



КЛУБ ЛОГИКА
CLUB LOGIKA

13-18 OCT
SOFIA 2015

24TH WORLD
PUZZLE
CHAMPIONSHIP


WORLD PUZZLE FEDERATION

World Puzzle Championship 2015

Instruction Booklet

Thursday, 15th October

Round 1: Welcome	50m	09:00-09:50	400 points
Round 2: Classics	60m	10:00-11:00	600 points
Round 3: Latin squares	90m	11:20-12:50	950 points
LUNCH			
Round 4: Pathfinder	60m	14:30-15:30	620 points
Round 5: Hybrids	70m	15:50-17:00	700 points
Round 6: Poker Battle	30m	17:10-17:40	200 points
Round 7: Color me in (TEAM)	40m	18:10-18:50	2000 points

Friday, 16th October

Round 8: Instructionless	50m	09:00-09:50	500 points
Round 9: Different Areas	50m	10:00-10:50	500 points
Round 10: Not quite classics	100m	11:10-12:50	1135 points
LUNCH			
Round 11: Sprint	30m	14:30-15:00	365 points
Round 12: Assorted	90m	15:20-16:50	900 points
Round 13: Domino (TEAM)	60m	17:20-18:20	3000 points

Saturday, 17th October

Round 14: Encrypted (TEAM)	60m	09:00-10:00	3000 points
Individual Play-off		10:30	

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Competition Rules

Scoring and Bonuses

Points will be awarded only for fully and correctly solved puzzles. There will be no partial credit, unless explicitly stated in a round's description.

Individual Rounds

A bonus of 10 points for each full minute remaining will apply to any competitor who correctly solves every puzzle in a round. At the judge's discretion, 0.75x bonus (rounded to a whole number) will be awarded in the case of a single minor mistake on no more than 1 puzzle. For the avoidance of doubt, a minor mistake is considered a single pencilmark that has not been clearly written in as a solution digit, no more than two digits or cells that have been swapped, or a single incorrect or missing line in an otherwise-complete and correct puzzle.

Team Rounds

A bonus of 40 points for each full minute remaining will apply to any team who correctly solves every puzzle in a round. If there are any mistakes, there will be no bonus awarded.

Competition Hall Rules

- 1.1. Each competitor must sit at their pre-allocated desk to take part in individual rounds. Teams must work at their pre-allocated desks/areas for team rounds.
- 1.2. Competitors should ensure that they are at their desk ready for the start of each round. Late arrivals may not be permitted to enter the competition hall to take part in a round (at the discretion of the organizers).
- 1.3. Prior to the start of each round competitors should clearly write their name, country, and team on the front of their competition booklet. If this information is not completed the organizers reserve the right not to award any points to that competitor for that round. Competitors must not open their booklet.
- 1.4. Once the signal to start a round is given, competitors may open their booklet and begin solving the puzzles.
- 1.5. During each individual round, competitors must remain silent, unless declaring completion of a round.
- 1.6. During team rounds, team members may talk amongst themselves, but should do this with respect to other teams that may be near them.
- 1.7. If declaring a round complete, close your booklet, clearly state 'finished' and raise your arm. Keep your arm raised until your paper has been collected. Teams should declare in the same way if they complete a team round.
- 1.8. Competitors or teams that complete a round with more than five minutes left will be allowed to quietly leave the competition hall.
- 1.9. Competitors or teams that complete a round with five minutes or less left will not be allowed to leave their desk or table so as not to cause unnecessary disruption to fellow competitors.
- 1.10. If any competitor needs to leave the competition hall prior to the end of a round, they will not be allowed to take any further part in that round.
- 1.11. Once the signal to finish a round is given, competitors must immediately stop solving, close their booklets and put their pens/pencils down, and be ready to hand their booklets in for marking.

- 1.12. At the end of a round, you must remain seated until all puzzle booklets have been collected. You will be told when you can get up and leave.
- 1.13. Mobile phones are not permitted to be used in the competition hall and must be turned off.
- 1.14. Only team captains and official observers will be allowed access to the competition hall whilst either individual or team rounds are taking place. Other non-competing people must stay outside the competition hall at all times, as there is no space for spectators.
- 1.15. Competitors may not use cameras or other recording devices during rounds. Only official observers may do so, at the discretion of the organizers. They must respect the competitors and not use flash photography or cameras with excessive sounds.
- 1.16. If you believe that there is a problem with a puzzle, leave that puzzle and continue with another. This will be investigated upon completion of the round.
- 1.17. Puzzles can be completed in any order. The points' value of a puzzle is an indication of its anticipated difficulty, although your solving experience may differ.
- 1.18. The boxed area at the bottom of each puzzle booklet page is reserved for markers' notes - do not write in this area.

Permitted Items

- 2.1. Unless specifically stated for any round permitted items which may be taken into the competition hall and used are: Pens, pencils, erasers, rulers, instruction booklets (optionally annotated with notes regarding puzzle instructions and preparation notes) and blank paper. Drinks and snacks will also be allowed so long as they do not disturb other competitors (e.g. rustling a crisp packet, or a very strong smell).
- 2.2. It is strictly forbidden to use electronic devices such as music players and headphones of any type or any type of calculator. Use of such equipment may lead to the competitor being disqualified from the competition.
- 2.3. Any other items brought into the hall must be left in a bag on the floor under your desk, so as not to block the aisles.

Marking and Queries

- 3.1. Once a round has been fully marked, booklets will be returned to team captains at a specified location.
- 3.2. In the event of any query after a booklet has been marked and returned to a competitor, the query must be raised through the captain with the organizers. The booklet should be left with the organizers for investigation.
- 3.3. Some puzzles may be photographed during the marking phase to confirm that no subsequent alteration has been made to the puzzle.
- 3.4. Team captains are responsible for ensuring that any information given to them relating to the competition is effectively relayed to their team.
- 3.5. The decision of the tournament director is final.

Breach of Rules

- 4.1. Any breach of these rules may lead to a competitor or team being disqualified from the competition.

Play-offs

Overview

The top 10 competitors from the individual competition will qualify for the play-offs. This is broken into three rounds. The format of each round is a set of puzzles that were previously encountered in the tournament.

Play-offs competitors will solve as per previous rounds on desks. Each puzzle will be taped centrally to the desk and will be filmed by a camera for relay to spectators.

The first round will feature competitors who finished in positions 7-10, with staggered starts determined by points' differences, as defined below.

The winner of the first round, 'A', will progress into the second round along with competitors who finished in positions 4-6. 'A' will have a staggered start as determined by the 7th place competitor.

Similarly, the winner of the second round, 'B', will progress into the third and final round, and play against competitors who finished in positions 1-3. 'B' will have a staggered start as determined by the position of the 4th place competitor. This round will determine the podium places for the 24th World Puzzle Championship.

Staggered starts

Given $S_1; S_2; \dots; S_{10}$ are the point scores of the top 10 competitors, and $B = 600 / (S_1 - S_{10})$:

The staggered start, in seconds, for competitor i in the first round is: $B(S_7 - S_i)$.

The staggered start, in seconds, for competitor i in the second round is: $B(S_4 - S_i)$.

The staggered start, in seconds, for competitor i in the third round is: $B(S_1 - S_i)$.

Solving and Submission

When a play-off competitor completes a puzzle, they must raise their hand to indicate to a judge to enter the submission period.

The entire puzzle will then be judged over the next minute. After one minute, if the puzzle is correct, the judge will allow the competitor to begin the next puzzle. If the puzzle is incorrect, the judge will return the incorrect puzzle to the competitor. The competitor can resubmit a returned puzzle at any time, and will again enter the submission period.

Puzzle Rules and Examples

The example puzzles are a true reflection in quantity, grid dimension and format of the corresponding competition puzzles wherever possible. Some irregularly shaped grids may have different geometric layouts. The competition puzzles will appear at a significantly larger size - one per page. The difficulty of an example puzzle is not necessarily reflective of the difficulty of the corresponding competition puzzle.

Puzzle Credits

Authors will remain anonymous individually until the solutions are distributed. The organisers would like to collectively thank Andrey Bogdanov, Vladimir Portugalov, Svetlozar Stefanov, Gabriele Simionato, Kazunori Saito, Masatoshi Kengo, Minako Sakai, Olga Leontyeva, Anton Titov, Tawan Sunathvanichkul, Deyan Razzadov, Hns Eendebak, Whit McMahan, and the World Puzzle Federation for the example and competition puzzles.

ROUND 1: Welcome

Individual

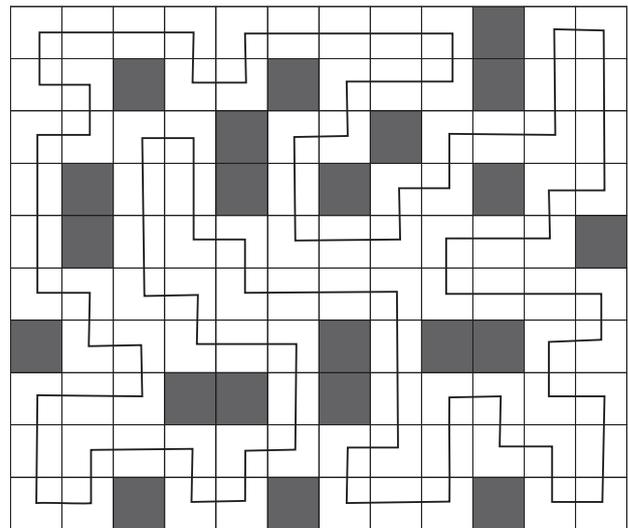
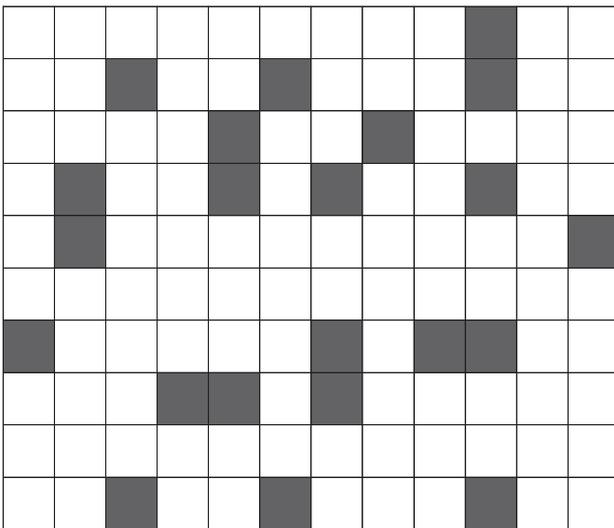
Thursday 15th October 2015, 09:00 - 09:50

50 minutes - 400 total points

SIMPLE LOOP

30 points

Draw a single loop using only horizontal and vertical lines such that the loop visits all white squares exactly once.



MINESWEEPER

55 points

Place mines into some empty cells in the grid. Clues in cells show the number of mines in touching cells, including diagonally. Only one mine may be placed per cell. The number of mines is unknown.

				2			
	1	2				2	
				6			
3	5	2					
							3
	2	4	1			1	
					2		3
		5	4	4			
	4						3
	3	1	2				

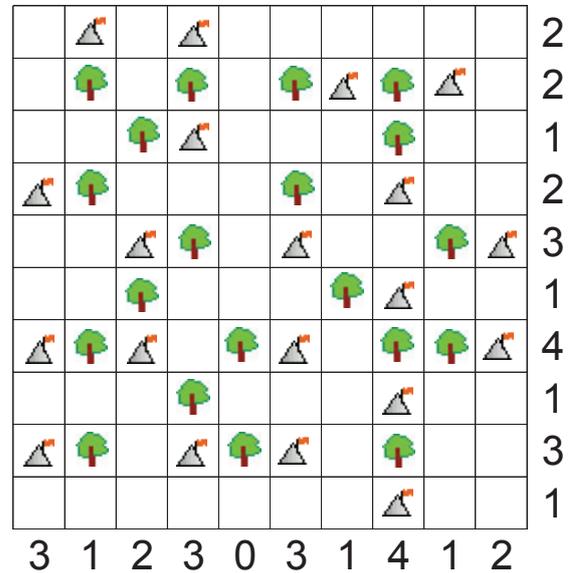
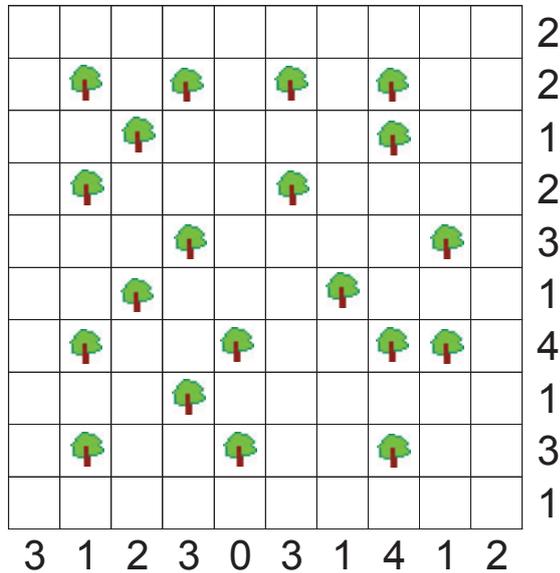
			○	2			
	1	2	○	○	○	2	
	○	○		6	○		
3	○	5	2		○	○	○
	○	○					3
	2	4	○	1		1	○
		○	○			2	3
	○	5	○	4	○	4	○
○	4	○		○	○		3
○	3	1	2				

TENTS

50 points

Attach a tent to each tree, in a horizontally or vertically adjacent cell. Cells with tents do not touch each other, not even diagonally. Numbers outside the grid indicate the number of tents in that row or column.

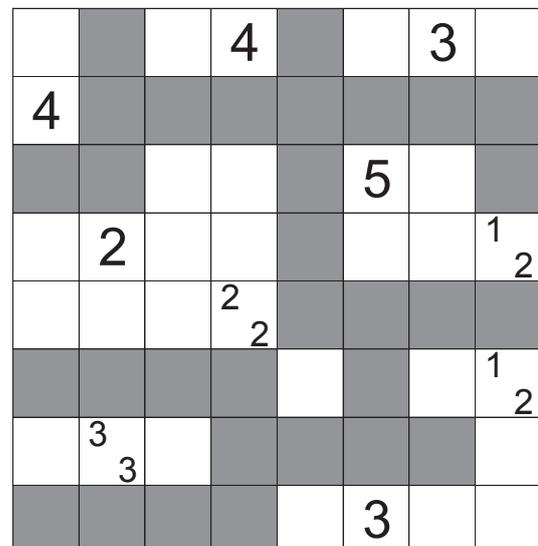
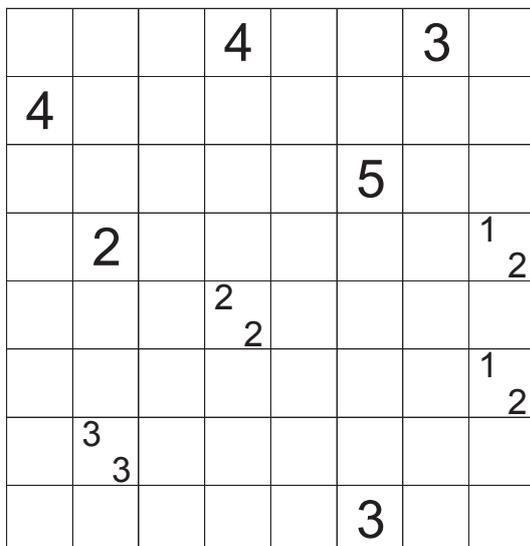
To receive credit you need only mark tents position - it is not necessary to link them to trees.



TAPA

70 points

Shade some cells to create a continuous wall. Numbers in a cell indicate the length of shaded cell blocks in its neighboring cells. If there is more than one number in a cell there must be at least one unshaded cell between the shaded cell blocks. Shaded cells cannot form a 2x2 square or larger.



FILLOMINO

110 points

Fill each empty cell with a number such that every number in the grid is part of a continuous region of that many cells. A region is continuous whenever two cells touch orthogonally. Two different regions made up of the same number of cells cannot touch orthogonally. To receive credit you need only unambiguously indicate the shape of each region - it is not necessary to write all numbers in.

	5		4		
	8			5	
		4			
		8	2		
3		2			
			8		

8	5	5	4	4	4
8	8	5	5	5	4
8	4	4	4	4	8
8	8	8	2	2	8
3	8	2	8	8	8
3	3	2	8	8	8

DIFFERENT NEIGHBORS

85 points

Fill in the grid with digits 1, 2, 3, 4. Cells with the same digits cannot touch each other even diagonally.

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

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

ROUND 2: Classics

Individual

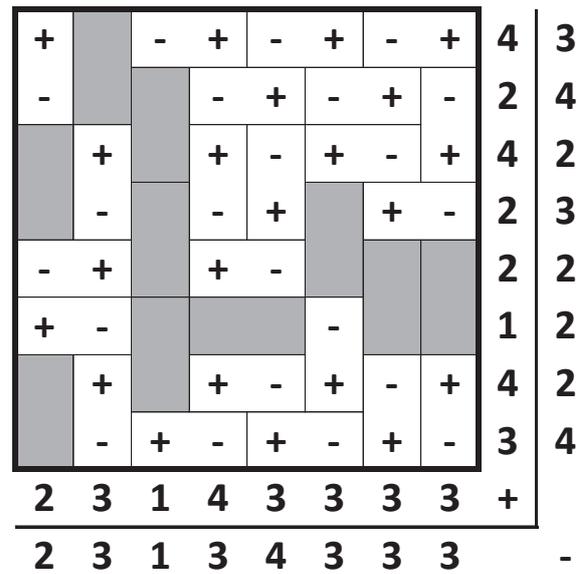
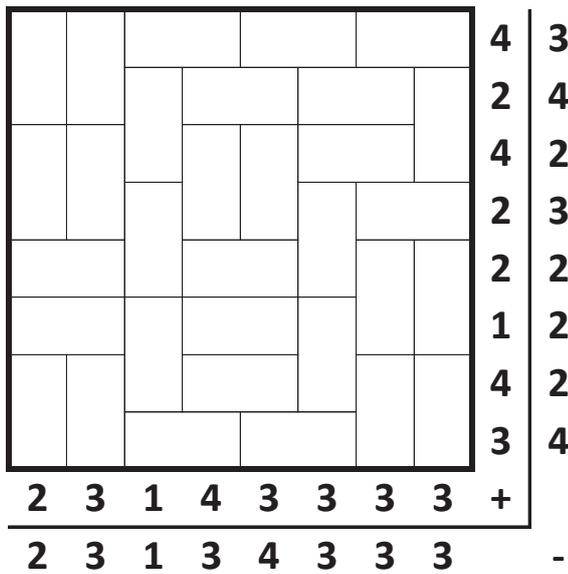
Thursday 15th October 2015, 10:00 - 11:00

60 minutes - 600 total points

MAGNETS

20 points

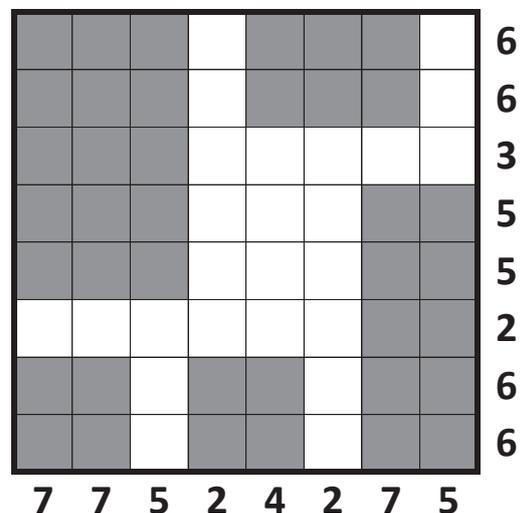
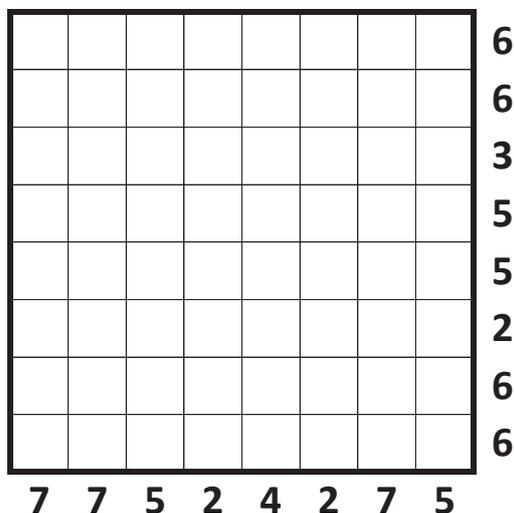
Complete the diagram with magnetic and shaded non-magnetic tiles. Each magnetic tile has two poles, + and -, with one on each half. Two halves with the same poles cannot touch horizontally or vertically. The numbers at the right and bottom of the diagram indicate how many positive and negative poles appear in that row or column.



CLOUDS

20+25 points

Draw some rectangles which cannot touch each other even in a point. Both dimensions of each rectangle are at least two. Clues outside show the number of cells occupied by clouds in the corresponding row or column.



TRIANGULAR MINESWEEPER

20+30 points

Place 15 right-angled triangles into some empty cells in the grid. Each triangle occupies exactly half of a cell. Triangles cannot touch each other, not even at a point. Clues in cells show the number of triangles touching that cell, including only at a point.

			3		
	2				3
			2		3
	4	4			
				4	

↘		↘	3	↘	↘
	2	↗			3
				↘	↘
↘	↘		2		3
	4	4	↘		↘
↘	↘		↘	4	↘

ARROWS

20+30 points

Put horizontal, vertical or diagonal arrows in every empty cell. All arrows should point inside the square. Clues show the number of arrows pointing to the cell with clue.

	2	2	2	2	4	1
	4	1	4	2	0	4
	1	5	4	0	2	0
	4	4	5	3	1	1
	5	2	5	3	1	2
	3	5	3	1	4	2

	↓	↓	↓	↘	↖	↖	
↘	2	2	2	2	4	1	↖
↗	4	1	4	2	0	4	↖
↗	1	5	4	0	2	0	↖
↘	4	4	5	3	1	1	←
↗	5	2	5	3	1	2	←
↗	3	5	3	1	4	2	←
	↗	↖	↑	↗	↗	↖	

HITORI

20+20 points

Shade some cells to avoid double numbers in a row or column. Shaded (black) cells do not touch each other vertically or horizontally. All remaining white squares form a single continuous area.

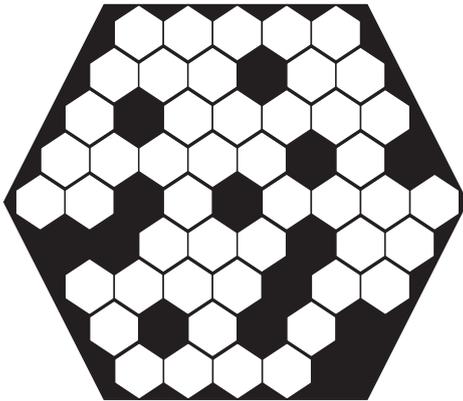
2	3	3	1
1	2	3	2
3	2	1	1
4	2	2	3

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

HEXAISLANDS

30 points

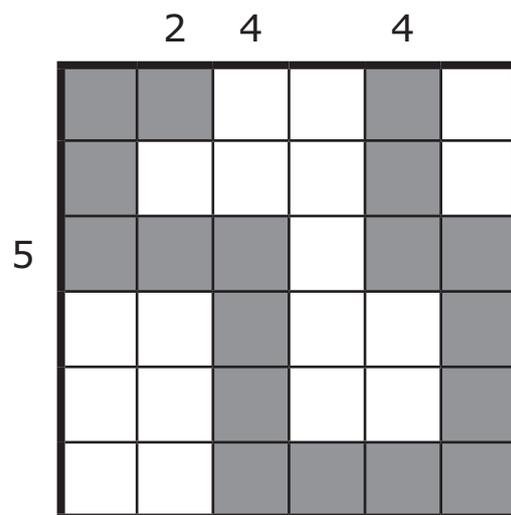
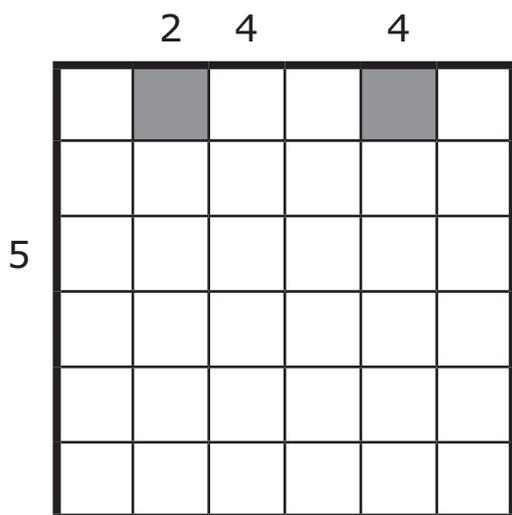
Blacken some cells. White cells should form six islands which consist of six cells each. Islands cannot touch each other.



SNAKE

35+40 points

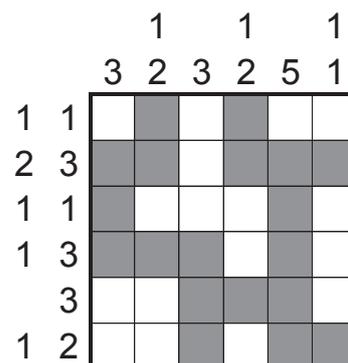
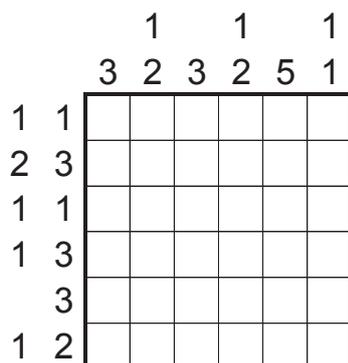
Find a snake in the grid whose head and tail are indicated by the grey cells. The snake wriggles horizontally and vertically and never touches itself, not even diagonally. The digits outside the grid indicate the number of cells occupied by the snake in that row or column.



CORAL

35 points

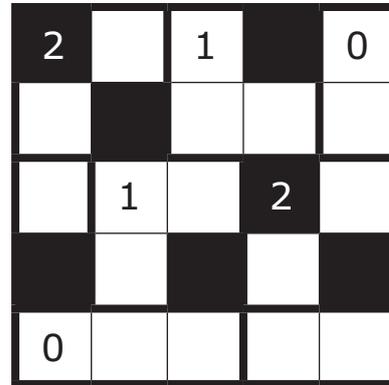
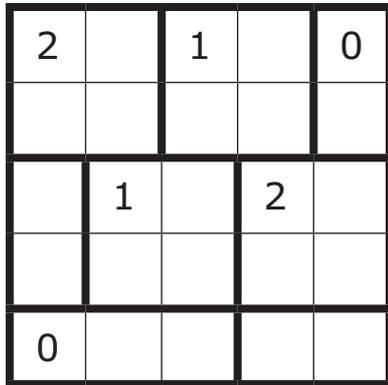
Shade some cells to form a coral. The Coral must be contiguous, must not completely fill any 2x2 block, and must not touch itself even diagonally. The numbers around the border give the lengths of consecutive blocks of coral in a given row or column, though not necessarily in the order in which they occur. Between any two blocks there must be at least one blank square.



HEYAWAKE

35+60 points

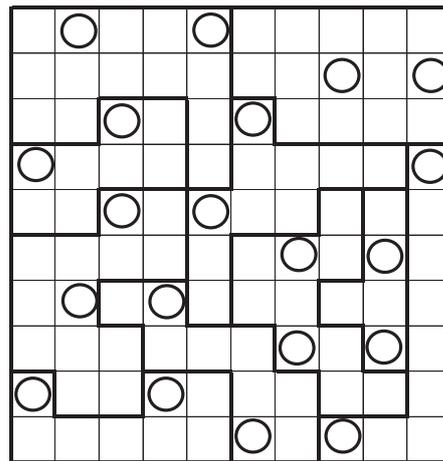
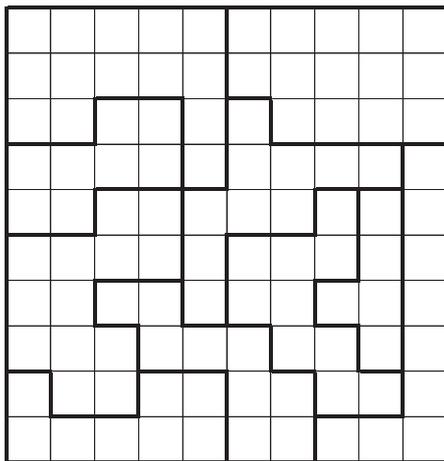
Blacken some fields of the grid, so that black fields don't touch each other. All white fields remain orthogonally connected. A hint inside a region gives the number of black fields in that region. Hints may be blackened, but still hold. No horizontal or vertical sequence of white fields may span more than two regions.



STAR BATTLE

40 points

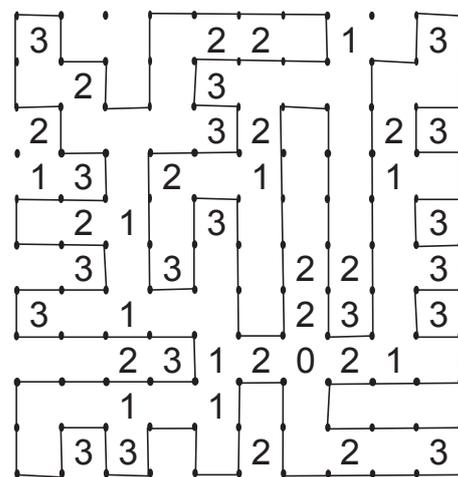
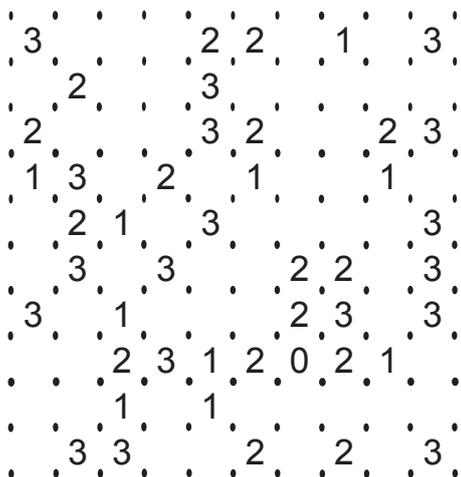
Place stars in some cells so that each row, column and outlined region has exactly 2 stars. Cells containing stars cannot touch each other, not even diagonally.



SLITHERLINK

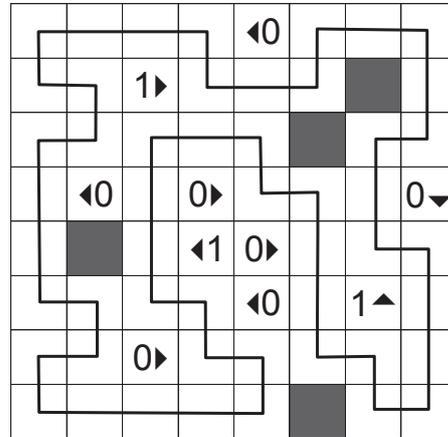
15+40 points

Draw a single loop by connecting together some dots so that each numbered cell has the specified number of adjacent line segments. Dots can only be joined by straight horizontal or vertical lines. The loop cannot touch, cross or overlap itself in any way.



Draw a single loop using only horizontal and vertical lines such that the loop does not visit any cell more than once. Any cells which the loop does not visit must be shaded. Shaded cells cannot touch orthogonally. Numbers with arrows indicate the exact number of shaded cells in a given direction in a specific row or column, but not all shaded cells are necessarily identified with arrows.

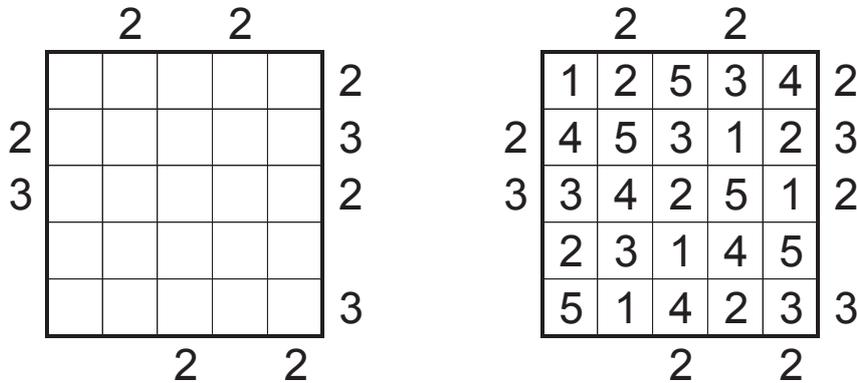
				◀0		
		1▶				
	◀0		0▶			0▼
			◀1	0▶		
				◀0	1▲	
		0▶				



SKYSCRAPERS

35+50 points

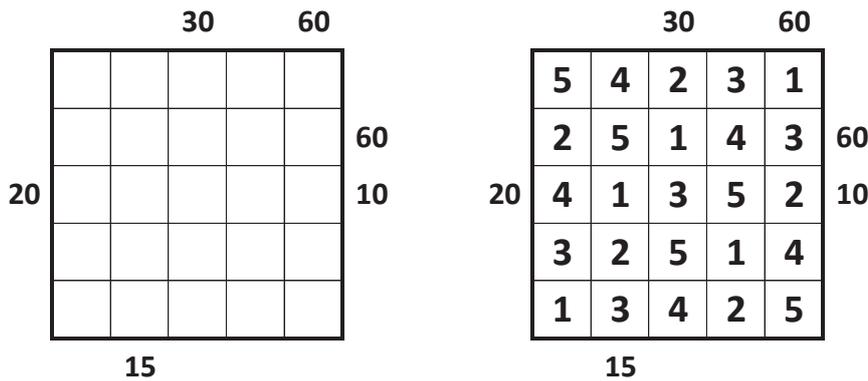
Place a digit from 1 to N (N is a size of the grid) once each into every row and column inside the grid. Each digit represents a skyscraper with a height equal to the digit. Digits outside the outlined area represent the number of skyscrapers that are visible from that side. Higher skyscrapers hide shorter skyscrapers.



PRODUCT SKYSCRAPERS

35 points

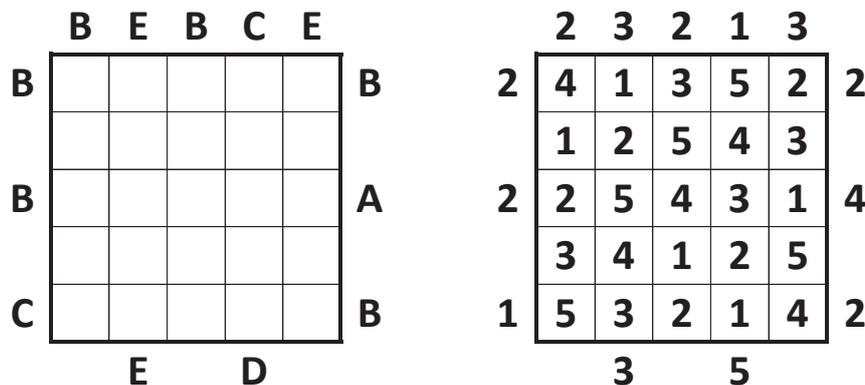
Place a digit from 1 to N (N is a size of the grid) once each into every row and column inside the grid. Each digit represent a building with corresponding height. Numbers outside show the product of heights of visible buildings in the corresponding direction.



ENCRYPTED SKYSCRAPERS

25+40 points

Place a digit from 1 to N (N is a size of the grid) once each into every row and column inside the grid. Each digit represents a skyscraper with a height equal to the digit. Clues outside the outlined area represent the number of skyscrapers that are visible from that side. Higher skyscrapers hide shorter skyscrapers. All clues are encrypted - the same letters mean the same numbers and different letters mean different numbers.



ROLLERCOASTER

35 points

Place the digits from 1 to 8 exactly once each into every row and column. Every digit should be either greater or smaller than all its adjacent neighbors.

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

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

DOPPELBLOCK

35+50 points

Place digits from 1 to 4 (from 1 to 5 in bigger puzzle) into some cells. Each row and column must contain every digit exactly once. Numbers outside the grid give the sum of all digits which are between the two empty cells in the corresponding row or column.

	1	3	6		4	4
7						
4						
2						
3						
4						

	1	3	6		4	4
7	3		1	2	4	
4	2	3		4		1
2	4		2		1	3
		2	4	1	3	
3	1	4		3		2
4		1	3		2	4

CHAOS

30+60 points

Fill in the grid with digits 1, 2, 3, 4. Cells with the same digit cannot be connected by knight's move and cannot form rows (horizontal, vertical or diagonal) of length with more than 2.

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

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

NO FOUR IN A ROW

40+50 points

Fill in the grid with X and O. There must not be four the same signs in a row (vertically, horizontally or diagonally).

	X	X			X	X	X		X
X					X		X	X	O
		O	X						O
O	O								X
		X	X		X		O		
	X			X			O		O
	O			X				X	
X	O						O		O
O			O			X	O		
O	O	X		O	O		O		O

O	X	X	X	O	X	X	X	O	X
X	O	X	X	O	X	O	X	X	O
X	O	O	X	O	X	X	X	O	O
O	O	X	O	X	O	O	O	X	X
O	X	X	X	O	X	X	O	O	X
O	X	O	X	X	X	O	O	X	O
X	O	X	O	X	O	X	X	X	O
X	O	X	O	X	O	O	O	X	O
O	X	O	O	O	X	X	O	O	X
O	O	X	X	O	O	X	O	X	O

ENCRYPTED SQUARE

45+70 points

Replace letters with digits. Different letters should mean different digits. Each row and column of the square must contain an arithmetic sequence. Multi-digit numbers cannot start with zero.

A	B	AA
CD	CE	DF
BC	GH	HG

A	B	AA
1	6	11
CD	CE	DF
32	30	28
BC	GH	HG
63	54	45

CORIOLIS

50 points

Place a digit 1-9 into each empty cell. The number in a grey cell indicates the sum of the digits placed in cells the adjoining arrow passes through. The digits within an arrow must be placed in ascending order (the highest digit is at the sharp end of the arrow). No digits may repeat within a row/column.

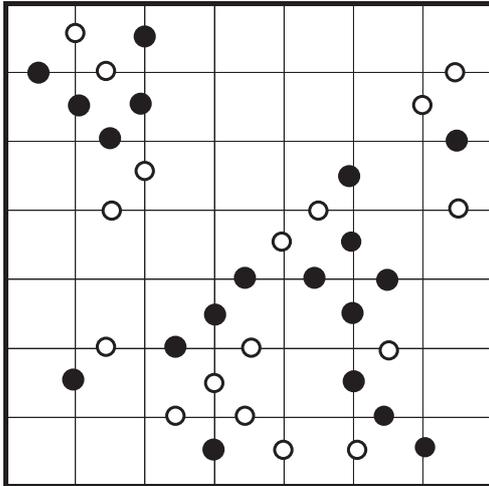
6					30			3
	11				15			
		20			16			
			8					
24	14						20	19
					29			
			3			16		
					11			9
4					26			17

6	9	8	7	6	30	2	1	3
1	11	7	5	3	15	9	6	8
2	5	20	9	7	16	8	3	6
3	6	1	8	8	7	4	2	5
24	14	4	1	9	5	3	20	19
7	2	6	3	4	29	1	5	9
8	3	9	3	1	2	16	4	7
9	4	5	11	2	3	6	9	1
4	1	3	26	5	6	7	8	17

KROPKI

45+60 points

Fill in the grid with digits from 1 to N. Each row and column contains every digit exactly once. A black dot is placed between two digits if one of them is twice the other. A white dot is placed if the neighboring digits are consecutive. All possible dots are given.



2	3	6	1	4	7	5
4	2	1	3	7	5	6
6	4	5	7	2	1	3
1	5	7	2	3	6	4
5	7	3	4	6	3	1
3	6	4	5	1	2	7
7	1	3	6	5	4	2

2D MAGIC

60 points

Fill in the grid with different two-digit numbers (the first digit must always be bigger). Digits used in these numbers cannot repeat in rows, columns and the main diagonals.

	3		7	
				7
6			2	9
		1		5
		4		

50	31	82	97	64
32	94	60	51	87
61	85	73	42	90
74	20	91	86	53
98	76	54	30	21

ROUND 4: Pathfinder

Individual

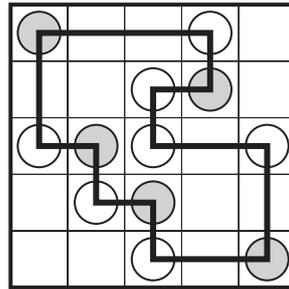
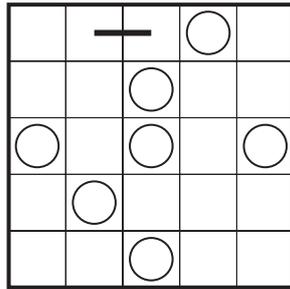
Thursday 15th October 2015, 14:30 - 15:30

60 minutes - 620 total points

MISSING CORNERS

15+25 points

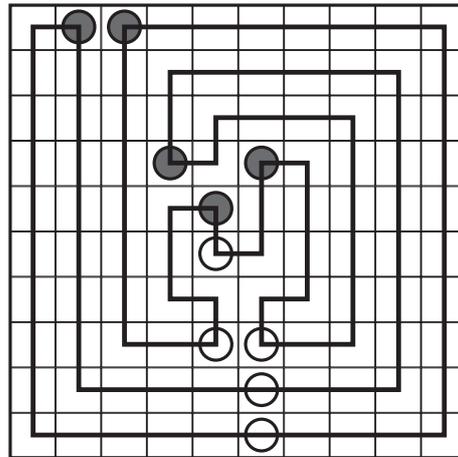
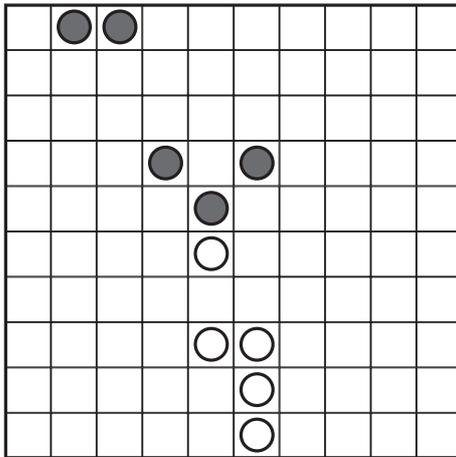
Draw a single closed loop going only vertically/horizontally through the centers of the cells. The loop cannot touch or cross itself. The loop can make turns only on marked (circled) cells. One circle is missing in every row/column.



ALTERNATING LOOP

20 points

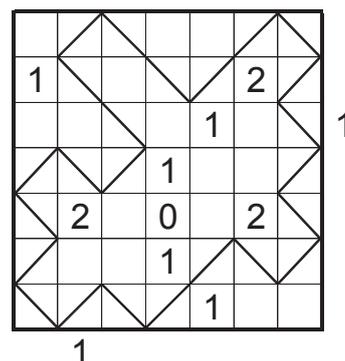
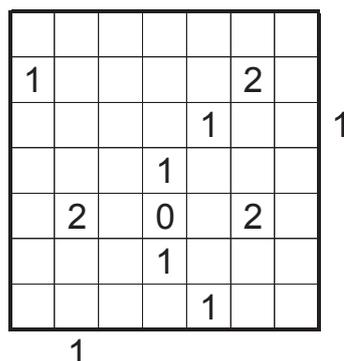
Draw a single continuous loop going through the centers of all cells. The loop cannot touch or cross itself. White and grey circles should alternate going along the loop, i.e. there cannot be two consecutive circles of the same color.



DIAGONAL LOOP

20 points

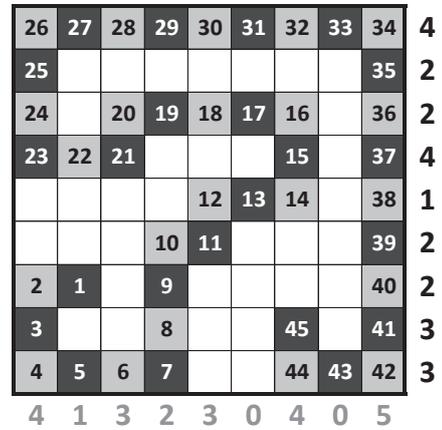
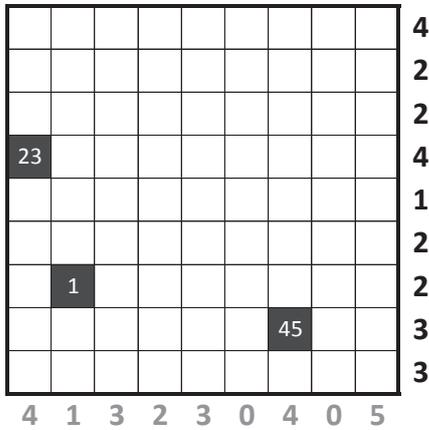
Draw a single continuous loop going diagonally through some cells of the grid. The clues show how many of the cell corners are part of the loop.



STRIPED SNAKE

30+40 points

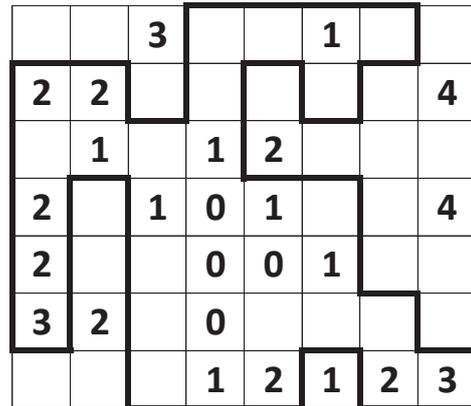
Draw a snake which cannot touch itself, not even diagonally. All odd cells of the snake are black and all even cells are grey. Clues on the right show the number of black cells in the corresponding row. Clues on the bottom show the number of grey cells in the corresponding column. The head, tail and middle cell of the snake are shown.



POLYGRAPH

25 points

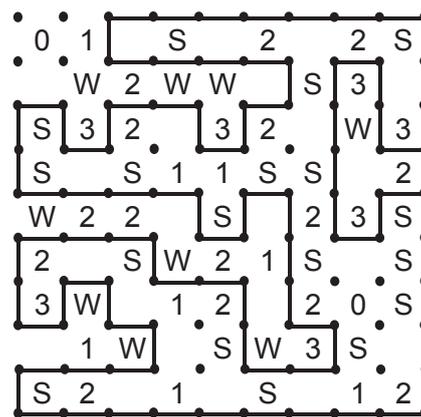
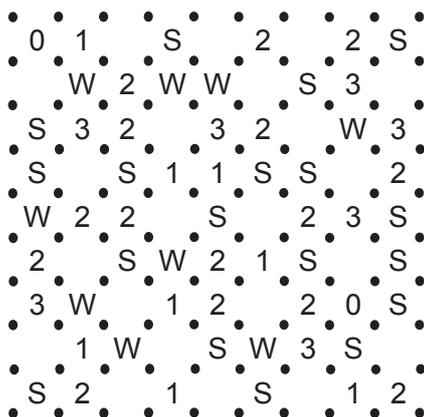
Draw a single closed loop going along the grid lines. Digits inside the cell show how many of the cell's edges are a part of the loop. Digits outside the loop show how many of the cell's edges are not a part of the loop.



SHEEP AND WOLVES

30 points

Draw a single, non-intersecting loop that only consists of horizontal and vertical segments between the dots. Numbers inside a cell indicate how many of the edges of that cell are part of the loop. Also, there are some sheep that must be inside the loop and some wolves that must be outside the loop.



MISSING LABYRINTH

35 points

Create a labyrinth in the grid. The clues outside the grid identify how many consecutive segments of grid lines are to be marked as borders in that row or column. Multiple clues represent multiple borders, given in the order encountered. There is a gap of at least one segment between adjacent borders on a line. When the labyrinth is complete there should be a route between the shaded cells which passes through each cell exactly once. The route is one-cell wide at all points, and moves between cell centres in a horizontal or vertical direction only.

To receive credit you must fully draw in one or both of the following: all maze walls, or the complete solution path to the maze.

	1	1	1	2	2	
	3	1	1	2	2	4

2	1					
2	3					
2	1					
4	1					
1						
5						
2	1					
2	1					

	1	1	1	2	2	
	3	1	1	2	2	4

2	1					
2	3					
2	1					
4	1					
1						
5						
2	1					
2	1					

WORD CONNECTION

60 points

Put the given words into the grid (some letters are already put), and connect them in the given order by a line going through every remaining cell exactly once. Words can be put in any of eight directions, but they cannot touch each other, not even diagonally. Each line connects the last letter of a word and the first letter of the next word, and lines cannot cross each other.

		N					E
			T				
				N			
U							
	U						

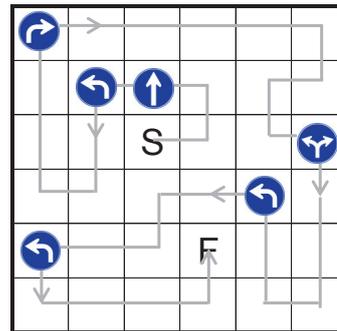
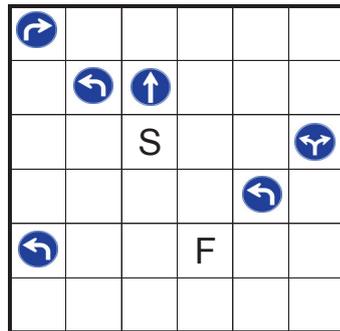
1. SUN
2. MON
3. TUE
4. WED
5. THU
6. FRI
7. SAT

		N	O	M			W
							E
		S	A	T			D
							I
E		S	U	N			R
U							F
T		U	H	T			

TRAFFIC SIGN MAZE

45 points

Draw a single path from S to F, going through every cell exactly once by connecting the centers of adjacent cells. On passing a cell with a traffic sign, the path must obey the sign.



CAVE

45 points

Form a cave of orthogonally connected cells so that each given number is inside the cave. Each given number indicates the number of visible cave cells, both horizontally or vertically, including the numbered cell itself. All cells outside the cave must be connected orthogonally to the edge of the grid.

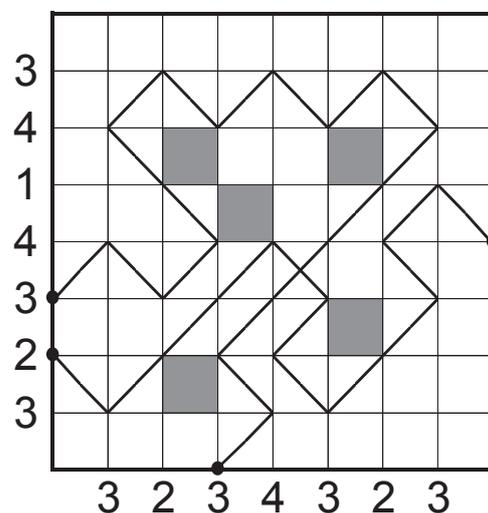
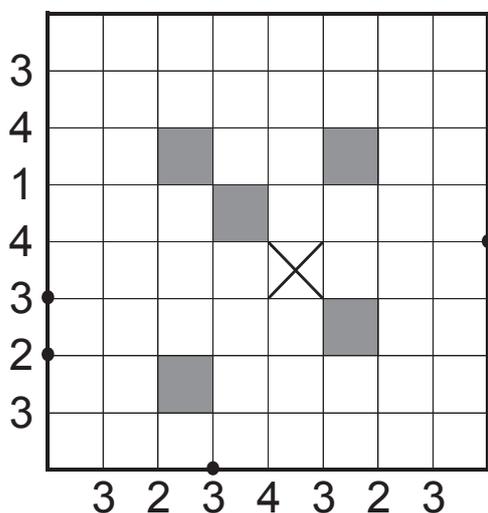
			3		5				
3						8			8
	11		10						14
		3				5			
		5							3
4							7		
			5				10		
	5					7		3	
2			7						2
				7	4				

			3		5				
3						8			8
	11		10						14
		3				5			
		5							3
4							7		
			5				10		
	5					7		3	
2			7						2
				7	4				

CROSSING LINES

60+70 points

Draw two lines with ends on the marked points on the grid border and crossing cells diagonally. The lines may not touch the grid border except on the end cells. The lines cannot pass through the grey cells and may intersect only in the marked cells. Clues show the number of turns lines have along the grid line.



ROUND 5: Hybrids

Individual

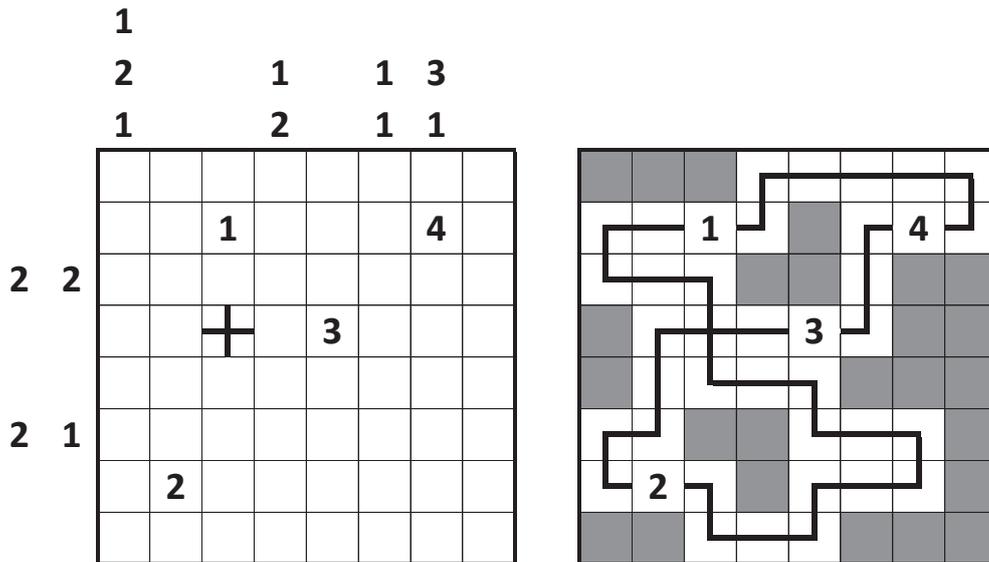
Thursday 15th October 2015, 15:50 - 17:00

70 minutes - 700 total points

JAPANESE RAILWAYS

20+40 points

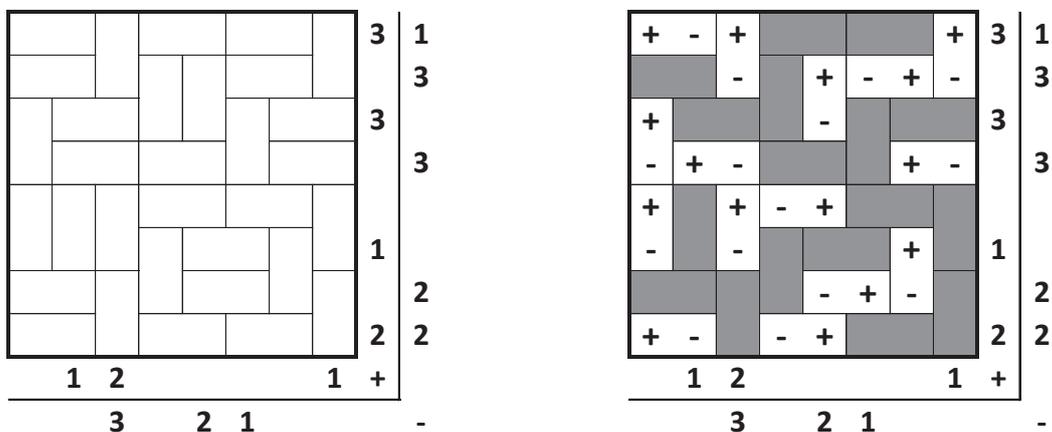
Blacken some cells. The numbers outside the grid show the lengths of black cell blocks in the corresponding row or column. There should be at least one white cell between two blocks. Draw a single closed line travelling vertically or horizontally through all white cells. All cells where line crosses itself are shown. Line should visit all cells with digits in order and cannot make turn in these cells.



CORAL MAGNETS

45 points

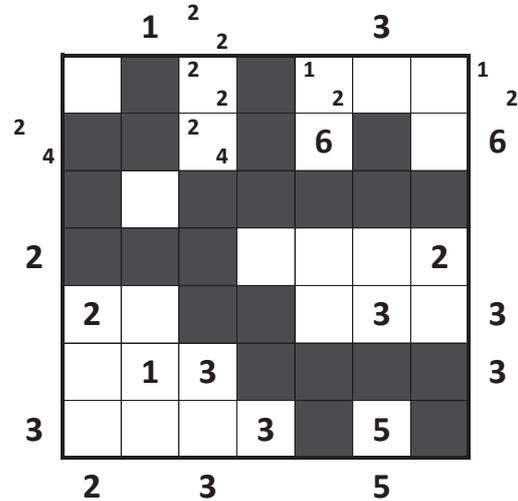
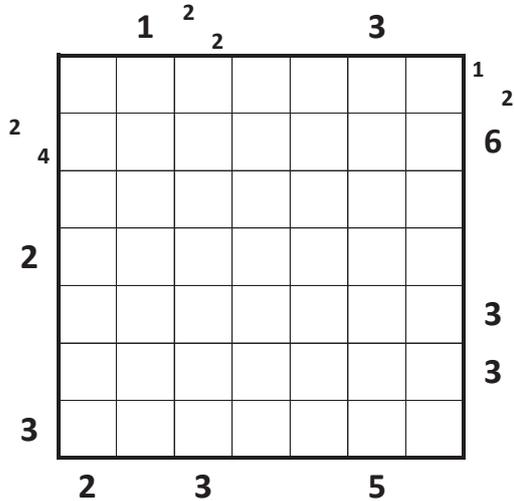
Complete the diagram with magnetic and shaded non-magnetic tiles. Each magnetic tile has two poles, + and -, with one on each half. Two halves with the same poles cannot touch horizontally or vertically. The numbers at the right and bottom of the diagram indicate how many positive and negative poles appear in that row or column. Shaded cells should form area which is connected horizontally or vertically and contains no 2x2 shaded areas. The area can't touch itself, not even diagonally.



EASY AS TAPA

45+90 points

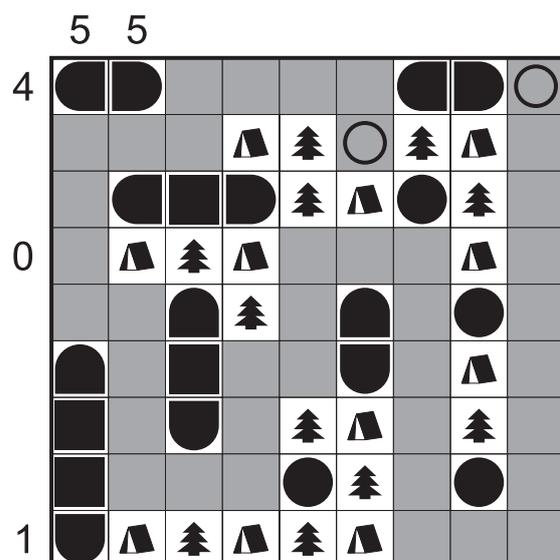
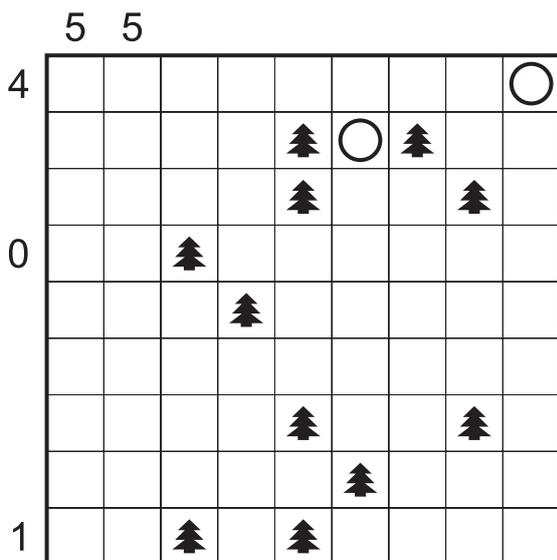
Place some tapa clues into the grid and solve tapa puzzle. Clues outside show the first visible clue from the given direction. Tapa rules: Shade some cells to create a continuous wall. Numbers in a cell indicate the length of shaded cell blocks in its neighbouring cells. If there is more than one number in a cell there must be at least one unshaded cell between the shaded cell blocks. Shaded cells cannot form a 2x2 square or larger. There are no wall segments on cells containing numbers.



SNAKE IN THE NAVAL FOREST

70 points

1. Attach a tent to each tree, in a horizontally or vertically adjacent cell. Cells with tents do not touch each other, not even diagonally.
2. Place the given set of ships into the empty cells of the grid. Ships cannot touch each other, not even diagonally.
3. Draw the snake through all the cells that are left empty. Its head and tail are shown by the circles. Snake is 1-cell wide and doesn't touch itself even at a point.
4. Clues outside the grid show the number of occupied cells either by ships or by the snake in the corresponding row or column.



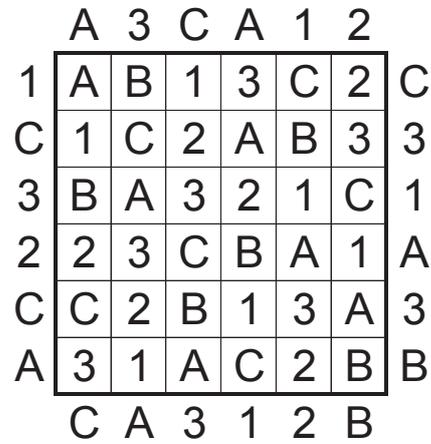
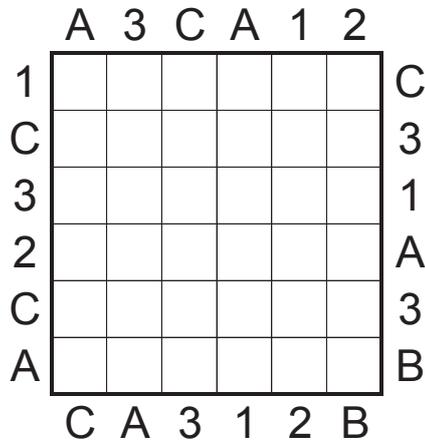
EASY AS ABCD123

90 points

Place letters ABCD (ABC in the example) and digits 123 so that each of them appears exactly once in every row and column

If the clue is a letter, it shows the first visible letter from that direction.

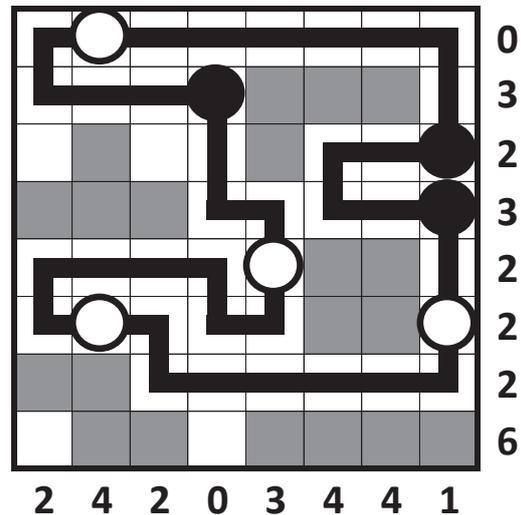
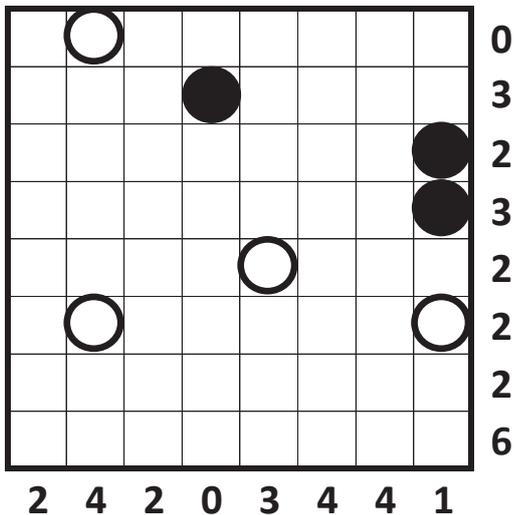
If the clue is a digit, it shows the first visible digit from that direction.



MASYU PENTAMINO

100 points

Draw a single loop using only horizontal and vertical lines between the centres of some cells such that the loop does not visit any cell more than once. At every cell containing a white circle the loop must pass straight through that circle and make a 90 degree turn in at least one of the cells adjacent to the circle. At every cell containing a black circle the loop must make a 90 degree turn and travel straight through both cells adjacent to the circle. Place the complete pentamino set into the cells which are not occupied by the loop. Pentamino can be rotated and reflected, but cannot touch each other even in a point. Numbers outside show the number of cells occupied by pentamino in the corresponding row or column.



ROUND 6: Poker Battle

Individual

Thursday 15th October 2015, 17:10 - 17:40

30 minutes - 200 total points

Bonus: 5 points/minute

Partial scoring possible

POKER BATTLE

200 points

Place 50 cards out of 53 cards in the deck (including one joker) to the grids, so that in the 5 rows and 5 columns of each grid you have the following 10 combinations presented (from strongest to weakest):

1. Royal Flush - 10, J, Q, K, A of the same suit
2. Straight Flush - 5 consecutive cards of the same suit (cards order: A, 2, 3, 4, 5, 6, 7, 8, 9, 10, J, Q, K)
3. Four of a kind - 4 cards with the same value
4. Full House - 3 cards of one value + 2 cards of another value
5. Flush - 5 non-consecutive cards of the same suit
6. Straight - 5 consecutive cards that are not the same suit
7. Three of a kind - 3 cards of the same value
8. Two pairs - 2 cards of one value + 2 cards of another value
9. One pair - 2 cards of the same value
10. No pair - none of the above

The joker is used to make the best possible hand, and can be treated as a different card in row/column.

For some rows/columns it may be preset the combination type required for that rows/columns. The symbols outside each grid indicate the win (circle), tie (triangle), or loss (x) against the hand in the same row or column in the other grid. Only combination power is compared and all combinations of the same type are considered the same power.

Partial scoring: Each correctly identified poker hand scores 10 points.

In order to receive credit you need only write cards in the grid (card value and suit sign). It is not necessary to write poker hands and winning signs.

Note: Example is using deck of 52 cards, without a joker.

A		△	x	x	△	o
				One pair		
△		♥		♥	♥	
o					K	
x		♠8	Q	5		♠
o	Flush	J				Q
o				2	3	

B		△	o	o	△	x
△				8	♣	◇
x		♥			K	7
o		♣	♥	5	◇	8
x			J			
x	No pair	7			♠	

Check	A	2	3	4	5	6	7	8	9	10	J	Q	K
♠								✕					
♥													
◇													
♣													

A		△	x	x	△	o
		Two pair	Three of a kind	One pair	Four of a kind	Full house
△	Straight	♥5	♠2	♥6	♥3	♥4
o	Royal flush	♠J	♠A	♠10	♠K	♠Q
x	No pair	♠8	◇Q	♠5	♠3	♠4
o	Flush	♣J	♣A	♣2	♣3	♣Q
o	Straight flush	◇5	◇A	◇2	◇3	◇4

B		△	o	o	△	x
		Two pair	Royal flush	Straight flush	Four of a kind	Flush
△	Straight	◇10	♥Q	♣8	♣9	◇J
x	Full house	♥7	♥K	♣7	♣K	◇7
o	One pair	♠10	♥10	♣5	◇9	◇8
x	Three of a kind	♠6	♥J	♣6	♥9	◇6
x	No pair	♠7	♥A	♣4	♠9	◇K

ROUND 7: Color Me In

Team

Thursday 15th October 2015, 18:10 - 18:50
40 minutes - 2000 total points

In this team round, each competitor is given one pen of a single color. Teams can decide who will be responsible for which color. During the round, members cannot change their pens.

There are 4 puzzles in this round, each one requires using 3 colors. Each member will participate in solving of only 3 of the puzzles, according to the color he or she will choose.

	1	2	3	4
GREEN		✓	✓	✓
YELLOW	✓	✓		✓
BLUE	✓		✓	✓
RED	✓	✓	✓	

Any marks must be done only with the pens provided and in right color. Marks with a wrong color will be ignored.

COLOR TAPA

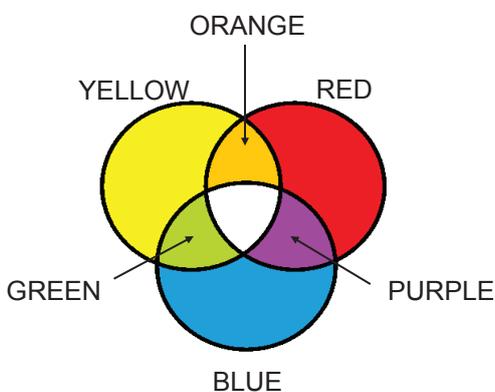
500 points

Solved using: YELLOW, BLUE, and RED pens.

Classic Tapa rules apply: the numbered cells indicate the length of surrounding blocks of shaded cells. When there is more than one number, there has to be at least one unshaded cell separating groups of shaded cells.

The wall will be colored with three color segments (blue, yellow, and red). Each colored segment must be contiguous. The colored numbers describe the mix of colors surrounding that cell. The mixture of three primary colors will result in a secondary color according to the given diagram.

					P 4				
1 P 2									
								1 P 4	
		2 O 3		1 O 1					
								1 O 3	
	3 O 3		G 7						
						G 7			
								2 O 3	
		1 R 3	1 O 3			3 O 3			



					4				
1 2									
								1 4	
		2 3		1 1					1 3
	3 3		7						
						7			
								2 3	
		1 3	1 3			3 3			

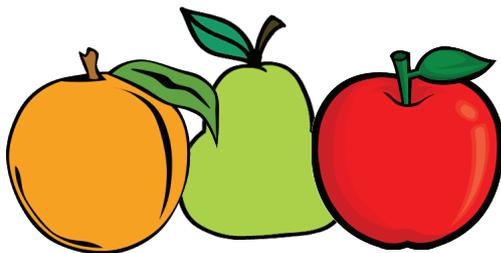
FRUIT BASKET

500 points

Solved using: GREEN, YELLOW, and RED pens.

Divide the given grid of letters using three colors. Each region must contain letters that spell out the corresponding fruit to the color used. Green regions must include the letters PEAR, yellow regions must include PEACH and red regions must include APPLE. Each letter belongs to only one cage and all letters must be used.

A	A	E	P	L	E	A	P
E	P	C	P	P	A	P	C
R	E	H	H	A	A	P	H
P	E	E	P	E	E	E	R
R	P	R	R	C	L	H	E
P	E	A	A	A	L	C	P
P	A	P	E	P	P	A	A
E	A	C	H	P	A	R	E



PEACH, PEAR, APPLE

A	A	E	P	L	E	A	P
E	P	C	P	P	A	P	C
R	E	H	H	A	A	P	H
P	E	E	P	E	E	E	R
R	P	R	R	C	L	H	E
P	E	A	A	A	L	C	P
P	A	P	E	P	P	A	A
E	A	C	H	P	A	R	E

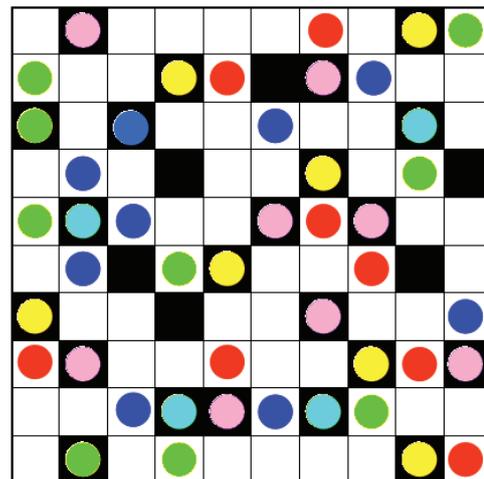
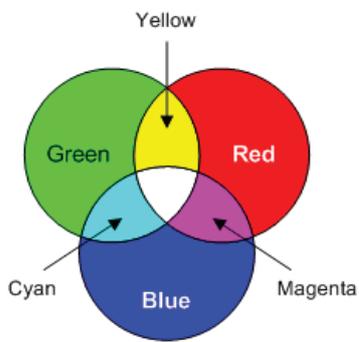
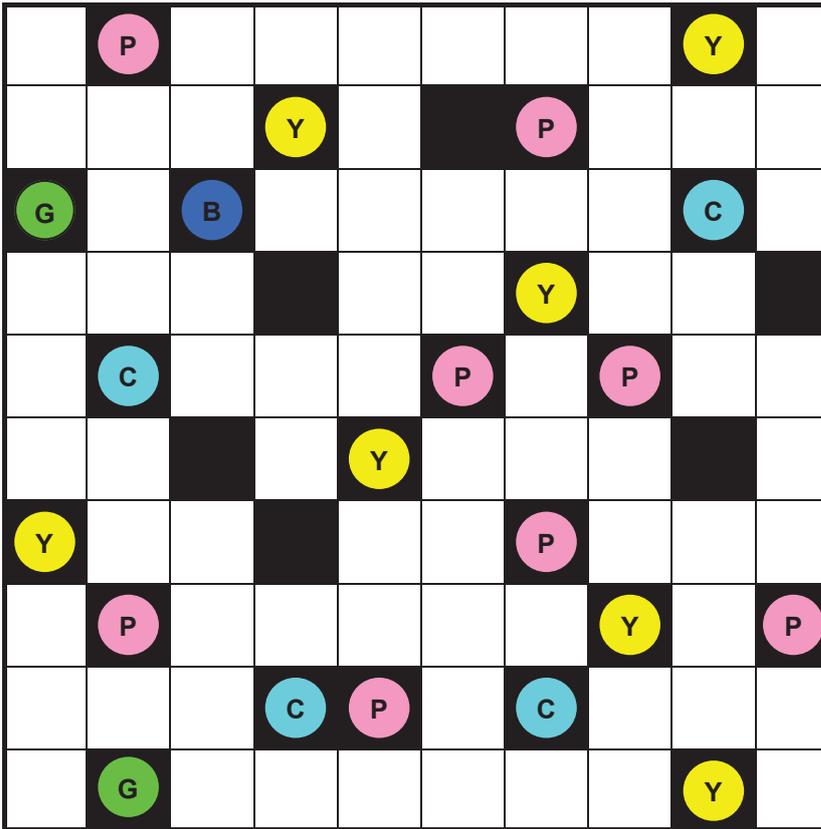
COLOR AKARI

500 points

Solved using: GREEN, BLUE, and RED pens.

Place colored (either: green, blue or red) light bulbs into white cells so that all white cells are illuminated. Each bulb illuminates all white cells that are in the same row and column as itself, until it reaches a wall or a black cell. No two bulbs can illuminate each other.

A colored black cell represent the mixture of colors of the lights illuminating that square. Additive light effects are given in the diagram.

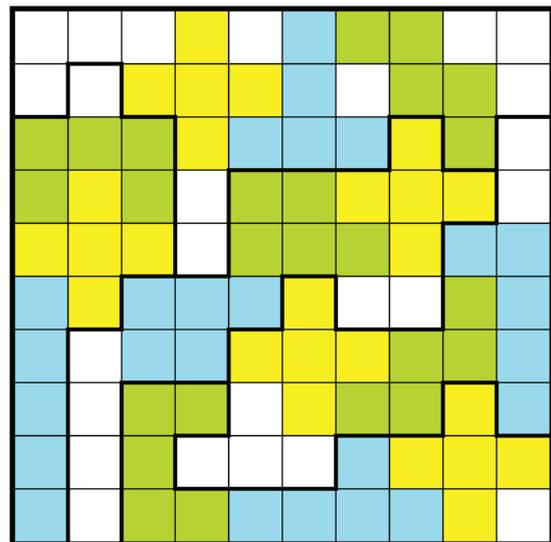
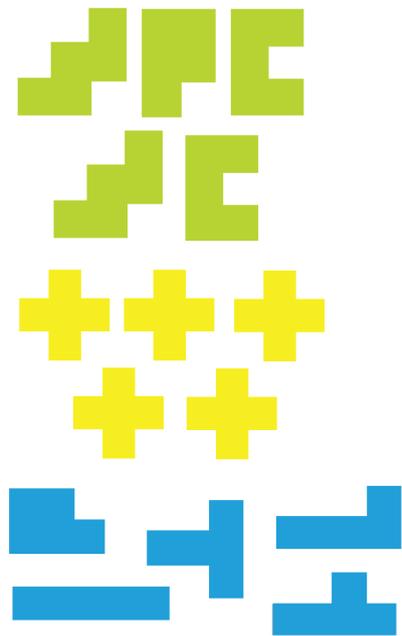
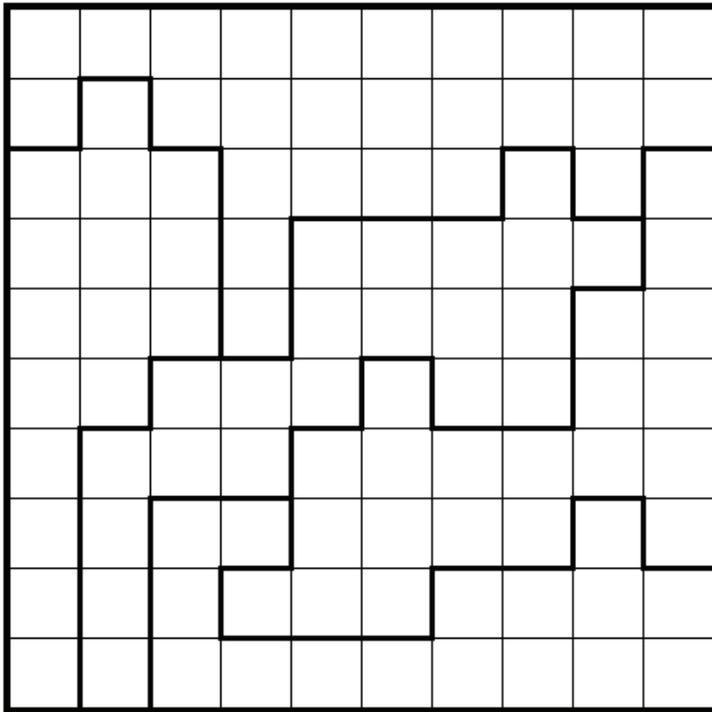


PENTOMINO AREAS

500 points

Solved using: GREEN, YELLOW, and BLUE pens.

Locate given sets of pentominoes in the given grid. Each bolded region must contain three pentominoes, one of each color. The pentominoes can be rotated and/or mirrored. Identically-colored pentominoes may not touch each other, not even diagonally. Each color will be given their own set of pentominoes to locate within the grid.



ROUND 8: Instructionless

Individual

Friday 16th October 2015, 09:00 - 09:50

50 minutes - 500 total points

This round contains 6 puzzle types and 3 puzzles for each type. Each puzzle type occupies two pages. On the upper half of the left page a full size example is given along with the correct solution. First puzzle is on bottom half of the left page and the other two puzzles are on the right page.

For some puzzle types it's possible different rules to explain the example. Only the correct rules will allow you to solve all three puzzles.

You do not need to provide any explanation of the rules. In order to receive credit for a puzzle, all of the elements added to the solution graphic must also be added to your own solution.

ROUND 9: Different Areas

Individual

Friday 16th October 2015, 10:00 - 10:50

50 minutes - 500 total points

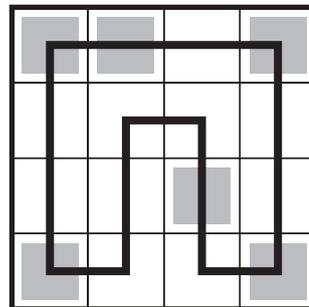
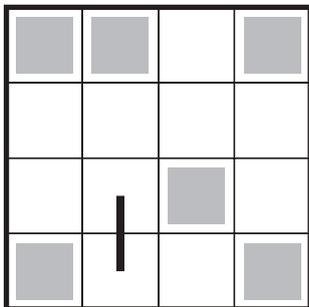
This part consists of some well known puzzles, but with an additional condition:
all the shaded areas should be filled/drawn/painted differently.

LOOP

30 points

Draw a single closed loop through all squares horizontally and vertically. The loop doesn't touch or cross itself.

The loop must pass through each shaded cell in a different way.



SUDOKU

30 points

Place the digits 1 to 9 once each into every row, column and outlined area.
Shaded cells must contain different digits.

■		1			
	■		3		
4		■		6	
	2		■		4
		6		■	
			6		■

2	3	1	4	5	6
5	6	4	3	2	1
4	1	3	5	6	2
6	2	5	1	3	4
1	5	6	2	4	3
3	4	2	6	1	5

RIPPLE EFFECT

45 points

Place the digits 1 to n in every outlined area, where n equals the size of the area. Two equal digits in the same row or column must be separated by at least an amount of cells equal to that digit.

Shaded cells must contain different digits.

		1			
4					1
	1				
		1			

5	4	1	3	2	1
1	3	2	5	1	3
2	1	5	2	3	4
4	5	3	1	2	1
3	1	2	4	1	2
2	4	1	2	5	3

MAGIC SUMMER

70 points

Place the digits 1 to 5 once each into every row and column. Each continuous block of two or more digits in a row or column is considered a multiple-digit number. Clues outside the grid give the total of all numbers in that row or column.

Shaded cells must have different content.

						415
						64
						28
						217
						127
244		28		46		

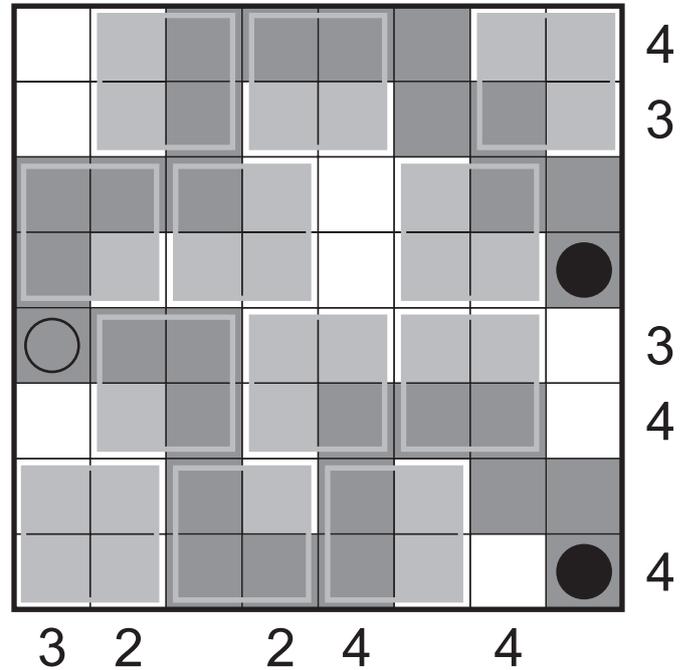
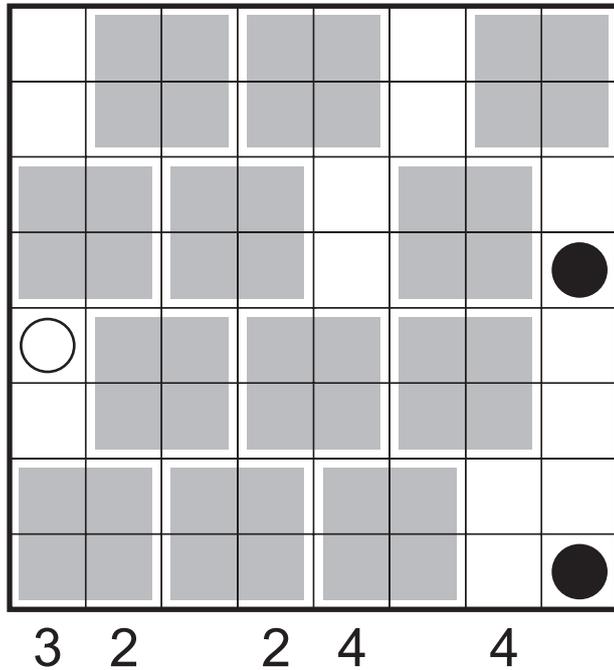
2		4	1	3		415
4	1			2	3	64
3		2	4		1	28
	4	1	3		2	
	3		2	1	4	217
1	2	3		4		127
244		28		46		

SNAKE

70 points

Draw a snake in the grid, 1 cell wide and 45 cells long. Its head and tail are given by the black dots and its center is given by the white dot. The numbers outside the grid indicate the number of the squares occupied by the snake in the correspondent row or column. The body of the snake cannot touch itself, not even diagonally.

Each shaded area must have a different combination of cells used by the snake.

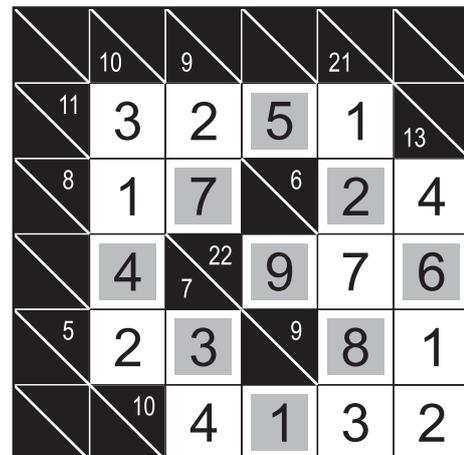
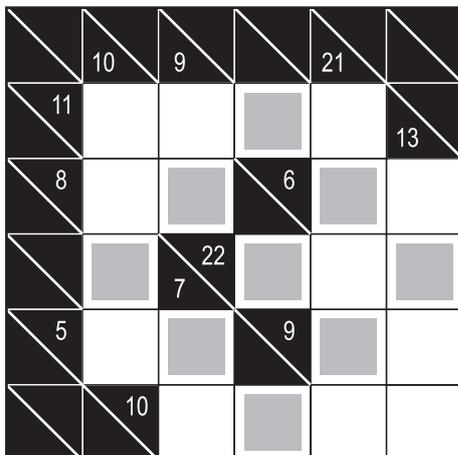


KAKURO

75 points

Place a digit from 1 through 9 in each empty cell so that the sum of the digits in each set of consecutive white cells (horizontal or vertical) is the number appearing next to the set. No number may appear more than once in any set of consecutive white cells.

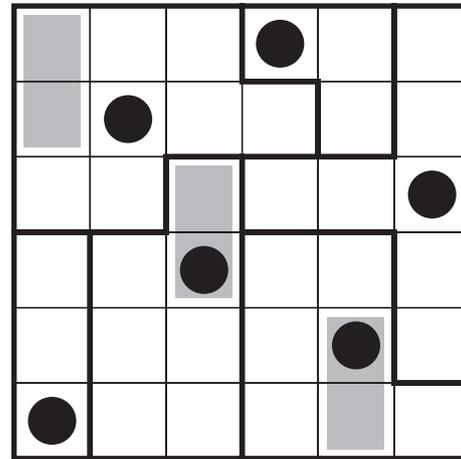
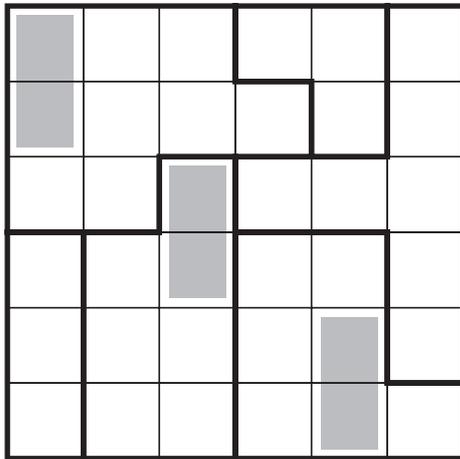
Shaded cells must contain different digits.



STAR BATTLE

85 points

Place two stars in every row, column and outlined area so that they don't touch each other, not even diagonally.
Each shaded area must contain a different star pattern.

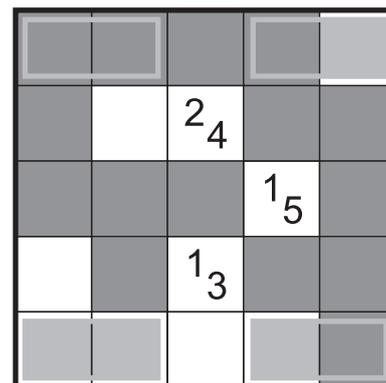
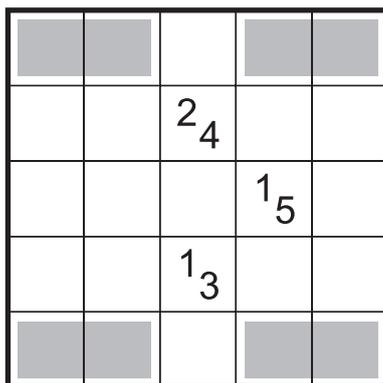


TAPA

95 points

Shade some empty cells black so that numbers in a cell indicate the length of black cell blocks on its neighbouring cells. If there is more than one number in a cell, there must be at least one white cell between the black cell blocks. No 2x2 square can contain all black cells. All black cells must be linked orthogonally.

Each shaded area must have different combination of cells that are part of the tapa.



ROUND 10: Something different

Individual

Friday 16th October 2015, 11:10 - 12:50

100 minutes - 1135 total points

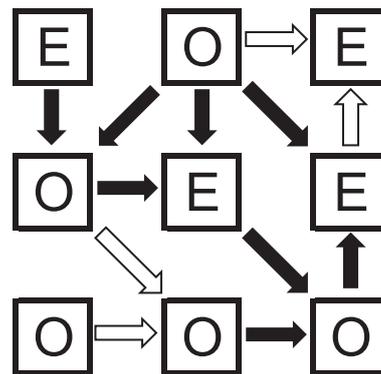
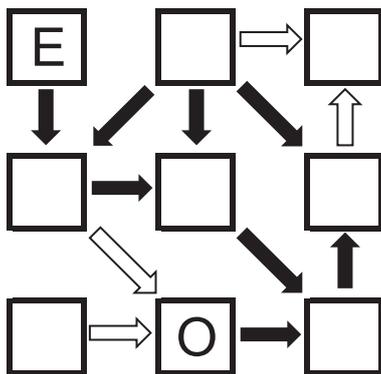
PARITY

25 points

Place letters E (even) or O (odd) into all cells.

In cells pointed by black arrows, the placed letter must be the "sum" of parities placed in the cells the arrows grow from.

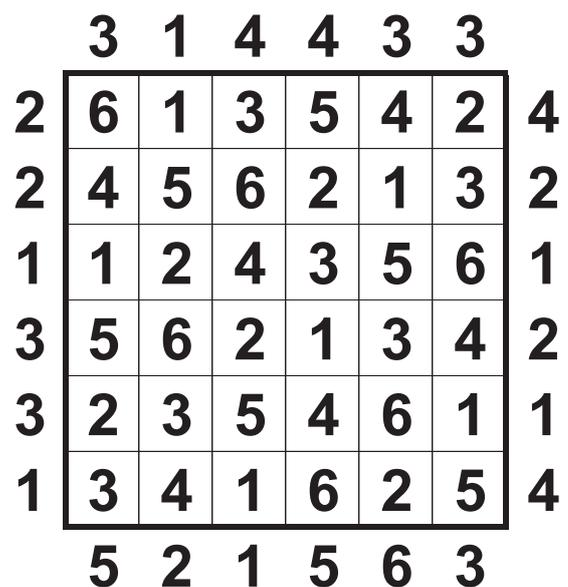
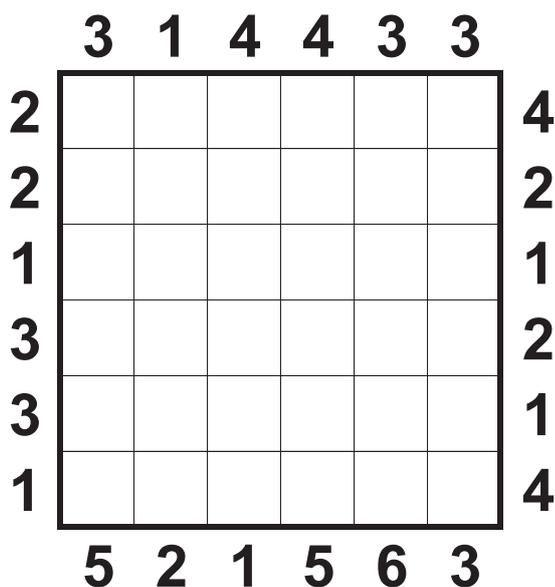
In cells pointed by white arrows, the placed letter must be the "product" of parities placed in the cells the arrows grow from.



NUMBERED ROOMS

25+45 points

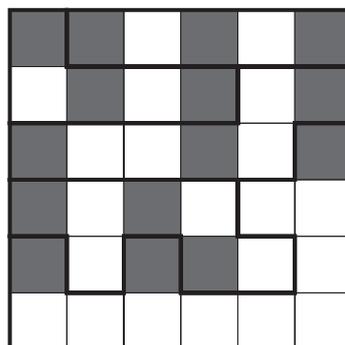
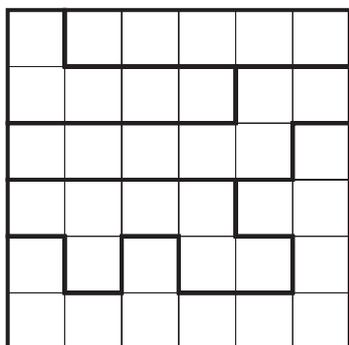
Fill in the grid with digits 1-7 (1-6 in the example) so that all digits in the each row and column are different. Digits outside the grid show content of the room numbered by digit in the first square in the corresponding direction



TRIO CUT

30+40 points

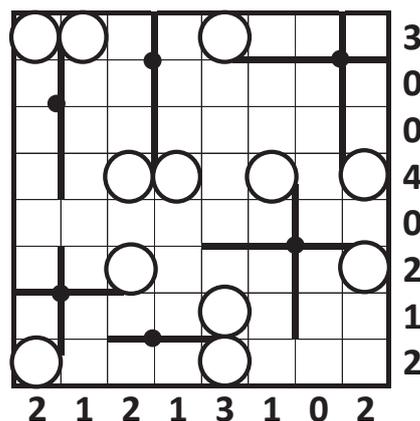
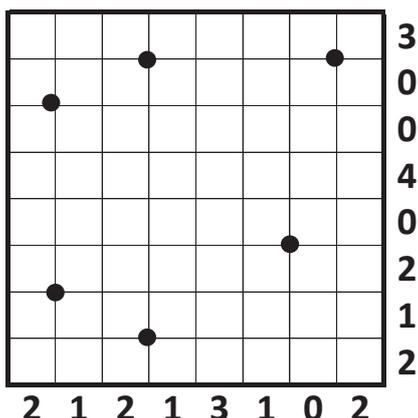
Paint some cells black to make some triominos so that each triomino will be cut twice by thick lines. Each region bordered by thick lines should have three painted cells



SCISSORS

30+60 points

Few pairs of scissors are placed into the grid. Scissors in one pair have the same size, but one of them is open and other is closed. Scissors of different pairs have different sizes. For every scissors distance between screw and points is greater than zero as well as distance between screw and rings. Scissors cannot touch each other even diagonally. All screws are shown. Clues outside show the number of rings in the corresponding row or column.

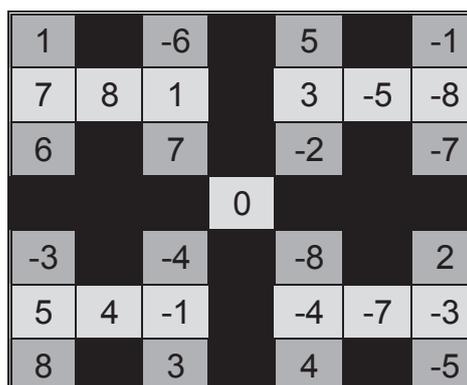
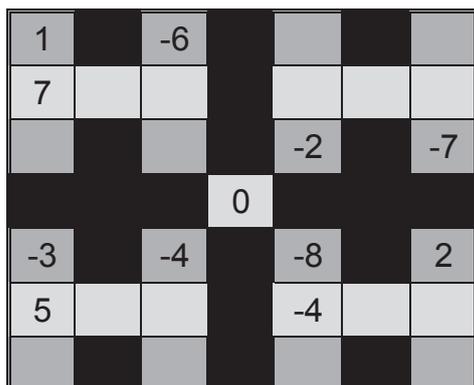


CHECKERBOARD

35+50 points

Fill in all white and grey boxes with numbers, so that:

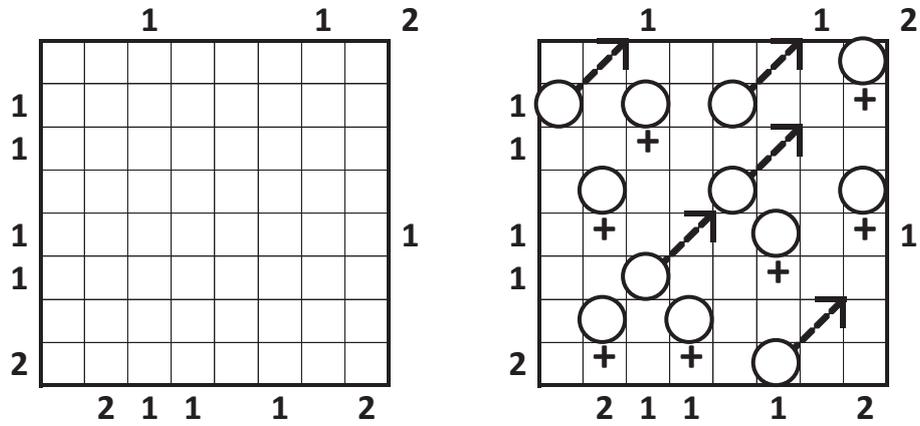
- Grey boxes contain each number from -8 to +8, except 0 exactly once.
- Every white box is equal to the sum of two boxes it lies between
- Numbers do not repeat in white boxes, but numbers may repeat between white and grey boxes



MARS AND VENUS

40+50 points

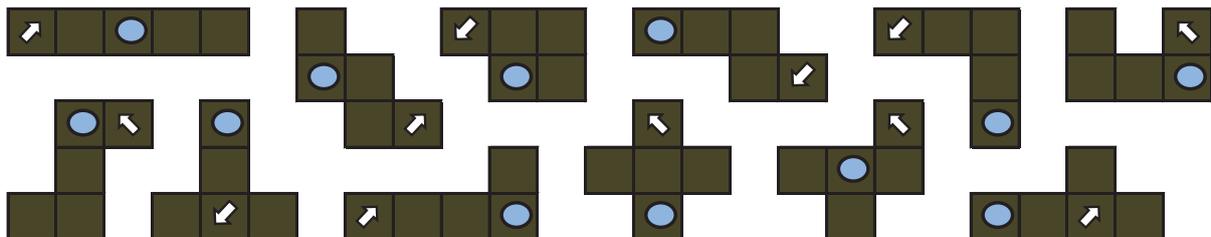
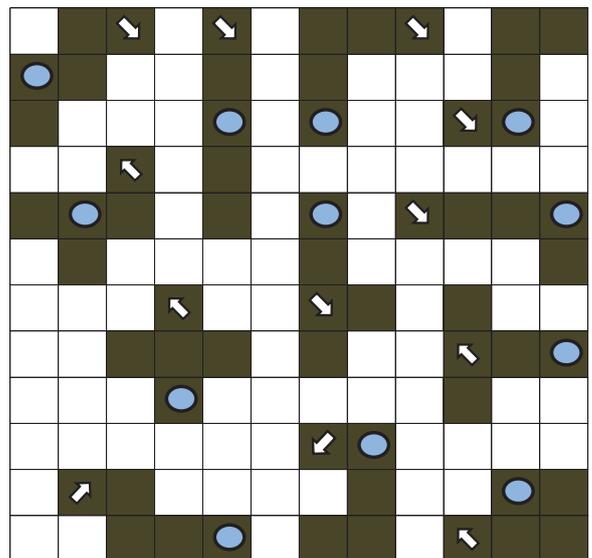
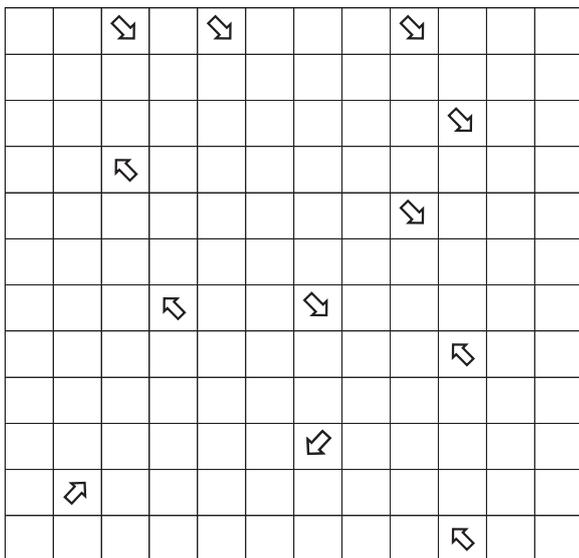
Put signs of Mars and Venus into the grid. Signs cannot be rotated or reflected. Cells, occupied by signs cannot share an edge. Numbers at the left and in the bottom show the number of Venus's crosses in the corresponding row or column. Numbers at the right and on the top show the number of Mars's arrows pointing to the number.



PENTARGETS

40 points

Each pentomino has its arrow and target. Place elements in the grid using arrow locations as a guide. You can turn or mirror elements. Each arrow should point to a target. No cells of elements may be between the arrow and the target, pentominoes don't touch each other, not even diagonally.



OPEN SPACE

40 points

Blacken some cells, so that each cell with number can "see" as many cells (including itself) as the number is.

Black cells cannot touch, not even diagonally

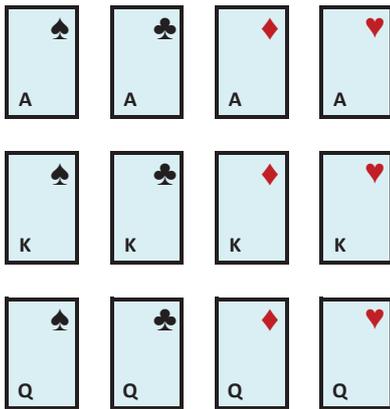
						6
5						
			7			
	5					3
						3
5				4		

						6
5						
			7			
	5					3
						3
5				4		

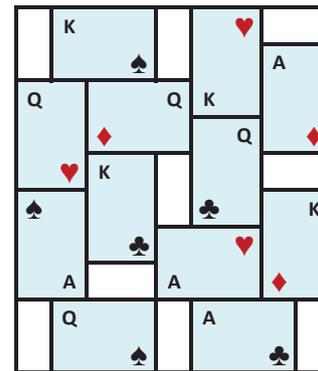
CARDS

45+65 points

A card is a rectangle 2x3, maybe horizontal, maybe vertical, having a suit in one of the corners and a value in the opposite corner. Place in the grid 12 cards: Aces, Kings and Queens of all suits (diamonds, hearts, clubs and spades). All suites and ranks included in each row and column are showed outside the grid



♥ K
 ♠ A
 Q Q K
 ♦ ♦ Q
 ♥ K
 ♠ ♣ K
 ♣ ♥
 ♦ A A
 A Q
 ♠ ♣



♥ K
 ♠ A
 Q Q K
 ♦ ♦ Q
 ♥ K
 ♠ ♣ K
 ♣ ♥
 ♦ A A
 A Q
 ♠ ♣

♠ ♥ ♦ ♠ A ♣ ♥ ♣ ♦
 Q A K ♠ Q A ♥ ♦ K
 Q ♣ K Q A
 K

♠ ♥ ♦ ♠ A ♣ ♥ ♣ ♦
 Q A K ♠ Q A ♥ ♦ K
 Q ♣ K Q A
 K

PATA

40 points

Shade some cells to create a continuous wall. Numbers in a cell indicate the length of unshaded cell blocks in its neighbouring cells. If there is more than one number in a cell there must be at least one shaded cell between the unshaded cell blocks. Shaded cells cannot form a 2x2 square or larger. There are no wall segments on cells containing numbers.

	3				
			5		
3					
		1			
			1		
				1	

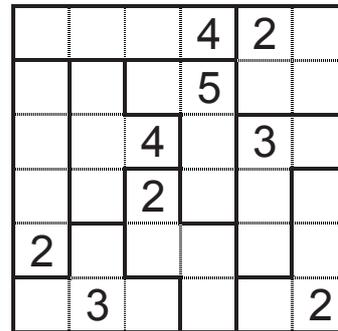
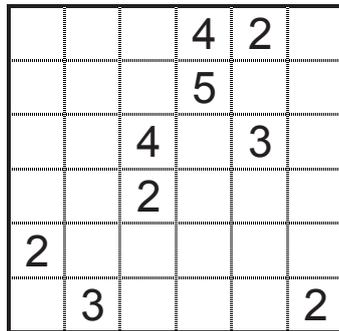
	3				
			5		
3					
		1			
			1		
				1	



TETROMINO DIVISION

50 points

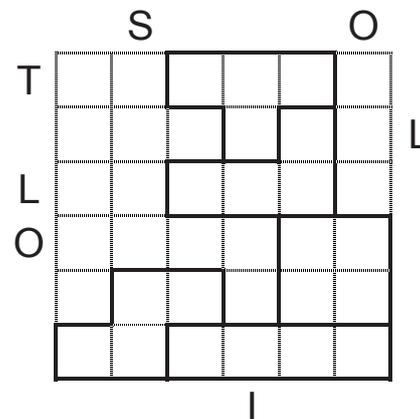
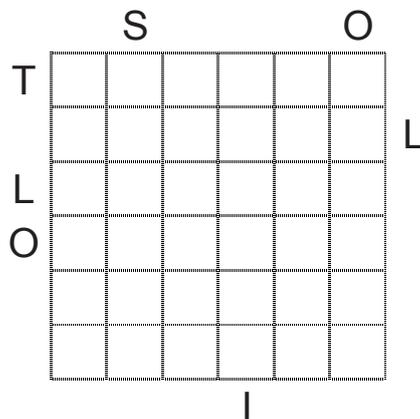
Divide the given grid into tetrominos. Each tetromino contains a digit exactly once, and the digit indicates the number of tetromino types (I, L, O, S, T) which share an edge with that tetromino. Rotated and mirrored tetrominoes are treated as the same type.



NEAREST TETROMINO

60 points

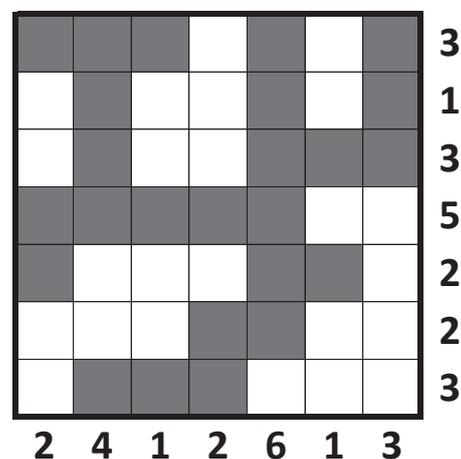
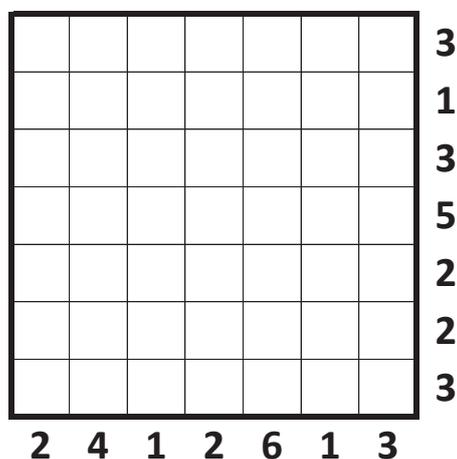
Place some tetrominos in the given grid. The letters outside the grid indicate the nearest tetromino in the corresponding row/column.



CORAL MAXIMUM

15 points

Blacken some area so that it is connected horizontally or vertically and contains no 2x2 shaded areas. The coral can't touch itself, not even diagonally. Clues outside show the length of maximum black block in the corresponding row or column.



DOTTED CORAL

45 points

Shade some boxes to form a coral. The Coral must be contiguous, must not completely fill any 2x2 block, and must not touch itself even diagonally.

The numbers around the border give the lengths of consecutive blocks of coral in a given row or column, though not necessarily in the order in which they occur.

Between any two blocks there must be at least one blank square.

All cells where coral splits are marked with black circles. All cells where coral branches end are marked with white circles.

			1	1	1	1	1		1	
		1	1	1	1	1	2	1	1	3
		5	2	2	4	4	3	2	2	3
3	4	○								
2	3				●					
1	1	1		○						
2	2	3							○	
1	1									
1	1	4		○		●				○
1	1	1								
1	3	3								
5						●				

				1	1	1	1	1		1
		1	1	1	1	1	2	1	1	3
		5	2	2	4	4	3	2	2	3
3	4	○	■	■	■	■	■	■	■	■
2	3				●	■	■	■	■	■
1	1	1		○		■	■	■	■	■
2	2	3	■	■	■	■	■	■	○	■
1	1		■	■	■	■	■	■	■	■
1	1	4	■		○	■	●	■		○
1	1	1	■	■	■	■	■	■	■	■
1	3	3	■	■	■	■	■	■	■	■
5			■	■	■	■	●	■	■	■

ISLAND TAPA

50 points

Shade some cells to create a continuous wall.

Numbers in cells indicate the length of shaded cell blocks in its neighbouring cells.

If there is more than one number in a cell there must be at least one unshaded cell between the shaded cell blocks. Shaded cells cannot form a 2x2 square or larger. There are no wall segments on cells containing numbers.

Unshaded area must be orthogonally connected.

			3		1	1			
2									3
					1	2			
2									
		1	5			2	3		3
1	1				1	4			
									2
	2		1	1		1	1		

			3		1	1			
2	■	■	■	■		1	■	■	3
	■	■	■	■		1	2	■	■
2	■	■	■	■					
		1	5	■	■	■	2	3	3
1	1				1	4	■	■	■
	■	■	■	■	■	■	■	■	2
	2		1	1		1	1		

ROUND 11: Sprint

Individual

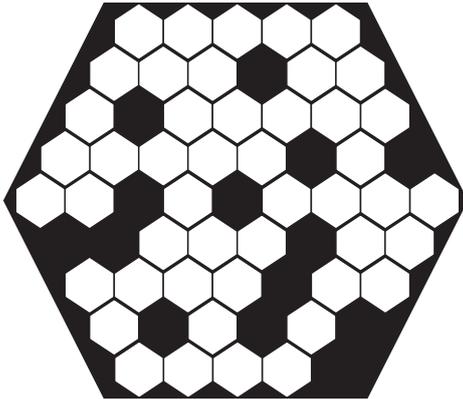
Friday 16th October 2015, 14:30 - 15:00

30 minutes - 365 total points

HEXAISLANDS

10 points

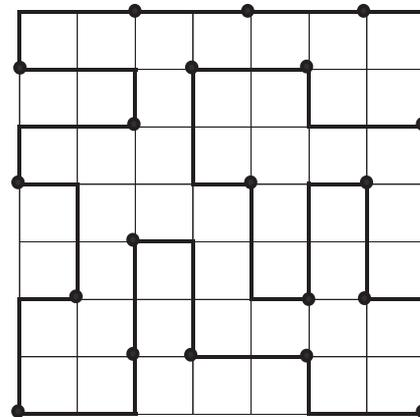
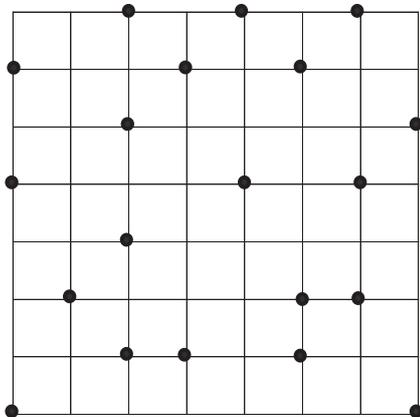
Blacken some cells. White cells should form six islands which consist of six cells each. Islands cannot touch each other.



LI-LOOP

10+10 points

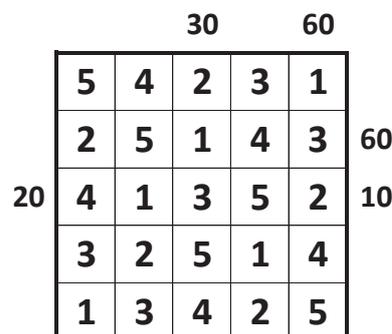
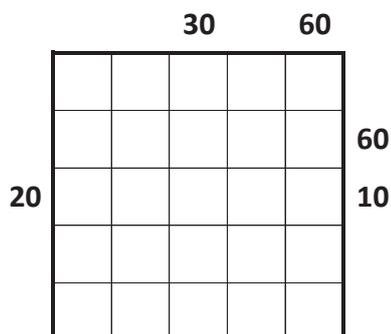
Connect the dots with L- or I-shaped figures to form a single closed loop. All dots should be used. Shape can be rotated and/or reflected.



PRODUCT SKYSCRAPERS

10 points

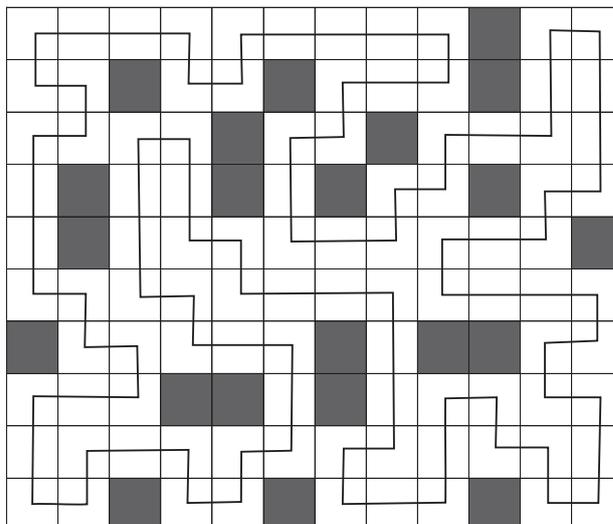
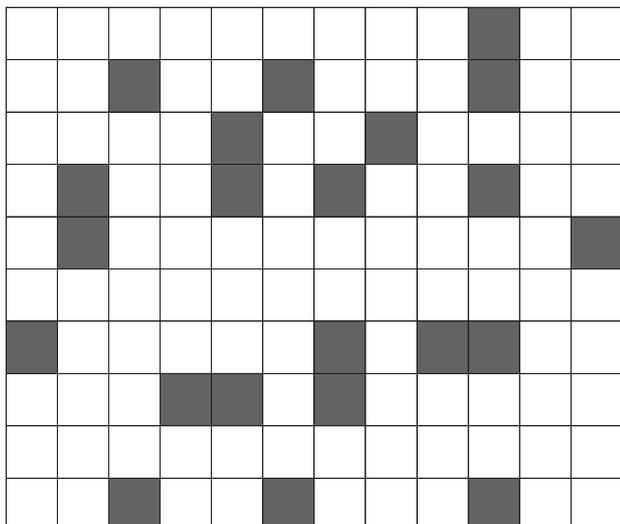
Place a digit from 1 to N (N is a size of the grid) once each into every row and column inside the grid. Each digit represent a building with corresponding height. Numbers outside show the product of heights of visible buildings in the corresponding direction.



SIMPLE LOOP

10 points

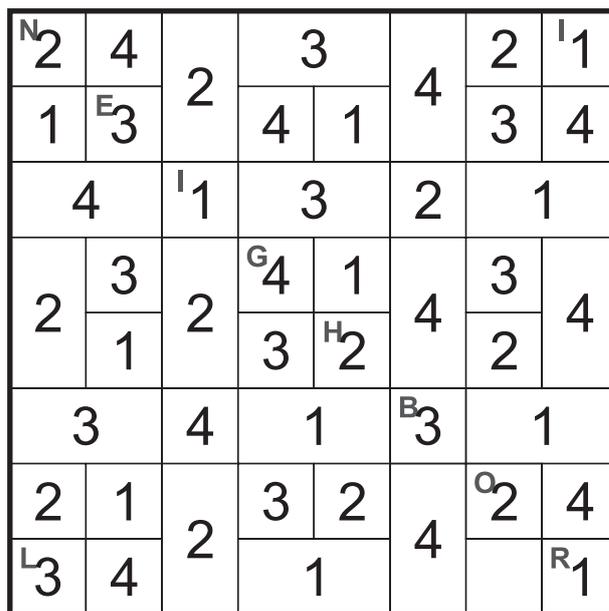
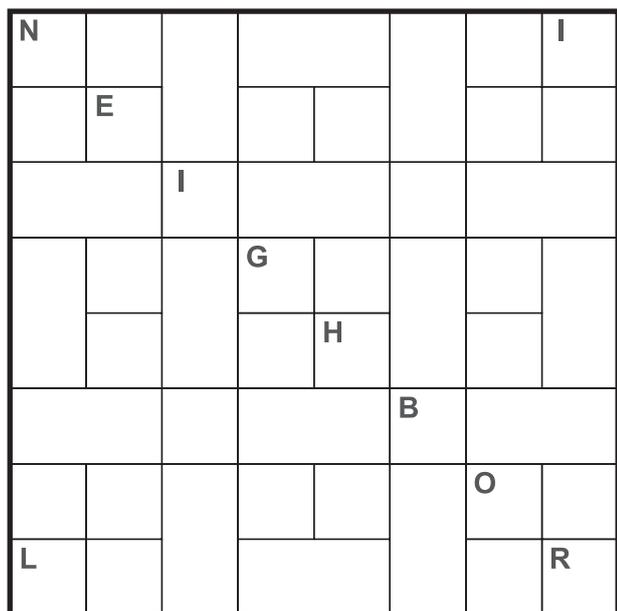
Draw a single loop using only horizontal and vertical lines such that the loop visits all white squares exactly once.



DIFFERENT NEIGHBORS

10+15 points

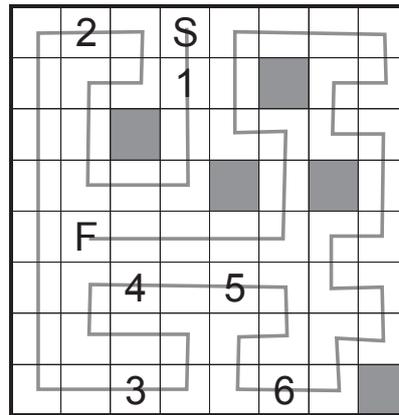
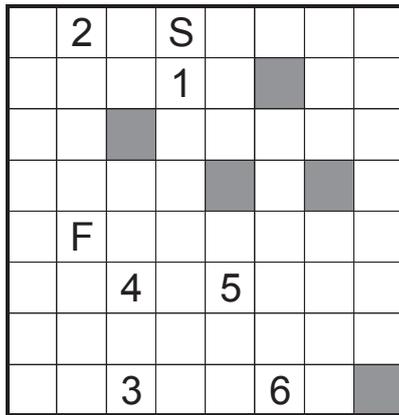
Fill the grid with the numbers from 1 to 4. The cells with the same number cannot touch each other, not even diagonally.



FOLLOW THE CHECKPOINTS

10 points

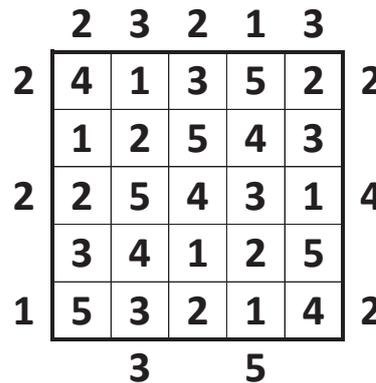
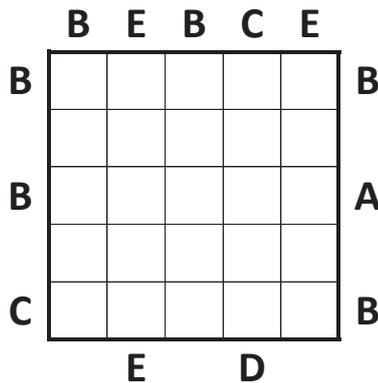
Draw a path from start (S) to finish (F), visiting all white cells and all marked checkpoints in order. Path may not turn in a cell with number



ENCRYPTED SKYSCRAPERS

15 points

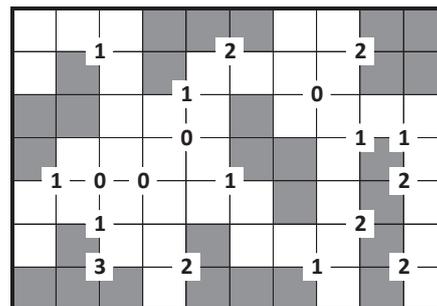
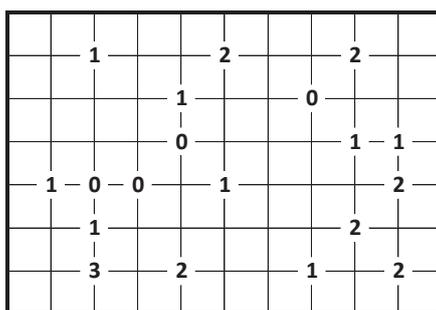
Place a digit from 1 to N (N is a size of the grid) once each into every row and column inside the grid. Each digit represents a skyscraper with a height equal to the digit. Clues outside the outlined area represent the number of skyscrapers that are visible from that side. Higher skyscrapers hide shorter skyscrapers. All clues are encrypted - the same letters mean the same numbers and different letters mean different numbers.



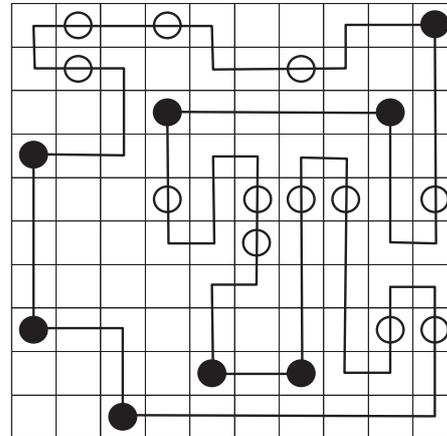
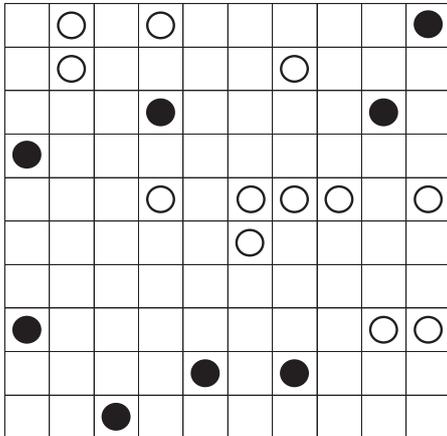
TETROSCOPE

15+20 points

Place a digit from 1 to N (N is a size of the grid) once each into every row and column inside the grid. Each digit represents a skyscraper with a height equal to the digit. Clues outside the outlined area represent the number of skyscrapers that are visible from that side. Higher skyscrapers hide shorter skyscrapers. All clues are encrypted - the same letters mean the same numbers and different letters mean different numbers.



Draw a single loop using only horizontal and vertical lines between the centres of some cells such that the loop does not visit any cell more than once. At every cell containing a white circle the loop must pass straight through that circle and make a 90 degree turn in at least one of the cells adjacent to the circle. At every cell containing a black circle the loop must make a 90 degree turn and travel straight through both cells adjacent to the circle.

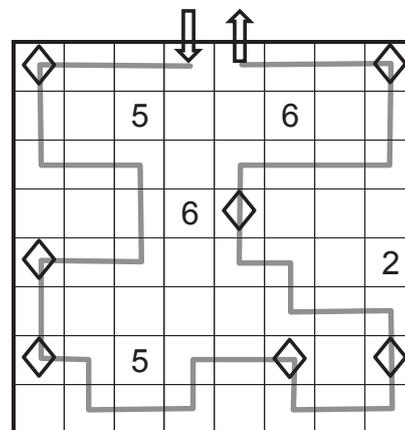
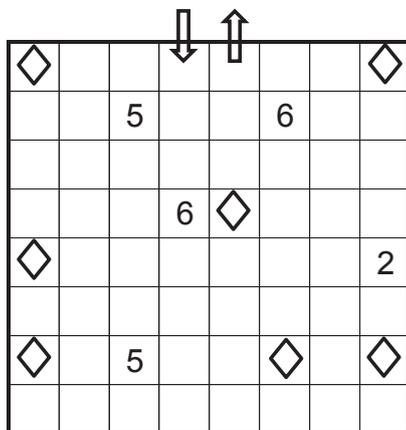


DIAMOND MINE

15 points

Draw a path that enters and leaves the mine at the marked cells. The path must collect all of the diamonds and avoid the numbered cells, moving vertically and horizontally only.

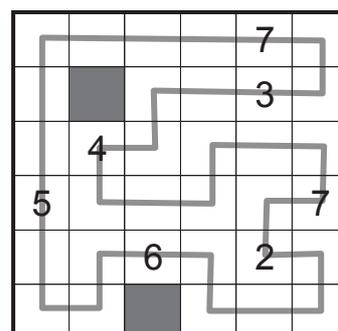
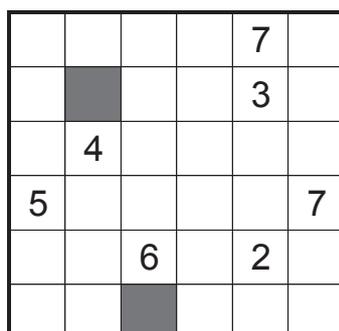
- The number in the cells show how many of the neighbouring cells are visited by the path.
- No area of 2x2 cells can be dug by the path, or the mine will collapse!



GAS STATION

15+20 points

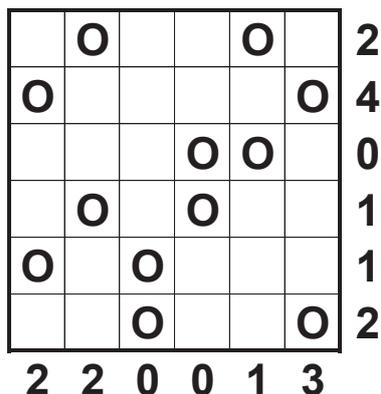
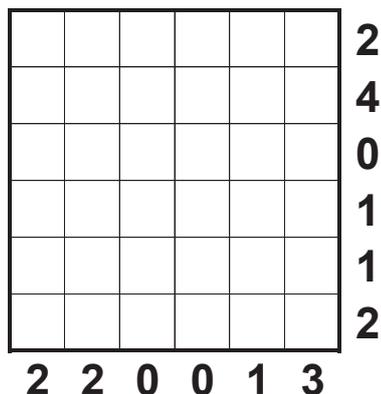
Draw a single oriented loop, that moves over all white cells, including cells with numbers. The loop moves horizontally or vertically connecting centers of cells. The numbers tell how many steps the path must move before encountering the next numbered cell.



TWO CIRCLES

15+20 points

Fill in the grid with X and O signs. Exactly the half of signs in each column or row should be X. Digits outside the grid show how many continuous sets of X or O are outside the grid

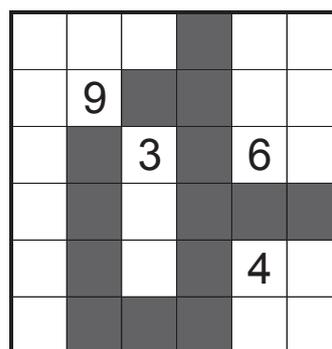
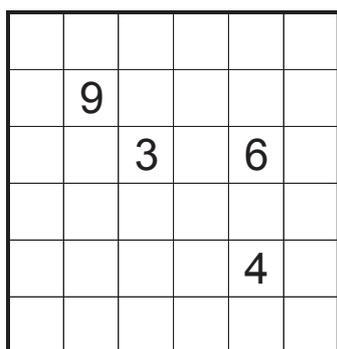


NURIKABE

15 points

Shade some cells so that every number in the puzzle remains as part of a continuous unshaded area of precisely the given number of cells. There must be exactly one number per unshaded area.

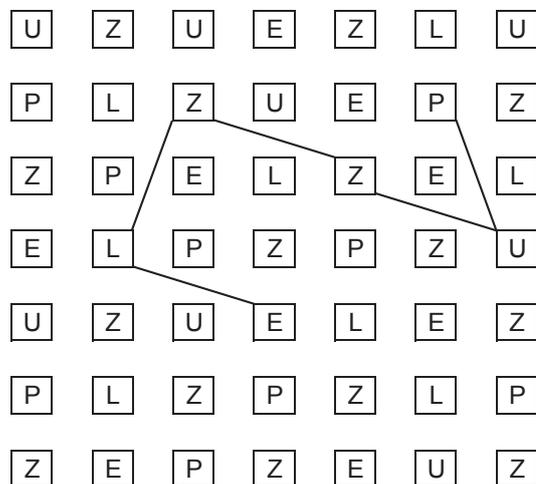
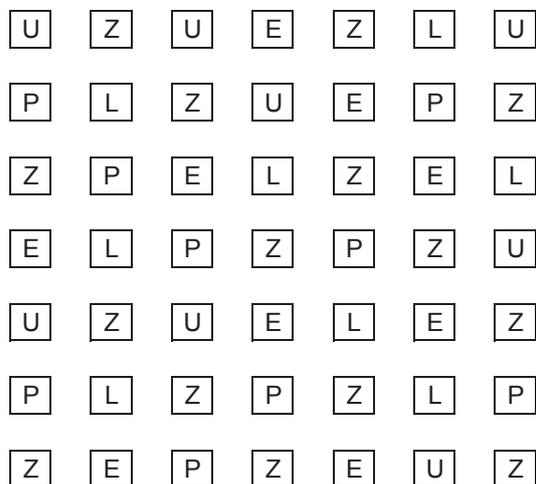
Shaded cells cannot form any 2x2 areas. All shaded cells must form one continuous area. Cells are continuous if they touch orthogonally.



PUZZLE KNIGHT

15+20 points

Search one given word ("PUZZLE" in the example) by connecting cells with chess knight's move. The path may cross itself.



ENCRYPTED SQUARE

20 points

Replace letters with digits. Different letters should mean different digits. Each row and column of the square must contain an arithmetic sequence. Multi-digit numbers cannot start with zero.

A	B	AA
CD	CE	DF
BC	GH	HG

A	B	AA
1	6	11
CD	CE	DF
32	30	28
BC	GH	HG
63	54	45

FUZULI

20 points

Place the digits from 1 to 4/5 exactly once each into every row and column. No 2x2 square can be completely filled with digits.

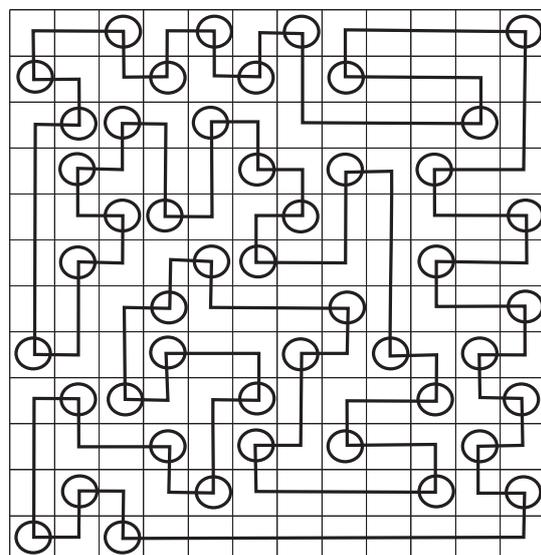
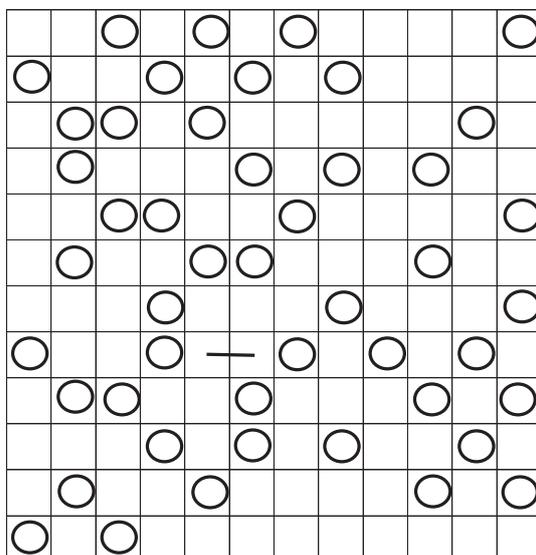
				3
		3		2
	1			
1				

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

EVERY SECOND TURN

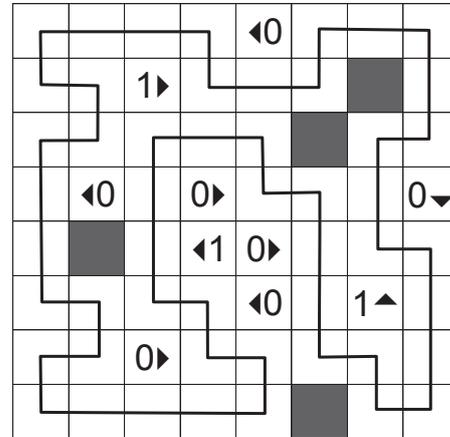
20 points

Draw a single continuous loop that passes horizontally and vertically through all cells of the grid. Every second turn of the loop is marked with a circle.



Draw a single loop using only horizontal and vertical lines such that the loop does not visit any cell more than once. Any cells which the loop does not visit must be shaded. Shaded cells cannot touch orthogonally. Numbers with arrows indicate the exact number of shaded cells in a given direction in a specific row or column, but not all shaded cells are necessarily identified with arrows.

				◀0		
		1▶				
	◀0		0▶			0▼
			◀1	0▶		
				◀0	1▲	
		0▶				



ROUND 12: Tough Puzzles

Individual

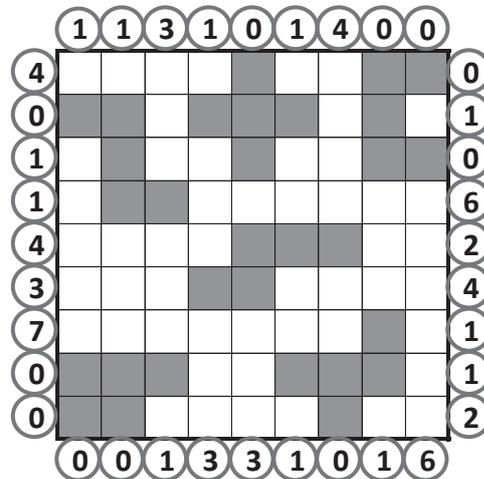
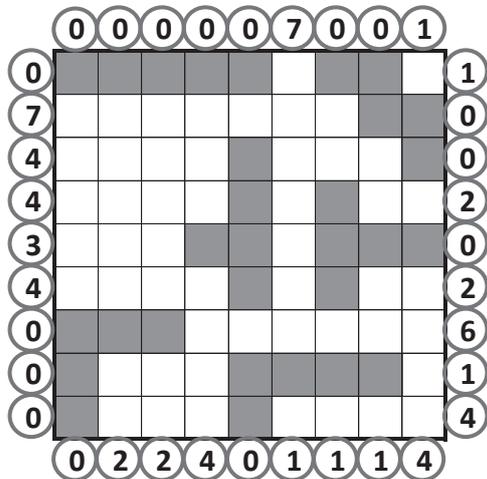
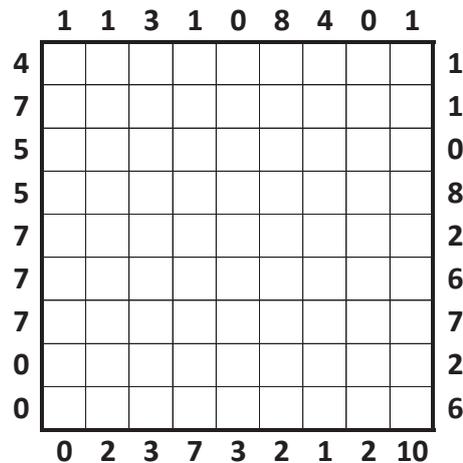
Friday 16th October 2015, 15:20 - 16:50

90 minutes - 900 total points

PENTAMINO IN HALF

85 points

Place the given pentomino set into two grids without touching each other even diagonally. Pieces may be rotated and reflected. Distances between border and nearest pentamino for both grids are summed up and given to you.



DOMINO CASTLE

85 points

Place the given dominoes into the shape. Values in the halves which touch each other must be the same. Numbers outside show all values which are in the corresponding row or column.

Left grid numbers:
 Row sums: 1 5 6, 4 5 6, 2 4 5
 Column sums: 2 3 1, 6 2 3, 4

Right grid numbers:
 Row sums: 5 6 6 1 1 1, 5 6 6 1 1, 5 6 6 1 1, 5 2 2 2 4 4 4 4, 5 2 2 4 4 4, 1 2 2 3 3 3 3 5, 1 2 2 3 3 3 3 5

DIFFERENT NEIGHBORS

85 points

Fill in the grid with digits 1, 2, 3, 4. Cells with the same digits cannot touch each other even diagonally.

Left grid pre-filled numbers:
 Row 1: 2, 3, 3
 Row 2: 1, 1
 Row 3: 2, 1
 Row 4: 4, 4
 Row 5: 2, 1
 Row 6: 4, 3, 2

Right grid pre-filled numbers:
 Row 1: 2, 1, 4, 3, 2, 4, 2, 3
 Row 2: 3, 2, 1, 3, 1, 4
 Row 3: 1, 4, 4, 3, 4, 2, 3
 Row 4: 2, 4, 1, 1, 3, 1, 4
 Row 5: 3, 2, 3, 2, 3, 2, 3
 Row 6: 1, 4, 1, 4, 1, 4, 1, 4
 Row 7: 3, 2, 4, 1, 2, 3, 2
 Row 8: 4, 1, 3, 1, 3, 2, 4, 2

MAGNETS

85 points

Complete the diagram with magnetic and shaded non-magnetic tiles. Each magnetic tile has two poles, + and -, with one on each half. Two halves with the same poles cannot touch horizontally or vertically. The numbers at the right and bottom of the diagram indicate how many positive and negative poles appear in that row or column.

Left grid numbers:
 Row sums: 4 3, 2 4, 4 2, 2 3, 2 2, 1 2, 4 2, 3 4
 Column sums: 2 3 1 4 3 3 3 3 +
 Bottom row: 2 3 1 3 4 3 3 3 -

Right grid numbers:
 Row sums: 4 3, 2 4, 4 2, 2 3, 2 2, 1 2, 4 2, 3 4
 Column sums: 2 3 1 4 3 3 3 3 +
 Bottom row: 2 3 1 3 4 3 3 3 -

CORIOLIS

100 points

Place a digit 1-9 into each empty cell. The number in a grey cell indicates the sum of the digits placed in cells the adjoining arrow passes through. The digits within an arrow must be placed in ascending order (the highest digit is at the sharp end of the arrow). No digits may repeat within a row/column.

6					30			3
	11				15			
		20			16			
			8					
24	14						20	19
					29			
			3			16		
					11			9
4					26			17

6	9	8	7	6	30	2	1	3
1	11	7	5	3	15	9	6	8
2	5	20	9	7	16	8	3	6
3	6	1	8	8	7	4	2	5
24	14	4	1	9	5	3	20	19
7	2	6	3	4	29	1	5	9
8	3	9	3	1	2	16	4	7
9	4	5	11	2	3	6	9	1
4	1	3	26	5	6	7	8	17

HULA-HOOP

100 points

Draw the snake-like loop (one cell wide, not touching itself even at a point) in the grid. Loop cannot go through the numbered and grey cells. Fill all the cells not used by the loop with the numbers 1 to 7 so that they're not repeated in rows, columns and outlined areas. Numbers in grey cells should be equal to the number of the neighbouring cells (adjacent and touching at a point) used by the loop.

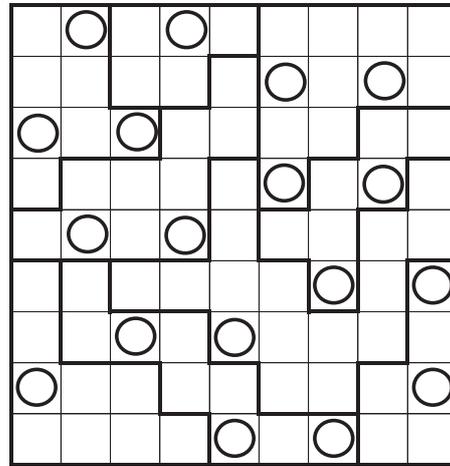
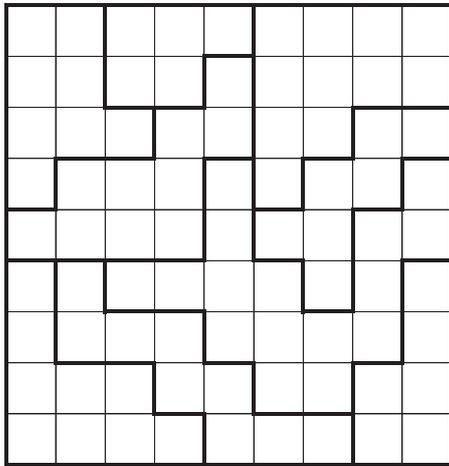
						4	6
	3						
	5						
		4		1			

					3	2	4	6
	3	6	5		2			
	1	2	4		6		3	
			2		5		6	
3	5		1				2	
2			3	6	4	5	1	
5		4	6	2	1	3		
1				5				2
6	2	3				4	5	1

UNEQUAL STAR BATTLE

70 points

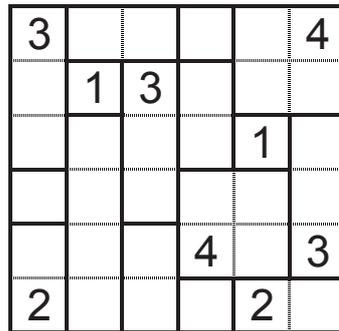
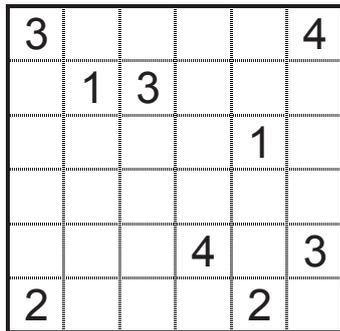
Place stars in some cells so that each row and column has exactly 2 stars. Cells containing stars cannot touch each other, not even diagonally. Each region may have 1, 2, or 3 stars. Regions with the same number of stars cannot touch, not even diagonally.



RECTANGLES

70 points

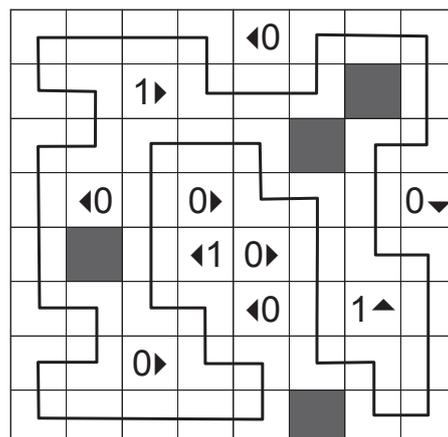
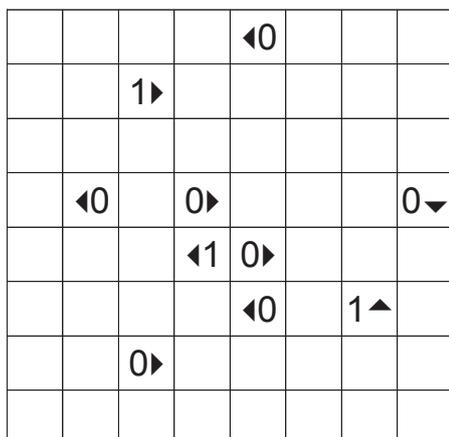
Divide the given grid into rectangles (including squares) along the grid lines. Digits within a rectangle indicates the number of cells in that rectangle. Two rectangles with the same number of cells cannot share an edge each other.



YAJILIN

120 points

Draw a single loop using only horizontal and vertical lines such that the loop does not visit any cell more than once. Any cells which the loop does not visit must be shaded. Shaded cells cannot touch orthogonally. Numbers with arrows indicate the exact number of shaded cells in a given direction in a specific row or column, but not all shaded cells are necessarily identified with arrows.



GAPPED KAKURU

100 points

Put digits from 1 to 9 into some white cells. Digits cannot repeat in continuous vertical or horizontal blocks of white cells. Sum of the digits in these blocks are given. Empty cells cannot share an edge.

	13	8		6	6	7	8
36							
2			3				
		11					
	14						
6			4				
			13				
20						16	
4					14		
12							

	13	8		6	6	7	8
36	7	8	9	4	2	6	
2	2		3		1		2
		11				1	
	14		8	2			
6	1	5		4	3		1
			13				
20		8	3	9			16
4	3		1			14	9
12		1		4		7	

ROUND 13: Domino Yin-Yang

Team

Friday 16th October 2015, 17:20 - 18:20

60 minutes - 3200 total points

There are 5 Domino Yin-Yang puzzles in this part. 4 of them are to be solved individually, and the 5th to be solved by the team.

Standard domino set from 0:0 to 6:6 is used (28 tiles). Each puzzle in this round requires two domino sets of different color, or 56 tiles.

On the first phase of the round, each team member will solve a different individual puzzle. The solutions of individual puzzles will use 55 out of 56 tiles each and 1 tile will remain unused, different for each puzzle.

The team puzzle will need 60 tiles, 56 from two sets + the 4 tiles to remain from individual puzzles.

DOMINO YIN-YANG

4 x 600 + 800 points

Place domino tiles in the grid, so that:

1. Domino tiles of the same colour form orthogonally connected area following rules domino (tiles touch with the same number)
2. There are no 2x2 areas of the same colour
3. Halfdominos with the same value, but different colour cannot touch even diagonally
4. The shaded cells show positions of double. Every double must cover exactly one shaded cell.

							3		
1				5	4		1		
4									
	1	2							
									3
		1	4		4				0
					2				

1	3	3	3	5	2	3	3	3	5
1	0	4	1	5	4	4	1	2	5
4	0	0	0	5	0	2	1	2	0
4	4	2	5	5	3	2	5	2	0
4	1	2	0	3	3	1	5	3	4
0	1	0	0	3	1	1	5	3	4
0	1	1	4	4	4	1	0	0	5
2	2	5	5	1	2	2	2	2	5

ROUND 14: Encrypted

Team

Saturday 17th October 2015, 09:00 - 10:00

60 minutes - 3200 total points

There are 8 puzzles in this part. In every puzzle some or all digits were encrypted by letters. All puzzles share a common encryption map. Same letter represents the same digit in every puzzle where used. Some digits are encrypted by more than one letter.

MINESWEEPER

400 points

Locate an indicated number of mines in the grid. Each numbered cell reveals the number of mines surrounding that square. Mines cannot occupy a numbered cell.

M		I		N		E
S		W		E		E
	P		E		R	

M0		I1		N2		E3
S2		W5		E3		E3
	P5		E3		R1	

ARROWS

400 points

Draw an arrow in each square around the grid. Each arrow points to at least one number. The numbers inside the grid show how many arrows point to them.

	A	0	M	2	E	2
	5	R	1	N	4	A
	C	2	R	0	Z	4
	4	J	3	O	3	Q
	V	3	L	5	W	4
	3	O	3	F	5	S

	↓	↙	↘	↘	↘	↓	
↘	A4	0	M0	2	E3	2	↙
↗	5	R1	1	N2	4	A4	←
↘	C2	2	R1	0	Z2	4	↙
→	4	J2	3	O2	3	Q4	↖
→	V5	3	L3	5	W5	4	←
↗	3	O2	3	F3	5	S2	←
	↑	↗	↗	↗	↑	↖	

SUDOKU

400 points

Fill in the grid with digits from 1 to 9. Every row, column and outlined 3x3 square should contain each digit exactly once.

	R	4				8	T	
D	9	S	U				P	Y
8				D	O			4
			9			K	U	
S	U			4				
		D	O		7			
4				K	U			3
W	B						6	C
	H	9				7	G	

3	R1	4	7	9	5	8	T2	6
D6	9	S2	U8	1	4	3	P5	Y7
8	7	5	3	D6	O2	9	1	4
7	4	1	9	3	6	K2	U8	5
S2	U8	3	5	4	1	6	7	9
9	5	D6	O2	8	7	4	3	1
4	6	7	1	K2	U8	5	9	3
W5	B3	8	4	7	9	1	6	C2
1	H2	9	6	5	3	7	G4	8

KAKURO

400 points

Fill in the grid with digits from 1 to 9 so that the sum of the digits in each set of consecutive white cells (horizontal or vertical) equals the number appearing next to the set. No number may appear more than once in any set of consecutive white cells.

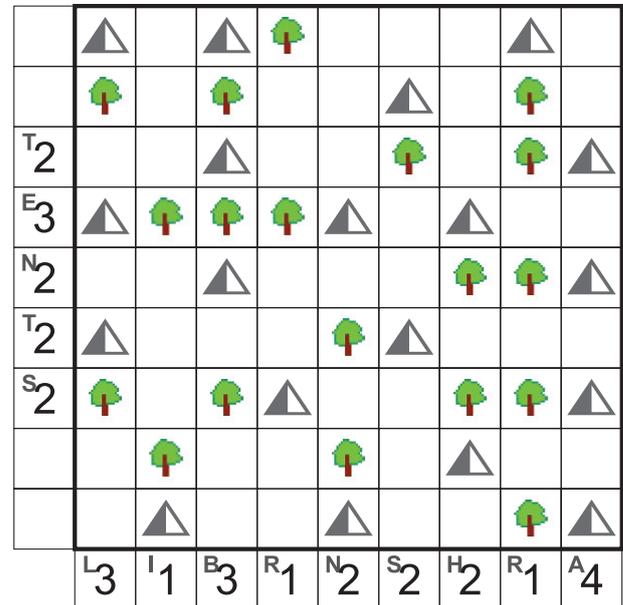
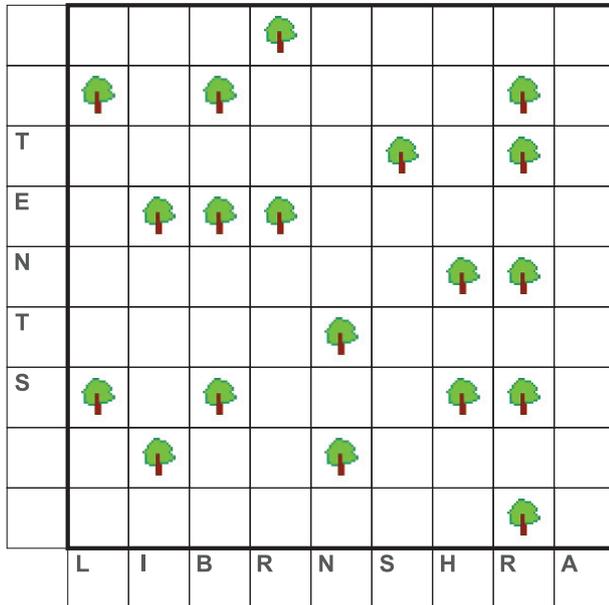
	9	14		18		3	16
8	K		14				Z
25		A			5	Z	
	10		K				
30						12	
12				22			
		14			U		6
	13						
11		X	16			R	
30	Y				5		O

	9	14		18		3	16
8	K2	6	14	8	3	1	Z2
25	7	A4	5	9	5	Z2	3
	10		K2	1	4		4
30		3				12	
12	8	1	3	22	9	6	7
		14			U8		6
	13						
11	6	X5	16	5	6	R1	4
30	Y7	8	6	9	5	3	O2

TENTS

400 points

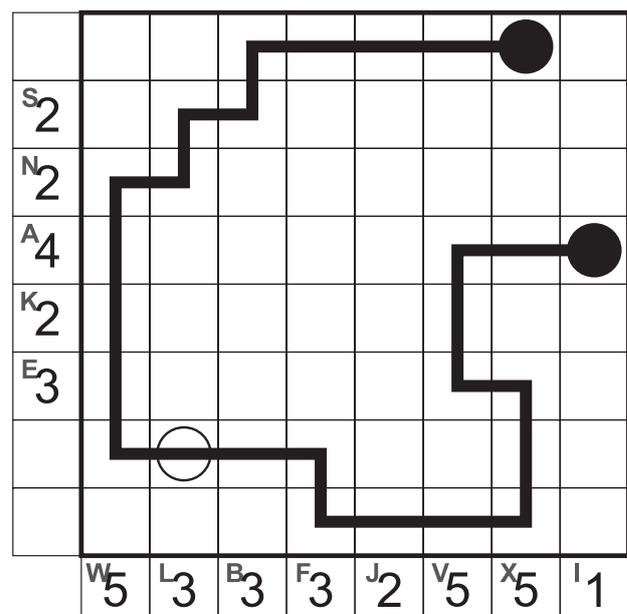
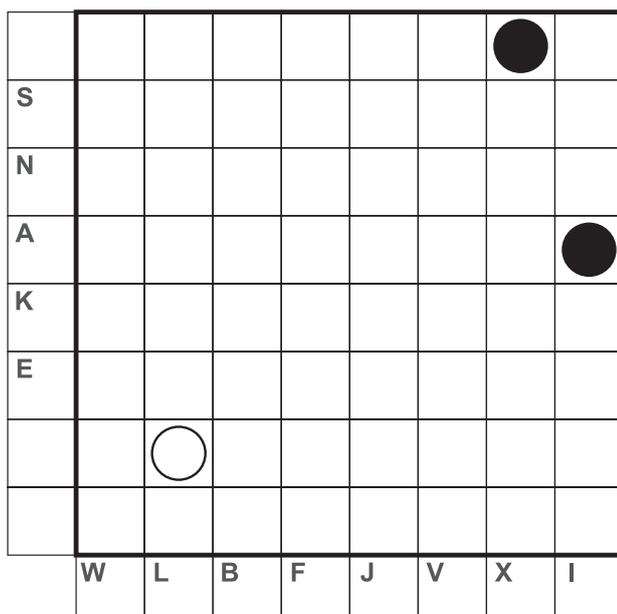
Locate the tents in the grid. Each tree is connected to exactly one tent, and each tent is connected to exactly one tree. Trees and their tents are found in a horizontally or vertically adjacent cells. Tents do not touch each other, not even diagonally. The numbers outside the grid indicate the total number of tents in the corresponding row or column.



SNAKE

400 points

Draw a snake in the grid. Snake is a 45-cells long one-cell wide line which cannot touch itself even by a corner. Numbers outside the grid show the number of cells occupied by the snake in the corresponding direction. (In the example the length is unknown and the ends and the central cell of the snake are given)



DIFFERENT NEIGHBORS

400 points

Fill the grid with the numbers from 1 to 4. The cells with the same number cannot touch each other, not even diagonally.

N						I
	E					
		I				
			G			
				H		
					B	
						O
L						R

^N 2	4	2	3	4	2	^I 1	
1	^E 3		4	1	4	3	4
4		^I 1	3	2		1	
2	3	2	^G 4	1	4	3	4
	1		3	^H 2		2	
3	4	1		^B 3		1	
2	1		3	2	4	^O 2	4
^L 3	4	2		1	4		^R 1

SLITHERLINK

400 points

Draw a closed loop going along the grid lines. The loop doesn't touch or cross itself. The numbers in the grid indicate how many line segments are used around that square.

^S		2	^L	2		1
	^L			^I		
2		^I	1		^N	2
^L		3	^T	2		^K
1	^I		1	^H		1
		^N			^E	
3		1	^K	2		^R

^S 2		2	^L 3	2		1
	^L 3			^I 1		
2		^I 1	1		^N 2	2
^L 3		3	^T 2	2		^K 2
1	^I 1		1	^H 2		1
		^N 2			^E 3	
3		1	^K 2	2		^R 1

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
4	3	2	6	3	3	4	2	1	2	2	3	0	2	2	5	4	1	2	2	8	5	5	5	7	2