CZECH PUZZLE CHAMPIONSHIP 2017

Prague, 10-11 June 2017

INSTRUCTION BOOKLET (v2)

SATURDAY 10 JUNE 2017

10:30 – 11:20	INDIVIDUAL ROUND 1 - SHADING	50 MINUTES	500 POINTS
11:30 – 12:30	INDIVIDUAL ROUND 2 – LOOPS	60 MINUTES	600 POINTS
13:10 – 14:50	INDIVIDUAL ROUND 3 - NUMBERS	100 MINUTES	1000 POINTS
15:00 – 15:45	INDIVIDUAL ROUND 4 - OBJECTS	45 MINUTES	500 POINTS
15:55 – 16:35	INDIVIDUAL ROUND 5 - DIVISION	40 MINUTES	400 POINTS
16:45 – 17:05	TEAM ROUND 1 - HALFDOMINOES	20 MINUTES	600 POINTS
17:15 – 17:45	INDIVIDUAL PLAY-OFF		

SUNDAY 11 JUNE 2017

09:00 – 09:40	TEAM ROUND 2 - COMBINED	40 MINUTES	2250 POINTS
09:45 – 10:15	TEAM ROUND 3 - TRANSFERS	30 MINUTES	1800 POINTS

Rules of the competition

Points

Each puzzle is assigned a certain number of points you would receive if you solve it correctly.

Time bonus

In each round you can receive a time bonus if you finish before the time limit and all the puzzles are solved correctly. The bonus is 10 points for each full minute before the time limit in the individual competition and 50 points in the team competition. To claim the bonus please shout your name ort he name of your team.

Team competition

Points for the team are calculated as a sum of points of all its members from the individual competition plus the points from the team rounds.

Incorrect puzzles

In case the puzzle has more than one solution, any of the solution will be accepted (but you will not get more points for more solutions).
In case you suspect the puzzle has no solution, please mark the puzzle clearly (e.g. NO SOLUTION). If you are right you will receive the points as if you have solved the puzzle. If you are wrong, you will be penalized by -1 point.

Appeals

Any appeals should be addressed to the referree of the competition who will decide whether they will be accepted or not.

Playoff

The best 6 competitors after the basic part will qualify for the playoff.
If there are less than 3 qualified Czech puzzlers, the following rules will be applied:
   a) The best 3 Czech competitors
   b) All foreign competitiors with the same or better result as the third Czech competitor.

Playoff rules

The finalists will get 5 puzzles one after another.
The time limit is 30 minutes.
The finalists will start solving with time handicaps based on the results in the basic part.

Handicaps will be calculated as follows:

Winner of the basic part can start immediately.
The time delay between the first and the last finalist will be equal to (number of finalists) – 1 in minutes.
The time intervals between the finalists will be calculated proportionally according to the points in the basic part.

Example:

Competitor	Basic part points	Delay
A	100	0:00 min
B	95	0:30 min
C	90	1:00 min
D	80	2:00 min
E	60	4:00 min

When you finish the puzzle, you have to wait for 1 minute. Then you will learn if the solution is correct and you can continue with the next puzzle or incorrect and you have to fix your solution.

The playoff ends when the time limit expires.
The final rank of the competitor will be based on:
   1) Number of correctly solved puzzles
   2) The time of the last solved puzzle

Competitions

Individual puzzle competition

      Prague Puzzle Open

      Czech Puzzle Championship

            General category

            Category over 50

Team puzzle competition

      Prague Puzzle Team Open

Individual sudoku competition

      Prague Sudoku Open

1) Tapa	12 points	9) Aquarium	27 points
2) Tapa	16 points	10) All or nothing	9 points
3) Cave	24 points	11) Japanese Coral Sums	46 points
4) Cave	19 points	12) First Block Coral	72 points
5) LITS	18 points	13) Size Matters	49 points
6) LITS+	18 points	14) Painted Nurikabe	52 points
7) Hitori	25 points	15) Coded Painted Nurikabe	77 points
8) Heyawake	36 points		

1+2) TAPA (12 + 16 points)

Shade some empty cells black to create a single connected wall. Numbers in a cell indicate the length of consecutive shaded blocks in the neighboring cells. If there is more than one number in a cell, then there must be at least one white (unshaded) cell between the black cell groups. A question mark represents one block with unknown length. Cells with numbers and question marks cannot be shaded, and the shaded cells cannot form a 2×2 square anywhere in the grid.
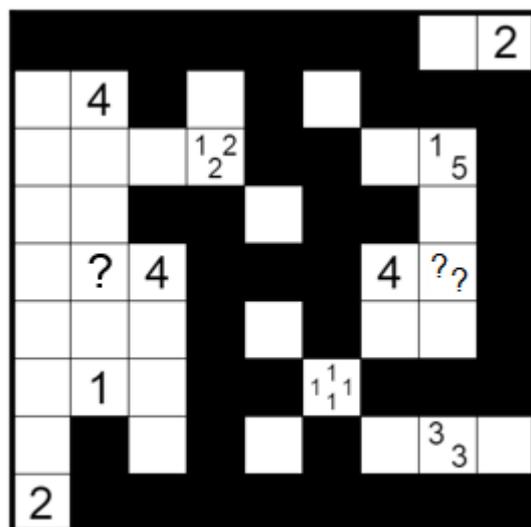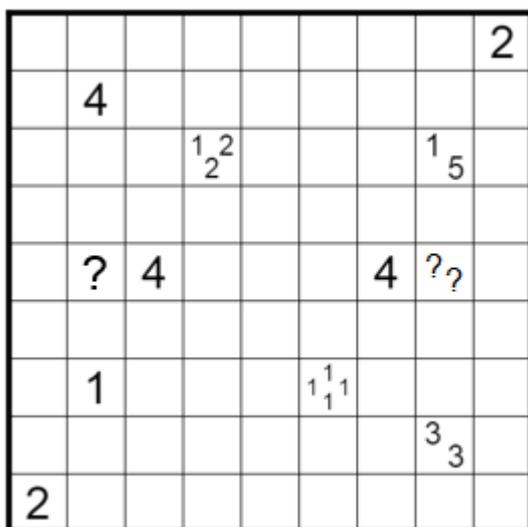
3+4) CAVE (24 + 19 points)

Shade some cells to leave behind a single connected group — the cave — with no enclosed, shaded cells. In other words, all shaded cells must be connected by other shaded cells to an edge of the grid. All numbered cells must be a part of the cave, with each number indicating the total count of cells connected vertically and horizontally to the numbered cell *including the cell itself*.

5) LITS (18 points)

Shade exactly four connected cells in each outlined region, to form an L, I, T, or S tetromino, so that thefollowing conditions are true: (1) All shaded cells are connected with each other; (2) No 2×2 group of cells can be entirely shaded black; (3) When two tetrominoes in adjacent regions share an edge, they must not be of the same type (L, I, T, or S), regardless of rotations or reflections.
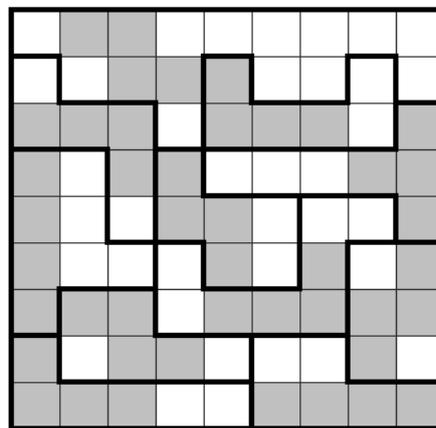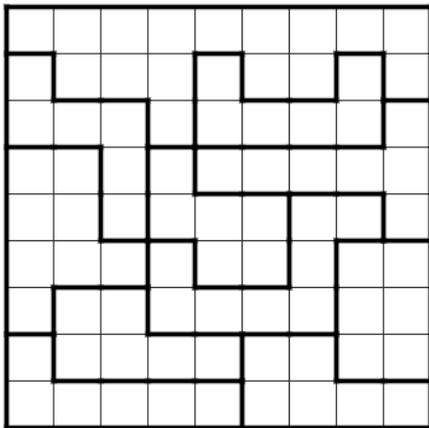

7) LITS+ (18 points)

Shade exactly four connected cells in **some** outlined regions, to form an L, I, T, or S tetromino, so that thefollowing conditions are true: (1) All shaded cells are connected with each other; (2) No 2×2 group of cells can be entirely shaded black or **remain unshaded**; (3) When two tetrominoes in adjacent regions share an edge, they must not be of the same type (L, I, T, or S), regardless of rotations or reflections.
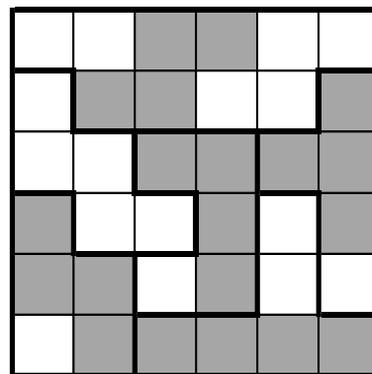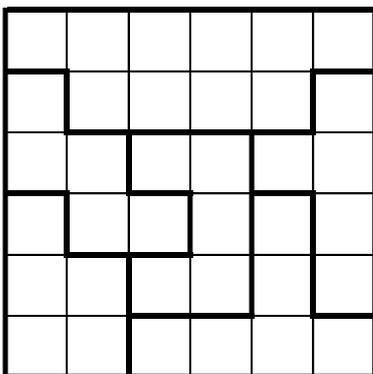
8) HITORI (25 points)

Shade some cells so that no number repeats in any row or column. Two shaded cells can not share an edge. All white cells must be orthogonally connected.

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

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

9) HEYAWAKE (36 points)

Shade some cells so that unshaded cells form an orthogonally connected region. Shaded cells may not be orthogonally adjacent and any orthogonal line of unshaded cells may straddle at most one thick line. A number indicates the precise number of shaded cells found in that region.


10) AQUARIUM (27 points)

Shade some cells in the grid. In each outlined region, all cells in a row must be either all shaded or all unshaded, and all shaded cells must be connected to the bottom of the region (like when you pour water into a fish tank). Numbers outside the grid indicate the number of shaded cells in the respective row/column.

11) ALL OR NOTHING (9 points)

Shade some cells in the grid so that each outlined region is either completely shaded or completely unshaded. Numbers outside the grid indicate the number of shaded cells in the respective row/column.
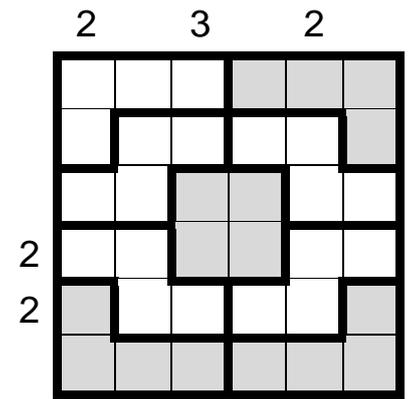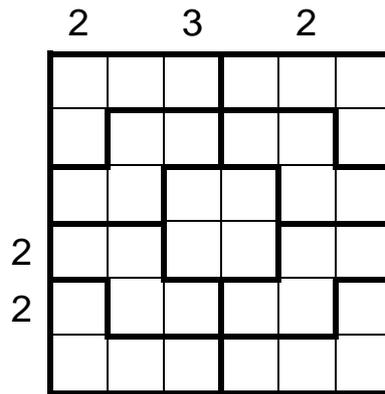

12) JAPANESE CORAL SUMS (46 points)

Place a number from 1 to 6 into each of the empty cells so that each number appears exactly once in each row and column. Then shade some cells in the grid. All shaded cells must be orthogonally interconnected. All unshaded cells must be orthogonally connected to the edge of the grid. Shaded cells can never form a 2x2 square.

One side of the grid contains coral sums clues, i.e. numbers outside this side of the grid indicate the sums of all blocks of shaded numbers in the corresponding row/column. The other side of the grid contains japanese sums clues, i.e. numbers outside this side of the grid indicate the sums of all blocks of unshaded numbers in the corresponding row/column. It is a part of the solving process to decide which side of the grid contains which type of clues. **The sums are given in the correct order.**
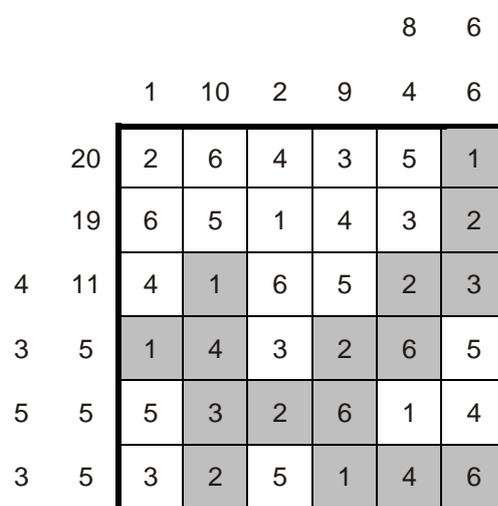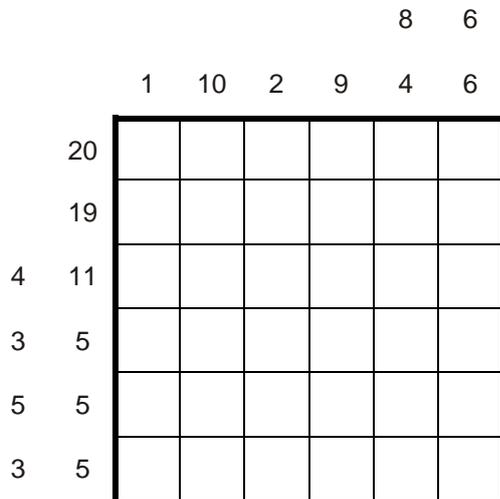

13) FIRST BLOCK CORAL (72 points)

Shade some cells in the grid. All shaded cells must be orthogonally interconnected. All unshaded cells must be orthogonally connected to the edge of the grid. Shaded cells can never form a 2x2 square.

If the first cell in a row/column is unshaded, then the respective numbers outside the grid indicate the lengths of all blocks of unshaded cells in this row/column, not necessarily in the given order. If the first cell in a row/column is shaded, then the respective numbers outside the grid indicate the lenghts of all blocks of shaded cells in this row/column, not necessarily in the given order.

Top puzzle (left — unsolved)

Column clues (top):
```
      1        1
      2        1
```

Row clues (left):
```
1  1  1
2  2
2  1

1  2
```


Top puzzle (right — solved)

Column clues (top):
```
      1        1
      2        1
```

Row clues (left):
```
1  1  1
2  2
2  1

1  2
```


14) SIZE MATTERS (49 points)

Shade some cells so that each row and column contains exactly two continuous blocks of shaded cells. Numbers outside the grid indicate the difference between lengths of the two shaded blocks in the respective row or column. Some cells are already shaded.

Column clues (top): 0 2 2 4 1 1 2

Row clues (left): 3 0 1 0 0 2 0

Column clues (top): 0 2 2 4 1 1 2

Row clues (left): 3 0 1 0 0 2 0

15) PAINTED NURIKABE (52 points)

Shade some empty cells black so that the grid is divided into white areas, each containing exactly one number and with the same area in cells as that number. Two white areas may only touch diagonally. All black cells must be connected with each other, but no 2×2 group of cells can be entirely shaded black.

The clues outside the grid indicate the lenghts of all groups of shaded cells in the corresponding row/column, in the correct order.

Column clues (top):
```
        2
        1
```

Grid with numbers: 2, 5, 4, 5, 2

Row clue (left, bottom): 2 2

Column clues (top):
```
        2
        1
```

Grid with numbers: 2, 5, 4, 5, 2

Row clue (left, bottom): 2 2

16) CODED PAINTED NURIKABE (77 points)

Shade some empty cells black so that the grid is divided into white areas, each containing exactly one number and with the same area in cells as that number. The numbers are coded by letters. Two cells with the same letter contain the same number. Different letters stand for different numbers.

Two white areas may only touch diagonally. All black cells must be connected with each other, but no 2×2 group of cells can be entirely shaded black.The clues outside the grid indicate the lenghts of all groups of shaded cells in the corresponding row/column, in the correct order.
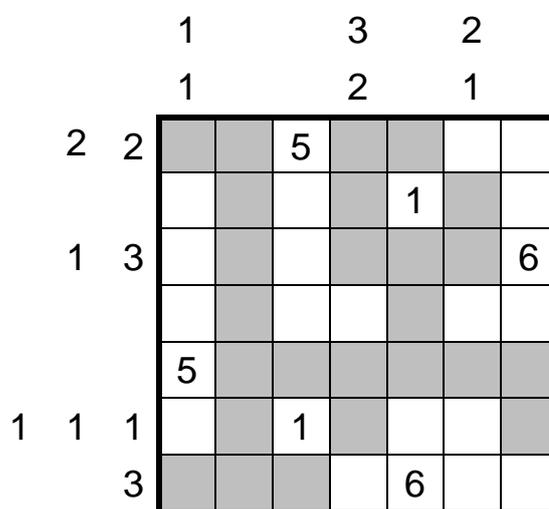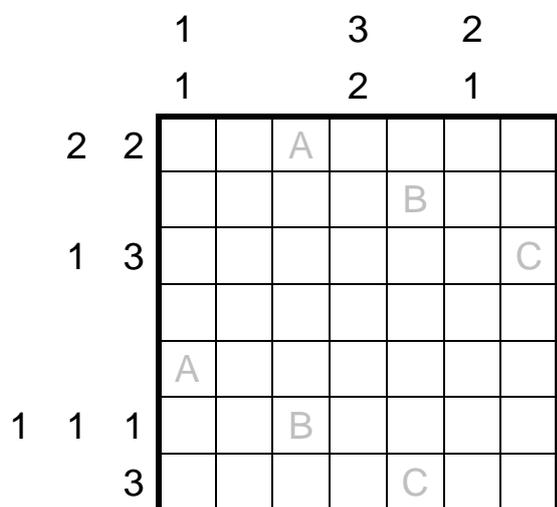
INDIVIDUAL ROUND 2 - LOOPS   XX MINUTES   600 POINTS

1) Masyu	13 points	11) Anglers	21 points
2) Masyu	13 points	12) Rollercoaster	59 points
3) Yajilin	64 points	13) Snake	17 points
4) Slitherlink	17 points	14) Snake	17 points
5) Liar Slitherlink	33 points	15) Snake with Obstacles	51 points
6) Double Slitherlink	35 points	16) Persistence of Memory	21 points
7) Grand Tour	8 points	17) Persistence of Memory	45 points
8) Grand Tour	8 points	18) How Many Cells	89 points
9) Simple Loop	5 points	19) Diagonal U-Bahn	42 points
10) Curvy Road	40 points		

1+2) MASYU (13 + 13 points)

Draw a single, non-intersecting loop that passes through all circled cells. The loop must go straight through the cells with white circles, with a turn in at least one of the cells immediately before/after each white circle. The loop must make a turn in all the black circles, but must go straight in both cells immediately before/after each black circle.
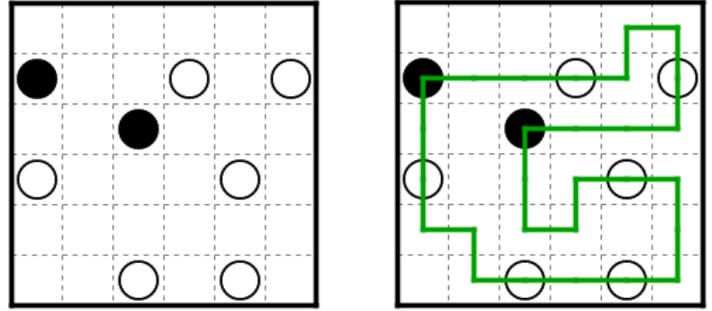
3) YAJILIN (64 points)

Blacken some white cells and then draw a single closed loop (without intersections or crossings) through all remaining white cells. Blackened cells cannot share an edge with each other. Some cells are outlined and in gray and cannot be part of the loop. Numbered arrows in such cells indicate the total number of blackened cells that exist in that direction in the grid.
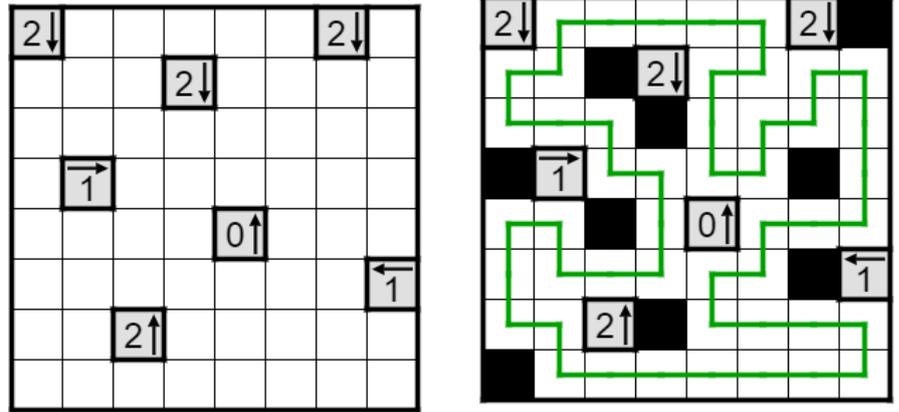
4) SLITHERLINK (17 points)

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.
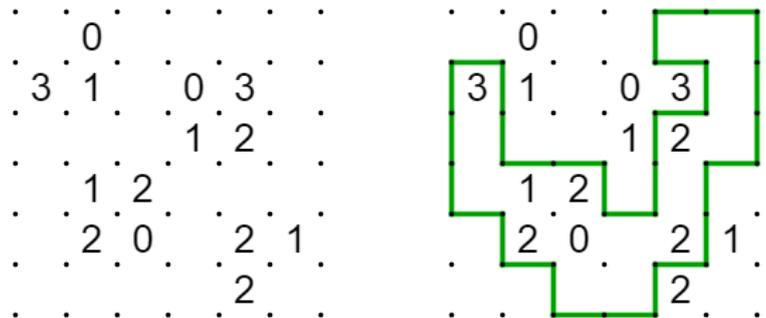
5) LIAR SLITHERLINK (33 points)

Draw a single, non-intersecting loop that only consists of horizontal and vertical segments between the dots (with the exemption of passing diagonally through the lying cells). Numbers inside a cell indicate how many of the edges of that cell are part of the loop. Exactly one clue in each row and column is incorrect. If the clue is incorrect, then the loop must pass diagonally through that cell.
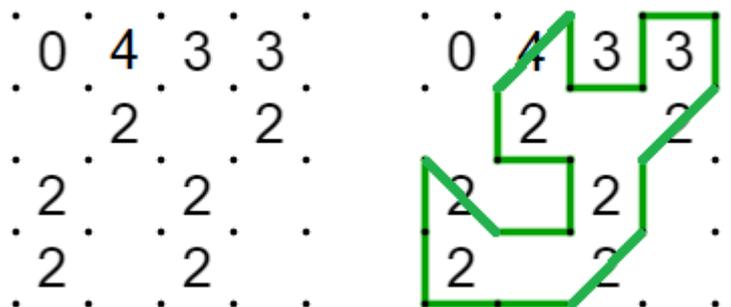
6) DOUBLE SLITHERLINK (35 points)

Draw a single, non-intersecting loop into each of the grids. The loops only consist 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. Both loops can not pass through the same segment of the grid. When both loops cross (pass through the same dot), they must both continue straight.

7+8) GRAND TOUR (8 + 8 points)

Draw a single, non-intersecting loop that only consists of horizontal and vertical segments between the dots. Some segments are already given. The loop must pass through all dots.
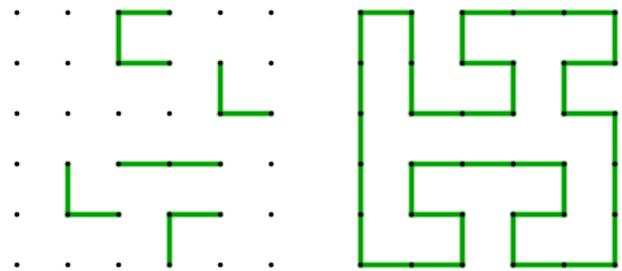
9) SIMPLE LOOP (5 points)

Draw a single, non-intersecting loop that passes horizontally and vertically through all white cells.
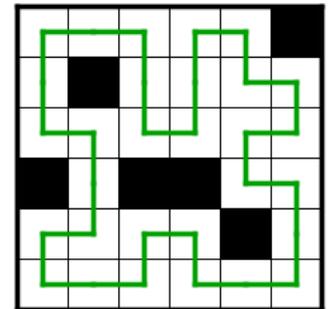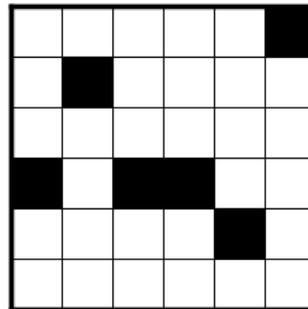
10) CURVY ROAD (40 points)

Draw a single, non-intersecting loop that passes orthogonally through all empty cells. The numbers in cells indicate how many turns the loops make in neigbouring cells.

11) ANGLERS (21 points)

The grid represents a lake and the numbers on the periphery represent anglers (fishermen). The fishes shown in the lake are such that every angler gets exactly one fish. The numbers indicate the length of the fishlines which are composed of horizontal and vertical line segments. Draw the fishlines starting from grid border such that no two of them cross or overlap each other.
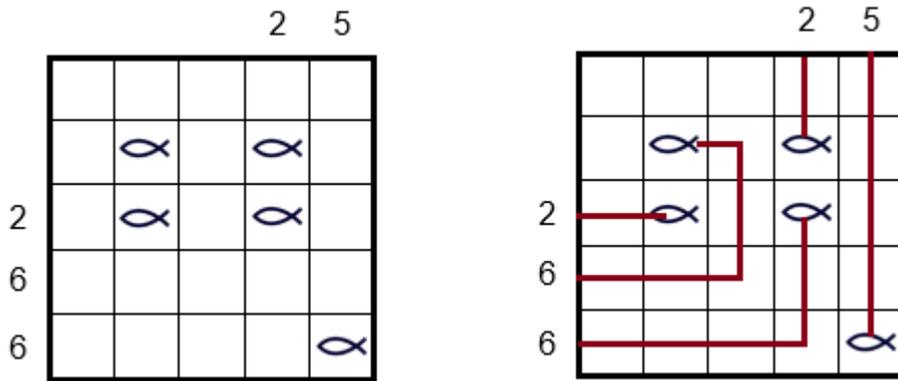
12) ROLLERCOASTER (59 points)

Fill each cell with a digit from 1 to 6 so that no digit repeats in any row or column, and also draw a single, non-intersecting loop through some cells in the grid. Numbers on the outside of the grid show the sum of digits of ALL horizontal/vertical loop segments in that row/column in order. (Rows contain only clues of horizontally passing segments and columns contain only clues of vertically passing segments).
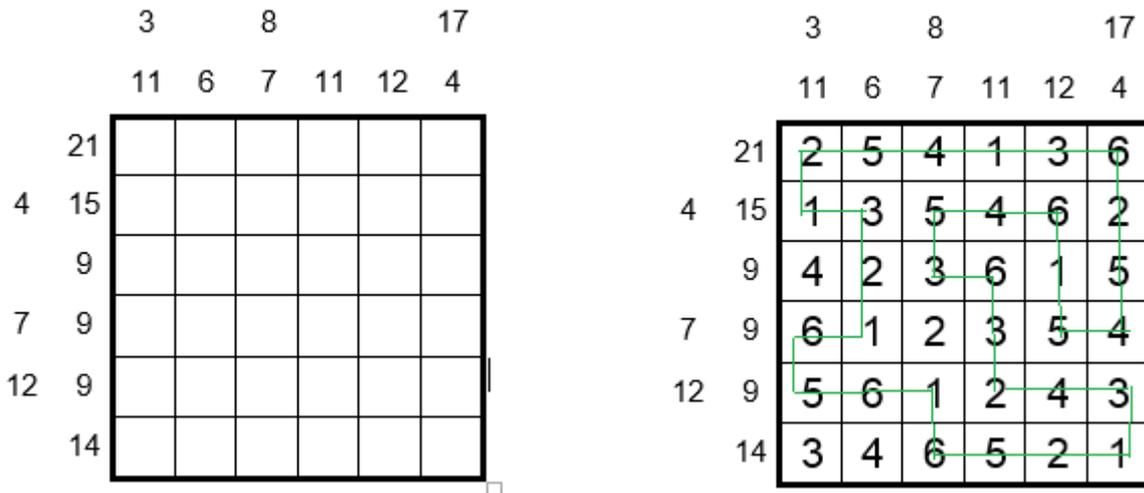
13) SNAKE (17 points)

Locate a snake in the grid, whose head and tail are given.The snake does not touch itself even at a point. Numbers outside the grid indicate lengths of snake segments in the corresponding direction.
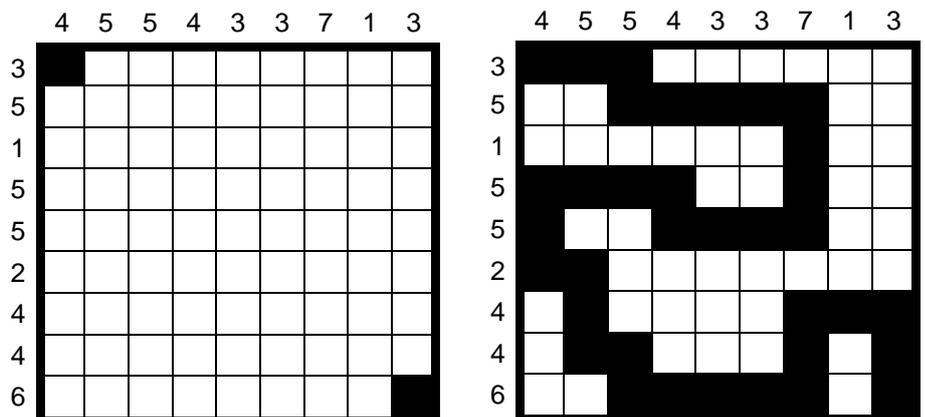
14) SNAKE (17 points)

Locate a snake in the grid, **head and tail are not given**. The snake does not touch itself even at a point. Numbers outside the grid indicate lengths of snake segments in the corresponding direction.
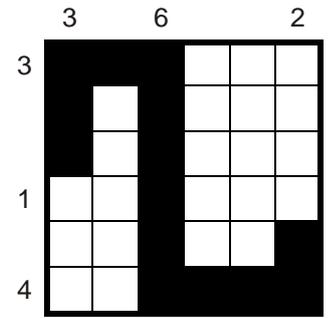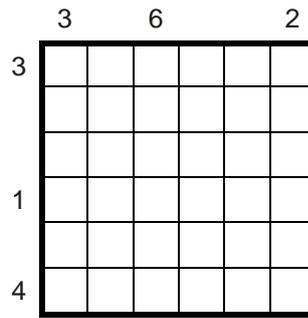
15) SNAKE WITH OBSTACLES (51 points)

Locate a snake in the grid, whose head and tail are given. The snake does not touch itself even at a point. The snake can not pass through cells marked with letter X. Numbers outside the grid indicate lengths of snake segments in the corresponding direction.
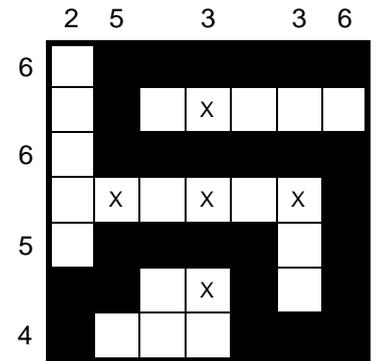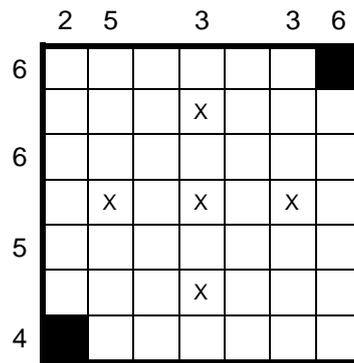
16+17) PERSISTENCE OF MEMORY (21 + 45 points)

Draw a single, non-intersecting loop that passes horizontally or vertically between adjacent squares. The loop cannot touch itself, even diagonally. All highlighted regions must be visited by the loop, and may be re-entered. If two or more highlighted regions have the same shape and orientation, then how the loop passes through those shapes must be identical.
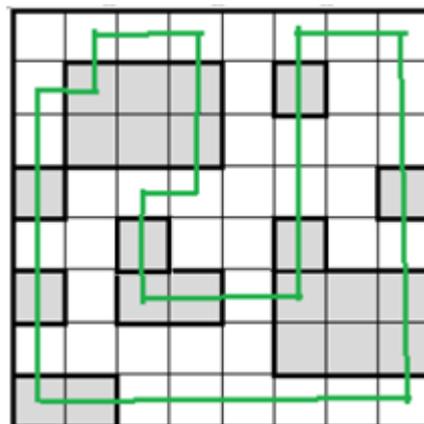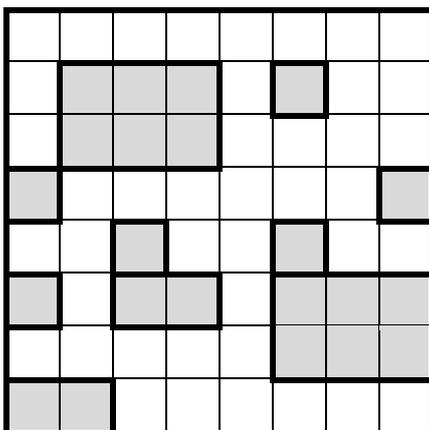
18) HOW MANY CELLS (89 points)

Draw a single, non-intersecting **oriented** loop that passes horizontally and vertically through the centres of cells. Each cell is visited exactly once. Numbers in regions indicate how many cells the loop passes in the next region it visits in the direction of the loop.
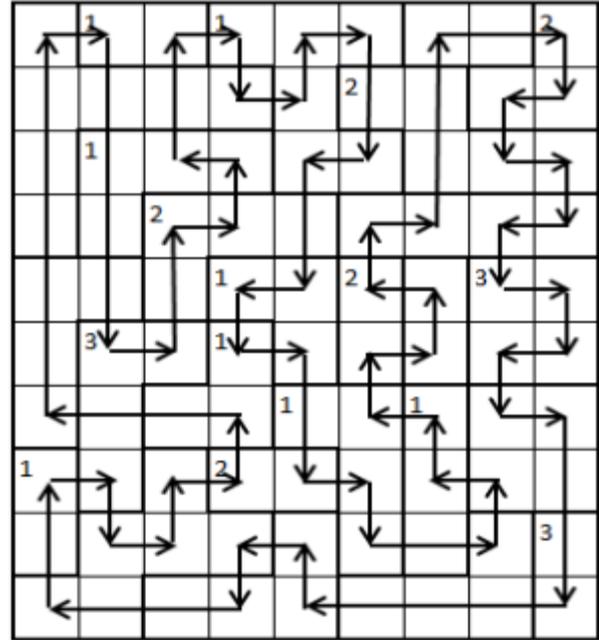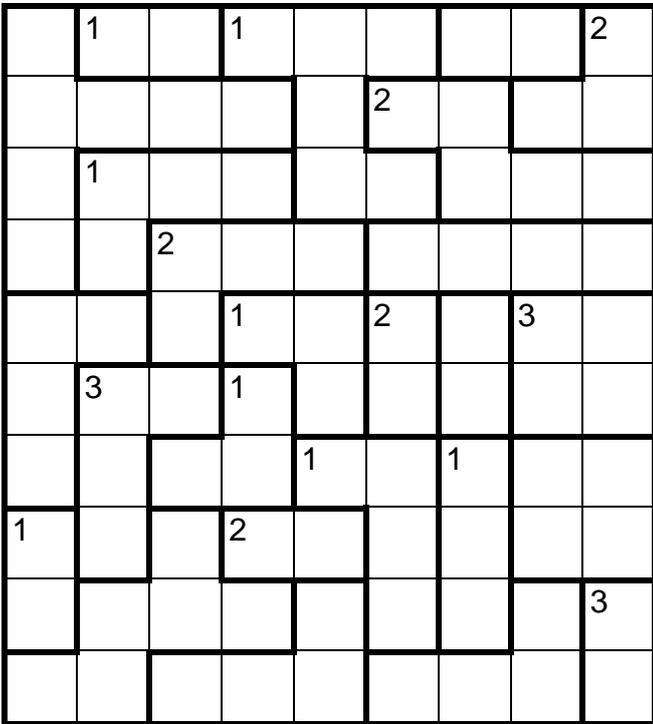
19) DIAGONAL U-BAHN (42 points)

Draw in a connected plan of a railway track that extends diagonally, **only on the grey lines.** There must be no dead ends. The numbers on the grid indicate how many of each of the possible junctions occurs in the corresponding row or column. These possibilities may be rotated.


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

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

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

0	2	2	0
2	0	0	2
1	1	2	0
1	0	0	2
1	0	0	1
1	0	0	3
0	3	0	1
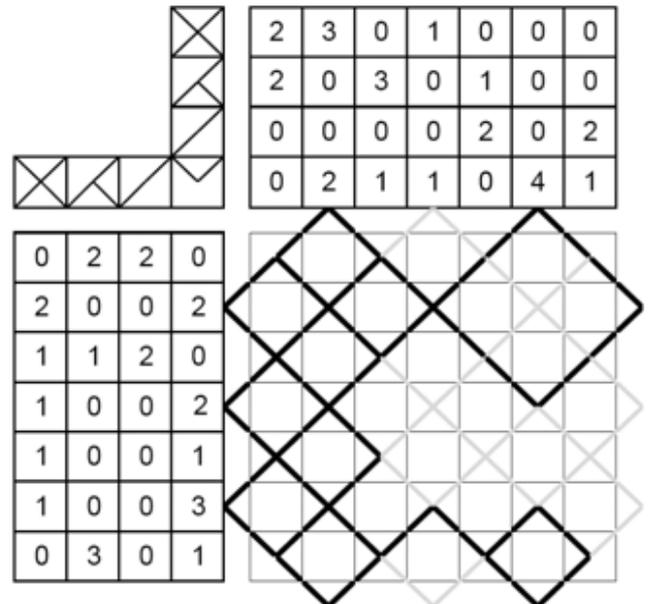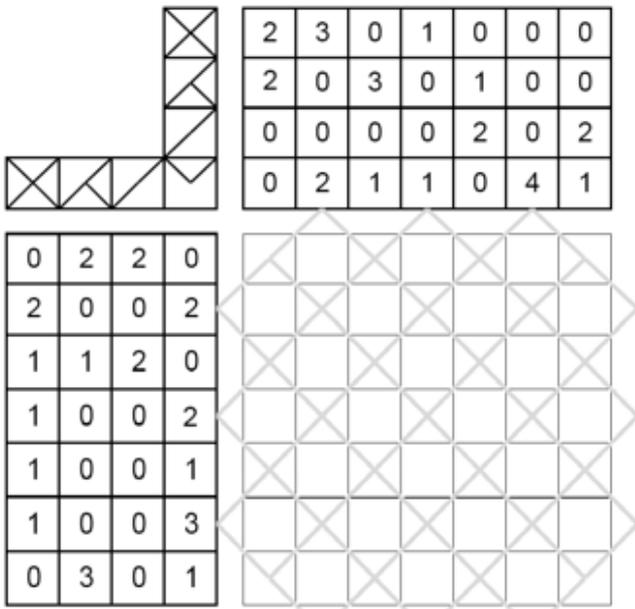
INDIVIDUAL ROUND 3 - NUMBERS   XX MINUTES   1000 POINTS

|			
1) Irregular Skyscrapers	15 points	14) Worms in Hexagon	35 points
2) Skyscrapers with Sum	46 points	15) Worms in Hexagon	47 points
3) Black Hole Sums	6 points	16) Antimagic Hexagon	13 points
4) Domino Skyscrapers	22 points	17) Antimagic Hexagon	15 points
5) Domino Skyscrapers	97 points	18) Antimagic Hexagon	27 points
6) Linked Skyscrapers	49 points	19) Antimagic Hexagon	30 points
7) Frameless Skyscrapers	13 points	20) First Seen Block	26 points
8) Frameless Skyscrapers	58 points	21) Triple Double Block	48 points
9) Prime Numbers	37 points	22) Pills	15 points
10) Diagonal Mathrax	32 points	23) Trid	27 points
11) Diagonal Bricks	25 points	24) Scales	18 points
12) Sandglass	35 points	25) Noncons. Double Block	62 points
13) Sandglass	57 points	26) Different Views	65 points

1) IRREGULAR SKYSCRAPERS (15 points)

Place a digit from 1 to 5 into each of the empty squares so that each digit appears exactly once in each row, column and outlined region. Each number represents the height of a building. The clues outside the grid indicate the number of buildings visible from the corresponding direction. A higher building will hide any lower buildings behind it.
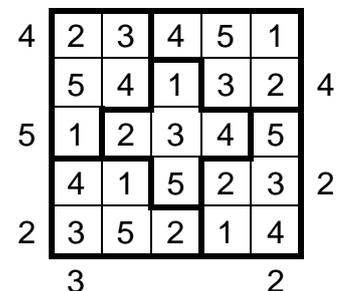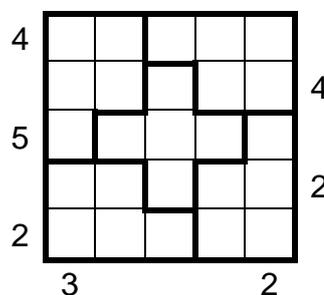
2) SKYSCRAPERS WITH SUM (46 points)

Place a digit from 1 to 7 into each of the empty squares so that each digit appears exactly once in each row and column. Each number represents the height of a building. The clues outside the grid indicate the number of buildings visible from the corresponding direction. A higher building will hide any lower buildings behind it. Digits in the box represent three-digit numbers. The number in the bottom row is the sum of the two numbers above.
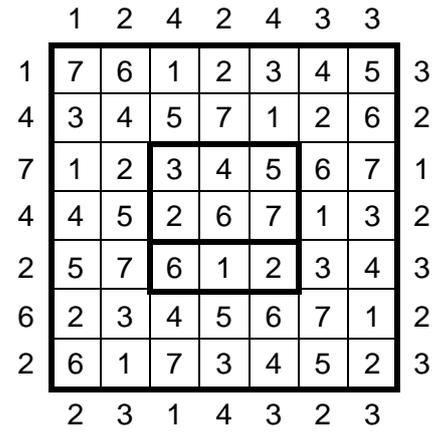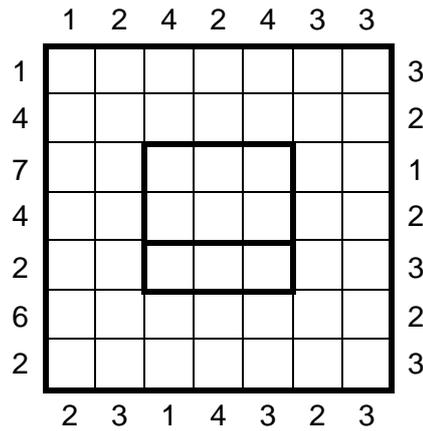
Puzzle grid (empty) — top clues: 1 2 4 2 4 3 3; left clues: 1 4 7 4 2 6 2; right clues: 3 2 1 2 3 2 3; bottom clues: 2 3 1 4 3 2 3

Solution grid — top clues: 1 2 4 2 4 3 3; bottom clues: 2 3 1 4 3 2 3

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

## 3) BLACK HOLE SUMS (6 points)

Place a digit from 1 to 5 into each of the white squares so that each digit appears exactly once in each row and column. Blackened cells can not contain a digit. Numbers outside the grid indicate the sum of the two digits placed next to the blackened cell in the corresponding row/column.

Puzzle grid — top clues: 3 6 5 6 6 5; left clues: 4 6 7 4 4 2

Solution grid — top clues: 3 6 5 6 6 5; left clues: 4 6 7 4 4 2

|	3	6	5	6	6	5
4	■	4	2	1	5	3
6	3	2	4	5	■	1
7	5	3	■	4	1	2
4	2	5	1	■	3	4
4	1	■	3	2	4	5
2	4	1	5	3	2	■
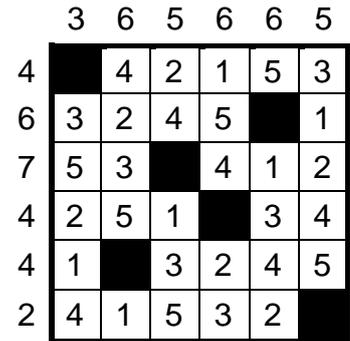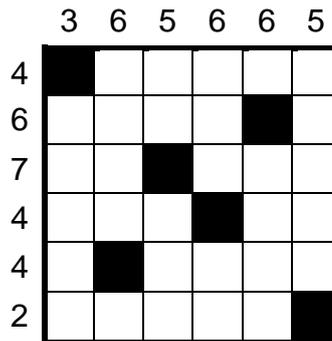
4+5) DOMINO SKYSCRAPERS (22 + 97 points)

Divide the grid into a full set of dominoes. Each domino should be used exactly once. The orientation of the digits does not matter. Black cells can not contain dominoes. Moreover, each number represents the height of a building. The clues outside the grid indicate the number of buildings visible from the corresponding direction. A higher building will hide any lower buildings behind it.

Puzzle grid — top clues: 1 1 2 3 3; left clues: 2 1 4 2 2; right clues: 2 1 1 1 1; bottom clues: 1 4 1 2 2

Domino set:
11
12 22
13 23 33
14 24 34 44

Solution grid — top clues: 1 1 2 3 3; bottom clues: 1 4 1 2 2

	1	1	2	3	3	
2	1	4	■	1	2	2
1	■	3	3	3	3	1
4	1	2	3	4	■	1
2	■	2	4	4	4	1
2	1	1	■	2	2	1
	1	4	1	2	2	
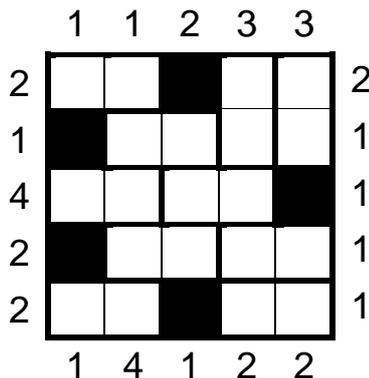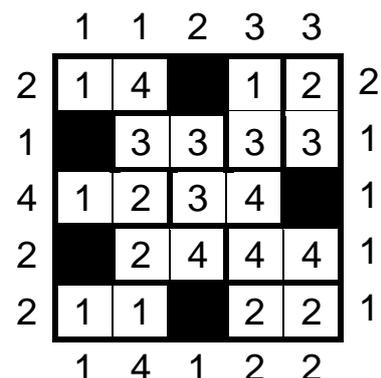
6) LINKED SKYSCRAPERS (49 points)

The puzzle consists of four 5x5 grids. Place numbers 1, 2, 3 into some cells, no more than one number per cell, so that in each of the four grids, each number appears exactly once in each row and column. Each number represents the height of a building. The clues outside the grid indicate the number of buildings visible from the corresponding direction. A higher building will hide any lower buildings behind it. Additionally, on the edge of two grids, if a cell contains a number then it indicates the number of building visible from the corresponding direction in the neighbouring grid.

Left grid

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

Right grid

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

7+8) FRAMELESS SKYSCRAPERS (13 + 58 points)

Locate and solve a 4x4 skyscraper puzzle in the grid. In the whole grid, there is only one way how to place a 4x4 latin square that has a valid solution using outside numbers in respective rows and column as skyscraper clues.

Skyscraper rules: Place a digit from 1 to 4 into each of the empty squares so that each digit appears exactly once in each row and column. Each number represents the height of a building. The clues outside the grid indicate the number of buildings visible from the corresponding direction. A higher building will hide any lower buildings behind it.

Grid 7

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

Grid 8

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

9) PRIME NUMBERS (37 points)

Place a digit from 1 to 6 (1-4 in the instruction booklet) into each of the empty squares so that each digit appears exactly once in each row and column. In each row and column, each group of white cells must give a sum that is a prime number.

Puzzle:

		1	
4			

Solution:

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

10) DIAGONAL MATHRAX (32 points)

Place a digit from 1 to 8 into each of the empty squares so that each digit appears exactly once in each row and column. Numbers must not repeat on the main diagonals. Additionally, some clues are marked at the intersection of a 2×2 block of cells. Where a number and an operator (+, ×, −, /) are given, the number must be the result of applying the operator to the numbers placed in both pairs of diagonally opposite cells. Where an "S" or "L" is given, the cells must contain respectively even (S) or odd (L) numbers.

Solution:

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

Clues (at 2×2 intersections): (4-), (4-), (10+), (12×), (L), (3-), (4-), (12×)

11) DIAGONAL BRICKS (25 points)

Place a digit from 1 to 6 into each of the empty squares so that each digit appears exactly once in each row and column. Numbers must not repeat on the main diagonals. Each brick contains exactly one odd and one even digit.

Puzzle:

		1		6	
	5				1
5					
					4
3				1	
	1		5		

Solution:

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

13+14) SANDGLASS (35 + 57 points)

Fill each empty cell of the double pyramid with a number (integer) so that no number repeats in the grid. The sum of two neighbouring cells in a row is equal to the number placed in the cell located on top of those two cells (on bottom in the upper pyramid). *(The puzzle on the right side.)*
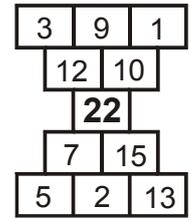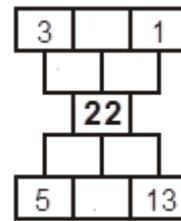
15+16) WORMS IN HEXAGON (35 + 47 points)

Place a digit from 1 to 6 into each of the empty cells so that numbers do not repeat in outlined regions and in rows with arrow. Outlined regions must form a sequence in which higher and lower digits alternate (for example 4-1-5-3-6-2). Two neighbouring cells can not contain the same digit.
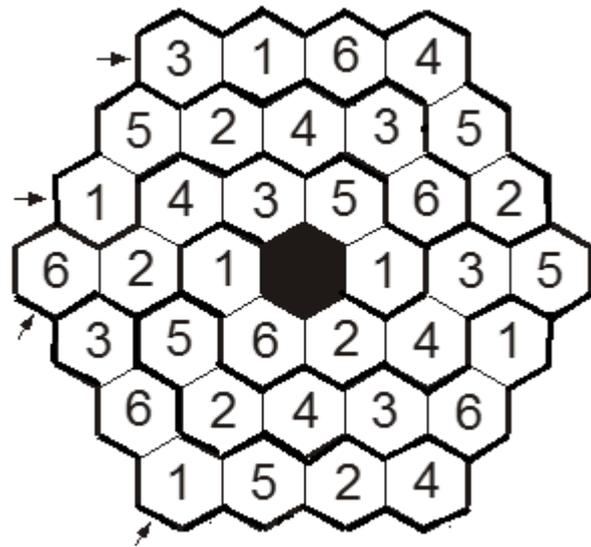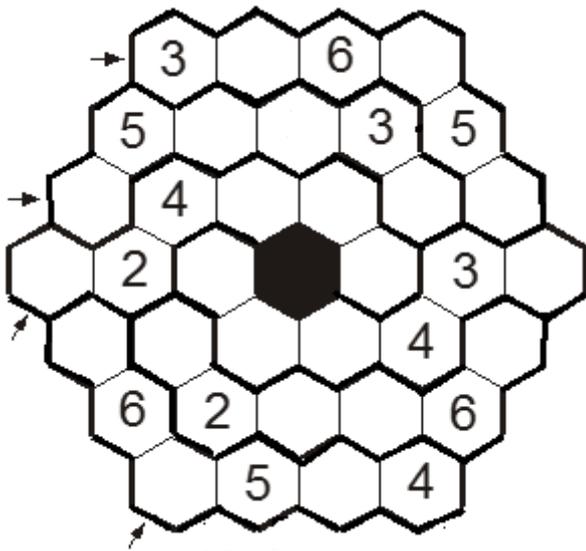
17-20) ANTIMAGIC HEXAGON (13 + 15 + 27 + 30 points)

Place a digit from 1-10 into some of the empty cells so that each row (in all three directions) contains exactly two digits. Each digit is used exactly once. Each of the rows has different sum (ranging from 4 to 18). Some of the sums are given. For puzzles 19 and 20, the ranges are 1-10 for numbers and 5-25 for sums.
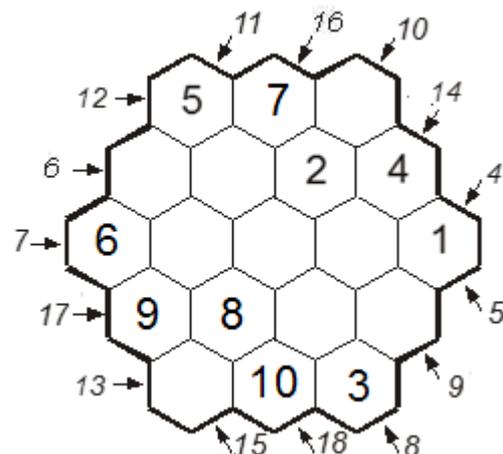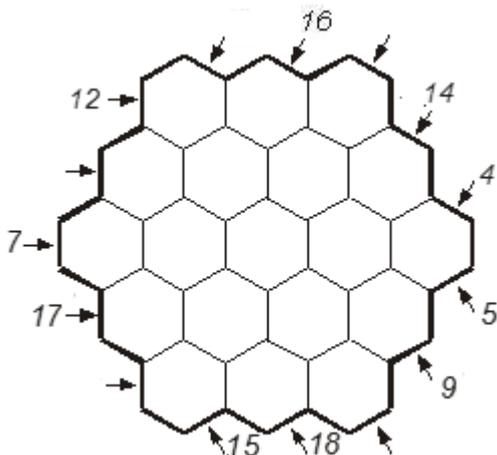
21) FIRST SEEN BLOCK (26 points)

Blacken some cells so that each rows and column contains exactly two black cells. Then place a digit from 1 to 4 into each of the white cells so that each digit appears exactly once in each row and column. Numbers outside the grid indicate the sum of the first continuous block of digits in the corresponding direction.

Empty puzzle grid:

	2	7	1	4	3	7	
10							10
2							8
7							3
3							7
3							7
1							6
	1	3	3	6	7	3	

Solution grid:

	2	7	1	4	3	7	
10	2	4	1	3	■	■	10
2	■	2	■	1	3	4	8
7	4	1	2	■	■	3	3
3	3	■	4	2	1	■	7
3	■	3	■	4	2	1	7
1	1	■	3	■	4	2	6
	1	3	3	6	7	3	
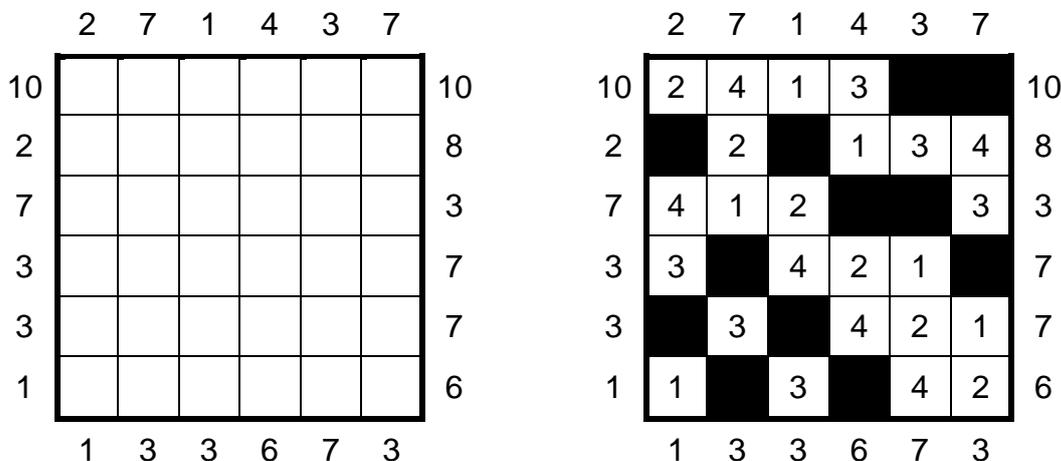
22) TRIPLE DOUBLE BLOCK (48 points)

Blacken some cells so that each rows and column contains exactly two black cells. Then place a digit from 1 to 4 into each of the white cells so that each digit appears exactly once in each row and column. Numbers outside the grid indicate the sum of the digits placed between the two black cells in the corresponding row/column.
If a cell is blackened in one of the grids then the cells in the same position in other two grids can not be blackened. Also, the number placed in a cell in one of the grids must be different from the numbers placed in the same position in other two grids.

Solution grids:

Grid 1:

	1	7	10	0	5	5
3	4	2	■	3	■	1
4	3	1	2	■	4	■
0	■	■	4	2	1	3
0	1	4	3	■	■	2
10	■	3	1	4	2	■
0	2	■	■	1	3	4

Grid 2:

	5	5	4	4	6	4
3	■	1	2	■	4	3
7	1	■	3	4	■	2
0	4	3	■	■	2	1
10	■	2	4	1	3	■
0	2	■	■	3	1	4
0	3	4	1	2	■	■

Grid 3:

	9	6	1	0	1	4
9	1	■	3	4	2	■
2	■	2	■	1	3	4
0	2	4	1	3	■	■
0	4	■	■	2	1	3
0	3	1	4	■	■	2
5	■	3	2	■	4	1

Empty grids:

Grid 1:

	1	7	10	0	5	5
3						
4						
0						
0						
10						
0						

Grid 2:

	5	5	4	4	6	4
3						
7						
0						
10		2				
0						
0						

Grid 3:

|	9	6	1	0	1	4
9						
2						
0						
0						
0						
5						
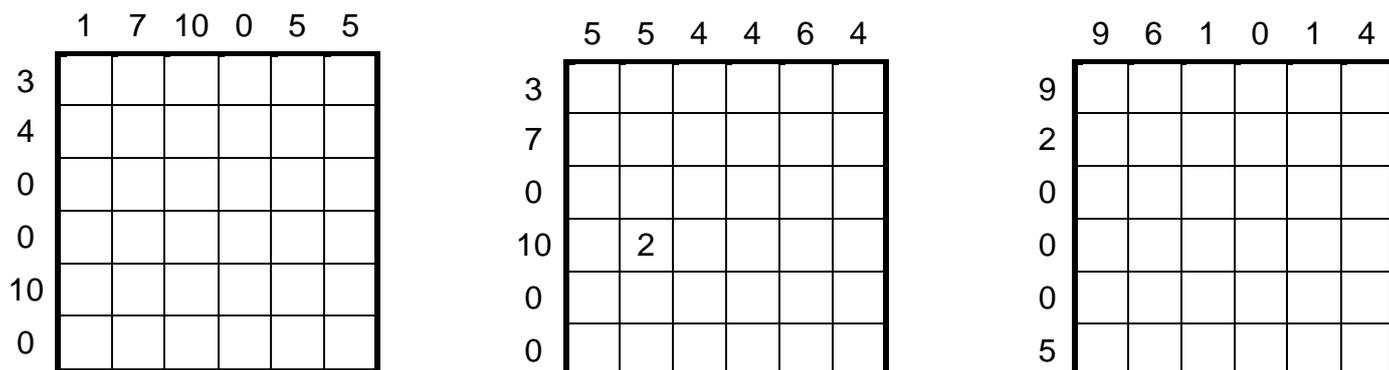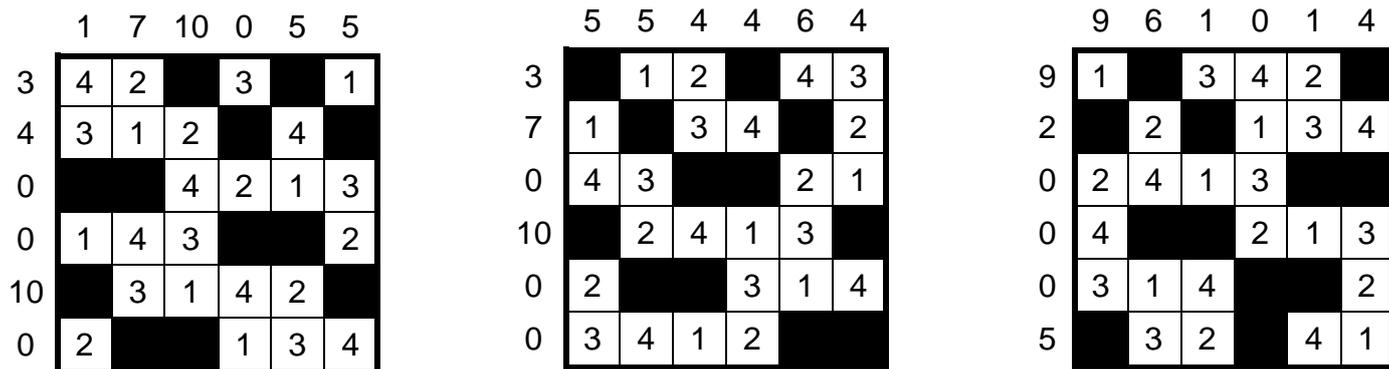
23) PILLS (15 points)

Place 6 pills in the grid, each of size 1x3 cells. Each of them has different value (from 1 to 6). Numbers outside the grid indicate the sum of all pills that are at least partially placed in the corresponding row or column.
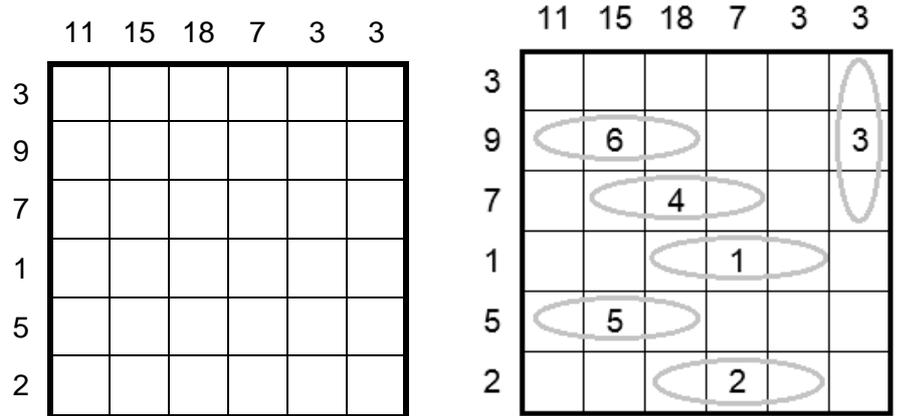

24) TRID (27 points)

Place a digit from 1 to 5 into each of the empty circles so that no digit repeats in any of the three directions. Numbers in triangles indicate the sum of the numbers placed in the vertices of the triangle.
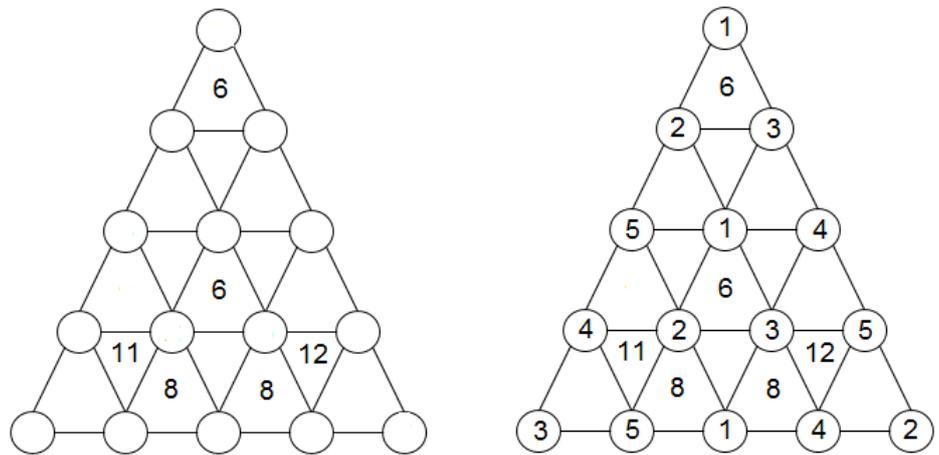

25) SCALES (18 points)

Place a digit from 1 to 8 (1 to 5 in the IB) into each of the empty squares so that each digit is used exactly once. The diagram represents weighing scales and numbers weight. Complete the diagram in such a way that all scales are balanced.
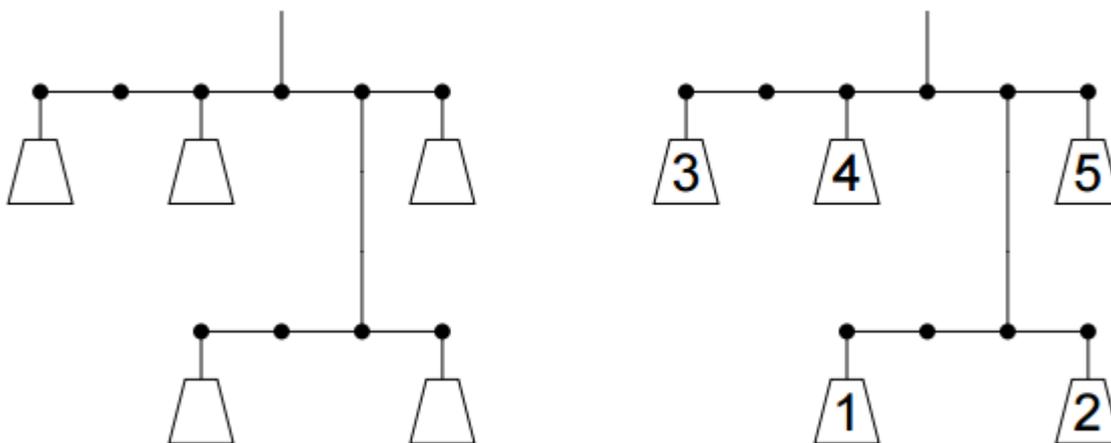
26) NON-CONSECUTIVE DOUBLE BLOCK (62 points)

Blacken some cells so that each rows and column contains exactly two black cells. Then place a digit from 1 to 7 (1 to 5 in the IB) into each of the white cells so that each digit appears exactly once in each row and column. Numbers outside the grid indicate the sum of the digits placed between the two black cells in the corresponding row/column. Adjacent cells can not contain consecutive digits.

Puzzle grid:

	8	2	9	9	11	6	4
11			2				
7				2			
2					2		
15						2	
8							2
4							
4							

Solution grid:

	8	2	9	9	11	6	4
11	■	5	2	4	■	3	1
7	5	3	■	2	4	1	■
2	3	1	5	■	2	■	4
15	■	4	1	3	5	2	■
8	1	■	3	5	■	4	2
4	4	2	■	1	3	■	5
4	2	■	4	■	1	5	3

27) DIFFERENT VIEWS (65 points)

Place a digit from 1 to 4 into some of the empty cells so that each digit appears exactly once in each row and column. Numbers outside the grid indicate the difference between the first and last digit in the corresponding direction. **The last digit is always bigger.**

Puzzle grid (top clues: 3, 1, 2; bottom clues: 2, 3, 1):

left							right
							3
		1			2		1
1			2			3	
3		2			3		
2			3			4	
							1

Solution grid (top clues: 3, 1, 2; bottom clues: 2, 3, 1):

left							right
	4			3		2	1	3
	3	1	4		2			1
1			2	4	1	3		
			3			4	1	2
3	1	2			3		4	
2	2		3	1		4		
		4	1	2			3	1

27) KAKURO (80 points)

Enter a single digit from 1 to 9 into each white cell so that the sum of digits in each Across entry equals the value given to the left of the entry, and the sum of digits in each Down entry equals the value given above the entry. No digit may be repeated within a single entry (i.e., group of cells connected horizontally or vertically without any black cells between).

1) EASY AS ABC (8 points)

Place letters A, B, C into some cells, no more than one letter per cell, so that each letter appears exactly once in each row and column. Cells with hyphen can not contain a letter. The letters outside the grid indicate the first letter that can be seen in the respective row or column from the respective direction.

2) EASY AS AABC (28 points)

Place letters A, B, C into some cells, no more than one letter per cell, so that each row and column contains letter A exactly twice and letters B, C exactly once. The letters outside the grid indicate the first letter that can be seen in the respective row or column from the respective direction. **Two letters A can not share an edge.**

3) IRREGULAR EASY AS ABC (19 points)

Place letters A, B, C into some cells, no more than one letter per cell, so that each letter appears exactly once in each row, column and outlined region. The letters outside the grid indicate the first letter that can be seen in the respective row or column from the respective direction.

4+5) INNER EASY AS ABCD (8 + 14 points)

Place letters A, B, C (A, B, C, D in the second puzzle) into some cells, no more than one letter per cell, so that each letter appears exactly once in each row and column. Shaded cells can not contain a letter. Clues in these cells indicate **all letters** that can be seen from that cell in **both directions** (a letter hides other letters behind, shaded cells do not hide letters).

6) ABC BOX (16 points)

Fill a letter A, B or C in each cell of the grid. The letters by the grid indicate the sequence that the letters appear in that row or column, in the correct order. The same letter appearing consecutively will only be specified once. A question mark or a number in the given sequence indicates an unknown letter; a number indicates that the unknown letter will fill that number of consecutive squares.

Left grid (puzzle):

```
                B
        ?   A   3   ?
        B   ?   B   B
2   ?   ? ┌───┬───┬───┬───┐
          │   │   │   │   │
A   ?   B │   │   │   │   │
          │   │   │   │   │
?   A   2 │   │   │   │   │
          │   │   │   │   │
?   ?   B │   │   │   │   │
          └───┴───┴───┴───┘
```

Right grid (solution):

			B	
	2	A	3	?
	B	?	B	B
2 ? ?	A	A	C	B
A ? B	A	A	C	B
? A 2	B	A	C	C
? ? B	B	C	B	B
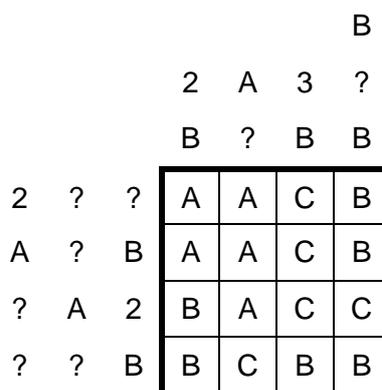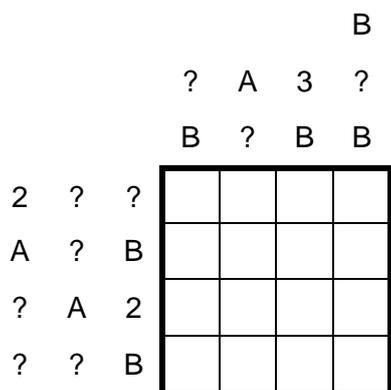
7) SLALOM (18 points)

Draw a diagonal line in every cell so that no closed loops are formed. The numbers at some vertices indicate how many segments meet at that vertex.
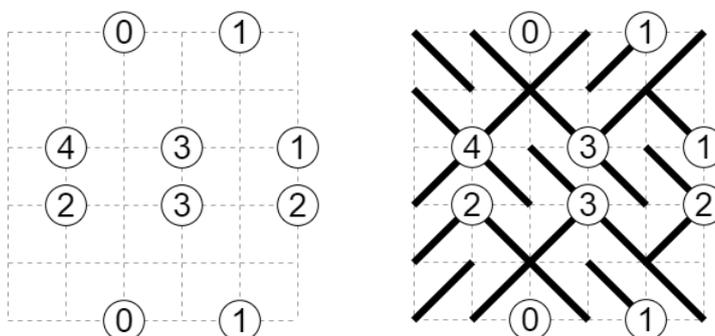
8) DOMINO (11 points)

Divide the grid into a full set of dominoes. Each domino should be used exactly once. The orientation of the digits does not matter. A checklist of the full set is provided for your convenience.

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

11
12 22
13 23 33
14 24 34 44

15 25 35 45 55

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

9)

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

DOMINO PLUS (33 points)

Divide the grid into a full set of dominoes. Each domino should used at least once, **two dominoes should be used twice**. The orientation of the digits does not

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

be

matter. Black cells are not part of a domino. A checklist of the full set is provided for your convenience.

11
12 22
13 23 33
14 24 34 44
15 25 35 45 55

10) STARRY NIGHT (9 points)

Draw stars in some of the blank cells, so that every star is pointed to by at least one arrow.
Every arrow points to at least one star. The path of an arrow can pass through other arrows and stars.
The numbers aroung the grid indicate how many stars are located in the corresponding row or column.

11+12) STARBATTLE (7 + 20 points)

Place stars into some cells in the grid, no more than one star per cell. Each row, each column, and each outlined region must contain exactly two stars. Cells with stars may not touch each other, not even diagonally.
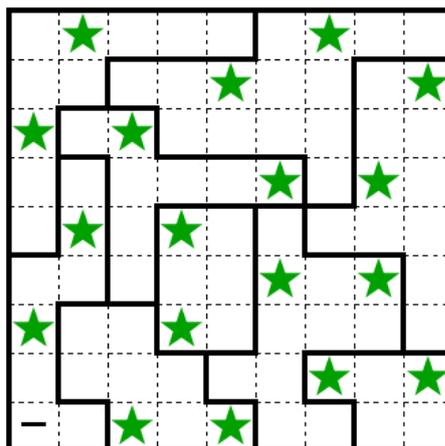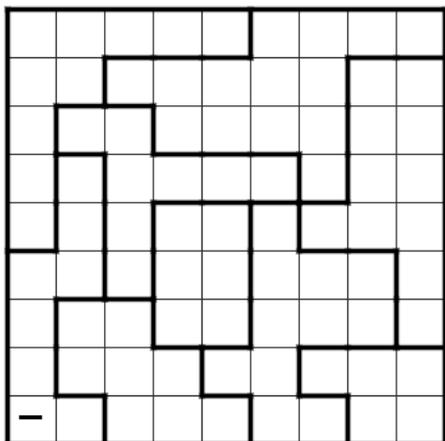
13+14) MAGNETS (20 + 67 points)

Complete the grid with magnetic and neutral (black) tiles. Each magnetic tile has two poles (+ and -), one on each half. Two halves with the same poles must not touch horizontally or vertically. The numbers outside the grid indicate how many positive and negative poles appear in the respective row or column. If a clue number is blank, you need to deduce the missing value.

15) PENTOMINOES (20 points)

Place given set of pentominoes in the grid. Rotation and reflection is allowed. Pentominoes may not touch each other, not even diagonally. Cells with hyphen can not be part of a pentomino. The numbers outside the grid indicate how many cells are occupied by pentominoes in the respective row o

r column. (Letters are for illustrational purposes only.)
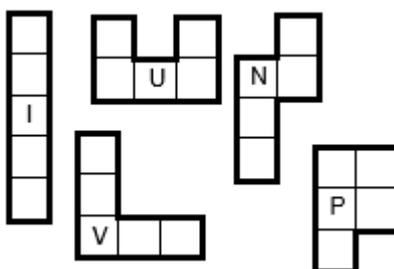
16) TENTS (24 points)

For each tree, draw a tent that is either vertically or horizontally adjacent to that tree. The tents should not touch each other, even diagonally. The numbers outside the grid indicate the number of tents in the respective row or column.
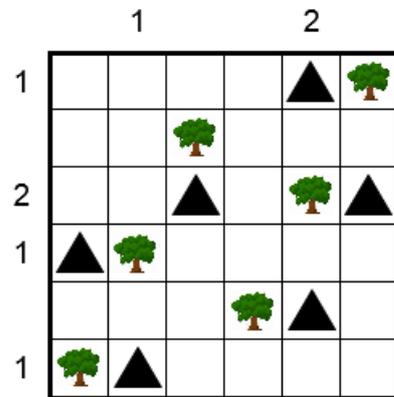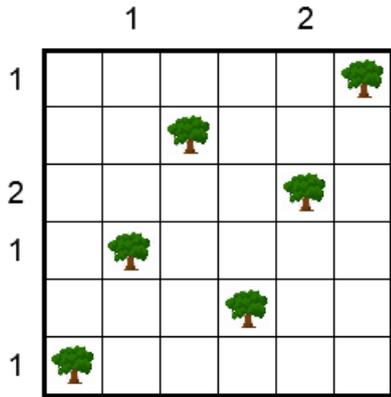
17) FOUR WINDS WITHOUT NUMBERS (24 points)

Draw **two** horizontal or vertical lines of **different lengths** from each circled square. Lines cannot cross other circled squares. No lines overlap or intersect each other, and each empty square is covered by exactly one line. **Two circled squares cannot have the same combination of the line lenghts**.
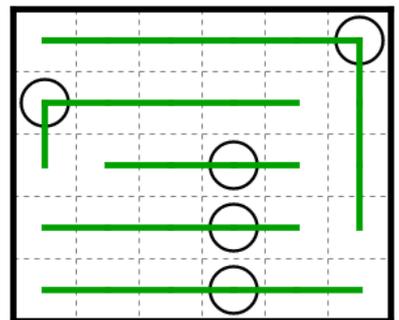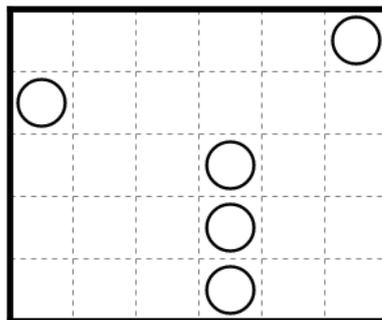
18) FOUR WINDS WITH DIFFERENCE (1 points)

Draw **two** horizontal or vertical lines from each numbered square. Lines cannot cross other circled squares. No lines overlap or intersect each other, and each empty square is covered by exactly one line. Each number indicates the **difference** of the line lengths.

19) LABYRINTH (14 points)

Place numbers 1-3 into some cells, no more than one letter per cell, so that each letter appears exactly once in each row and column. When walking the labyrinth from the entrance to the exit (the direction is indicated by arrows) the digit sequence 1, 2, 3, 1, 2, 3... must repeat. Cells with hyphen can not contain a digit.

20) SOSON LABYRINTH (24 points)

Place letters N, O, S into some cells, no more than one letter per cell, so that no letter repeats in any row or column. Same letter can not touch themselves, not even diagonally. When walking labyrinth from the entrance to the exit (the direction is indicated by arrows) the letter sequence S, O, S, O, N, S, O, S, O, N... (forming the word SOSON) must repeat. The word SOSON appears exactly three times in the grid. Cells with hyphen can not contain a letter.

22) JAPANESE ARROWS (24 points)

Place a number from 1 to 4 into each of the empty cells. Each number indicates how many different numbers can be seen from that cell in all directions the arrows point to. That number is the same for all arrows. The directions without arrow can not have the same amount of visible numbers.

23) HALFDOMINOES (18 points)

Place given set of halfdominoes in the grid so that each outlined 3x3 region contains exactly one halfdomino. Each halfdomino is used exactly once. Rotation and reflection is not allowed. Numbers outside the grid indicate the number of dots in the respective row or column.
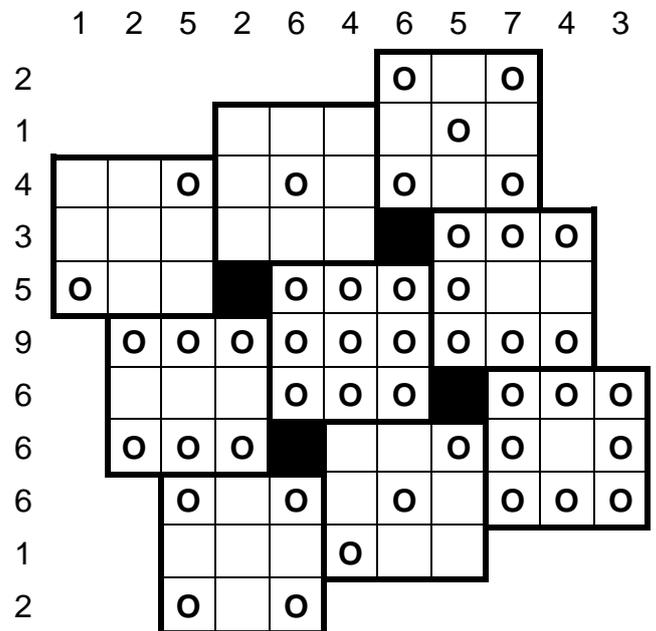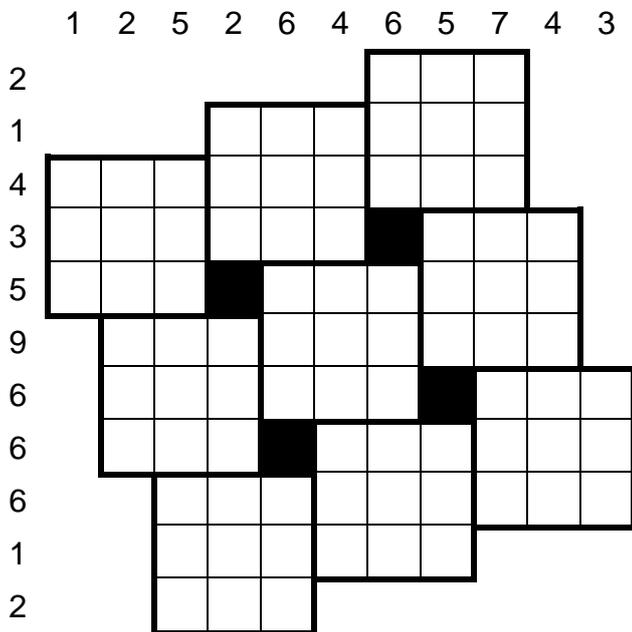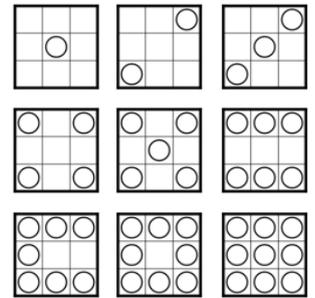

24) DIAGONAL HALFDOMINOES (23 points)
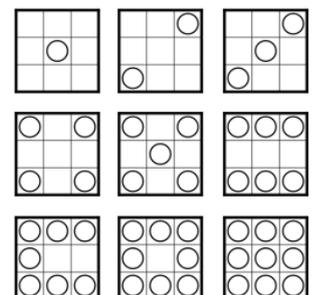
Place given set of halfdominoes in the grid so that each outlined 3x3 region contains exactly one halfdomino. Each halfdomino is used exactly once. Rotation and reflection is not allowed. Numbers outside the grid indicate the number of dots in the respective diagonal direction.

INDIVIDUAL ROUND 4   XX MINUTES   XX POINTS
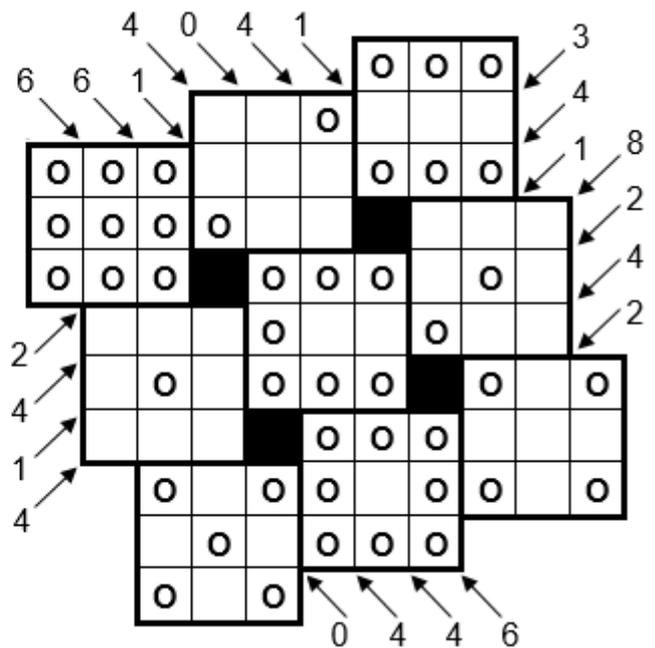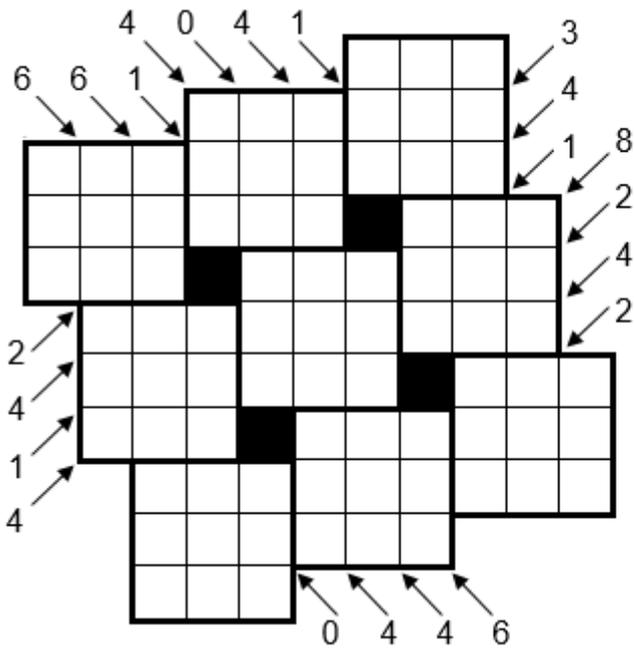
| 1) Division – Shape	11 points	8) Galactic Snake	31 points
2) Division – Letters	7 points	9) Shikaku	5 points
3) Division – Pentominoes	57 points	10) Shikaku	17 points
4) Broken Squares	31 points	11) Shikaku	30 points
5) Neighbours	30 points	12) Rectangles	50 points
6) Countries	58 points	13) Fillomino	35 points
7) Spiral Galaxies	13 points	14) Shakashaka	25 points

1) DIVISION – SHAPE (11 points)

Divide the grid into 6 pieces so that all have the same size and shape. Rotation and reflection is allowed.

2) DIVISION – LETTERS (7 points)

polyominoes from the given set into the grid. Each cell
exactly one polyomino. Rotation and reflection is
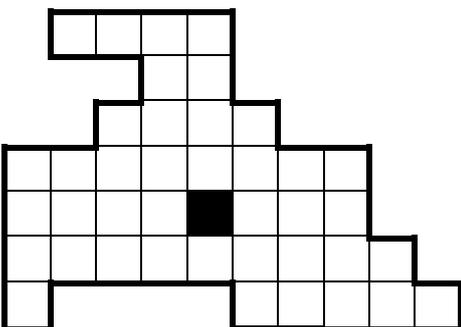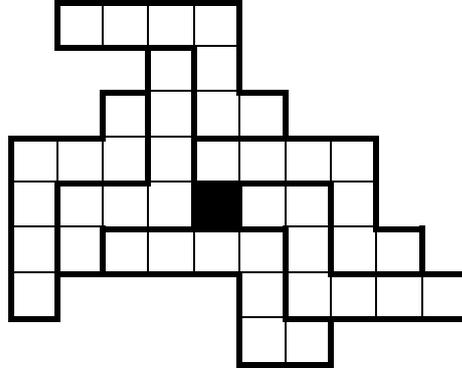
Place all
is a part of
allowed.
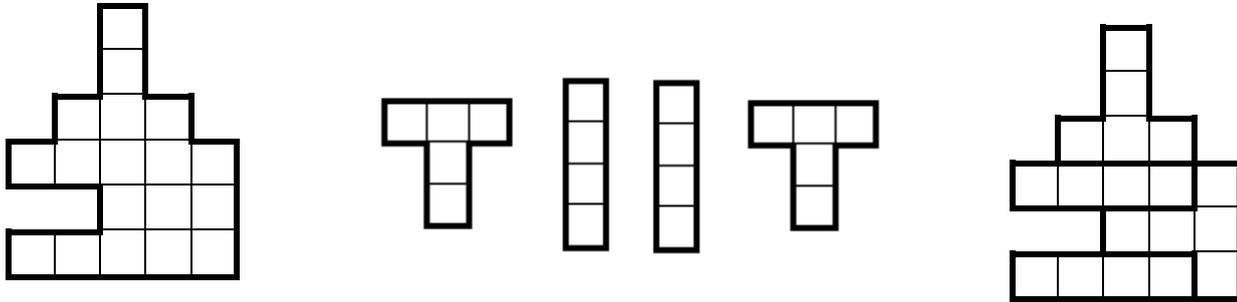
3) DIVISION – PENTOMINOES (57 points)

Place all pentominoes from the given set into the grid. Rotation and reflection is allowed. Each cell is a part of exactly one pentomino. Pentominoes are marked with letters. The letter in a cell indicates that the cell is a part of respective pentomino.
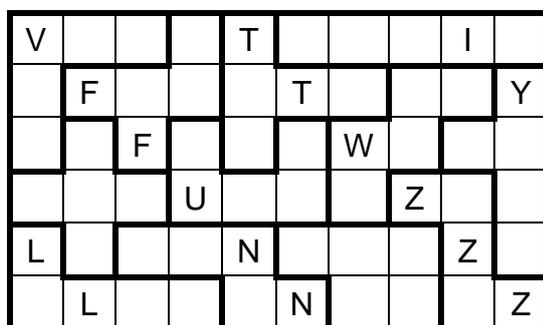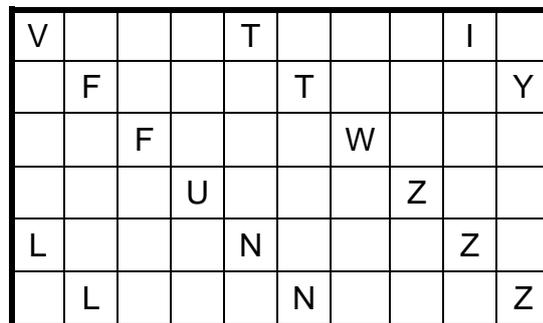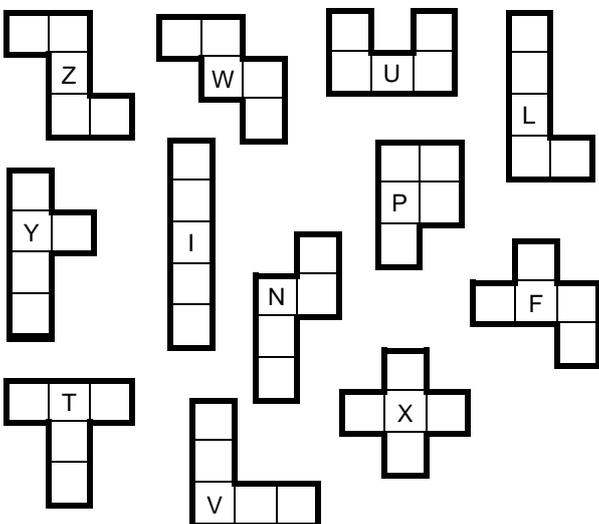
4) BROKEN SQUARES (31 points)

Connect some adjacent tiles so that they can be put together to form a 3x3 square, without overlapping, rotation and reflection. Each tile must belong to exactly one square.
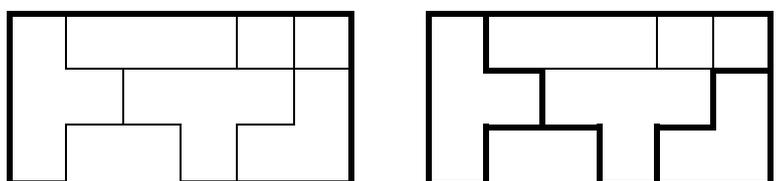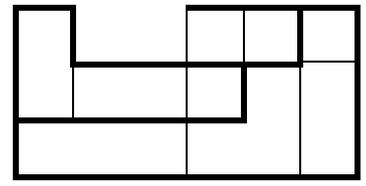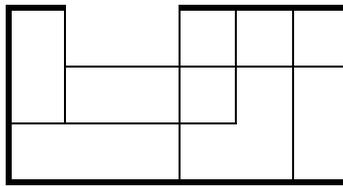
5) NEIGHBOURS (30 points)

Draw some regions in the grid so that each region contains exactly one numbered cell and each numbered cell is part of exactly one region. Not all cells must belong to regions. Each region neighbours (i.e. shares an edge) with exactly one region. Numbered cells must equal the area (in cells) of the neihgbouring region.
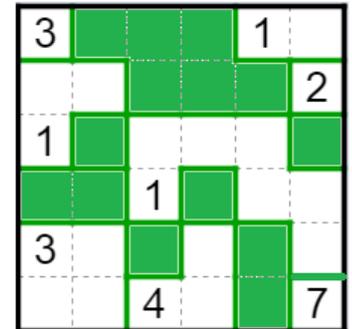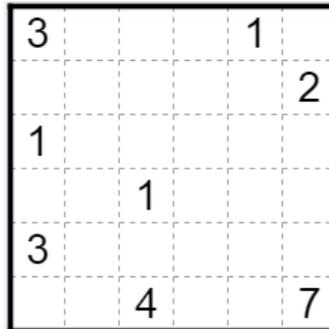


6) COUNTRIES (58 points)

Divide the grid into regions. Each region is orthogonally connected and contains exactly one of the given letters. A number outside the grid represents the number of cells in that row (or column) that are in the same region as the cell adjacent to that number, including the cell itself. Each region must be connected to the edge of the grid.
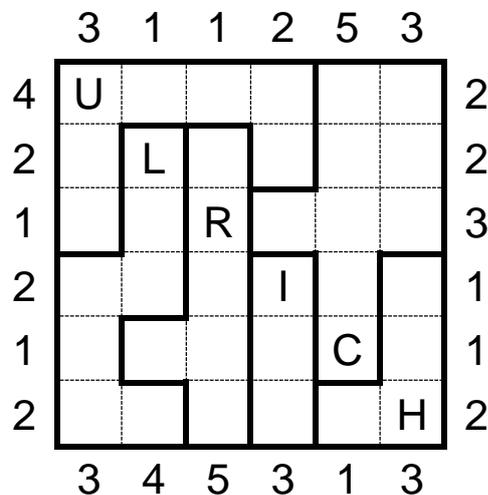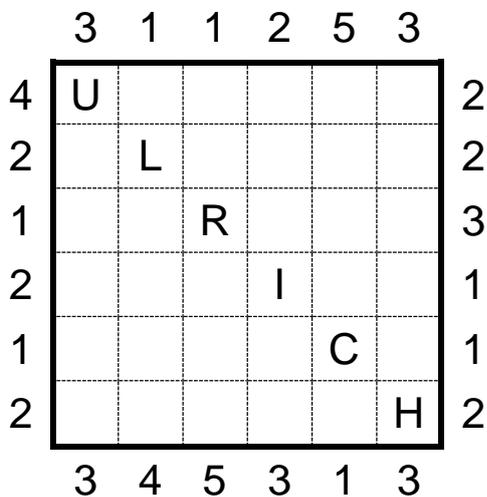
7) SPIRAL GALAXIES (13 points)

Divide all cells into spiral galaxies. Spiral galaxies are rotationally symmetric regions and contain exactly one dot at the point of symmetry.
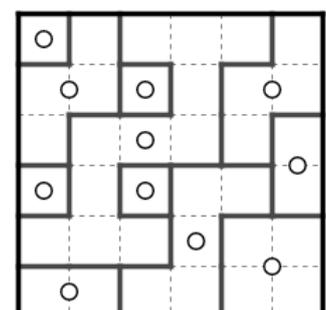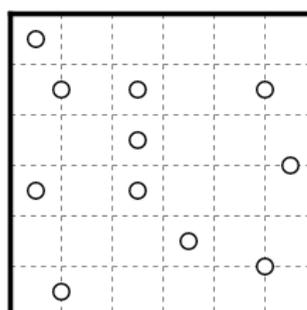
8) GALACTIC SNAKE (31 points)

Locate a snake in the grid. Then divide all remaining cells into spiral galaxies.
The snake is a path that starts in a cell, goes through some number of cells orthogonally, and ends in a cell. The snake may not touch itself, not even diagonally. The two cells containing the ends of the snake are marked.
Spiral galaxies are rotationally symmetric regions and contain exactly one dot at the point of symmetry.
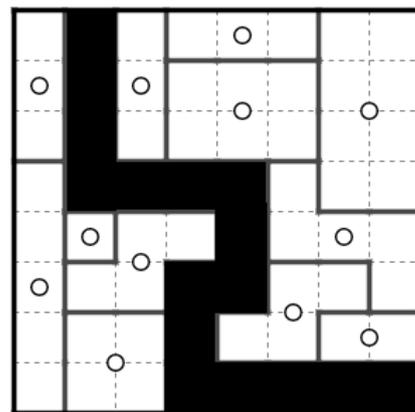
9-11) SHIKAKU (5 + 17 + 30 points)

Divide the grid into rectangles along the grid lines such that each cell is in exactly one rectangle and each rectangle contains exactly one given number. The number must equal the area of the rectangle (in cells). Some numbers may be replaced with question marks. Question marks stand for a number higher than 0.
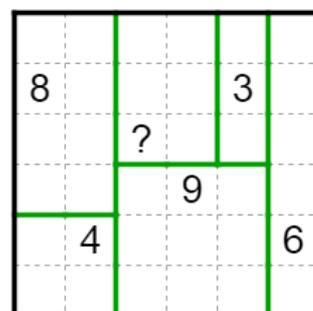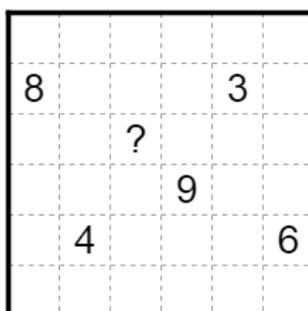
12) RECTANGLES (50 points)

Divide the grid into rectangles along the grid lines such that each cell is in exactly one rectangle and each rectangle contains exactly one question mark. **Each rectangle must have a different area (in cells).**
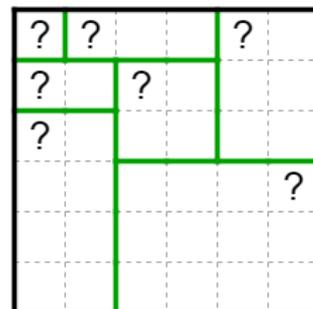
13) FILLOMINO (35 points)

Divide the grid along the dotted lines into regions called polyominoes so that no two polyominoes with the same area share an edge. Inside some cells are numbers; each number must represent the area of the polyomino it belongs to. A polyomino may contain zero, one, or more of the given numbers. (It is possible for a "hidden" polyomino — a polyomino without any of the given numbers — to contain a value that is not present in the starting grid such as a 6 in a puzzle with only 1-5 clues.)
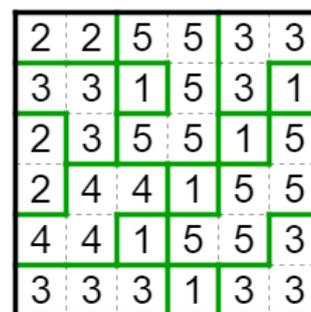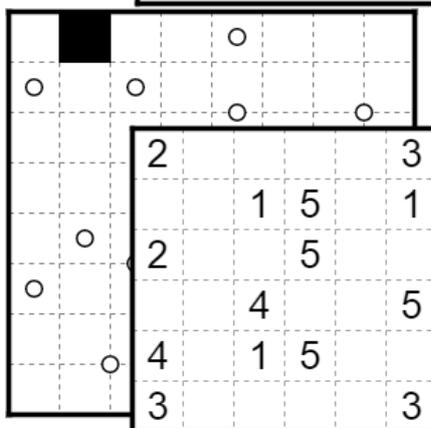
14) SHAKASHAKA (25 points)

Colour triangles in some squares so that the remaining white space are all shaped like rectangles. The triangles have to split a square into two equal size rightangled triangles. The numbers in the black squares indicate how many of the four adjacent squares are to be coloured with a triangle.
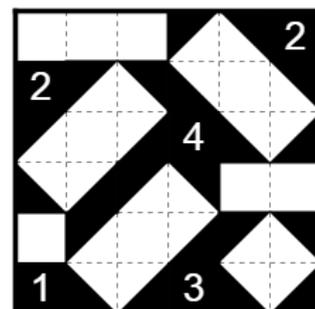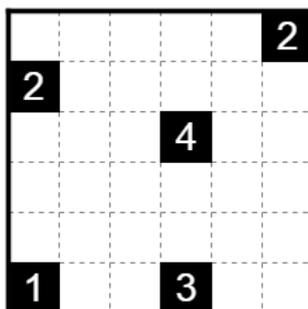
TEAM ROUND 1 – HALFDOMINOES   20 MINUTES   600 POINTS

|	
Arithmetic Square 1	150 points
Arithmetic Square 2	150 points
Ying Yang	300 points

Place 9 3x3 halfdominoes into the grid (4 2x2 halfdominoes in the instruction booklet), without rotation or reflection, exactly one into each of the outlined 3x3 squares (2x2 squares in the instruction booklet). Then solve the grid as a Ying Yang puzzle. If a halfdomino overlaps with a symbol in the grid, these two symbols must be identical.

There are two arithmetic puzzles. By solving these puzzles you will get clues – number in the grey cell is the same as the value of the halfdomino placed in the 3x3 box pointed at by the arrow.

Rules of Arithmetic Square: Place each number from 1 to 9 (1 to 4 in the instruction booklet) into the cells (a different single number in each cell) so that the indicated equations/relations are correct. Evaluate from left-to-right and top-to-bottom (ignore the usual precedence of the operators). Some operators are missing.

Rules of Ying Yang: Fill each cell with either a circle or a cross. All cells with circles must be connected orthogonally, and all cells with crosses must be connected orthogonally. Every 2×2 group of cells must contain at least one circle and at least one cross. Some cells are already filled in for you.
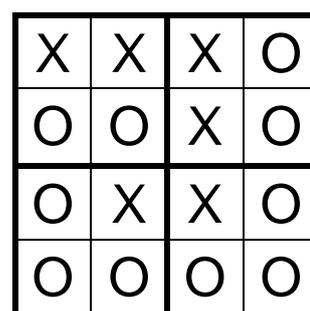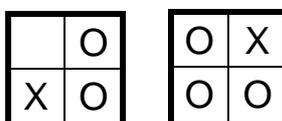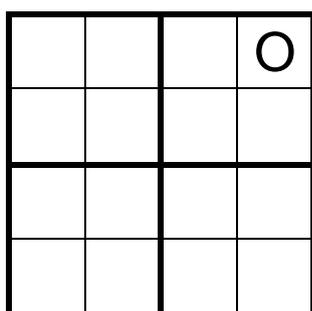
↑

[shaded]	□	= 1
-	-	
□	/ □	= 2
=	=	
2	2	

↑

4	- 3	= 1
-	-	
2	/ 1	= 2
=	=	
2	2	

TEAM ROUND 2 – COMBINED   40 MINUTES   2250 POINTS

Scoring: the grid size is 15x15 and you get 10 points for each correctly solved cell.

Shade some cells in the grid so that they create a loop with the width 1 cell. The loop does not touch itself, not even diagonally. Then place a digit from 1-9 into each of the empty cells so that no digit repeats in any row or column. There are some clues outside the grid and they give following information:

a) Numbers on top of the grid indicate, in the correct order, all sums of continuous groups of digits (including „sums" of a single digit) along that column. These groups are separated by shaded cells (JAPANESE SUMS).
b) Numbers on both sides of the grid indicate the number of skyscrapers visible from the corresponding direction. (Each number in the grid represents the height of a building. A higher building will hide any lower buildings behind it. Shaded cells have height 0.) (SKYSCRAPERS)
c) Numbers on bottom of the grid indicate the lenght of blocks of shaded cells in the corresponding column, not necessarily in the correct order. These blocks are separated by cells with numbers. (CORAL)
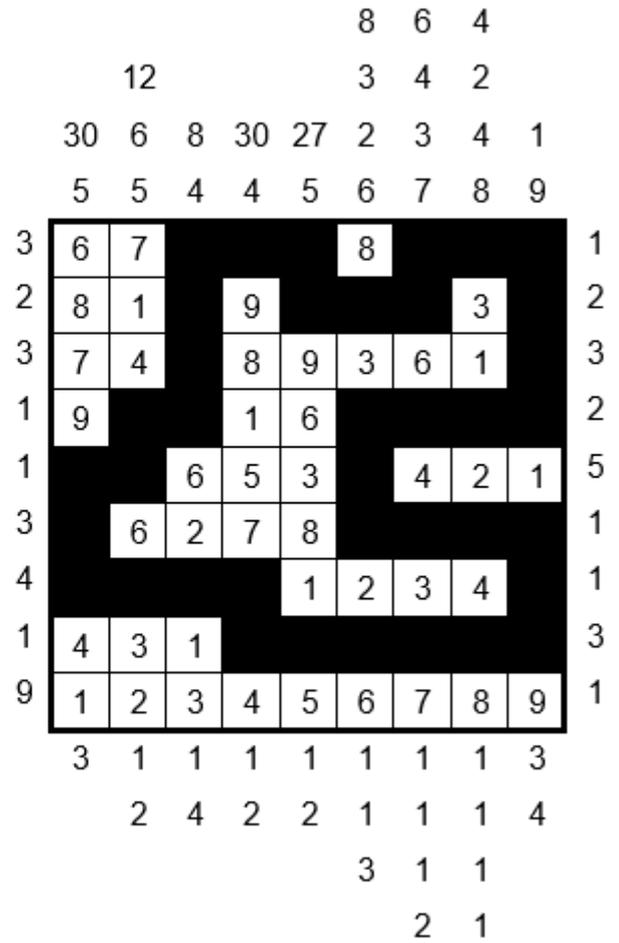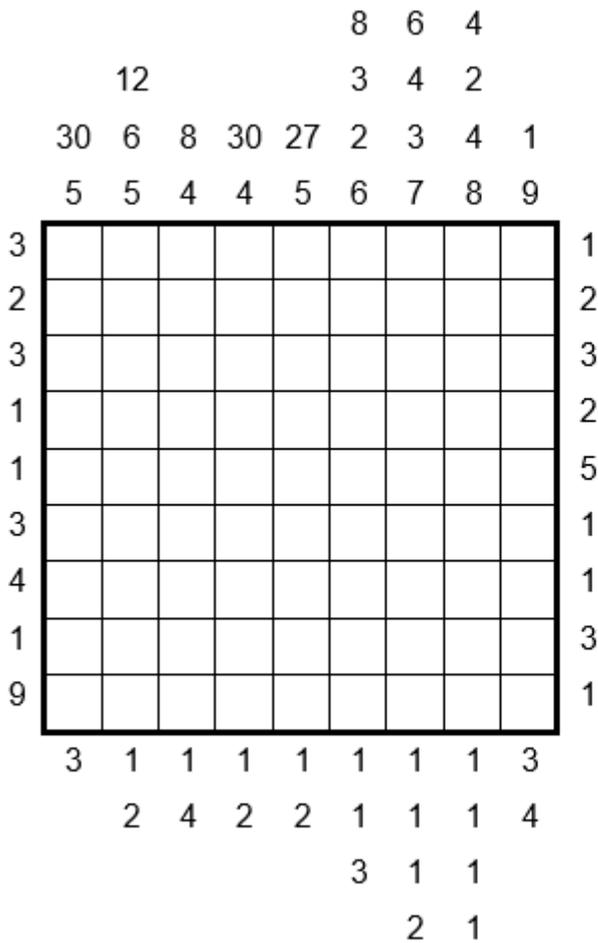
TEAM ROUND 3 – TRANSFERS   30 MINUTES   1800 PTS

Coral	300 points
Tapa	300 points
Kropki	300 points
Tom Tom	600 points
Nurikabe	300 points

This round consists of five puzzles. Four of them can be solved independently, the last one (nurikabe) has no clues. You will get clues by transferring content from the other four grids. Numbers are transferred from Kropki and Tom Tom, colours are transferred from Coral and Tapa (black or white), according to the marked letters.

1) CORAL (300 POINTS)

Shade some cells in the grid. All shaded cells must be orthogonally interconnected. All unshaded cells must be orthogonally connected to the edge of the grid. Shaded cells can never form a 2x2 square.
Numbers outside the grid indicate the sums of all blocks of shaded cells in the corresponding row/column, not necessarily in the correct order.

Row clues (right side):
- 3
- 1 1
- 2 3
- 2 2
- 2 3
- 3
- 2 3
- 1 3

Column clues (bottom):
1	1	1	1	1	1	2	1
1	3	1	3	3	3	4	1
		1					
		2					

Cell labels: A, D, B, C in grid.

2) TAPA (300 POINTS)

Shade some empty cells black to create a single connected wall. Numbers in a cell indicate the length of consecutive shaded blocks in the neighboring cells. If there is more than one number in a cell, then there must be at least one white (unshaded) cell between the black cell groups. Cells with numbers cannot be shaded, and the shaded cells cannot form a 2×2 square anywhere in the grid.

Clues in grid: 1 1, 3 3, 2 4, H, 1 3, E, 1 1 2, 1 1 1 (G), 3 3, F, 1

3) KROPKI (300 POINTS)

Place a digit from 1 to 8 into each of the empty squares so that each digit appears exactly once in each row and colum. A white dot on the edge of two cells indicate that those two cells must contain consecutive numbers; a black dot on the edge of two cells indicate that a number in one of those cells is double the value of the number in the other cell. If 1 and 2 are in adjacent cells, then the dot between them could be either color. If there is no dot on the edge of two cells, it means neither a black nor a white dot could go there.
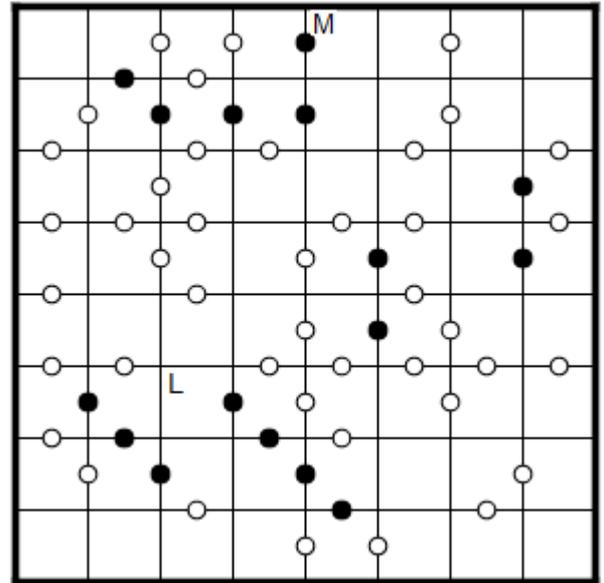
4) TOM TOM (600 POINTS)

Place a number from 1 to 8 into each cell so that each number appears exactly once in each row and column. The number with operator in the upper-left corner of each outlined region indicates the value of that operations applied to all numbers in the region, starting with the largest number for subtraction and division (e.g., 1, 2, 4 with division has a clue of 2/ as 4/2/1=2). Numbers may repeat within a region.

48x		14x	84x	3/		3-	30x
4/				3-			
	10+	I		4/	13+	3/	
4-	6+		1-			28x	
	12x			2/		192x	
2/		3-		42x		14+	
11+		2-	7+				2/
2- J			5+		1-		K

5) NURIKABE (300 POINTS)

Shade some cells black (leaving the other cells white) so that the grid is divided into non-overlapping regions; cells of the same color are considered in the same region if they are adjacent along edges. Each given number must be in a white region that has the same area in cells as that number. Each white region must have exactly one given number. All black cells must be in the same region. No 2×2 group of cells can be entirely shaded black.

Top grid

Row clues (right):
- 3
- 1 1
- 2 3
- 2 2
- 2 3
- 3
- 2 3
- 1 3

Labels in grid: A, D, B, C

Column clues (bottom):

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

Lower-left grid

Cells with numbers and labels:
- 1 1 (top right)
- 3 3
- 2 4
- H
- 1 3
- E
- 1 1 / 2
- 1 1 / 1   G
- 3 3   F
- 1

Middle grid

1	4	5	6	M3	8	7	2
7	8	4	2	1	6	3	5
6	2	3	1	7	5	8	4
5	1	2	7	8	4	6	3
4	7	1	5	6	3	2	8
3	6	L8	4	5	2	1	7
2	3	6	8	4	7	5	1
8	5	7	3	2	1	4	6

Right grid

Labels and numbers: F, M3, A, D, J 5, I 4, 6, H, B, G, K 2, L 8, C, E

Bottom row:

2− J 5	3	8	5+ 1	4	1− 6	7	K 2