabetical order. (Eg. 9793)

	A		4					
			1		2	6	9	
	8				5			1
	6	4	5			7		9
2		5	9		1	8		3
9		8		B	6	2	4	
7		C	2				5	
	2	1	7		9			
		D			4			

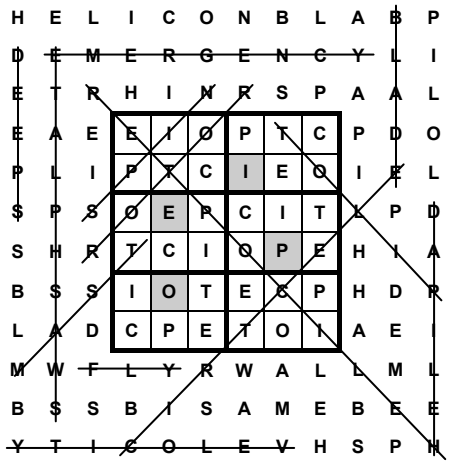
1	9	6	4	3	7	5	8	2
5	3	7	1	8	2	6	9	4
4	8	2	6	9	5	3	7	1
3	6	4	5	2	8	7	1	9
2	7	5	9	4	1	8	6	3
9	1	8	3	7	6	2	4	5
7	4	9	2	6	3	1	5	8
8	2	1	7	5	9	4	3	6
6	5	3	8	1	4	9	2	7

4C Searchdoku

Find the listed word in the grid going in any straight direction. Some words may be found in, or going through, the blank inner grid. After several letters are filled in, the empty inner grid becomes a Sudoku puzzle using different letters.
Answer Format: Enter the shaded letters from top-bottom and left-right. (Eg. IEPO)

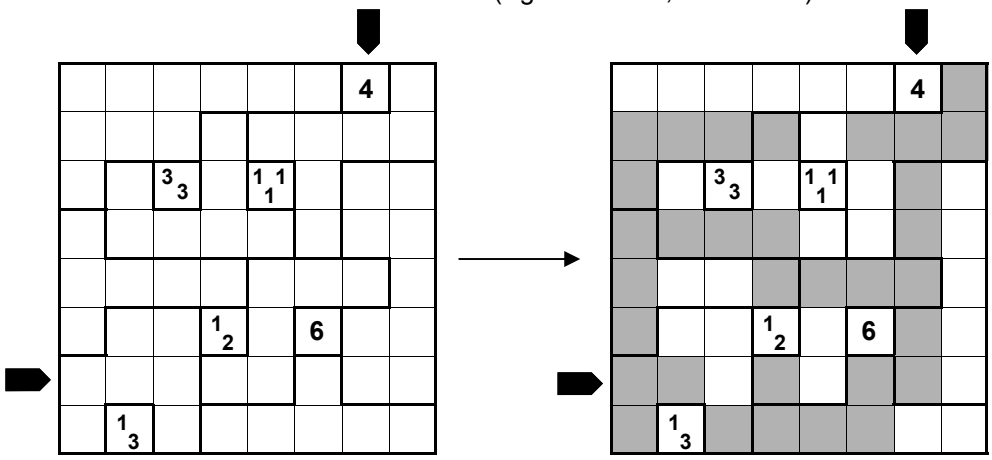
BLADE
ELECTRIC
EMERGENCY
FLY
HELICOPTER
HELIPAD
MAST
PILOT
ROTOR
SPEED
SPIN
SWASH PLATE
VELOCITY

H	E	L	I	C	O	N	B	L	A	B	P
D	E	M	E	R	G	E	N	C	Y	L	I
E	T	R	H	I	N	R	S	P	A	A	L
E	A	E							P	D	O
P	L	I							I	E	L
S	P	S							L	P	D
S	H	R							H	I	A
B	S	S							H	D	P
L	A	D							A	E	I
M	W	F	L	Y	R	W	A	L	L	M	L
B	S	S	B	I	S	A	M	E	B	E	E
Y	T	I	C	O	L	E	V	H	S	P	H



5A Make Room for Tapa

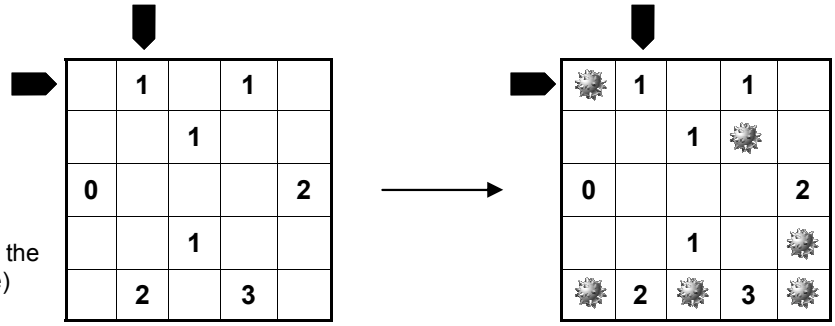
Shade in some cells to create a continuous wall of black squares. Numbers indicate the length of the black cell blocks surrounding that cell. When there are more than one number in a cell, there must be at least one white square separating the two or more lengths of black cells. Numbered cells cannot be shaded and there cannot be any 2x2 shaded cells. Additionally, each outlined region contains the same number of black cells.
Answer Format: Enter the content of the marked row followed by the marked column; using B for black cells and '-' for white cells. (Eg. BB-B-BB-, -BBBBBB-)



5B Minesweepers

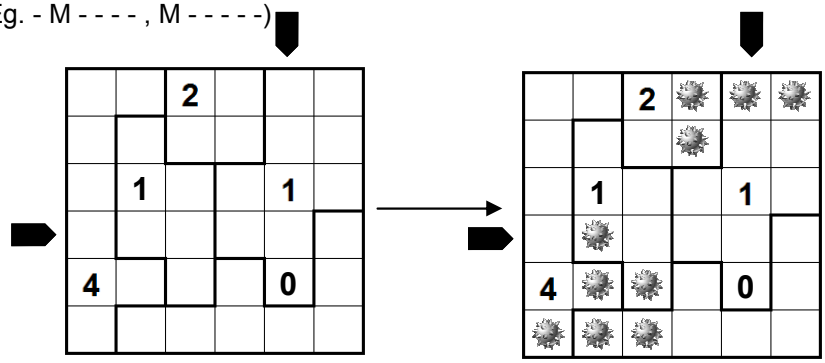
Locate the given number of mines in the grid. Each numbered cell indicates the number of mines surrounding that square. Mines cannot occupy a numbered cell.
Answer Format: Enter the content of the marked row followed by the marked column; using M for mines and '-' for numbered or blank cells. (Eg. M - - - -, - - - - -)

(6 mines in the example)



5C Regional Minesweepers

Minesweepers rules apply. Additionally, each outlined region contains the same number of mines.
Answer Format: Enter the content of the marked row followed by the marked column; using M for mines and '-' for numbered or blank cells.
(Eg. - M - - - - , M - - - - -)

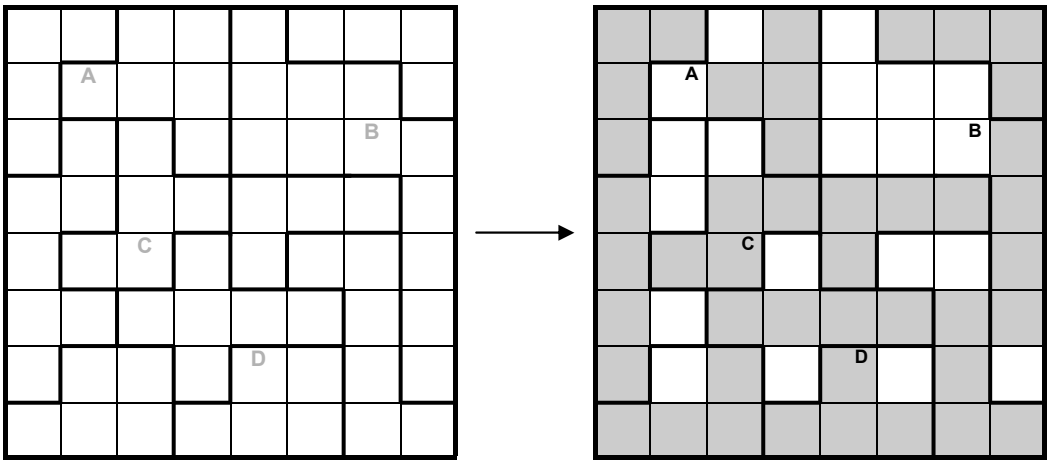


6A LITS

Blacken some cells so that there is either one of L,I,T or S tetromino piece in each bolded region. Identical pieces may not be adjacent to each other. There cannot be any 2x2 cells that are all shaded, in the end, all shaded squares must interconnect.

Answer Format: Enter the content of the lettered cells in alphabetical order, using L,I,T and S for the appropriate tetromino pieces and use X for white cells. (Eg. XXST)

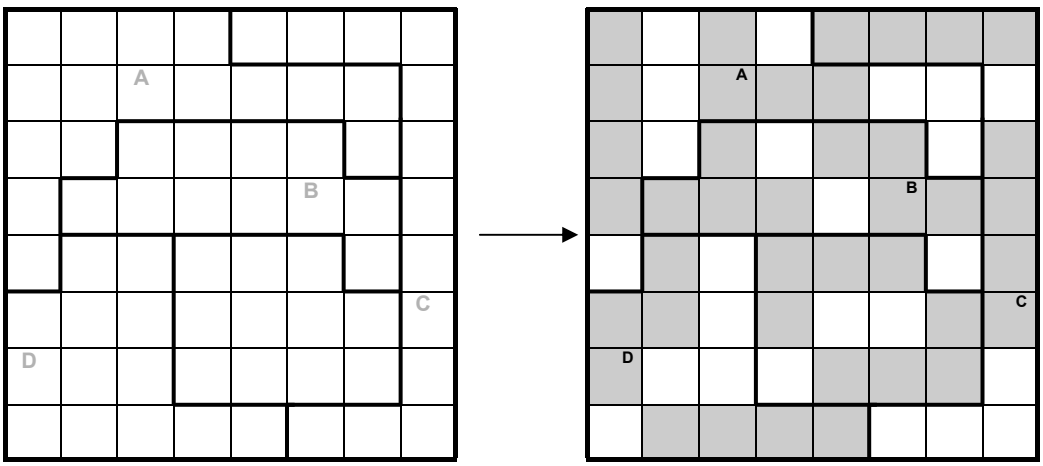
6B LITS



6C LITS²

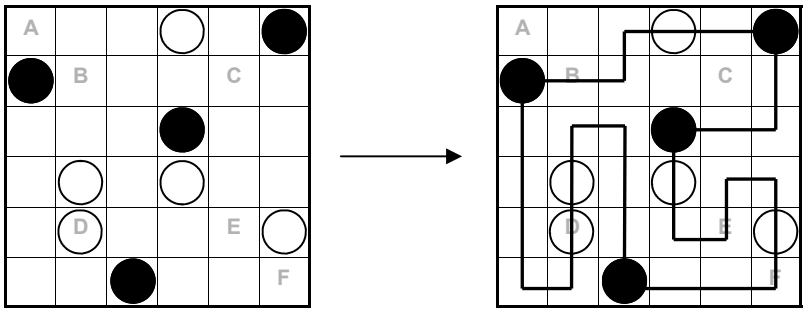
In this variant, each bolded region contains two tetromino pieces. The two pieces in the same bolded region may not be adjacent to each other. Otherwise, standard LITS rules apply.

Answer Format: Enter the content of the lettered cells in alphabetical order, using L,I,T and S for the appropriate tetromino pieces and use X for white cells. (Eg. LSIS)



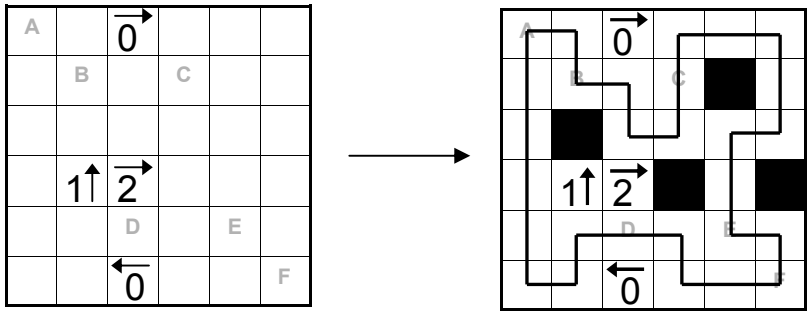
7A Masyu

Draw a single closed loop passing through all circles in the grid. The loop must make a turn at all black circles and go straight for at least two cells in both directions before turning again. The loop must go straight through all white circles and turn immediately before and/or after in the next cell.
Answer Format: Starting with the earliest letter of the alphabet and going clockwise, write the letters the loop passes through in order. (Eg. BEFD)



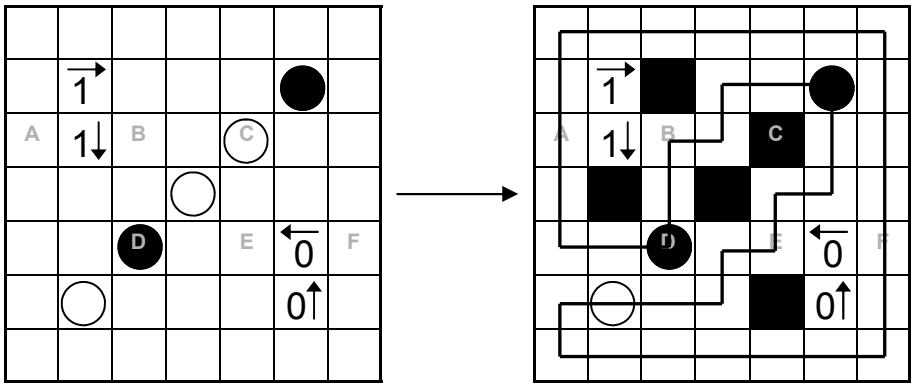
7B Yajilin

Draw a single closed loop passing through all cells in the grid. In addition to the numbered cells, there will be some blackened cells that the loop will not visit. The numbered cells indicate the number of black squares in that direction. Black squares cannot be adjacent to each other.
Answer Format: Starting with the earliest letter of the alphabet and going clockwise, write the letters the loop passes through in order. (Eg. ABCEFD)



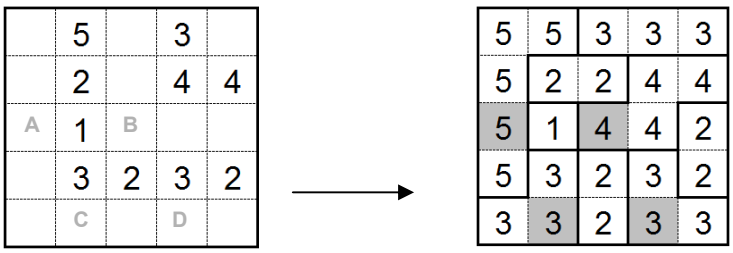
7C Majilin

Yajilin rules apply. In addition, the loop must obey Masyu rules when passing through a circle. Some circles may be blackened by the Yajilin clues and black cells cannot be adjacent to each other. Numbered cells may not be blackened.
Answer Format: Starting with the earliest letter of the alphabet and going clockwise, write the letters the loop passes through in order. (Eg. AFEBD)



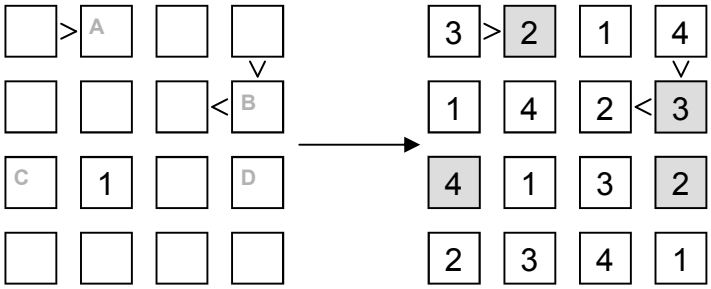
8A Fillomino

Fill in numbers into the grid so that the connected cells with the same number forms a boundary of that size. Same-sized boundaries cannot be adjacent to each other.
Answer Format: Enter the marked digits in alphabetical order, for two digit numbers use the unit number. (Eg. 5433)



8B Futoshiki

Fill in the grid with numbers from 1-7 (1-4 in the example), so that no number repeats in any row or column. All comparison signs must be obeyed.
Answer Format: Enter the marked digits in alphabetical order. (Eg. 2342)



8C Greater Than Fillomino

Fill in numbers into the grid so that the connected cells with the same number forms a boundary of that size. Same-sized boundaries cannot be adjacent to each other. Additionally, all comparison signs must be obeyed.
Answer Format: Enter the marked digits in alphabetical order, for two digit numbers use the unit number. (Eg. 6345)