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18TH SUDOKU
32ND PUZZLE
WORLD CHAMPIONSHIPS
EGER, HUNGARY
21-28 SEPTEMBER 2025

Instruction Booklet

for the

32nd World Puzzle Championship

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Japán Logikai Puzzle

REGIO JÁTÉK


1552
WALK 2025
CASINO

Schedule

There may be small changes in the starting and ending times. The rounds, their order and their duration is confirmed.

Round	Name	Type	Duration	From	To
Day 1 – Thursday, 25th September					
R01	Welcome to Eger!	Individual	40	9:00	9:40
R02	Evergreens	Individual	80	9:55	11:15
R03	Hitori Variants	Individual	50	11:30	12:20
Lunch Break					
R04	Quad Puzzles	Individual	50	14:05	14:55
R05	Fish & Ships	Individual	45	15:05	15:50
Coffee Break					
R06	Tapa Mastermind	TEAM	60	16:30	17:30
R07	Walk 2025	TEAM	45	17:45	18:30
Day 2 – Friday, 26th September					
R08	Across the Stars	Individual	60	9:00	10:00
R09	Assorted Puzzles	Individual	90	10:15	11:45
R10	Nemo	Individual	30	12:00	12:30
Lunch Break					
R11	Eger Castle	Individual	40	14:15	14:55
R12	Hexa Hungary	Individual	35	15:00	15:35
Coffee Break					
R13	Pangaea Proxima	TEAM	45	16:15	17:00
R14	Solar System	TEAM	75	17:15	18:30
Day 3 – Saturday, 27th September					
R15	Singularity	Individual	50	9:00	9:50
R16	Coded Puzzles	Individual	60	10:00	11:00
R17	The Casino	Individual	70	11:20	12:30
R18	Full Loops	Individual	50	12:40	13:30
Lunch					

Competition Rules

Scoring – Individual Rounds

There is a unique solution for each puzzle. Solvers who correctly fill in all numbers, letters or any other artifacts as specified by the puzzle rules get full points for that puzzle.

Partial scoring is available in some of the rounds. Terms and conditions are discussed at the instructions for those rounds:

- Round 04 – Quad Puzzles
- Round 05 – Fish & Ships
- Round 12 – Hexa Hungary

For rounds / puzzles where the availability of partial scores is not explicitly discussed, any incorrect or imcomplete solution will unfortunately receive no points.

In any of the individual rounds, solvers who finish early and turn in a perfect round, will receive ten (10) bonus points for any full minute saved. If exactly one of the puzzles in the round is found to be solved incorrectly, the solver still receives 50% of the round bonus as long as, in the opinion of the judges, the solver has made a genuine attempt at completing that puzzle as well (this is to discourage turning in a round with one puzzle left untouched or half solved).

The “50% round bonus in case of one wrong solution” concept is not applicable in rounds 05 and 12 as those rounds consist of a single puzzle).

Scoring – Team Rounds

In each team round, there is a custom scoring scheme discussed under those sections.

In any of the team rounds, teams who finish early and turn in a perfect round, will receive fifty (50) bonus points for any full minute saved. If exactly one of the puzzles in the round is found to be solved incorrectly, the team still receives 50% of the round bonus as long as, in the opinion of the judges, the team has made a genuine attempt at completing that puzzle as well (this is to discourage turning in a round with one puzzle left untouched or half solved).

An important change this year is that when determining team competition results, we are placing a much greater emphasis than before on points and speed bonuses scored in team rounds. The total individual score of a team’s members still counts into the team competition but will be divided by ten (10) before getting incorporated into the team’s score. This means that the total individual score of a team will roughly be in the same magnitude as the points available from a single team round.

Play-off

This year, there will be no play-off. Individual competitors will be ranked based on their results across the 14 individual rounds.

Competition Hall Rules

This Rules are copied from IB of WSC 2023. All changes are marked with bold.

1. All competitors have to sit at their pre-allocated desk in individual rounds. Teams have to work at their pre-allocated desk area for team rounds.

2. Prior to the start of each round, competitors must ensure they are at their desks ready for the start of the round. Late arrivals may not be permitted to enter the competition hall to take part in a round (at the discretion of the organizers).

3. Prior to the start of each round, competitors should clearly write their name, team **and competitor ID** on the front page of their competition booklet in the allocated space. If this information is not complete, then the organizers reserve the right not to award any points to that competitor for that round.

4. Competitors must not open their booklets before the official start of the round. Only when the signal for the start of the round has been given, competitors may open their booklets and begin solving the puzzles.

5. During each individual round, competitors have to keep silent, unless declaring completion of a round.

6. During team rounds team members may talk to each other, but should do this with respect to other teams.

7. Puzzles can be completed in any order within a round. The point value of a puzzle is an indication of its expected difficulty, although individual solving experience may differ. The difficulty of an example puzzle does not necessarily reflect the difficulty of the corresponding competition puzzle.

8. The official puzzle booklets will contain **the instructions and the solution images of example puzzles**. Competitors are allowed (and encouraged) to bring their printed Instruction Booklet to their desk as it contains examples for almost every puzzle which will be part of the championship.

9. When a competitor believes that there is a problem with a puzzle, they must clearly state that puzzle is wrong by writing “Wrong puzzle” next to it. The competitor must not notify the organizers during the round. Such claims will be investigated upon completion of the round.

10. To declare a round complete, a competitor must close their booklet, clearly state “finished” and raise their arm with the booklet. The competitor’s arm must be raised until the booklet is collected. The same rules apply for the team competition.

11. Competitors or teams who complete a round with more than five minutes in advance, are allowed to leave the competition hall quietly. However, competitors or teams who complete a round with five minutes or less left are not allowed to leave their desks or tables in order to cause no unnecessary disruption to fellow competitors.

12. If a competitor leaves the competition hall for any reason, they may not be allowed to continue in that round (at the discretion of the organizers).

13. When the signal is given that the round is finished, competitors have to stop solving immediately, close their booklets, put their pens or pencils down and remain seated until all booklets have been collected. The signal to get up and leave will be given by the supervisor.

14. Mobile phones and electronic devices are not permitted to use in the competition hall. The devices have to be turned off and must not be placed on the competitor’s desk.

15. Only team captains and official observers equipped with a name tag are allowed to enter the competition hall while either individual or team rounds are taking place. Other non-competing participants may enter the competition hall at the discretion of the organizers.

16. Competitors may not use cameras or other recording devices during rounds. Only official observers may do so, at the discretion of the organizers. They have to respect the competitors and not use flash photography or cameras with excessive sounds.

17. Between rounds 11 and 12 there will be a very short break (5 minutes). Please remain seated at your desk. As soon as we have collected the booklets, we will immediately begin distributing the ones for the next round.

Permitted items

1. Permitted items which can be used in the competition hall are: pens and pencils, pencil sharpeners, erasers, rulers, and instruction booklets annotated with notes regarding puzzle instructions.

2. Drinks and snacks are permitted as long as they do not disturb other competitors with a strong smell or rustling packet.

3. It is strictly forbidden to use electronic devices such as music players and headphones or any type of calculator. Use of such equipment may lead to the disqualification of the competitor.

4. Any other items brought into the hall must be kept in a bag on the floor and placed under the competitor’s desk, so as not to block the aisles.

5. Blank paper, including preprinted square and non square grids, is permitted.

Acknowledgements

This booklet and the other material in the Championship is a result of the teamwork of a large number of individuals.

Puzzle authors

In alphabetical order:

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Technical Support

All grids (with the exception of those in Round 14 – Solar System) for this WPC were prepared using puzzle software developed by Logesz Co. The primary developers of the software are Gyula Slenker and Zoltán Horváth.

The 3D printing for Round 13 – Pangaea Proxima was provided by Dániel Vörös.

Editor

Zoltán Németh

ROUND 01	Welcome to Eger!	
Individual round	40 minutes	700 points

Overview

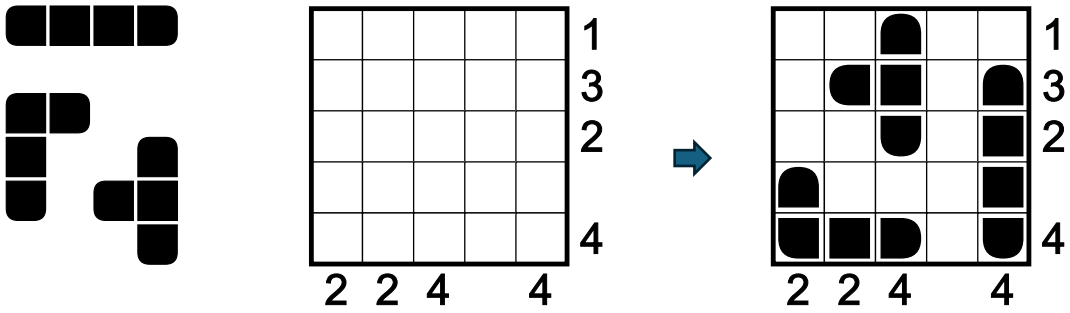
This round is dedicated to welcoming all participants of the 32nd World Puzzle Championship, 2025, to Eger, Hungary, and some of the puzzles may reflect that in their themes.

ROUND 01	Welcome to Eger!	
Shape Battleships	**30 points**	[15 + 15]
Hexa Path EGER	**40 points**	[15 + 25]
Numberlink (ABC Connection)	**75 points**	[25 + 50]
Persistence of Memory	**85 points**	[25 + 60]
Doppelblock Figures	**80 points**	[30 + 50]
Star Battle Builder	**140 points**	[50 + 90]
Double Choco	**140 points**	[40 + 100]
Scrabble	**110 points**	[110]
40 minutes	**Maximum score: 700 points**	

Puzzle 01-02 – Shape Battleships [15+15 points]

[Zoltán Németh, Viktor Samu]

Place the given fleet into the grid so that the cells occupied by fleet members do not touch each other, not even diagonally. Shapes may be rotated but not reflected. Numbers around the grid indicate the number of cells occupied by a part of a ship in the given rows / columns.

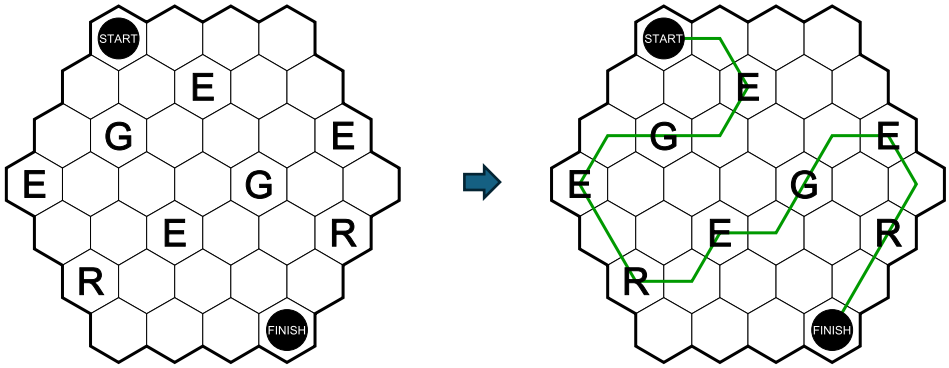


Puzzle 03-04 – Hexa Path EGER [15+25 points]

[Zoltán Németh]

Draw a path through the grid through the centers of cells, so that the cells visited by the path do not share an edge (except those that are visited consecutively). The path never makes a 60 degree turn. The two endpoints of the path, along with its direction, are given by the black circles labelled „START” and „FINISH”.

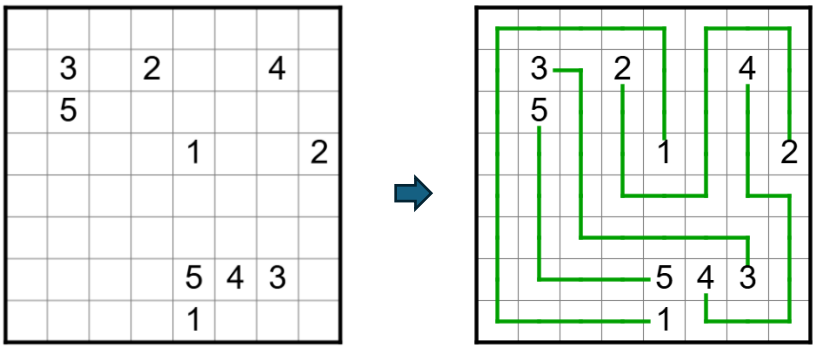
Along the way, the path visits every cell containing a letter, in the repeating sequence: E-G-E-R-E-G-E-R...



Puzzle 05-06 – Connection [25+50 points]

[Zoltán Németh]

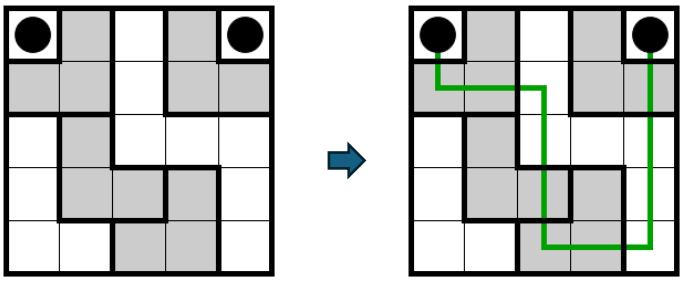
Connect each pair of identical symbols with a path passing through edge-adjacent cells. The paths do not cross or overlap themselves or each other. Every cell is used by exactly one path.



Puzzle 07-08 – The Persistence of Memory [25+60 points]

[Zoltán Németh]

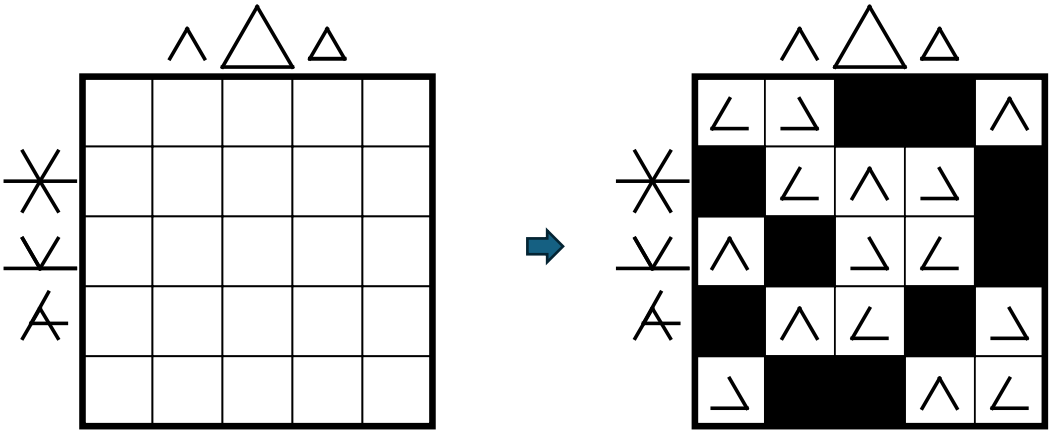
Draw a snake (a 1-cell wide path) from one dot to the other by moving horizontally or vertically between adjacent squares. The snake cannot touch itself, not even diagonally. All highlighted regions must be visited by the snake, and may be re-entered. If two or more highlighted regions have the same shape and orientation, then how the path passes through those shapes must be identical.



Puzzle 09-10 – Doppelblock Figures [30+50 points]

[Viktor Samu]

Fill in the grid with the given symbols such that each row and each column contains exactly two black squares and each of the given symbols exactly once. The shapes shown outside the grid must be constructible using all the symbols between the two black squares in their row / column. Symbols may be moved around and overlap each other, but must not be rotated, reflected, or scaled.



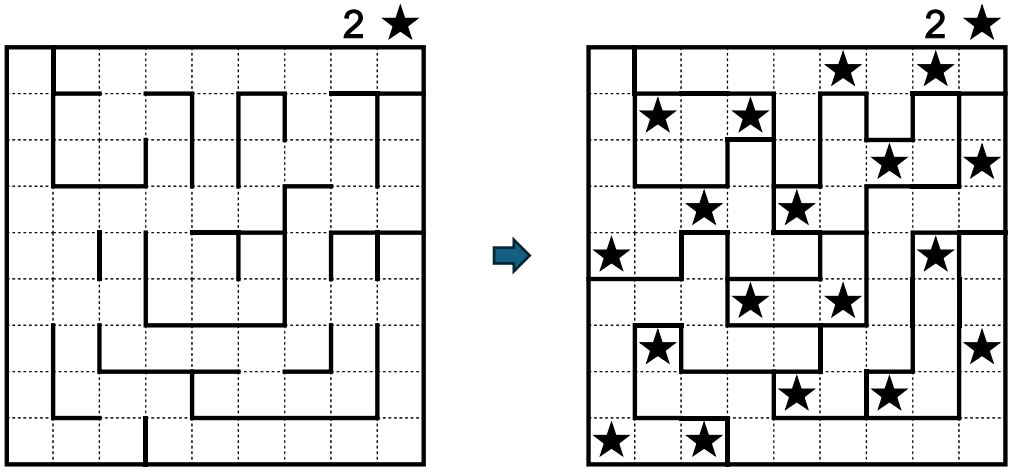
Puzzle 11-12 – Star Battle Builder [50+90 points]

[Viktor Samu]

Place the specified number of stars into every row and every column into the grid. Cells with a star cannot share an edge or a corner. Then add some more walls to create regions such that each region also contains the specified number of stars. In the end, all given wall segments separate two regions.

You need to draw all the walls and the stars correctly to receive credit.

Example puzzle: Serkan Yürekli / GM Puzzles

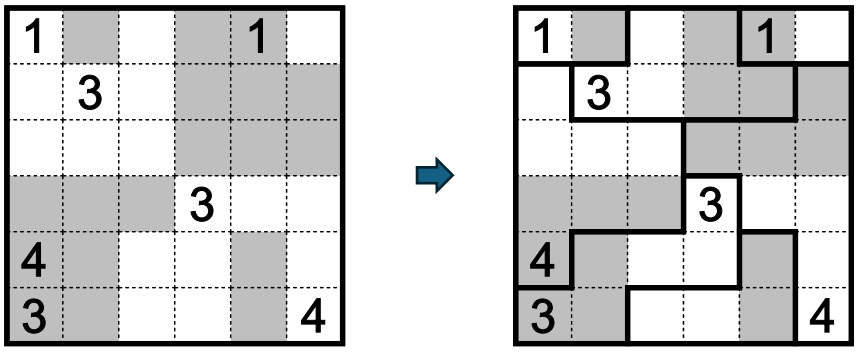


Puzzle 13-14 – Double Choco [40+100 points]

[Viktor Samu]

Divide the grid into regions of connected cells, each containing a connected group of shaded cells and a connected group of unshaded cells, such that the shape of the shaded group is identical to the shape of the unshaded group (allowing rotations and reflections).

Each number indicates the size of shaded/unshaded group within the region it belongs to. Regions may contain zero, one or more than one numbers.

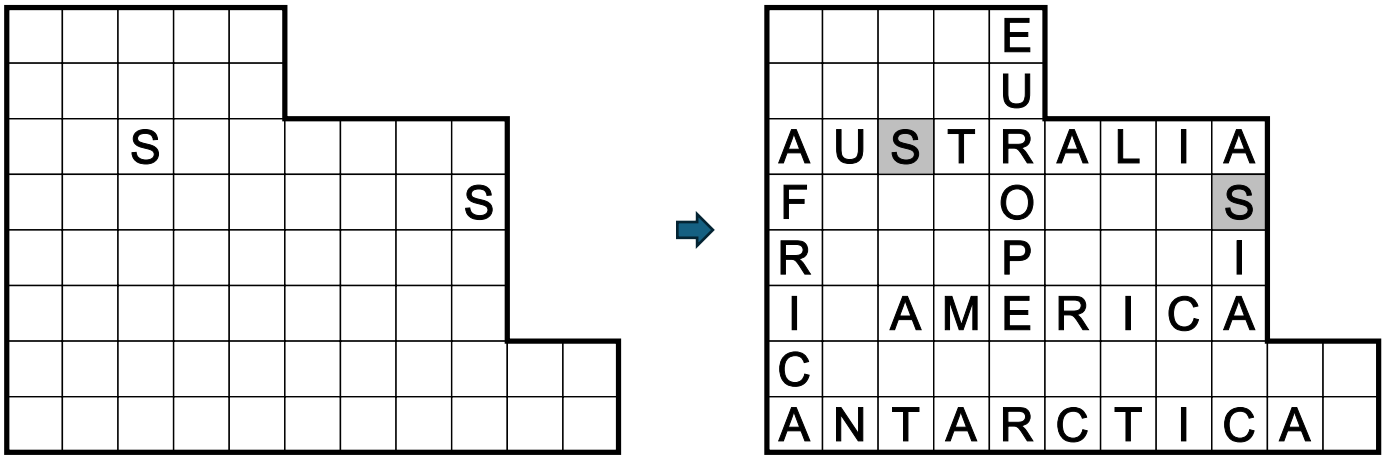


Puzzle 15 – Scrabble [110 points]

[György István]

Place all given words into the grid so that each word can be read across or down and all letters form a single connected group. Ignore any spaces in the words. No other strings should be formed anywhere in the grid except for the listed words. Some letters are given in the grid, each of those will be used by at least one of the listed words.

(Even though all letters "S" happen to be given in the example below, this is a coincidence only, not a requirement or a rule.)



10 letters:

ANTARCTICA

9 letters:

AUSTRALIA

7 letters:

AMERICA

6 letters:

AFRICA, EUROPE

4 letters:

ASIA

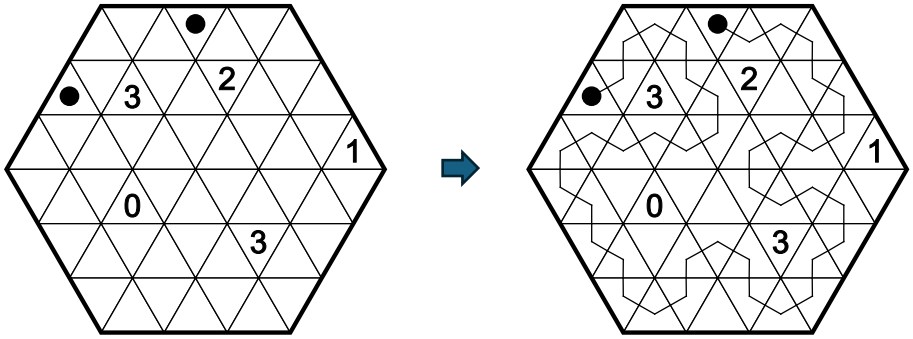
ROUND 02	Evergreens	
Individual round	80 minutes	1750 points

ROUND 02	Evergreens				
Triangle Maze	**50 points**	[20 + 30]	Castle Wall	**115 points**	[40 + 75]
Nurikabe	**65 points**	[20 + 45]	Easy as ABC	**140 points**	[60 + 80]
No Four in a Row	**95 points**	[20 + 75]	Domino	**130 points**	[60 + 70]
Cave	**80 points**	[20 + 60]	Tapa	**150 points**	[30 + 120]
Futoshiki	**95 points**	[30 + 65]	Masyu	**150 points**	[30 + 120]
Heyawake	**90 points**	[30 + 60]	Coral	**135 points**	[45 + 90]
Slitherlink	**80 points**	[30 + 50]	Clouds	**125 points**	[50 + 75]
Yajilin	**100 points**	[25 + 75]	Jumping Crosswords	**150 points**	[150]
80 minutes			**Maximum score: 1750 points**		

Puzzle 01-02 – Triangle Maze [20+30 points]

[László Mérő]

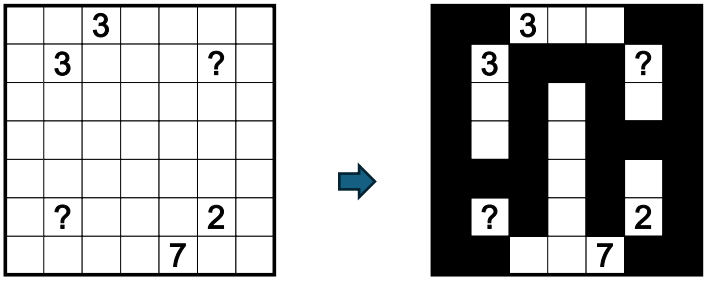
Draw a single continuous line through the centres of edge-adjacent triangles. The line cannot overlap or cross itself, never makes a turn other than 120 degrees and connects the two black dots. Numbers indicate how many of their neighbouring triangles are visited by the line (out of up to three). The line cannot go through cells with numbers.



Puzzle 03-04 – Nurikabe [20+45 points]

[Zoltán Németh]

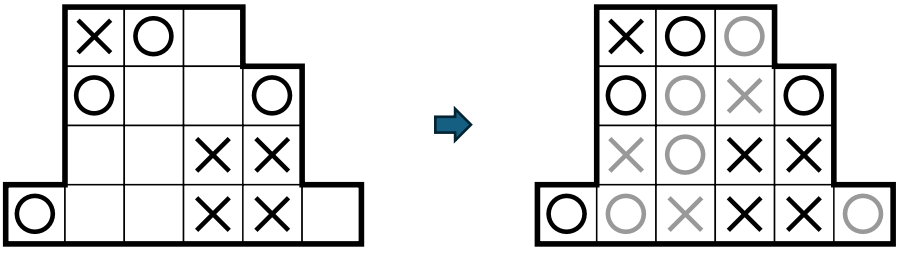
Shade some empty cells black so that the grid is divided into white areas, each containing exactly one number and with the same area in cells as that number. Two white areas may only touch diagonally. All black cells must form a single connected group, but no 2×2 group of cells can be entirely shaded black. A “?” mark denotes a single non-zero clue.



Puzzle 05-06 – No Four in a Row [20+75 points]

[László Mérő]

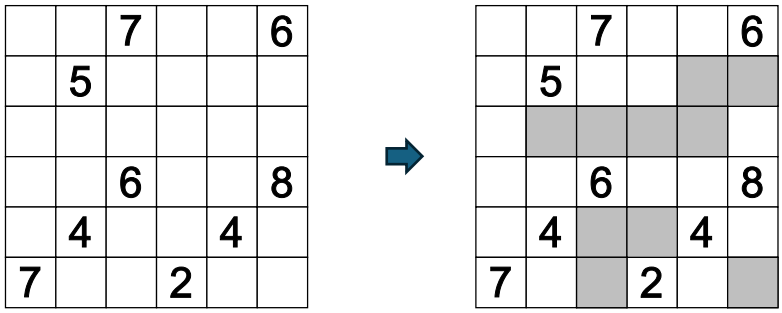
Fill in all empty cells with either X or O so that no four identical symbols appear in horizontally, vertically or diagonally consecutive cells anywhere in the grid.



Puzzle 07-08 – Cave [20+60 points]

[Zoltán Németh]

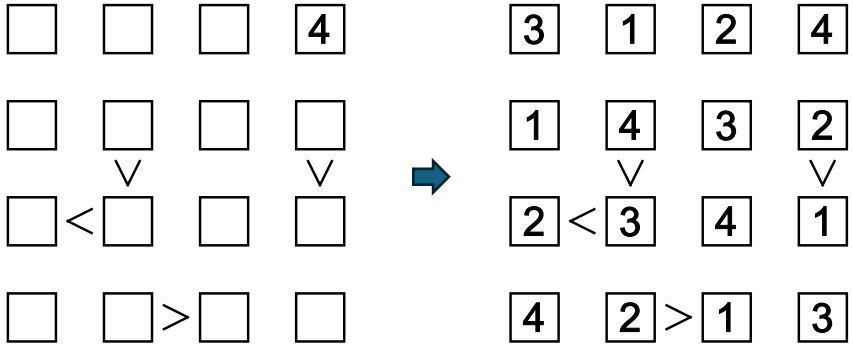
Shade some cells so that all unshaded cells are connected and all shaded cells are connected to the border of the grid. Cells with numbers cannot be shaded. Numbers indicate the total count of unshaded cells that can be seen in all four directions, including the numbered cell itself.



Puzzle 09-10 – Futoshiki [30+65 points]

[Zoltán Héder]

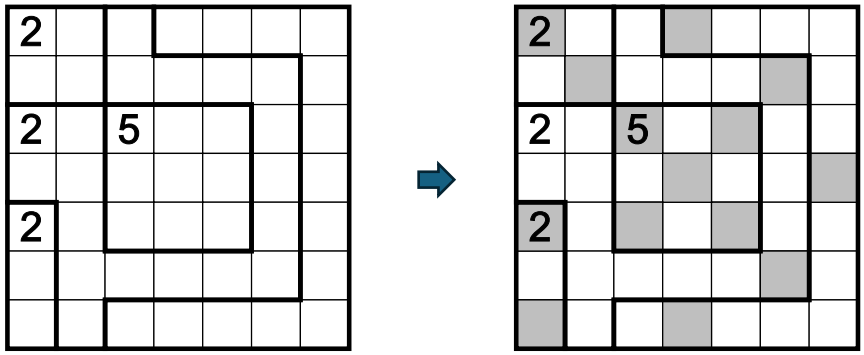
Enter exactly one digit from 1 to N into the grid, where N is the size of the grid. Each row and each column must contain each digit exactly once. The inequality symbols between neighbouring cells must hold true. Some numbers may be given.



Puzzle 11-12 – Heyawake [30+60 points]

[Zoltán Németh]

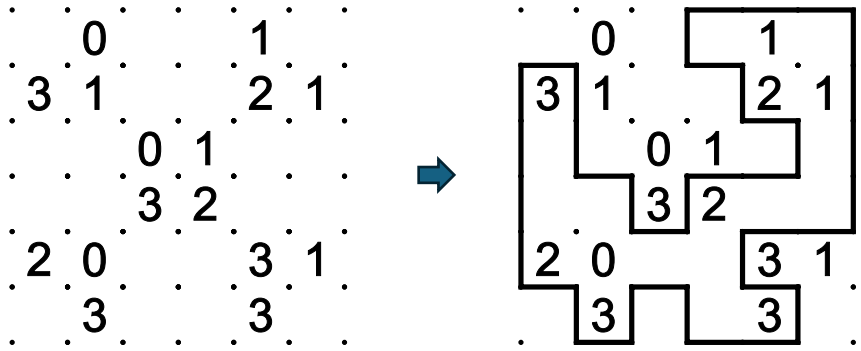
Shade some cells black so that all remaining white cells are connected as part of a single connected group; shaded cells cannot share an edge. No unbroken sequence of white cells in any row or column can cross two thick boundaries. A number in a region indicates the number of shaded cells in that region. Regions with no number may have any number of shaded cells. Cells with numbers can be shaded over.



Puzzle 13-14 – Slitherlink [30+50 points]

[Zoltán Németh]

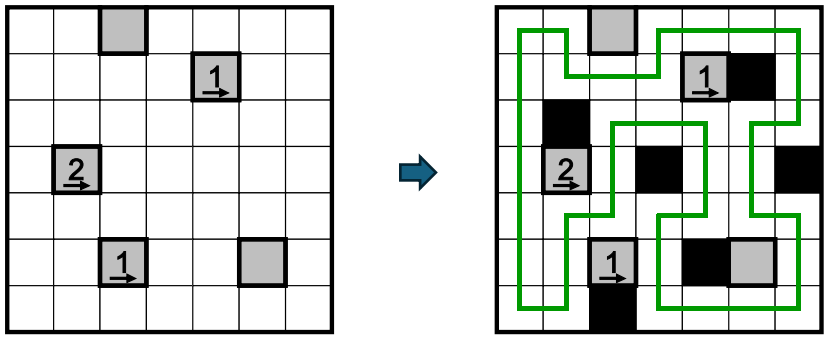
Draw a single, non-intersecting loop into the grid that connects horizontally or vertically adjacent dots. Numbers inside a cell indicate how many of the edges of that cell are part of the loop.



Puzzle 15-16 – Yajilin [25+75 points]

[Zoltán Németh]

Shade some cells black and then draw a single non-intersecting loop through all remaining cells. Black cells cannot share an edge with each other. Cells that are already shaded grey are not part of the loop. Numbered arrows in such cells indicate the number of cells shaded black in that direction in the grid.

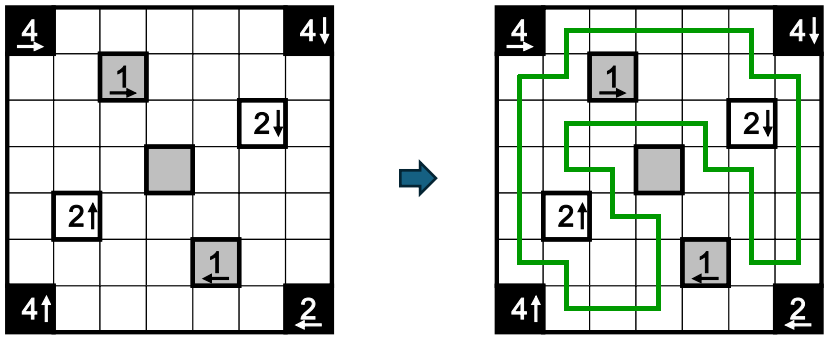


Puzzle 17-18 – Castle Wall [40+75 points]

[Zoltán Németh]

Draw a non-intersecting closed loop through some of the empty cells. Some cells are highlighted as regions, outlined with thick borders, and/or shading, these cells are not considered empty and thus cannot be visited by the loop.

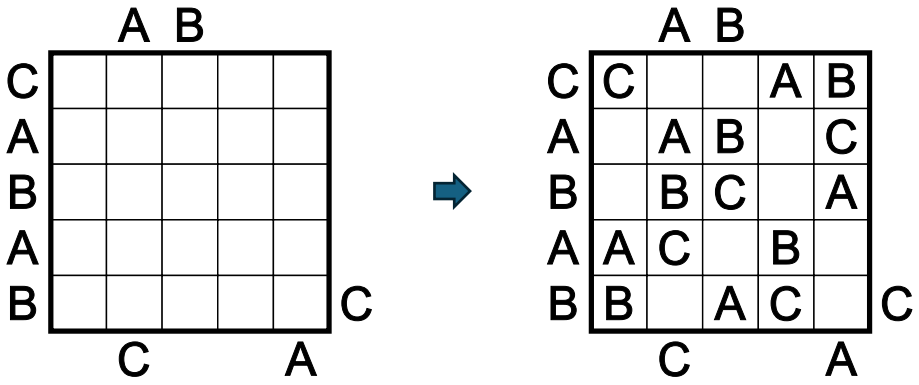
Regions shaded black must lie entirely outside the loop. Regions shaded white must lie entirely inside the loop. Regions shaded grey may lie inside or outside the loop. Numbers represent the total length of loop segments in the direction indicated by arrows.



Puzzle 19-20 – Easy as ABC [60+80 points]

[Zoltán Horváth, László Mérő]

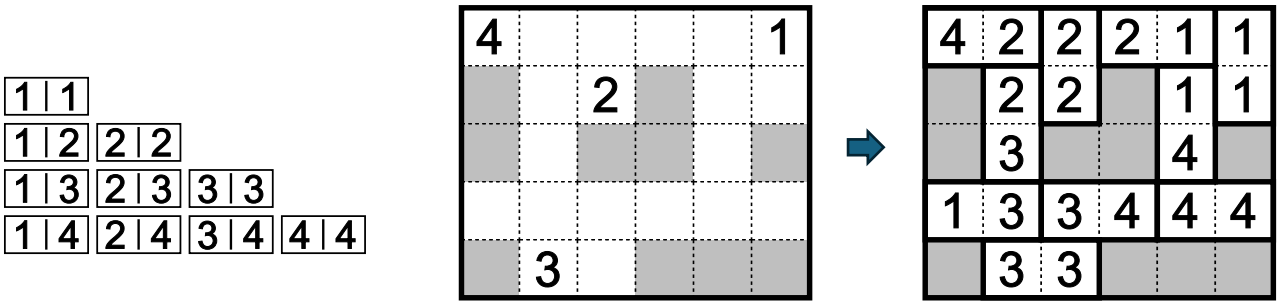
Enter letters A-B-C into some of the cells so that each row and each column contains each letter exactly once. Letters outside the grids indicate the first letter seen from that direction.



Puzzle 21-22 – Domino [60+70 points]

[László G. Nagy]

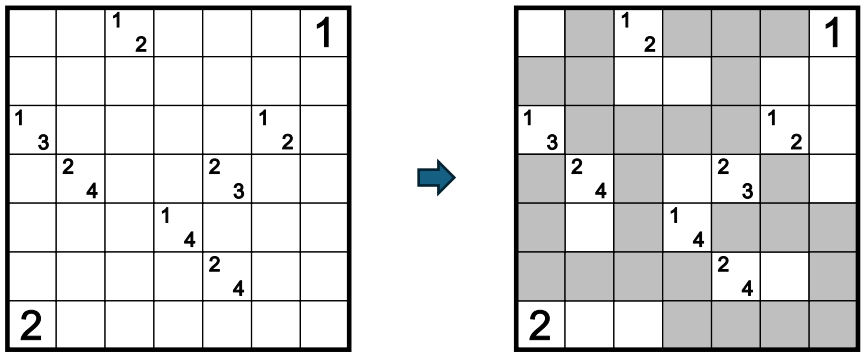
Place the given full set of dominoes into the grid so that they do not overlap each other. Shaded cells cannot be covered by any domino but all unshaded cells must be. If two dominoes share an edge, their adjacent halves must contain the same number. Some numbers are given. You need to clearly indicate domino boundaries in addition to filling in all the numbers to receive credit for this puzzle.



Puzzle 23-24 – Tapa [30+120 points]

[Zoltán Németh]

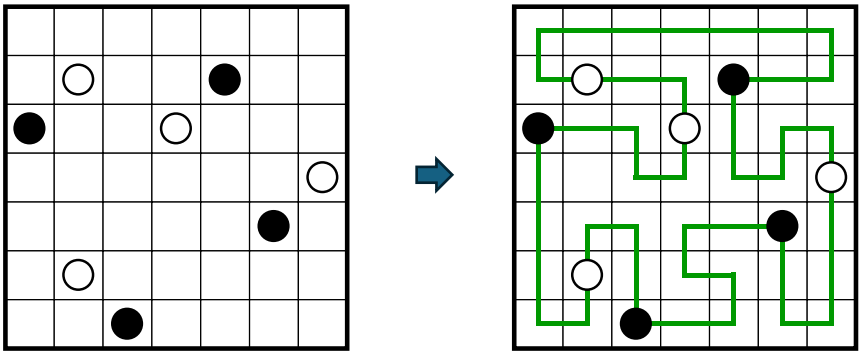
Shade some empty cells black to create a single connected wall. Numbers in a cell indicate the length of consecutive shaded blocks in the neighboring cells. If there is more than one number in a cell, then there must be at least one white (unshaded) cell between the black cell groups. Cells with numbers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



Puzzle 25-26 – Masyu [30+120 points]

[Zoltán Németh]

Draw a single closed loop through some empty 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 cells with black circles but must go straight in both cells immediately before/after each black circle.

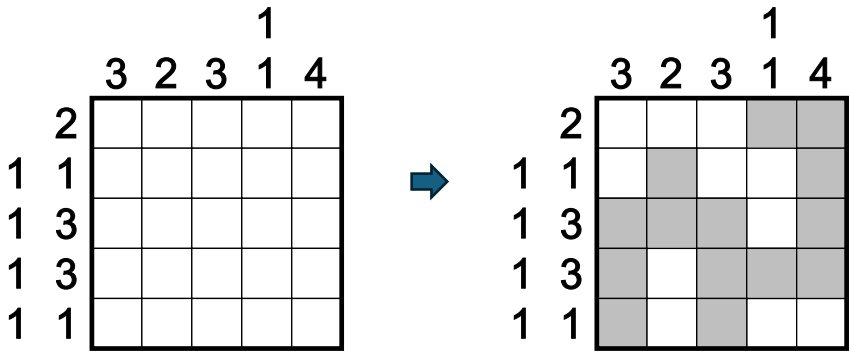


Puzzle 27-28 – Coral [45+90 points]

[Zoltán Horváth]

Shade some cells black such that all shaded cells form a single connected region. All non-shaded cells must be connected to the edge of the grid. No 2×2 group of cells can be entirely shaded black.

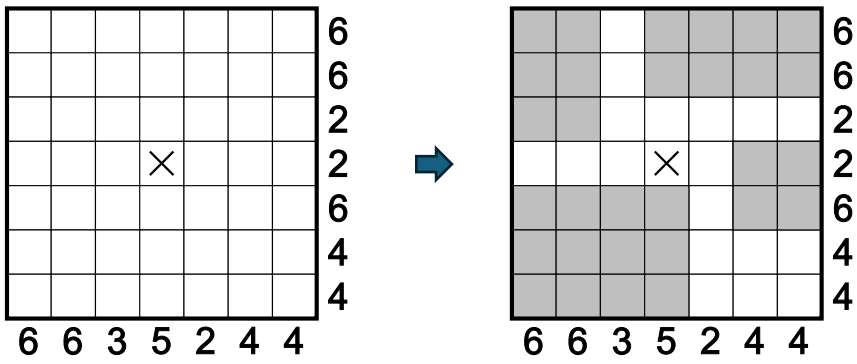
The numbers to the left of and above the main grid represent the lengths of contiguous shaded cell blocks in the corresponding row or column. The lengths are not necessarily given in order from left to right or top to bottom, and cell blocks must contain at least one unshaded cell between them.



Puzzle 29-30 – Clouds [75+50 points]

[Zoltán Horváth]

Shade some rectangular areas in the grid so that they do not touch each other, not even at a single point. All sides of every rectangle must have a length of at least 2 units. Numbers outside the grid indicate how many cells are shaded in that row/column. Cells with a cross cannot be shaded.

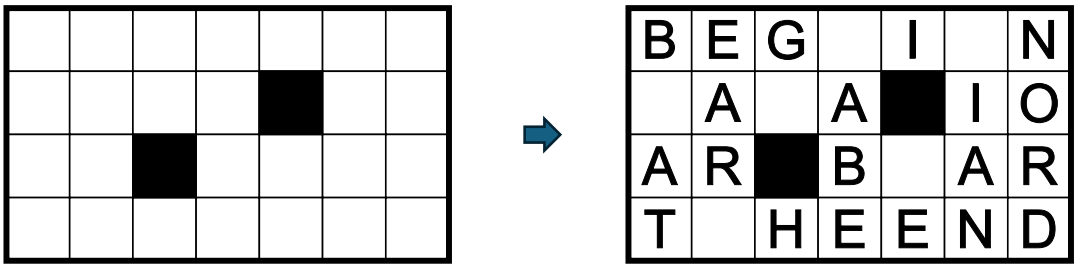


Puzzle 31 – Jumping Crosswords [150 points]

[László Mérő]

Place all given words into the grid horizontally or vertically. The words can “jump” over empty cells (including at their start or end), but no two empty cells can share an edge (no “double jump” allowed). Empty cells are jumped over by words from both across and down, if applicable. Spaces in the words do not necessarily mean that the word “jumps” there.

The words are listed in the order of the space they occupy, rather than the number of letters they consist of (e.g. a four-letter AA will have two empty cells). Words that occupy a one-letter space are not listed. Some letters may be given.



7 letters:

BEGIN, THE END

4 letters:

AA, ABE, BAR, BAT,
EAR, IAN, NORD

2 letters:

AR, E, G, IO

ROUND 03	Hitori Variants	
Individual round	50 minutes	950 points

General rules

The standard Hitori rules apply to all puzzles and will be referred to from within each puzzle's instructions:

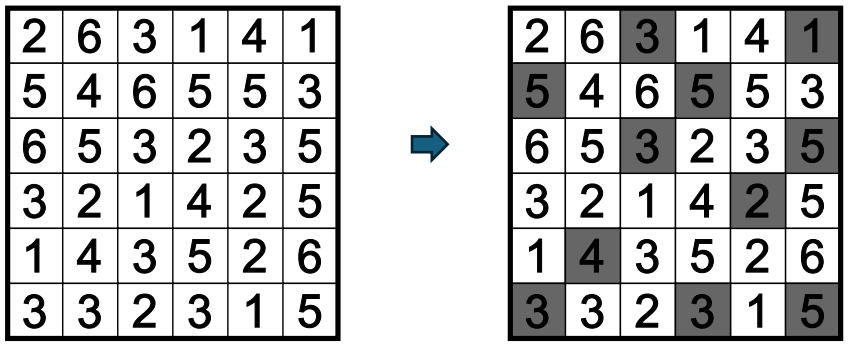
Shade some cells so that in the unshaded cells, no number is repeated in any row or column. Shaded cells cannot share an edge. All unshaded cells form one connected group.

ROUND 03	Hitori Variants	
Hitori	**205 points**	[20 + 25 + 60 + 50 + 50]
Futari	**100 points**	[40 + 60]
Non-consecutive Hitori	**160 points**	[50 + 110]
Skyscrapers + Hitori	**90 points**	[45 + 45]
Domino + Hitori	**155 points**	[70 + 85]
Fillomino + Hitori	**240 points**	[110 + 130]
50 minutes	**Maximum score: 950 points**	

Puzzle 01-05 – Hitori [20+25+60+50+50 points]

[Viktor Samu, Zoltán Héder]

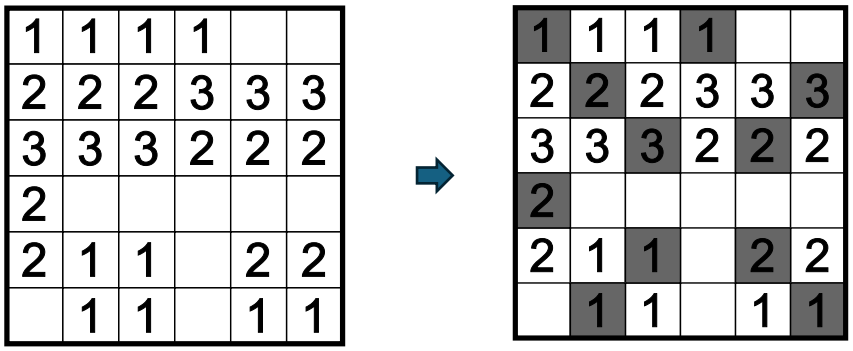
Shade cells according to Hitori rules.



Puzzle 06-07 – Futari [40+60 points]

[Péter Gyimesi]

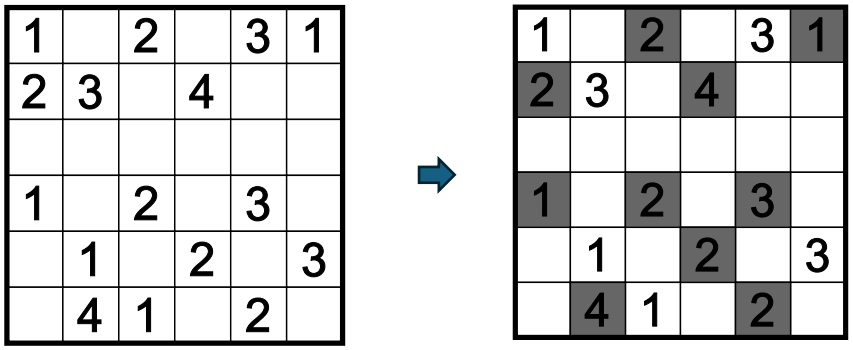
Shade cells according to Hitori rules, except that in this variation, no unshaded number is repeated in any row or column more than twice.



Puzzle 08-09 – Non-consecutive Hitori [50+110 points]

[Péter Gyimesi]

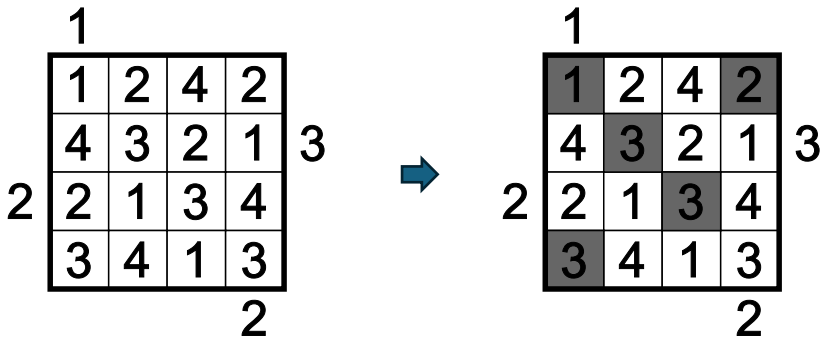
Shade cells according to Hitori rules. In addition, no two unshaded numbers in the same row or same column can differ by 1.



Puzzle 10-11 – Skyscrapers + Hitori [45+45 points]

[Kartal Nagy]

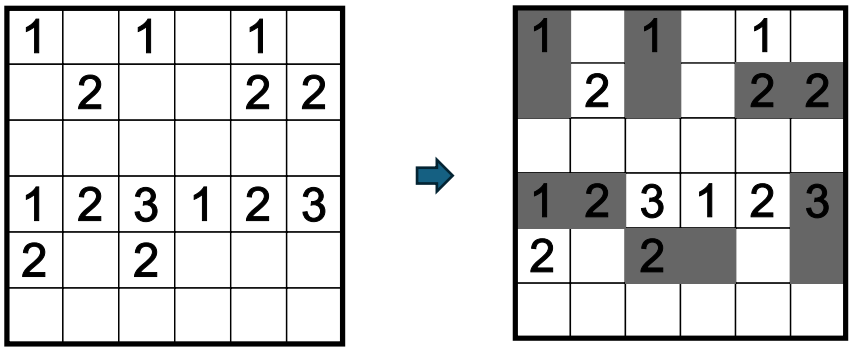
Shade cells according to Hitori rules. When only considering the unshaded cells, the numbers outside the grid represent Skyscraper clues, i.e. how many unshaded cells in the corresponding row or column contain a larger number than all unshaded cells before it in that row or column from the direction of the clue.



Puzzle 12-13 – Domino + Hitori [70+85 points]

[Péter Gyimesi]

Shade cells according to Hitori rules, except this time, dominoes sized 2x1 cells must be shaded instead of single cells. Dominoes may share a corner but not an edge.

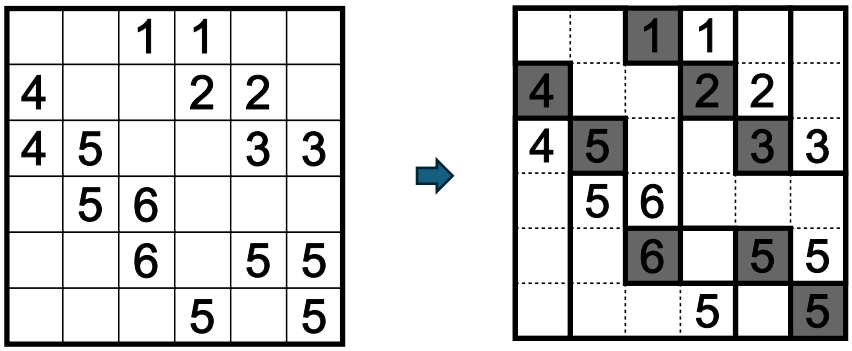


Puzzle 14-15 – Fillomino + Hitori [110+130 points]

[Péter Gyimesi]

Shade cells according to Hitori rules. Then divide the unshaded cells into regions so that no two regions of the same size share an edge. Any number in an unshaded cell must be equal to the area of the region it belongs to. A region can contain zero, one or more of the remaining numbers in unshaded cells. Numbers in cells that end up shaded bear no information.

You need to clearly indicate both the cell shadings and Fillomino divisions to receive credit for this puzzle.



ROUND 04	Quad Puzzles	
Individual round	50 minutes	900 points

Overview

In this round, every puzzle consists of four smaller puzzles (the „quadrants”), arranged into a 2x2 grid. The quadrants are linked to each other along their adjacent edges, involving the rows / columns closest to those edges (in some cases, where explicitly specified, toroidally as well). The nature of the link is specified for each puzzle separately. The quadrants may or may not have a unique solution on their own, but the links between them ensure that every puzzle does have a unique solution.

Scoring

Partial scores are available in this round. If a puzzle is incomplete or incorrect, but some of its quadrants are complete and correct, each of those quadrants earn 20% of the score available for that puzzle.

ROUND 04	Quad Puzzles

Quad Tapa-like Loop	**50 points**
Quad Easy as ABC	**75 points**
Quad Tents	**75 points**
Quad Square Jam	**100 points**
Quad Pentopia	**125 points**
Quad Statue Park	**150 points**
Quad Easy as Battleships	**150 points**
Quad Skyscrapers	**175 points**

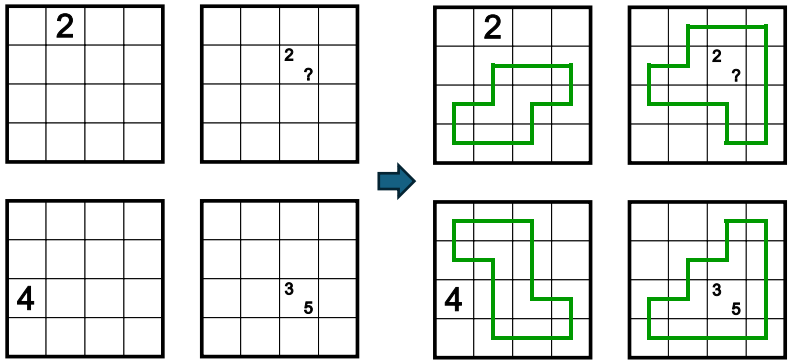
50 minutes	**Maximum score: 900 points**

Puzzle 01 – Quad Tapa-like Loop [50 points]

[Zoltán Németh]

Draw a non-intersecting loop into each quadrant through the centres of some cells. Clues represent the numbers of consecutive cells occupied by the loop each time it enters the (up to) eight cells surrounding the clue, without any indication of the ordering of those segments. A "?" mark denotes exactly one such segment of non-zero length.

The contents of row / column pairs adjacent to gaps between the quadrants are exact reflections of each other, including loop segments and empty cells.

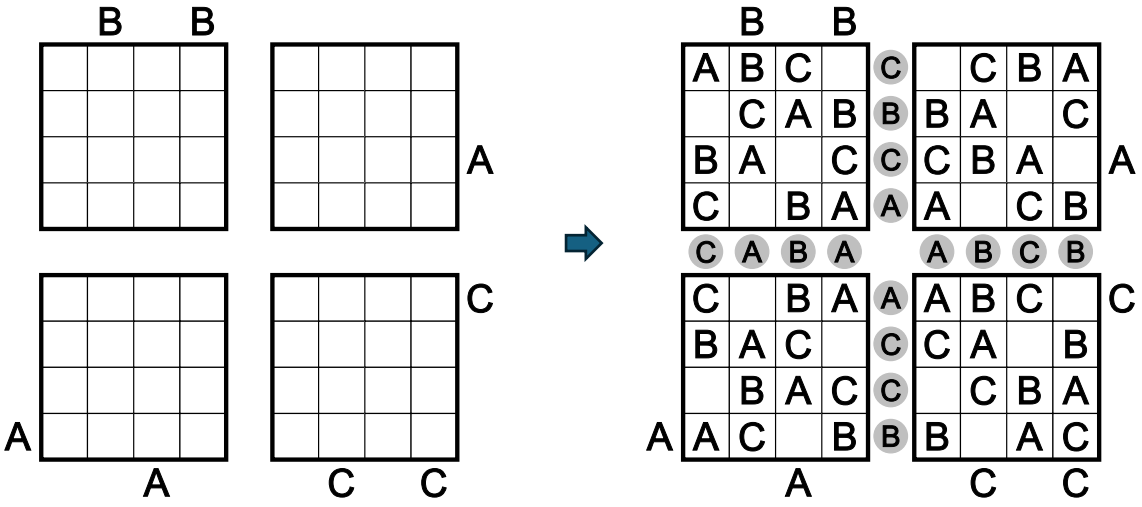


Puzzle 02 – Quad Easy as ABC [75 points]

[Gyula Slenker]

Enter letters A-B-C into some of the cells so that in each quadrant, every row and every column contains each letter exactly once. Letters outside the grids indicate the first letter seen from that direction.

It is possible to enter a letter into each "cell" between two quadrants, so that it indicates the first letter seen in both quadrants from the respective directions. You are not required to fill in any letter outside or between the quadrants to receive credit for this puzzle.

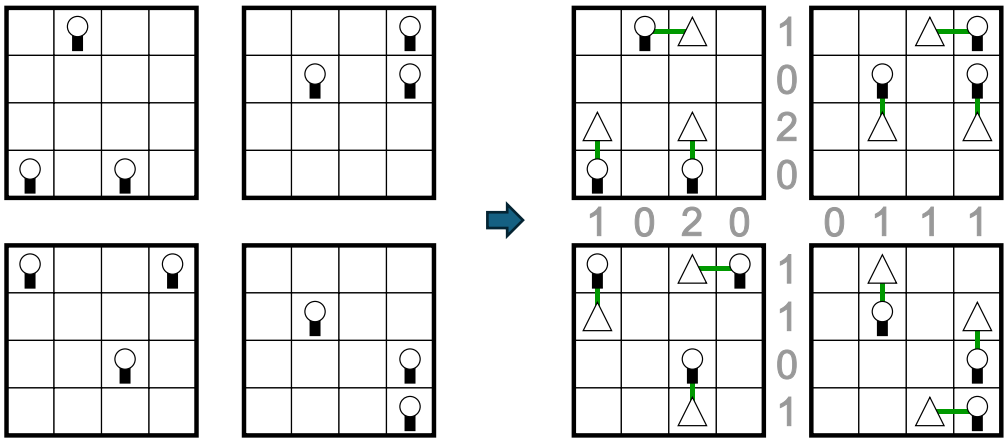


Puzzle 03 – Quad Tents [75 points]

[Pál Madarassy]

For each tree in the grid, place a tent in one of the empty cells orthogonally adjacent to the tree. No cell can contain more than one tent. Cells with a tent cannot share an edge or a corner.

It is possible to enter a number into each “cell” between two quadrants, such that it indicates the number of tents in the respective row or column of both quadrants. You are not required to fill in any number outside or between the quadrants to receive credit for this puzzle.

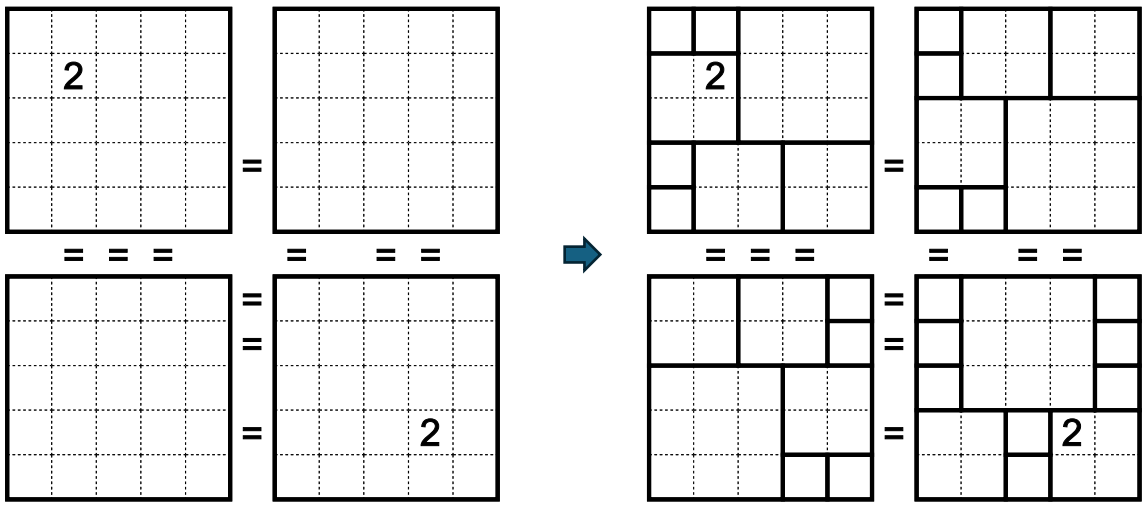


Puzzle 04 – Quad Square Jam [100 points]

[Viktor Samu]

Divide each quadrant into square regions so that each number is equal to the length of the side of the square it is in. Region borders cannot form four-way intersections.

An “=” sign in a “cell” between quadrants indicates that the two squares adjacent to that “cell” have equal size. All possible “=” signs are given.

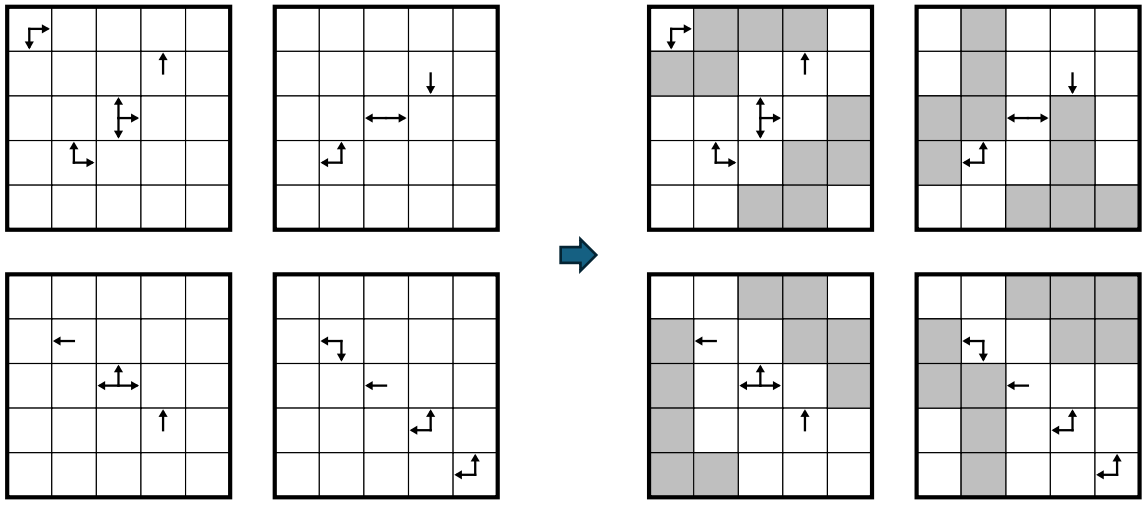


Puzzle 05 – Quad Pentopia [125 points]

[Zoltán Németh + Zoltán Horváth]

Place some pentominos into the puzzle so that no two of them within the same quadrant share an edge or corner. Pentominos within each quadrant must be all different (even considering rotations / reflection). Clue cells cannot be part of any pentomino, and contain arrows indicating all directions in which a pentomino appears closest to the clue cell within the same quadrant.

The contents of row / column pairs adjacent to gaps between the quadrants are identical in terms of shading (but not necessarily identical in terms of which pentomino the shaded cells belong to).

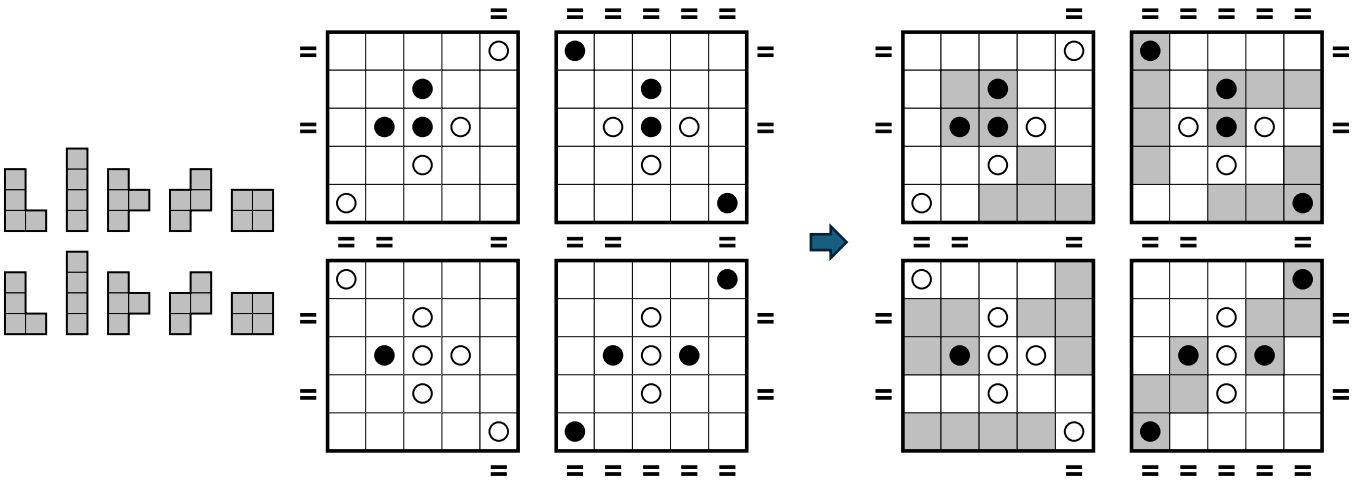


Puzzle 06 – Quad Statue Park (Toroidal) [150 points]

[Viktor Samu]

Place the given shapes (allowing rotations / reflection) into the puzzle so that no two of them within the same quadrant shares an edge. Unused cells within each quadrant form a single orthogonally connected area. Cells with a black circle must be part of a shape, cells with a white circle cannot be part of any shape.

An “=” sign in a “cell” between quadrants indicates that the two squares adjacent to that “cell” are either both part of a shape or both not part of any shape. This puzzle is toroidal, the top / bottom rows and the leftmost / rightmost columns of the puzzle are also linked to each other by some “=” signs. All possible “=” signs are given.

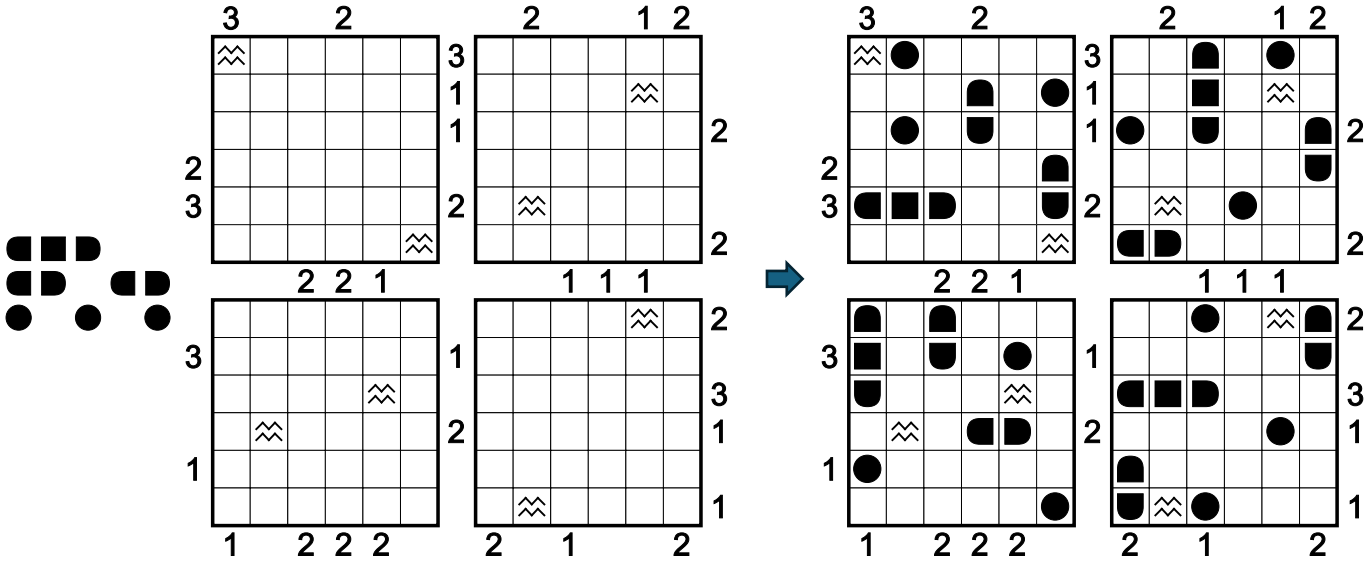


Puzzle 07 – Quad Easy as Battleships [150 points]

[Zoltán Horváth]

Place the given fleet into each of the quadrants. Cells occupied by ships cannot share an edge or corner. Numbers around the grid (excluding “cells” between quadrants) indicate the size of the closest ship visible from that direction in the quadrant adjacent to that clue. Cells with “water” signs contain no ship parts.

A number in a “cell” between quadrants shows the size of the nearest ship(s) seen from that “cell” in the respective rows / columns, when considering both quadrants.

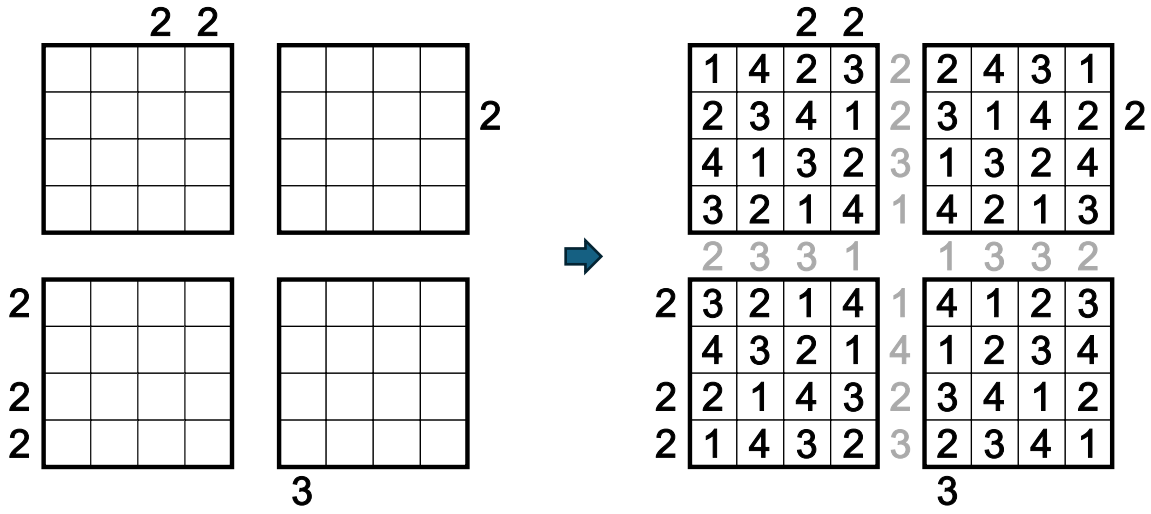


Puzzle 08 – Quad Skyscrapers [175 points]

[Gyula Slenker]

Enter numbers 1 to 5 (1-4 in the example) into every cell so that no number repeats in any of the rows and columns of each quadrant. Numbers outside represent Skyscraper clues, i.e. how many cells in the corresponding row or column contain a larger number than all cells before it in that row or column from the direction of the clue.

It is possible to enter a number into each “cell” between two quadrants, such that that number serves as a valid Skyscraper clue for both quadrants adjacent to that “cell”, into the respective directions. You are not required to fill in any number outside or between the quadrants to receive credit for this puzzle.



ROUND 05	Fish & Ships	
Individual round	45 minutes	500 points

Overview

[Round designed by Zoltán Horváth]

This round is a combination of Battleships and Anglers, with the twist that you will also need to assemble the puzzle grid from four parts!

Rules

You will be given four pieces of paper in an envelope that contain the parts of the puzzle (hereinafter: „parts”). You need to find a way to assemble the puzzle from these four parts. The parts cannot be rotated or flipped over: the given numbers denote the correct orientation.

Battleships rules: Place a fleet of nine ships into each of the parts. A fleet has ships of length 2, 3 and 4, three pieces of each. Cells containing a ship cannot share a point (this also applies to ships in different parts – they cannot share a point either after assembling the puzzle). Black cells with white numbers cannot contain any part of a ship, and indicate the number of cells (out of up to 8) around the clue cell that are in the same part and contain a ship.

Anglers rules: Circled numbers represent anglers, each of whom have caught a fish. The fishing lines do not cross or overlap themselves or each other, and their length is given by the circled number. Draw all fishing lines.

General rules: No cell can contain artifacts from both the Battleships and the Anglers puzzles. There may be cells that do not contain artifacts from either puzzle type and remain empty.

Puzzle assembly rules: Parts cannot overlap each other. If two parts touch each other in at least one point, then they must share at least one edge. It is allowed for the parts to surround unused areas („islands”). Every pair of touching parts has exactly two fishing lines that cross the boundary between them: one angler in one area caught a fish in the other area, and vice versa. No fishing line crosses part boundaries more than once. No ship crosses part boundaries.

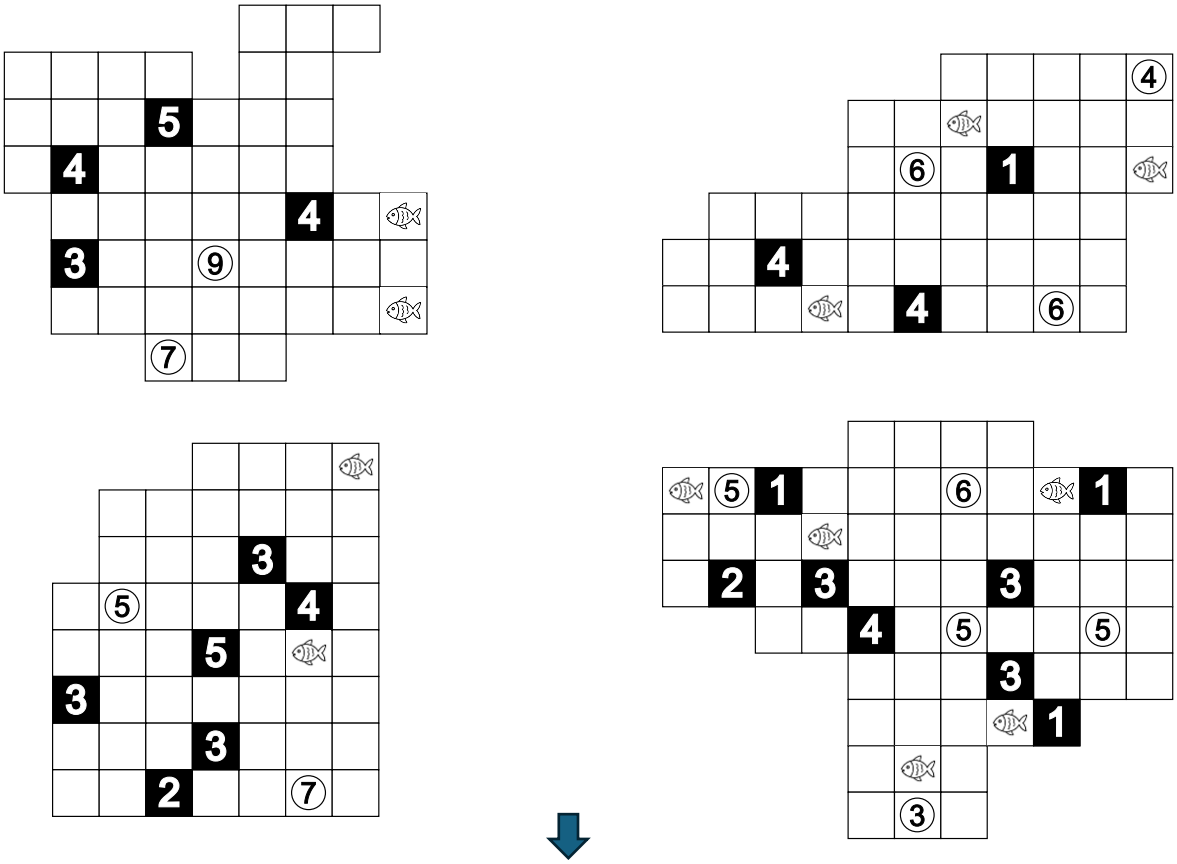
Handling and scoring: If you finished the puzzle or when the round is over, please put the parts back into the envelope in which you received them. Make sure your competitor id / name / team is written onto the envelope and/or at least one of the parts' back side.

Each of the four parts is worth 25% of the total score, i.e. 125 points if correctly completed. For partially completed parts, you will receive 10 points for every ship placed correctly (as long as the ship boundaries are clearly marked and the ship does not touch any other cells marked as a ship part). No partial score available for partial Anglers solutions.

See sample puzzle on the next page.

In the example below, the fleet size is reduced to ships of length 2, 3 and 4, <u>two</u> pieces of each.

At the end of this booklet, we included an appendix page where this example puzzle is provided in a slightly larger size and in a way that makes it easier to cut the pieces for a more realistic solver experience.



ROUND 06	Tapa Mastermind	
Team round	60 minutes	2400 points

Overview

[Round design and all puzzles by Zoltán Horváth]

This round features a single puzzle (hereinafter: “round”) that consists of twelve (12) puzzles (hereinafter: “puzzles”) that are connected in two ways. Firstly, they are all Tapa variations.

Secondly, some numbers are placed between certain grids, linking either two rows or two columns from adjacent puzzles. These numbers represent the count of overlapping shaded cells when the corresponding rows or columns are superimposed (without reflection). In other words, the number indicates how many positions are shaded in both rows or both columns in the final solution of the round.

Puzzle grids may or may not have unique solutions on their own. However, when the inter-grid connections are considered, the entire round has a unique solution.

Standard Tapa rules are provided with Puzzle 01. All subsequent puzzle type descriptions will reference these rules and only specify any differences or deviations.

The rules of the puzzle types is provided below (without links to other grids and with unique solutions on their own). Following that, an example of the full round is provided, showcasing all 12 puzzle types in the same layout as the competition round. The competition round has 10×10 grids.

When finishing the round, please leave the puzzle sheet on the team table.

Scoring of the round

Each of the twelve puzzles is worth 200 points. A puzzle is considered to be solved correctly if and only if the solution is part of the solution of the overall round. Alternative solutions, even if valid under the puzzle’s rules, will not be considered correct if they differ from the round’s intended solution.

A single “mistake” is defined as one cell being shaded instead of being left unshaded, or the other way round. A puzzle is considered to be solved “almost correctly” if there are at most 5 “mistakes” in it. An “almost correctly” solved puzzle will be awarded with 70% of the score, i.e. 140 points.

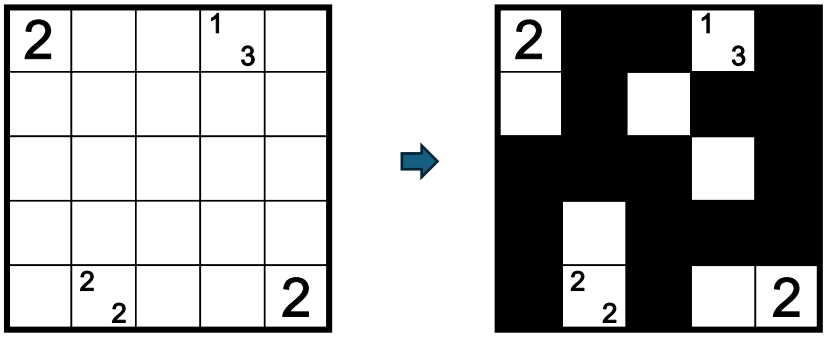
Layout of the round

This applies to both the example below and the competition puzzle.

Tapa	Tapa [Line]	White Pento Tapa	Knapp Daneben Tapa
Elimination Tapa	Tapa Chess	Arrows Tapa	Tapa Possible
Totally False Tapa	Tapa Islands	No Squares Tapa	Pata

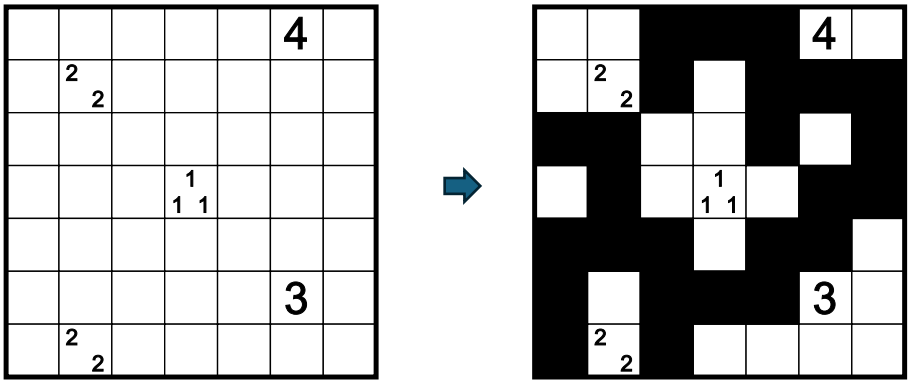
Puzzle 01 – Tapa [200 points]

Standard Tapa rules: 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.



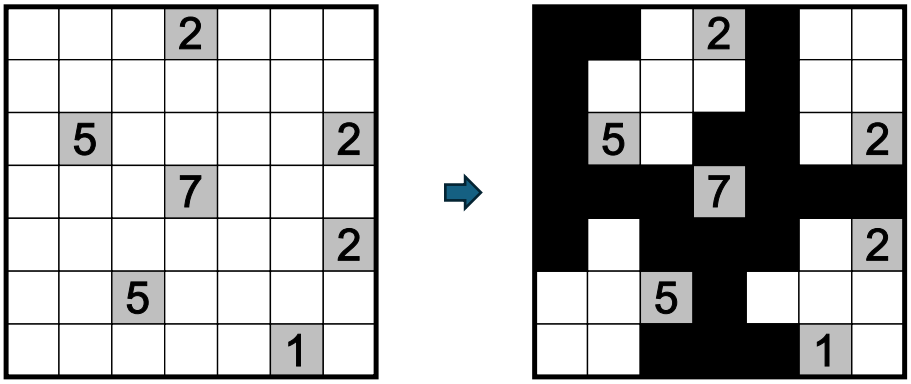
Puzzle 02 – Tapa [Line] [200 points]

Standard Tapa rules apply. Additionally, there may not be four consecutive black cells in any row or column.



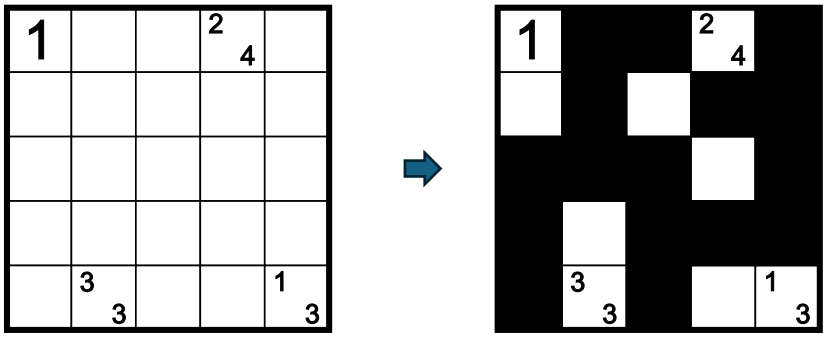
Puzzle 03 – White Pento Tapa [200 points]

Standard Tapa rules apply. Additionally, every connected unshaded region must consist of exactly five cells. There is no restriction on the shapes of those five-cell regions. Clue cells are not considered to be unshaded (nor shaded) in this puzzle and have a grey background.



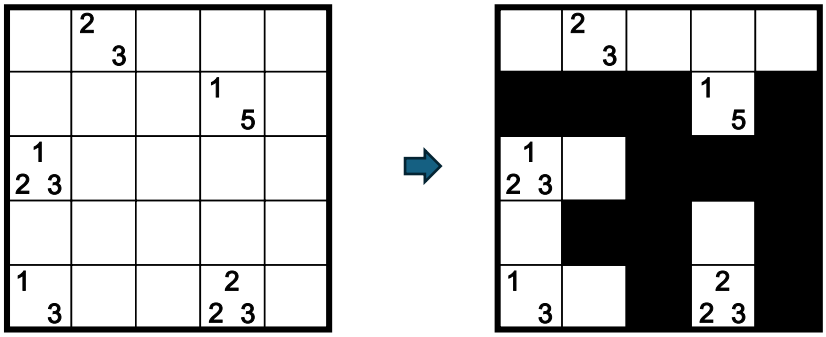
Puzzle 04 – Knapp Daneben Tapa [200 points]

Standard Tapa rules apply, but all given numbers are off by one. The correct number is either 1 higher or 1 lower, meaning a 1 can possibly turn into a zero (even if there are multiple digits in a clue, e.g. a transition like “111” -> “002” is possible).



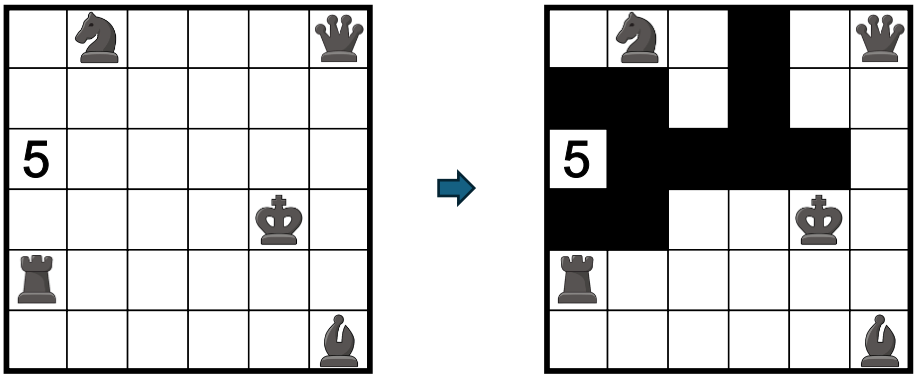
Puzzle 05 – Elimination Tapa [200 points]

Standard Tapa rules apply, but exactly one digit from every clue cell must be ignored.



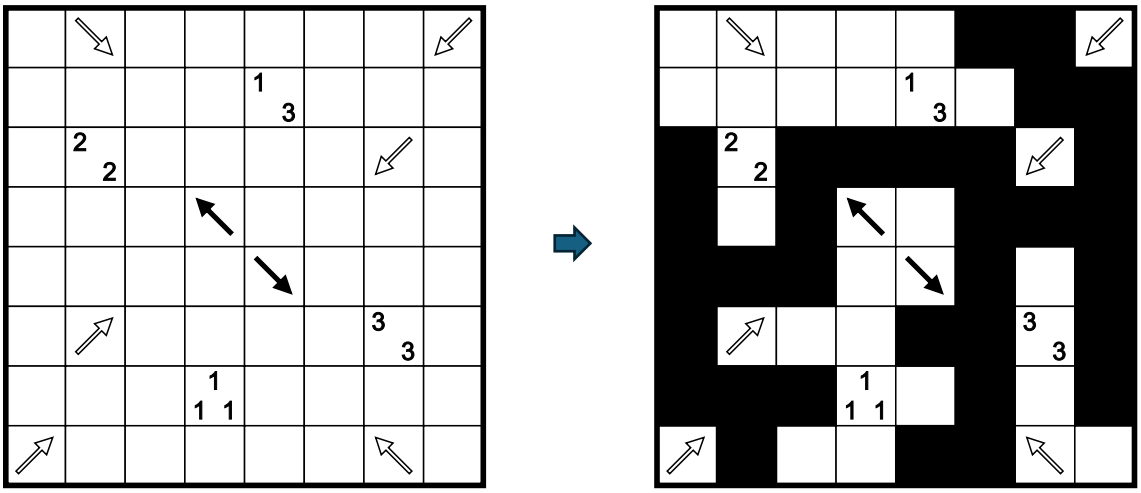
Puzzle 06 – Tapa Chess [200 points]

Standard Tapa rules apply. Additionally, each chess piece attacks the same number of shaded cells. That number is not specified. Pieces do not block the range of another piece. Cells with chess pieces must not be shaded.



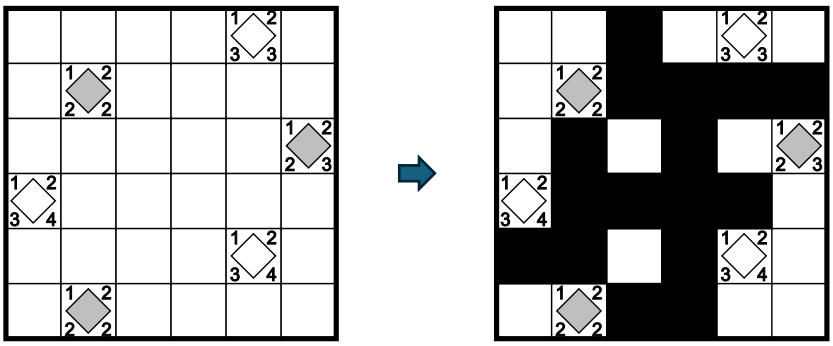
Puzzle 07 – Arrows Tapa [200 points]

Standard Tapa rules apply. Additionally, each black arrow points to exactly one shaded cell, and each white arrow points to exactly three shaded cells. Cells with arrows must not be shaded.



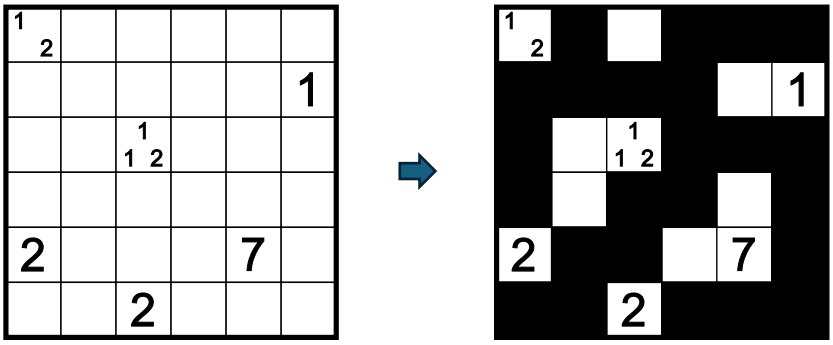
Puzzle 08 – Tapa Possible [200 points]

Standard Tapa rules apply, but not all clue cells are used. For white clue cells, exactly one of the given digits is used. For grey clue cells, exactly two of the given digits are used.



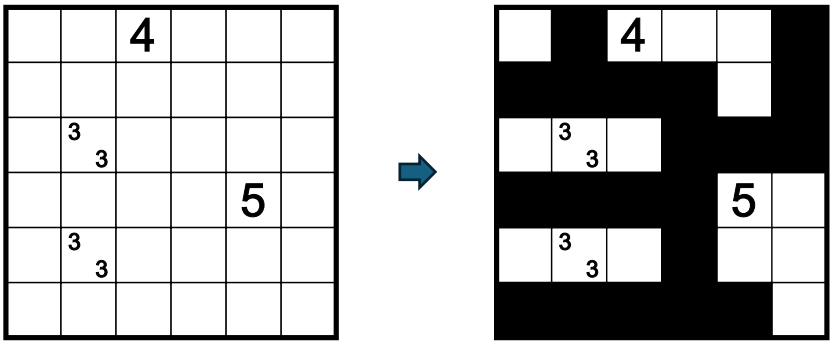
Puzzle 09 – Totally False Tapa [200 points]

Standard Tapa rules apply, but all given clues are totally wrong. This means that in every clue cell, (1) the number of given digits is different from the number of digits in the corrected clue, and (2) all given digits are different from all digits in the corrected clue. Zero is not a valid clue in this variation (considering both the given false and the true set of clues).



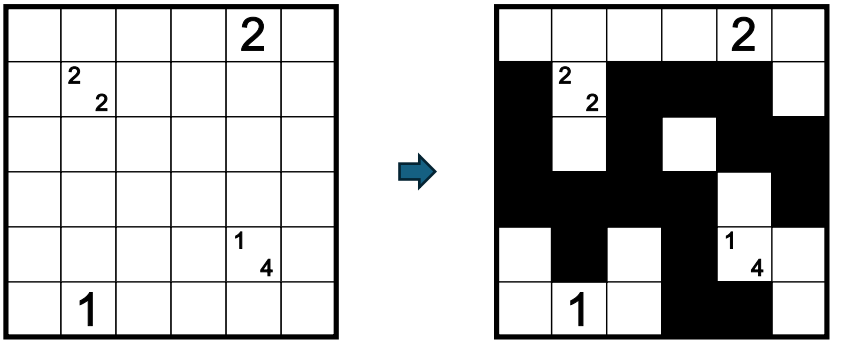
Puzzle 10 – Tapa Islands [200 points]

Standard Tapa rules apply. Additionally, every connected unshaded region contains at most one clue cell. When an unshaded region does contain a clue cell, then at least one digit in that clue cell must be equal to the area of that unshaded region. For the purpose of determining the area of an unshaded region, clue cells are included.



Puzzle 11 – No Squares Tapa [200 points]

Standard Tapa rules apply. Additionally, no unshaded cells can form a 2×2 square anywhere in the grid. Clue cells are considered unshaded.



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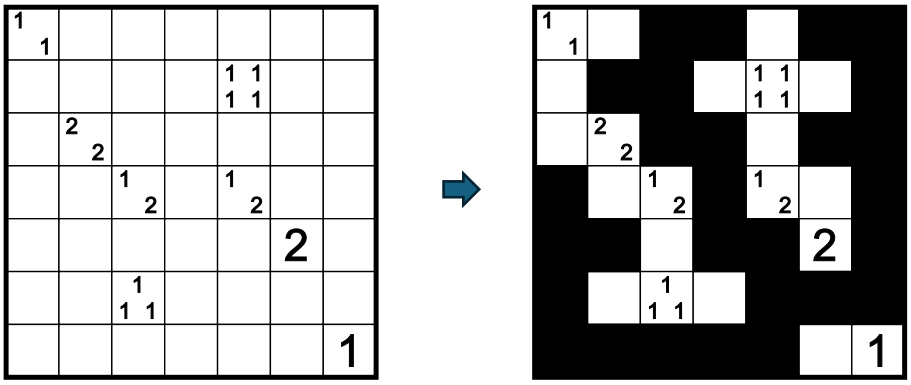
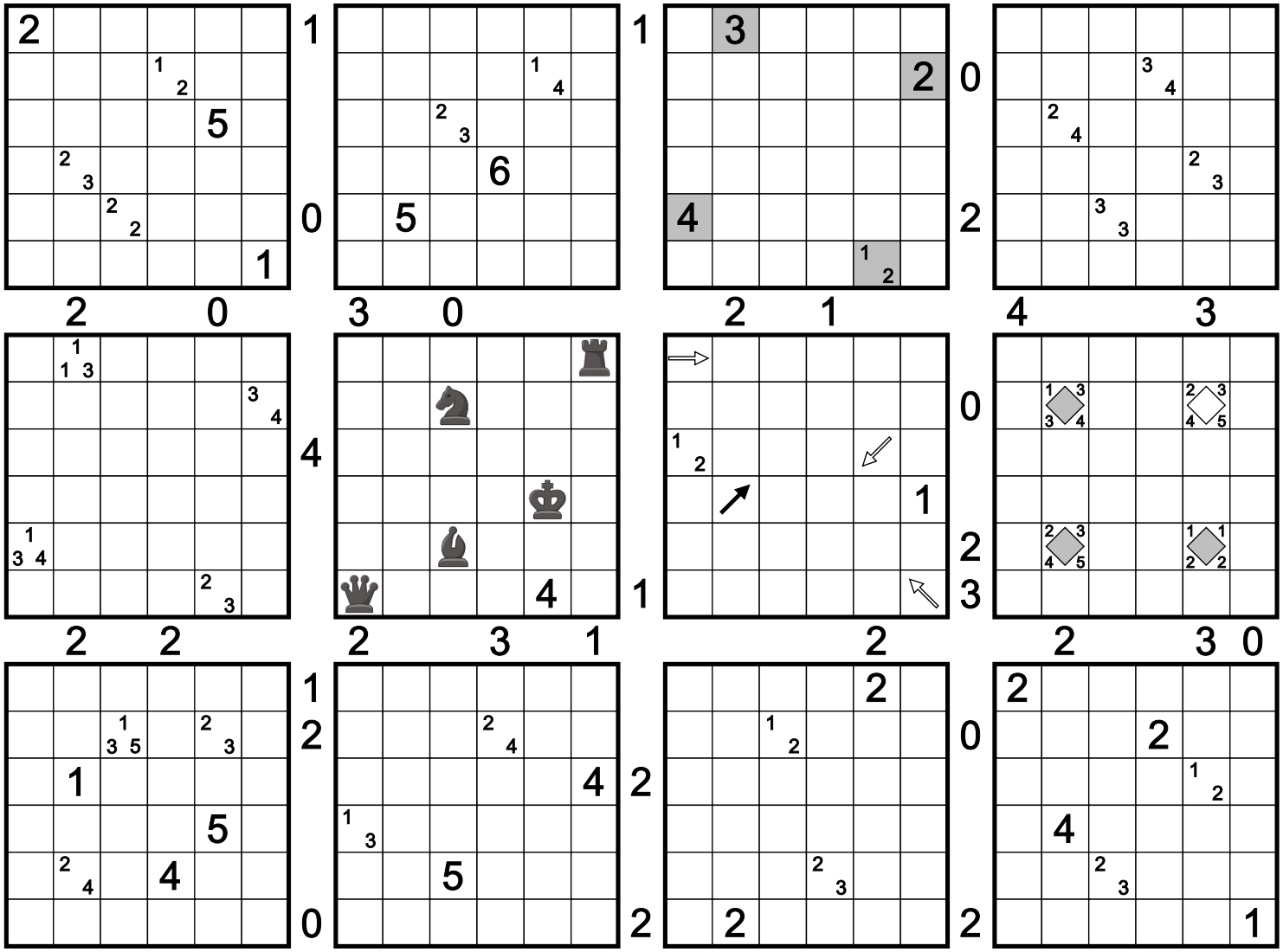
Puzzle 12 – Pata [200 points]

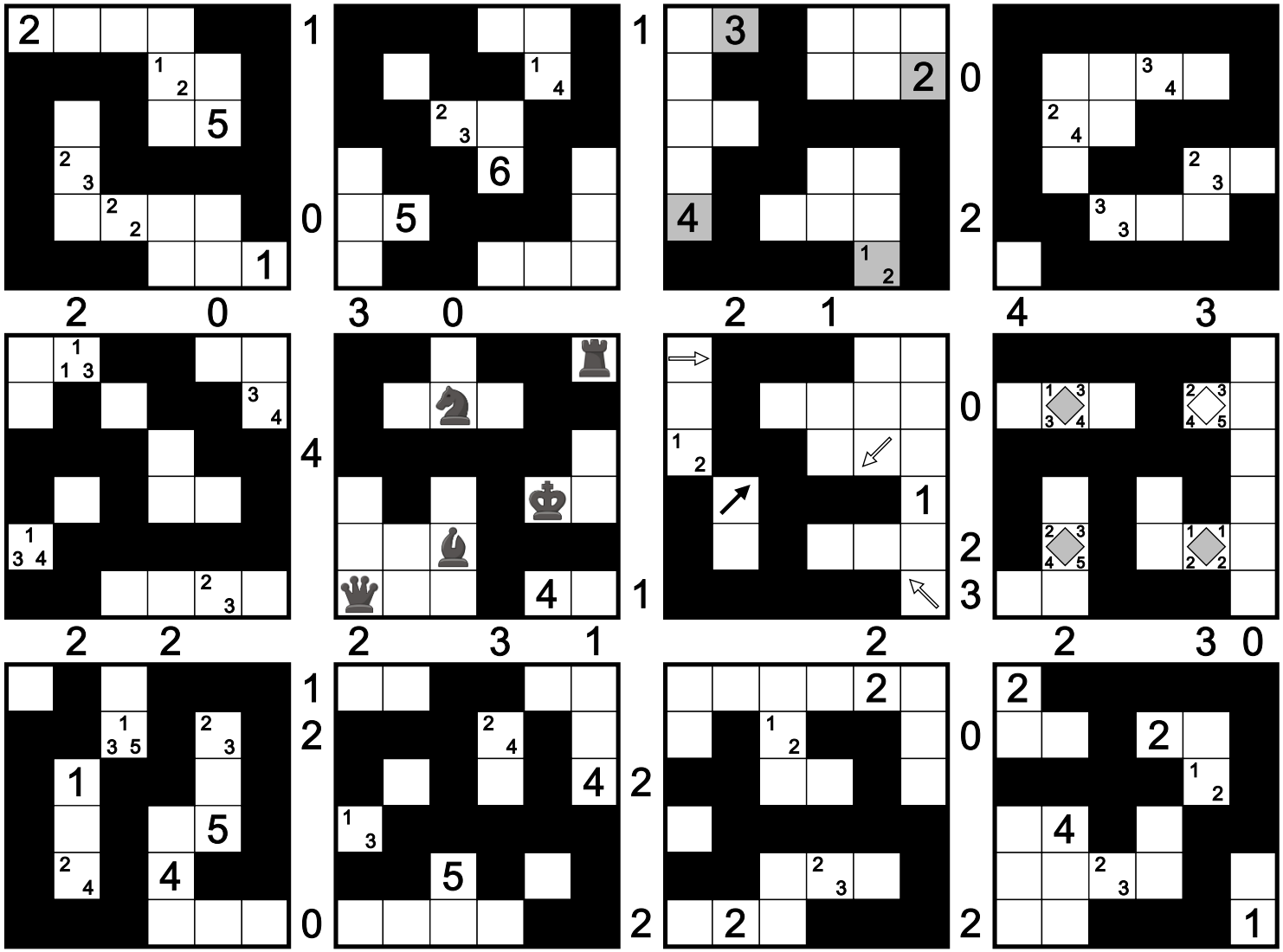
Standard Tapa rules apply but this time, the clues indicate the continuous unshaded blocks in the cells around the clue cell, instead of the shaded ones. Clue cells are considered unshaded.



Tapa	Tapa [Line]	White Pento Tapa	Knapp Daneben Tapa
Elimination Tapa	Tapa Chess	Arrows Tapa	Tapa Possible
Totally False Tapa	Tapa Islands	No Squares Tapa	Pata



Tapa	Tapa [Line]	White Pento Tapa	Knapp Daneben Tapa
Elimination Tapa	Tapa Chess	Arrows Tapa	Tapa Possible
Totally False Tapa	Tapa Islands	No Squares Tapa	Pata



ROUND 07	Walk 2025	
Team round	45 minutes	2250 points

Overview

[Round designed by Kartal Nagy, Viktor Samu and Zoltán Horváth]

This round (hereinafter: “round”) is one big exercise made up of nine smaller puzzles (hereinafter: “puzzles”), each a different type of Walk puzzle sized 15×15 cells, where navigating special areas in a grid is the name of the game. Together they form a single 45×45 grid (that's exactly 2025 cells!) and one continuous journey.

Definitions

The rules will refer to the terminology as follows:

- Shaded vs ground cells: Each puzzle contains two cell types. Shaded cells have puzzle-specific properties; unshaded cells are called ground cells.
- Shaded vs ground regions: connected groups of shaded or ground cells within one puzzle, fully enclosed by cells of the opposite type or puzzle boundaries (i.e. non-extendable).
- Shaded vs ground (loop) sections: a continuous part of the loop within one puzzle that passes through shaded cells only or ground cells only, respectively; and is bounded by cells of the opposite type or puzzle boundaries (i.e. non-extendable).

General puzzle rules

Each puzzle follows these general rules, with specific exceptions noted.

In each of the puzzles, some of the ground cells may contain a number. The loop must go through all such cells. Whenever the loop goes through a cell with a number, the number of cells in that ground section must equal to the number in that cell.

The loop must also go through at least one cell in every shaded region (except for Energy Walk puzzle).

In ground cells, the loop must never cross itself or otherwise go through the same cell more than once. With the exception of Ice Walk, Fire Walk and Energy Walk puzzles, the same applies to shaded cells.

The specific rules of an individual puzzle have no effect beyond the boundaries of that puzzle.

Round rules

Arrange the nine puzzle pieces into a 3×3 grid, forming a complete 45×45 cell square without gaps or overlaps. The puzzle pieces must not be flipped over. The given numbers in each puzzle determine the correct orientation of that puzzle piece, there is no need to consider rotations.

Then draw a single closed, non-branching loop that passes through some cells and visits each puzzle at least once. Within each puzzle, the loop must adhere to the rules of that puzzle. The loop may cross the boundary between any pair of adjacent puzzles any number of times, including not at all.

The puzzle pieces will be easily identifiable: two-letter identifiers will be placed into some of the shaded cells in every puzzle. These indications play no role in the solving besides the identification of the pieces. The shaded cells will also be coloured differently in each puzzle. Both aspects are demonstrated in the example puzzles below, using exactly the same identifiers and colours as in the competition puzzles.

Handling

Teams will receive an envelope at the beginning of the round, containing the nine puzzle pieces and a separate “puzzle layout sheet”, details on that in the Scoring section.

When finishing the round, teams are asked to put all these items back into the same envelope.

Scoring

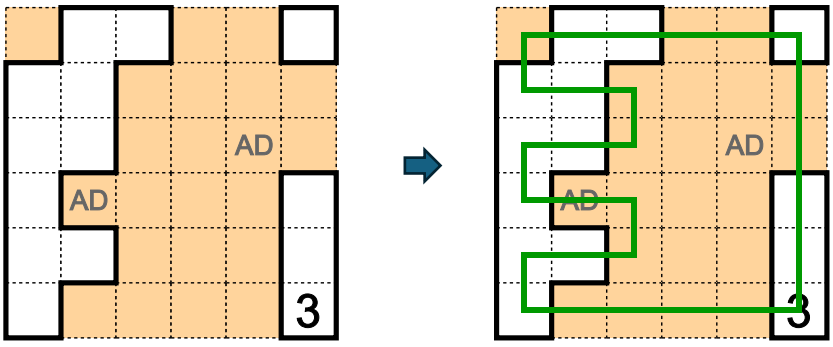
Each of the nine puzzles is worth 200 points. A puzzle is considered to be solved correctly if and only if the solution is part of the solution of the overall round. Alternative solutions, even if valid under the puzzle’s rules, will not be considered correct if they differ from the round’s intended solution.

Partial scores are available in this round. Considering a 15×15 grid to be naturally divided into nine 5×5 sub-grids, each of those sub-grids is worth 20 points. These partial points will be awarded if any only if the solution within that sub-grid completely matches the respective part of the correct solution of the entire round.

In addition, 50 points per puzzle are available for finding the location of the puzzle in the final arrangement of the entire round. There will be a separate “puzzle layout sheet” featuring a 3 by 3 table, where teams are asked to indicate the location of each of the puzzles by writing the two-letter identifiers. In case a puzzle is solved correctly, these 50 points will be automatically granted for that puzzle, irrespective of the content of the puzzle layout sheet. Incorrect entries on the puzzle layout sheet will result in 50 points deduction to discourage guessing. If, as a result of this, a team ends up with a negative score for the round, their score will be treated as 0 points instead. Cells left empty on the puzzle layout sheet are neither rewarded nor penalised.

Puzzle 01 – Adjacent Walk [200 points]

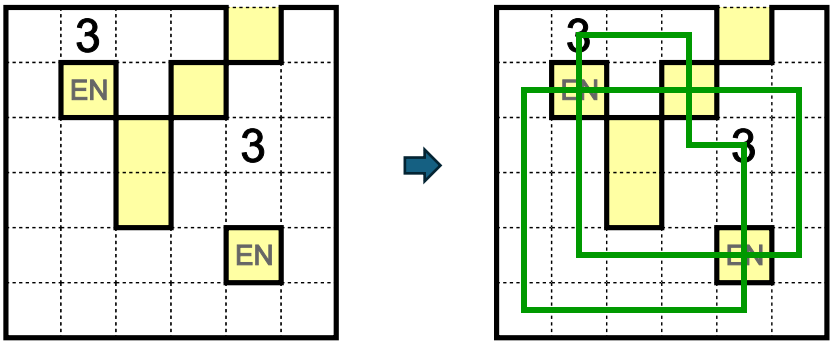
Whenever a shaded section and a ground section share an endpoint (i.e. they are consecutive along the loop within the same puzzle), their lengths must differ by at most one (equality allowed).



Puzzle 02 – Energy Walk [200 points]

The loop is allowed to cross itself in this puzzle. The loop is also allowed to skip shaded regions in this puzzle.

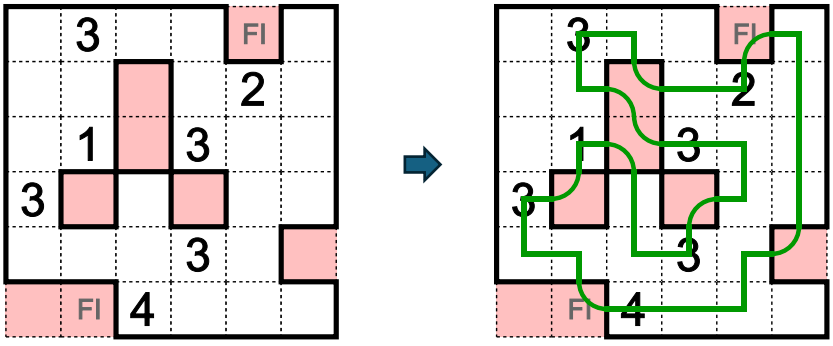
For every shaded cell, one of the following holds true: either the loop goes straight through that cell twice without turning (once horizontally and once vertically), or the loop does not go through that cell at all. The loop must not connect a shaded cell to itself via ground cells only. In other words, no ground section of the loop can have both its ends continue into the same shaded cell. (This does not apply if the loop exits and re-enters the puzzle between visiting two shaded cells.)



Puzzle 03 – Fire Walk [200 points]

The loop is allowed to visit shaded cells more than once in this puzzle.

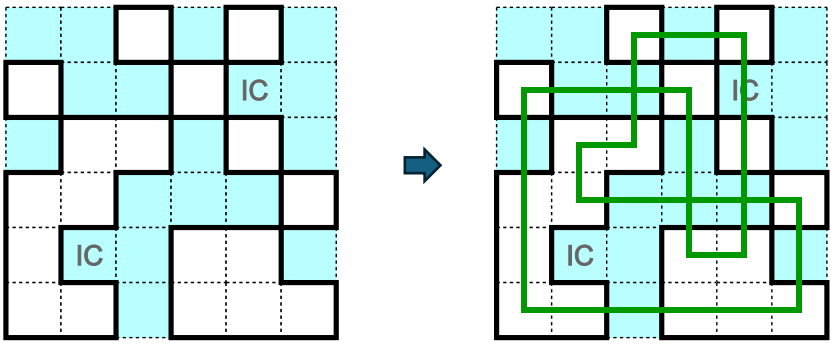
The loop must turn in every shaded cell it visits. Shaded cells may be visited twice by the loop as long as the two visits do not touch each other (assuming the turns to be performed along a curve as drawn below). The centre point of such doubly visited shaded cells does not necessarily need to be inside the loop.



Puzzle 04 – Ice Walk [200 points]

The loop is allowed to cross itself in this puzzle.

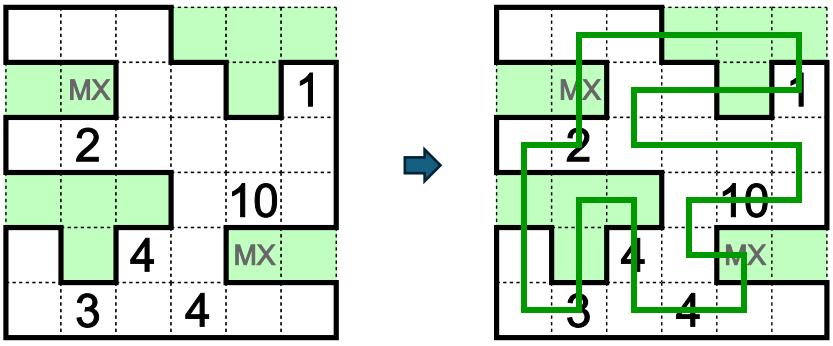
The loop must go straight through every shaded cell it visits. Shaded cells may be visited twice by the loop as long as both visits go straight through that cell.



Puzzle 05 – Matrix Walk [200 points]

If two shaded regions have exactly the same shape and orientation, then all the following must hold true:

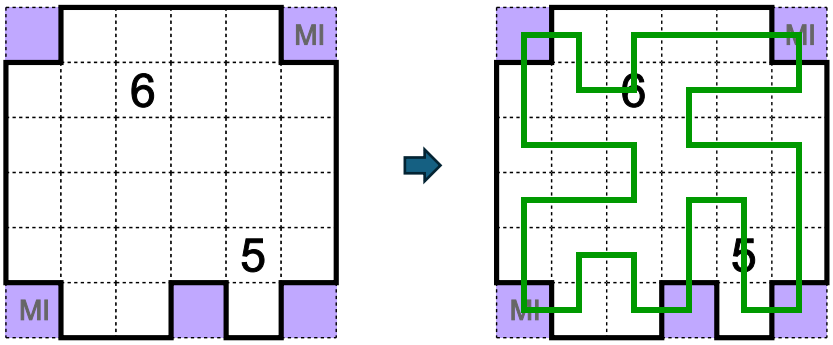
- The number of shaded sections of the loop must be the same in all those shaded regions.
- The lengths of those shaded sections must pairwise be the same in all those shaded regions.
- The shapes of those shaded sections do not need to match.



Puzzle 06 – Miasma Walk [200 points]

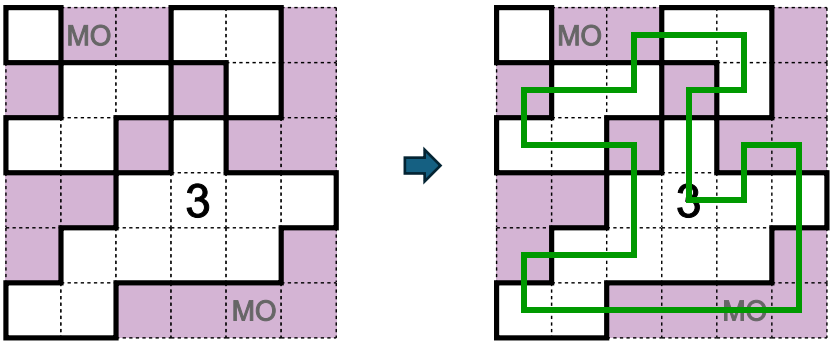
The loop must make a turn between any two shaded cells. (As a trivial consequence, the loop must not go through two consecutive shaded cells.)

When the loop visits a shaded cell, its ground section before that cell and its ground section after that cell must have different lengths (as long as those sections are both within the same puzzle, per definition).



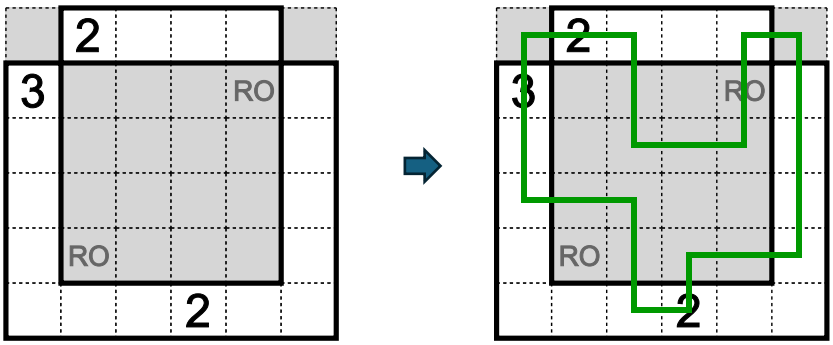
Puzzle 07 – Morning Walk [200 points]

Whenever a shaded section and a ground section share an endpoint (i.e. they are consecutive along the loop within the same puzzle), their lengths must be different.



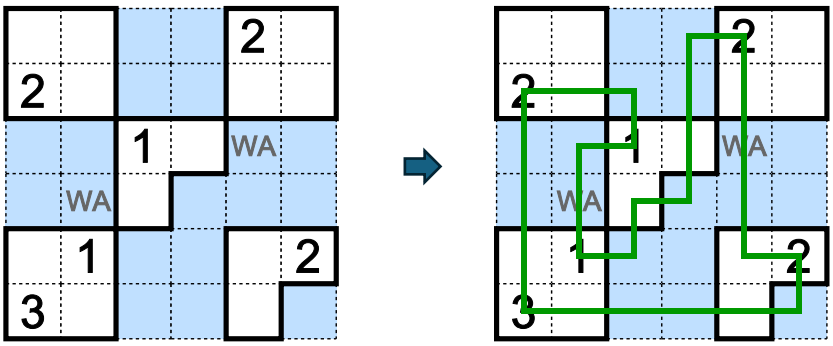
Puzzle 08 – Robotic Walk [200 points]

For any two (not necessarily adjacent) shaded cells that the loop visits consecutively without leaving the puzzle, the loop must go straight through one of them and make a turn in the other. (This does not apply if the loop exits and re-enters the puzzle between visiting two shaded cells.)



Puzzle 09 – Water Walk [200 points]

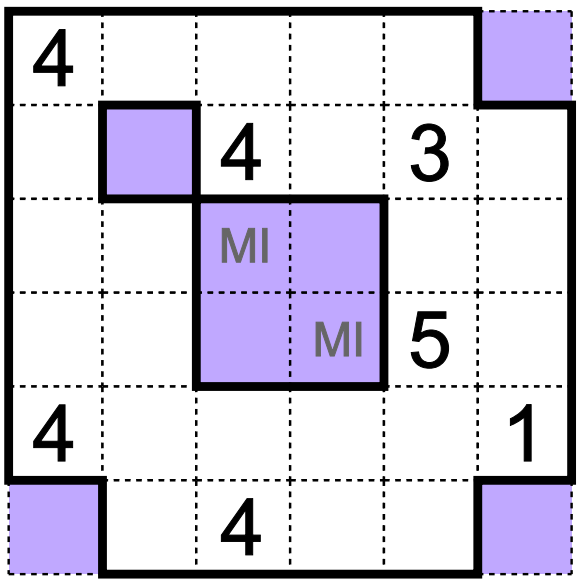
The loop cannot have a shaded section of more than two cells anywhere within this puzzle.

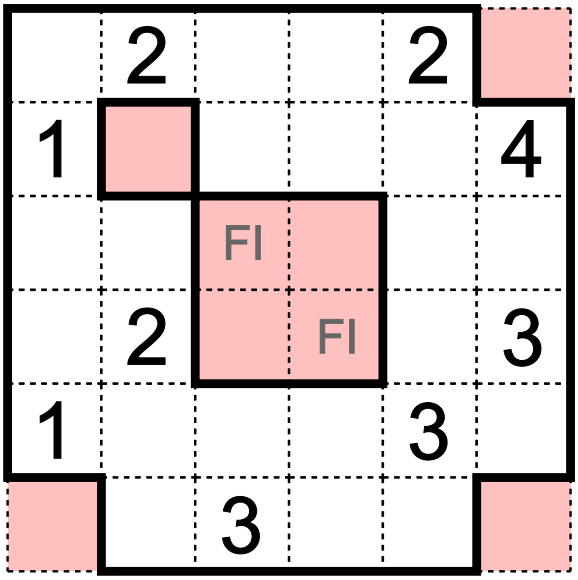


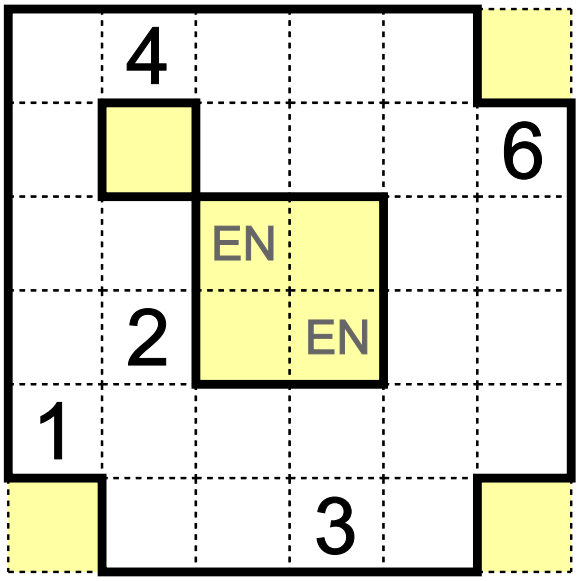
Example Round

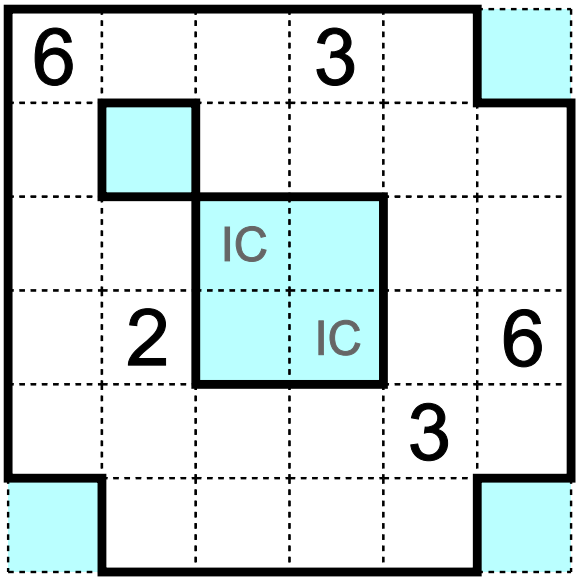
Here is an example to demonstrate how the round is constructed. Feel free to print / cut the pieces and give it a try!

Four reduced-size puzzles are used instead of nine: Ice Walk, Energy Walk, Miasma Walk and Fire Walk.





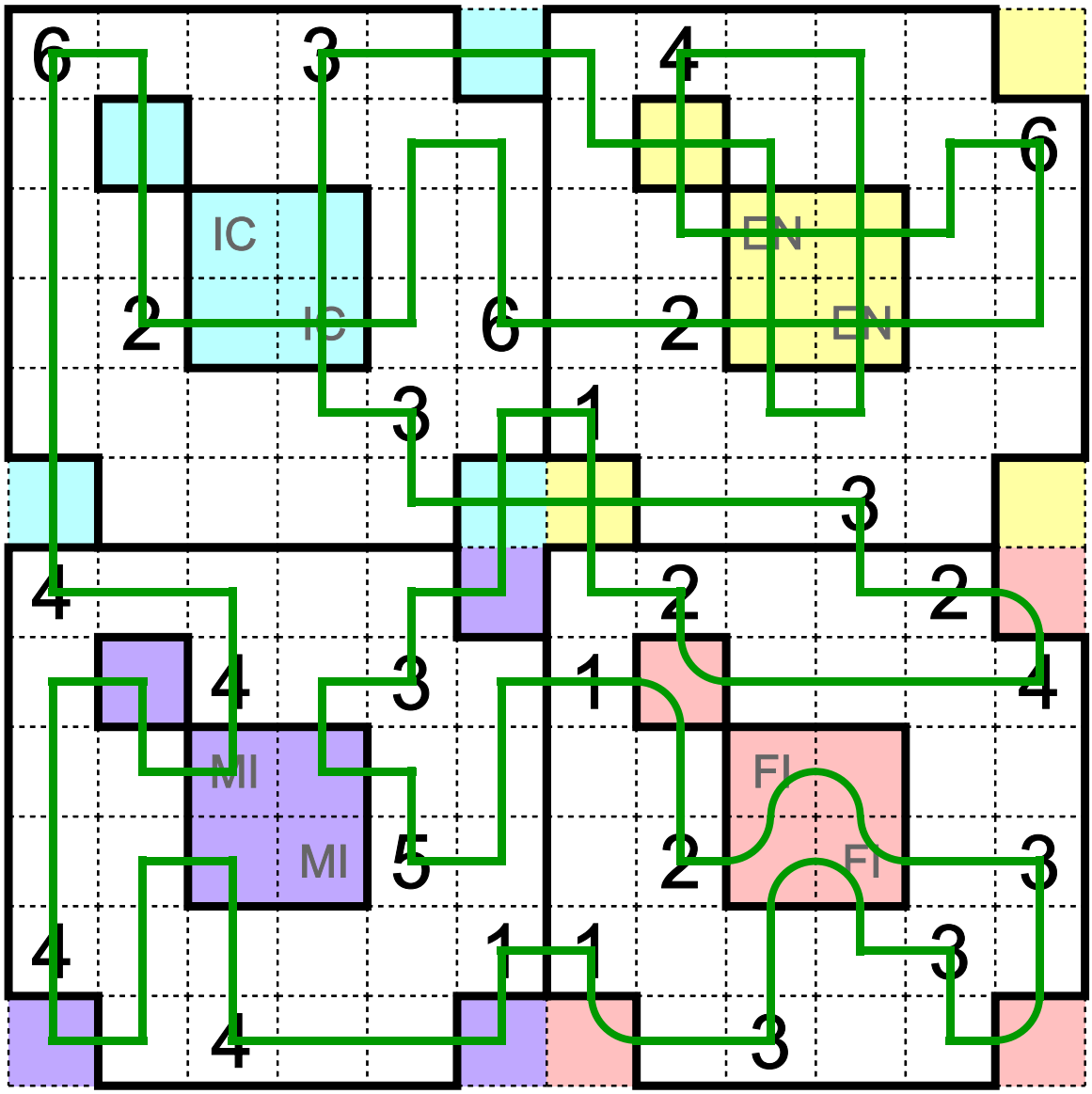




Example Round – Solution

Puzzle layout sheet:

IC	EN
MI	FI



Competition puzzles in this round designed by: Kartal Nagy, Viktor Samu, Zoltán Horváth

Example puzzles: Kartal Nagy

Example round designed by: Viktor Samu

ROUND 08	Across the Stars	
Individual round	60 minutes	1150 points

Overview

In this round, every puzzle is a Star Battle hybrid: in addition to solving the well known base puzzles, the stars need their space to shine through!

General rules

The standard Star Battle rules apply to all puzzles and will be referred to from within each puzzle's instructions: the specified number of stars must be placed into every row, every column and (if applicable and highlighted in the instructions) every region. Cells occupied by stars cannot share an edge or corner.

Cells containing a star do not contain any other artifact (placed objects, lines, shading, etc) in any of the puzzles.

You need to mark the puzzle specific artifacts **and** the stars in all puzzles to receive credit.

ROUND 08	Across the Stars	
Pentominous + Star Battle	**70 points**	[20 + 50]
Yajilin + Star Battle	**90 points**	[20 + 70]
Masyu + Star Battle	**100 points**	[25 + 75]
Four Winds + Star Battle	**155 points**	[40 + 115]
Kakuro + Star Battle	**145 points**	[35 + 110]
LITS + Star Battle	**160 points**	[60 + 100]
Easy as ABC(DEF) + Star Battle	**220 points**	[80 + 140]
Aqre + Star Battle	**210 points**	[50 + 160]
60 minutes	**Maximum score: 1150 points**	

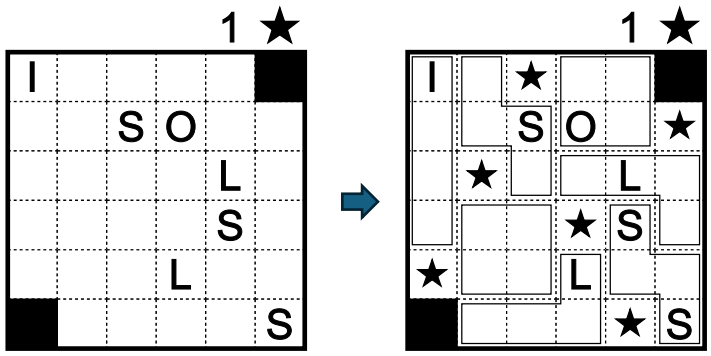
Puzzle 01-02 – Pentominous + Star Battle [20+50 points]

[Zoltán Németh]

Place the stars according to the Star Battle rules.

Then divide the rest of the grid into regions each containing 5 cells (4 in the example). Regions with the same shape, including rotations and reflections, cannot share an edge (but can share a corner). A cell with a letter in it must be part of the pentomino shape normally associated with that letter.

The pentomino set will be made available in the competition booklet, marked with letters.

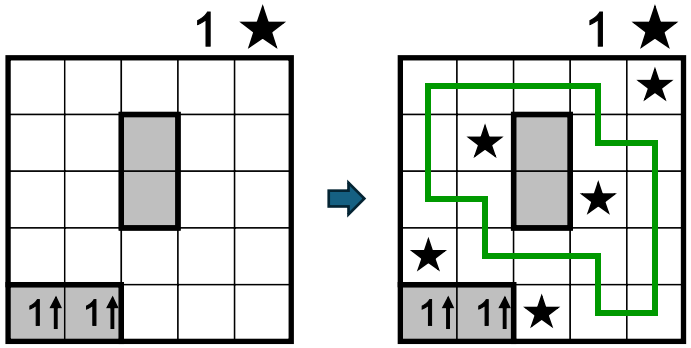


Puzzle 03-04 – Yajilin + Star Battle [20+70 points]

[Zoltán Németh]

Place the stars according to the Star Battle rules such that each number indicates how many stars are pointed at in the indicated direction. (Unlike standard Yajilin puzzles, no further squares are to be blackened.)

Then draw a single closed loop through all empty cells.

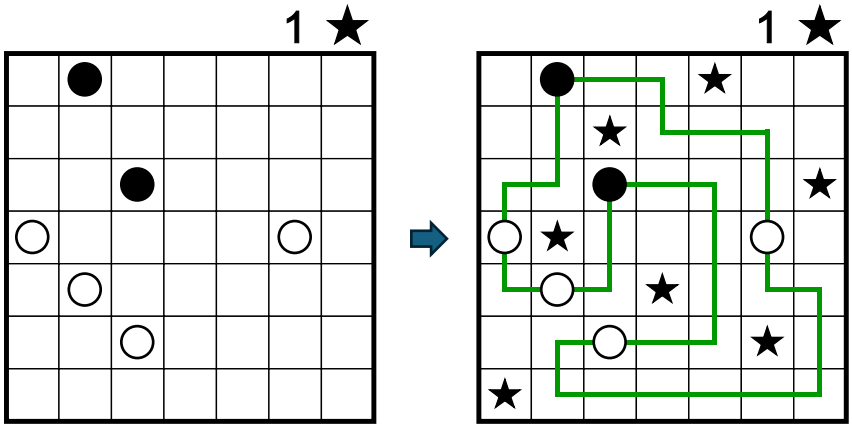


Puzzle 05-06 – Masyu + Star Battle [25+75 points]

[Zoltán Horváth]

Place the stars according to the Star Battle rules.

Then draw a single closed loop through some empty 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 cells with black circles but must go straight in both cells immediately before / after each black circle.

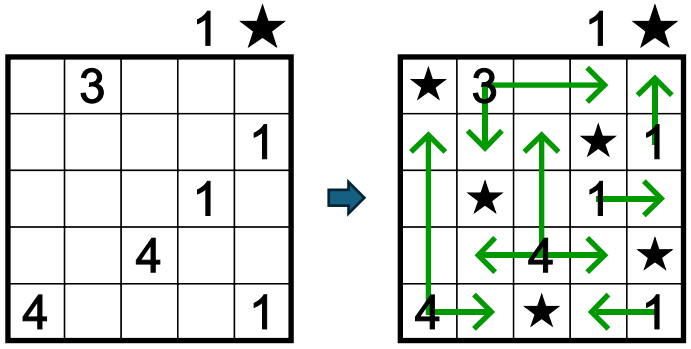


Puzzle 07-08 – Four Winds + Star Battle [40+115 points]

[Zoltán Németh]

Place the stars according to the Star Battle rules.

Then draw horizontal and vertical arrows starting from the numbers so that these arrows do not cross or overlap each other. Each number denotes the total length of the arrows starting from its cell. All cells without a star or a number are visited by exactly one arrow.

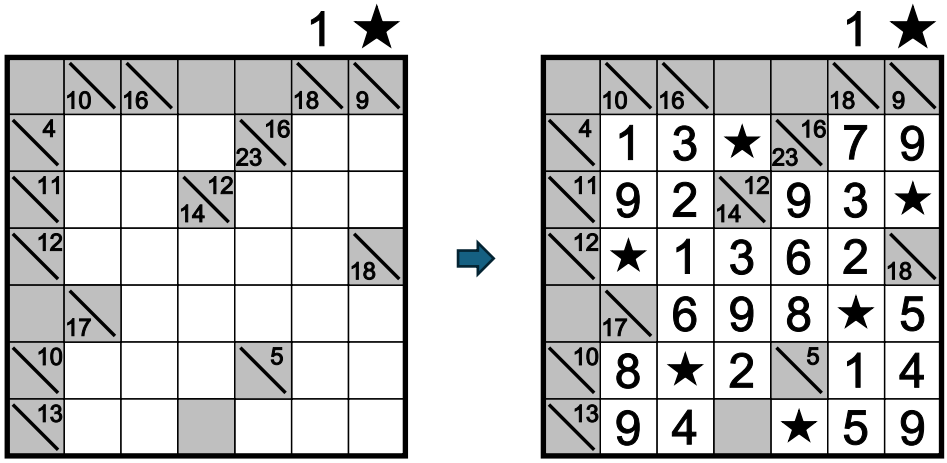


Puzzle 09-10 – Kakuro + Star Battle [35+110 points]

[Zoltán Horváth]

Place the stars according to the Star Battle rules.

Then enter digits 1–9 into all remaining cells of the grid so that no digit repeats in any of the “words” across and down. Clues denote the sum of digits in each of the words. Cells with stars should not be counted into the sums.

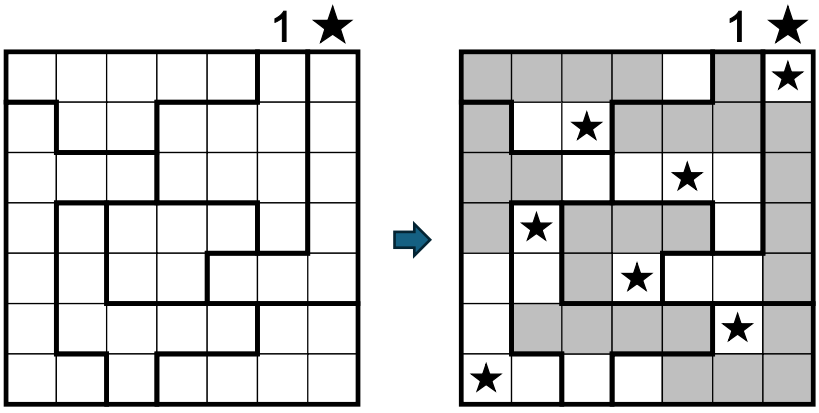


Puzzle 11-12 – LITS + Star Battle [60+100 points]

[Zoltán Horváth]

Place the stars according to the Star Battle rules, considering regions.

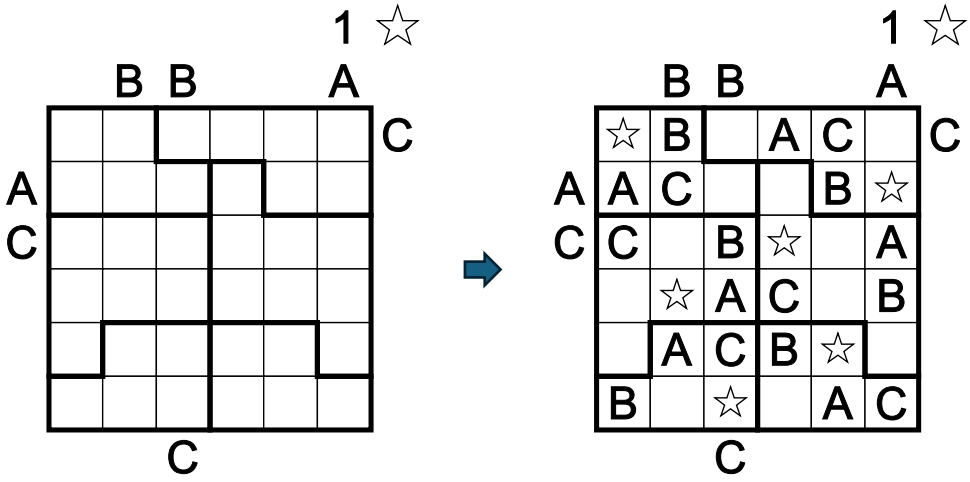
Then shade exactly four connected cells in each outlined region, to form an L, I, T, or S tetromino, so that the following conditions are true: (1) All shaded cells are connected with each other; (2) No 2×2 group of cells can be entirely shaded black; (3) When two tetrominoes in adjacent regions share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



Puzzle 13-14 – Easy as ABC(DEF) + Star Battle [80+140 points]

Place the stars according to the Star Battle rules, considering regions. [Gyula Slenker]

Then fill in the grid with letters ABC(DEF) so that each row, column and region contains each letter exactly once. Some cells may remain empty. Letters outside the grid indicate the first letter in that row/column from that direction. Stars are transparent for the purposes of determining first letter seen. Example and first puzzle: ABC; second puzzle: ABCDEF.

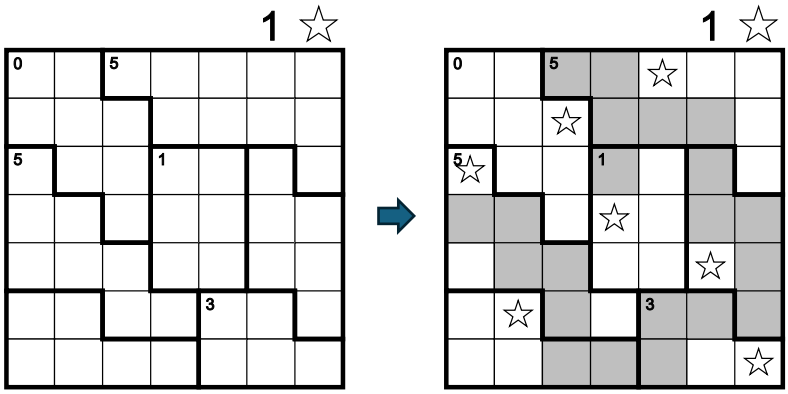


Puzzle 15-16 – Aqre + Star Battle [50+160 points]

[Zoltán Horváth]

Place the stars according to the Star Battle rules, considering regions.

Then shade some cells so that all shaded cells form one connected group. Regions with numbers must contain the indicated count of shaded cells, and it is allowed to shade over the numbered cells. There may not exist a run of four or more consecutive shaded or unshaded cells horizontally or vertically anywhere in the grid. Cells with stars are considered (and must remain) unshaded.



ROUND 09	Assorted puzzles	
Individual round	90 minutes	1900 points

ROUND 09 — Assorted Puzzles

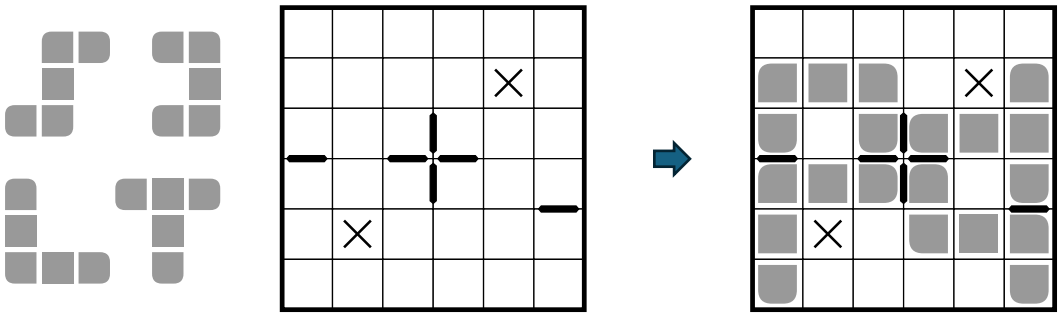
Kissing Polyominoes	**55 points**	[15 + 40]
Letter Fragment Crosswords	**120 points**	[50 + 70]
Pointing at the Crowd	**75 points**	[20 + 55]
Blokus	**65 points**	[20 + 45]
Crossing Masyu	**100 points**	[30 + 70]
From 1 to 20	**130 points**	[60 + 70]
Orbits	**160 points**	[50 + 110]
Hungarian Numberlink	**105 points**	[30 + 75]
Domino Square	**140 points**	[50 + 90]
Pentonuri Romanis	**105 points**	[40 + 65]
Pento Paint	**115 points**	[35 + 80]
Letter Cocktail	**140 points**	[65 + 75]
Binary Stars	**145 points**	[30 + 115]
Regional Yajilin	**175 points**	[45 + 130]
Hexa Islands	**170 points**	[40 + 130]
X-Crossword	**100 points**	[100]

90 minutes **Maximum score: 1900 points**

Puzzle 01-02 – Kissing Polyominoes [15+40 points]

[Zoltán Németh]

Place the given set of shapes (allowing rotation and reflection) into the grid without overlaps. Cells marked with a cross cannot be covered by a shape. All edges where two different shapes share an edge are marked with a thick line segment.



Puzzle 03-04 – Letter Fragment Crosswords [50+70 points]

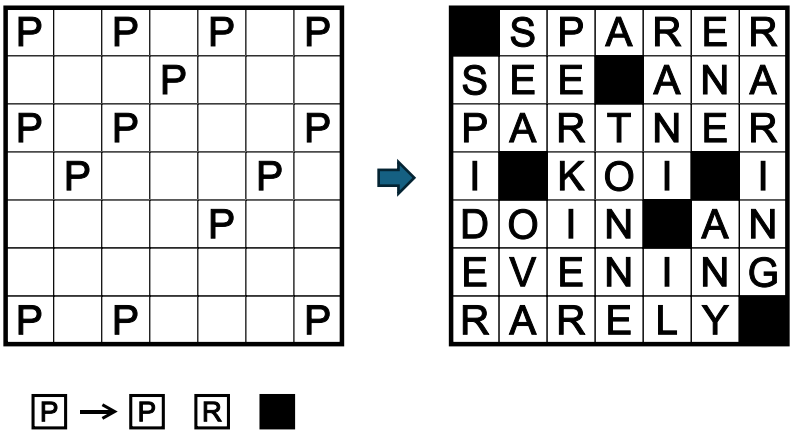
[György István]

Place all the given words into the grid across and down. No unlisted word of at least length two can appear anywhere in the grid. Additionally, shade an unspecified number of cells black. Black cells are allowed to share corners or edges, but the white (letter) cells must remain connected.

Below the grid, a rule is specified where a letter (fragment) is mapped to a list of possible completions. Every cell where the final solution grid has one of those possible completions is marked with the fragment in the puzzle grid.

In this example puzzle below, in the rule we see that “P” could be completed to “P”, “R” or a black cell. Consequently, every “P” within the puzzle becomes one of “P”, “R” or black square in the solution. Likewise, every cell holding “P”, “R” or a black square in the solution are marked with a “P” in the puzzle.

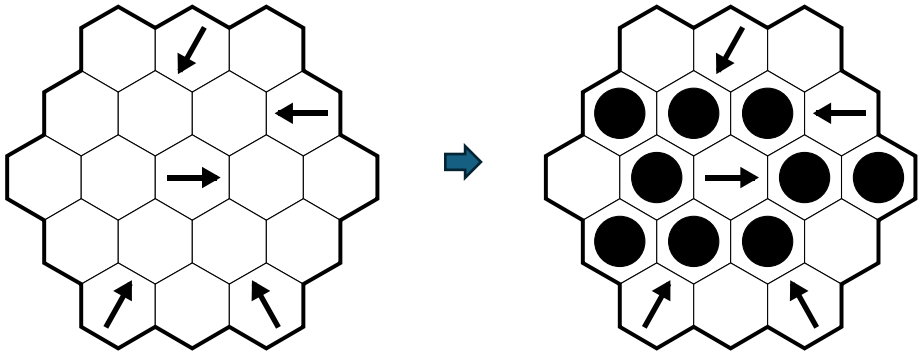
7 letters:
EVENING, PARTNER, PERKIER
6 letters:
RARELY, RARING, SPARER, SPIDER
5 letters:
TONNE
4 letters:
DOIN, RANI
3 letters:
ANA, ANY, ENE, KOI, SEA, SEE, OVA
2 letters:
AN, IL



Puzzle 05-06 – Pointing at the Crowd [20+55 points]

[Zoltán Horváth]

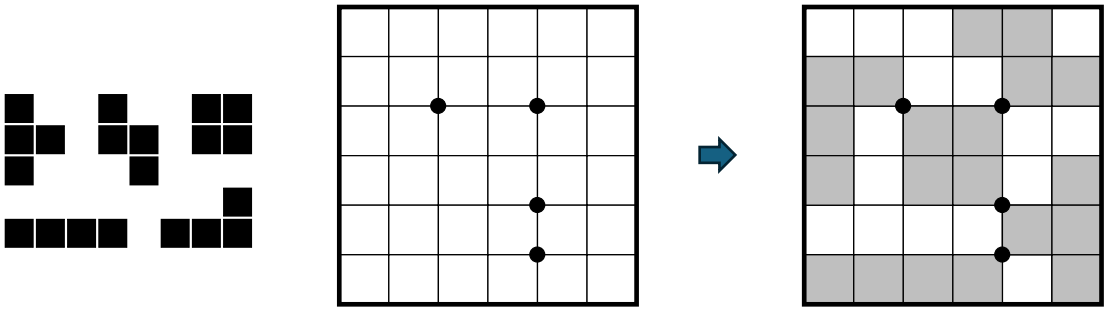
Place a circle into some of the cells without an arow. For each cell, its “crowded direction(s)” shall be defined as the one or more direction(s) out of the six cardinal directions in which the most circles are placed. An arrow indicates that its cell has a single “crowded direction” and the arrow is pointing to that direction. Not all such arrows are necessarily given. The cells with circles do not need to be connected.



Puzzle 07-08 – Blokus [20+45 points]

[Zoltán Németh]

Place the given set of shapes (allowing rotation and reflection) into the grid without overlaps. Different shapes cannot share an edge. All grid points where two different shapes share a corner are marked with a dot.

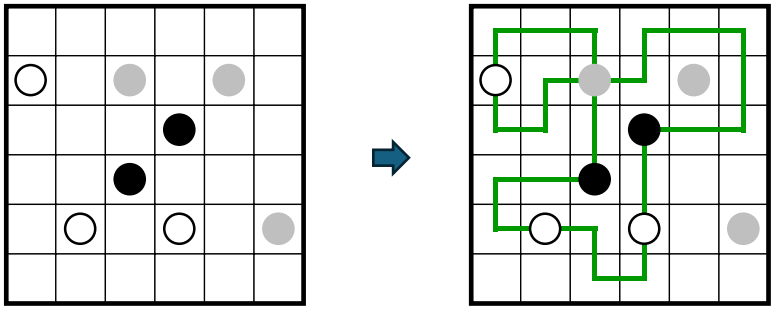


Puzzle 09-10 – Crossing Masyu [30+70 points]

[Zoltán Németh]

Draw a single closed loop through some empty 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 cells with black circles but must go straight in both cells immediately before/after each black circle.

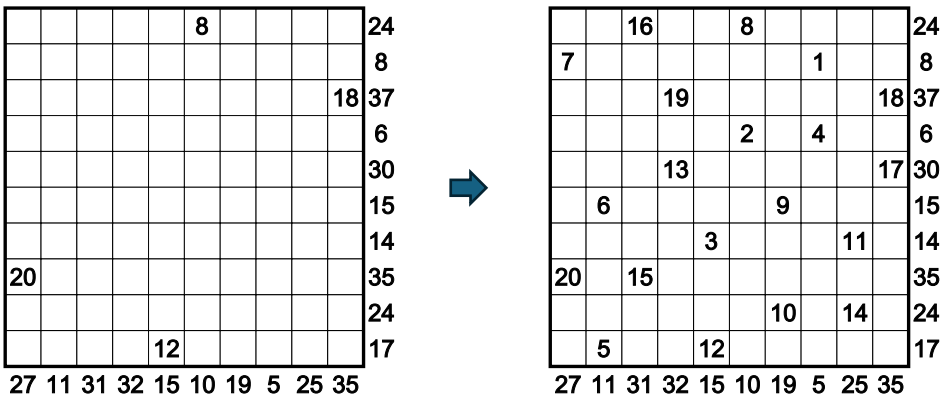
For each cell with a grey circle, one of the following holds true: either the loop goes straight through that cell twice without turning (once horizontally and once vertically), or the loop does not go through that cell at all. The loop must not cross itself anywhere in the grid except in cells with grey circles.



Puzzle 11-12 – From 1 to 20 [60+70 points]

[László G. Nagy]

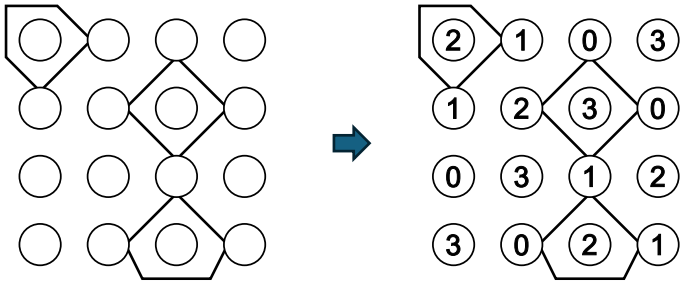
Enter numbers 1 to 20 into the grid, no more than one number into a cell, so that there are exactly two numbers in each row and each column. Cells inside the grid containing numbers cannot share a point. Numbers around the grid indicate the sum of the two numbers in the respective row or column. Some of the numbers may already be given.



Puzzle 13-14 – Orbits [50+110 points]

[Zoltán Horváth]

Enter exactly one digit from 0 to N-1 into every circle (where N is the size of the grid) so that each row and each column contains each digit exactly once. Some of the circles are surrounded by “orbits”, represented as polygons, touching other circles. For each of these orbits, the digit in the circle inside the orbit must be equal to the sum of the digits in the circles touched by the orbit.

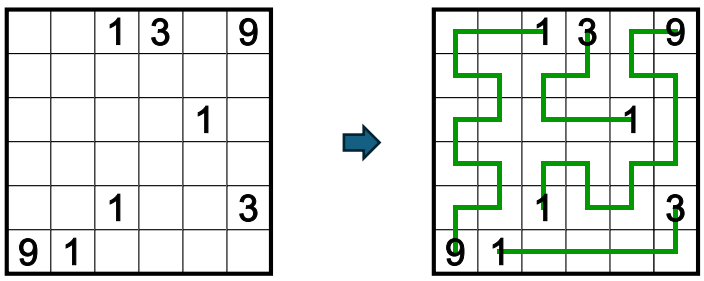


Puzzle 15-16 – Hungarian Numberlink [30+75 points]

[Viktor Samu]

Draw some paths into the grid so that the two endpoints of every path are on cells with numbers. Each number must be the endpoint of exactly one path. The paths do not cross or overlap themselves or each other, and together they use every cell exactly once.

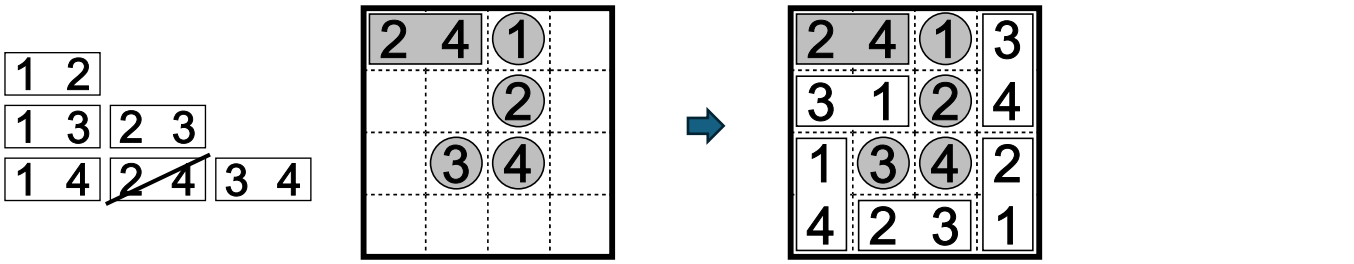
For each path, the number of cells where the path goes straight through the cell must match the number at one endpoint of the path, and the number of cells where the path makes a turn must match the number at the other endpoint of the path.



Puzzle 17-18 – Domino Square [50+90 points]

[László G. Nagy]

Place the given full set of dominoes into the grid without overlaps so that each row and each column contains each number exactly once. Some numbers are given in circles, these do not belong to any of the dominoes. Some dominoes may also be given, these are marked as “already used” in the set and are not used again. You need to clearly indicate domino boundaries in addition to filling in all the numbers to receive credit for this puzzle.



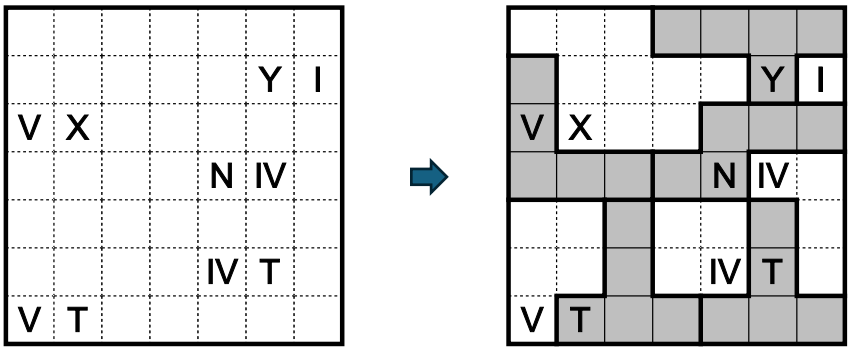
Puzzle 19-20 – Pentonuri Romanis [40+65 points]

[Zoltán Németh]

Nurikabe rules apply with a twist: shade some cells so that the grid is divided into white regions, each containing exactly one cell with letter(s) inside. That cell’s letter(s) must be interpreted as a Roman numeral, and its value is equal to the area of that region. Two white regions may only touch diagonally. All shaded cells must form a single connected group, but no 2×2 group of cells can be entirely shaded.

Then divide the shaded cells into pentominoes. Every pentomino has exactly one letter inside it, and that letter equals to the letter normally associated with the shape of that pentomino. It is allowed for two identical pentominoes to share a corner or an edge.

The pentomino set (indicating the normally associated letters) will also be made available in the competition booklet.

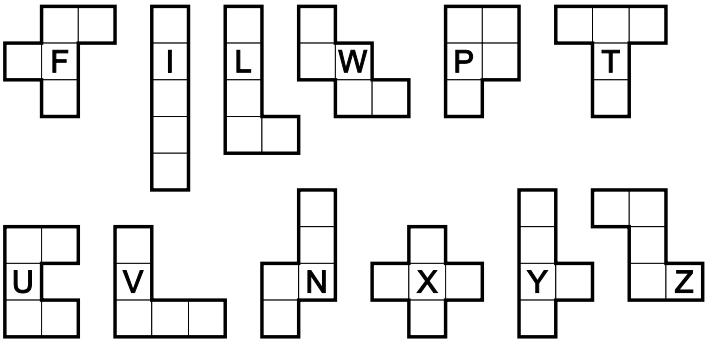


<u>Roman Numerals</u>

Symbols:

I – 1, V – 5, X – 10, L – 50,
C – 100, D – 500, M – 1000

Further ir

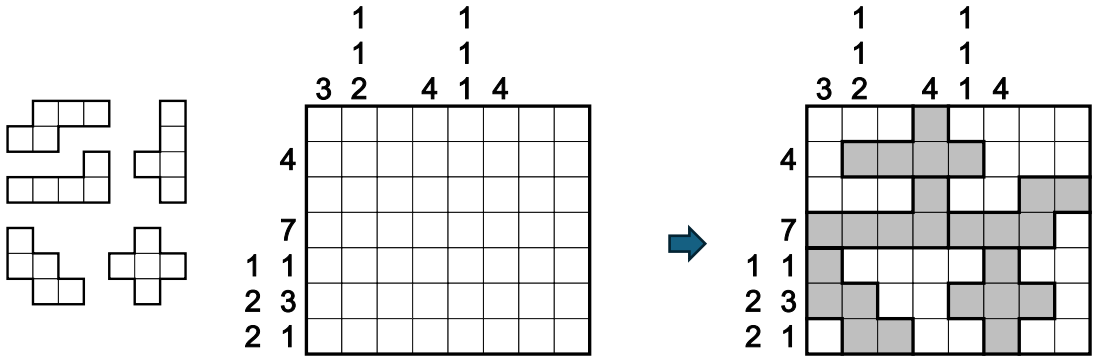


Puzzle 21-22 – Pento Paint [35+80 points]

[László Osvalt]

Shade some cells such that all shaded cells form a single connected region. All non-shaded cells must be connected to the edge of the grid. No 2×2 group of cells can be entirely shaded. The numbers to the left of and above the main grid represent the lengths of contiguous shaded cell blocks in the corresponding row or column. The lengths are given in order from left to right and top to bottom. Cell blocks must contain at least one unshaded cell between them.

Then divide the shaded cells into pentominoes so that every shaded cell belongs to exactly one pentomino. The set of pentominoes obtained by this division must be identical to the set of pentominoes given next to the grid, allowing for rotations and/or reflection.



Puzzle 23-24 – Letter Cocktail [65+75 points]

[László G. Nagy]

Enter exactly one letter into every empty cell such that all given words become “readable”. A word is said to be “readable” from the grid, if it is possible to “walk” through its letters in the correct order. Every “step” of such a “walk” must be taken between two cells that share an edge or a corner (thus the “steps” can be horizontal, vertical or diagonal). It is not allowed to take a “step” without moving; to read double letters, two different cells are required one “step” away from each other, having the same letter. It is allowed for a word to use a letter more than once, as long as the other rules are observed. Ignore any spaces in the words. The *theme description* is for information purposes only.

(theme: car brands)

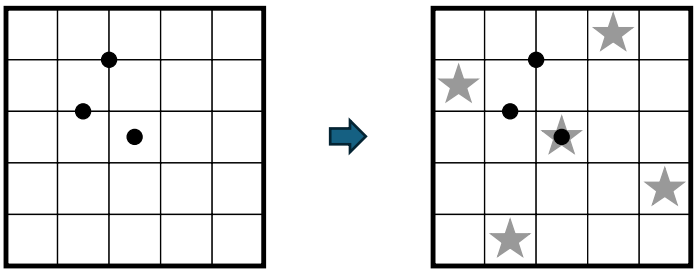
LADA
OPEL
TESLA
VOLVO

Puzzle 25-26 – Binary Stars [30+115 points]

[Viktor Samu]

Place stars into some cells so that each row and each column contains exactly one (1) star. No two cells with a star share a corner. It is allowed to place a star into a cell that has a dot inside or on its perimeter.

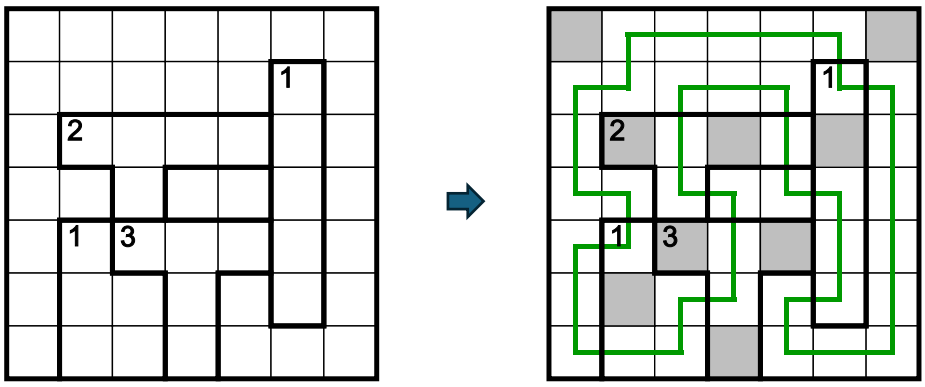
For any pair of two stars, their midpoint is defined to be the location that is on a straight line connecting the centres of those two stars and is exactly the same distance away from the centres of those two stars. Some black dots are provided on the grid; each one must be a valid midpoint (but can be the midpoint of more than one pair of stars). Not all possible midpoints are necessarily given.



Puzzle 27-28 – Regional Yajilin [45+130 points]

[Zoltán Németh]

Shade some cells so that no two shaded cells are orthogonally adjacent and draw a non-intersecting loop through the centers of all the remaining cells. Regions with a number must contain the indicated number of shaded cells. Cells with numbers can be shaded.

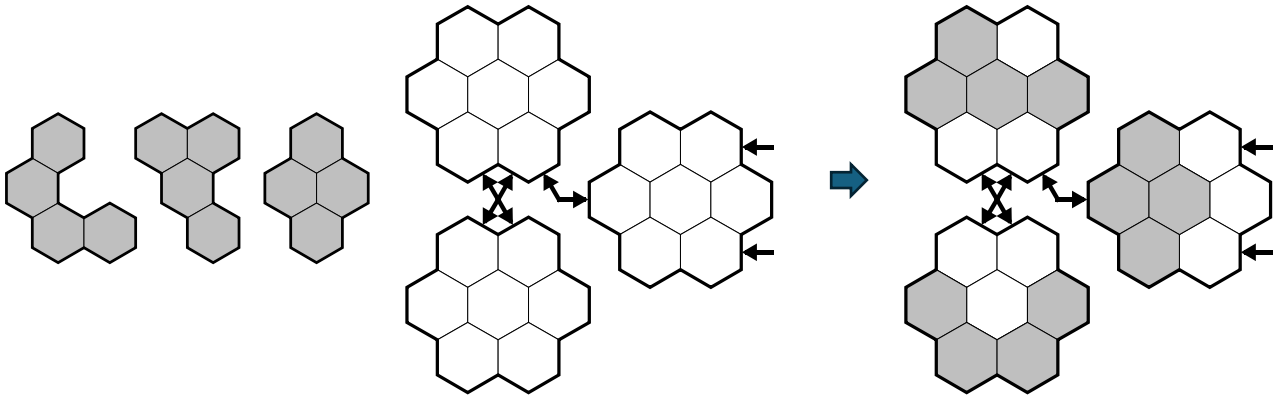


Puzzle 29-30 – Hexa Islands [40+130 points]

[Viktor Samu]

Shade some empty cells black so that the black cells form the given shapes. Each shape is used exactly once and can be rotated but not reflected. Shapes cannot touch along edges.

The cells are separated into several “islands”; each island has several rows that go along three different directions, and each row can be potentially pointed at from the two locations immediately outside either end of the row (but not from further away). Some of these locations are marked with arrows. The arrows point at the rows that contain the most shaded cells when compared to all the other rows that could be pointed at from that location. If there are multiple rows that have the most shaded cells, potentially pointing towards multiple islands, then all such arrows are given. Every given arrow points at at least one shaded cell. (Note that locations do not look past islands to see other islands beyond the immediately adjacent island.) It is allowed to have multiple shapes to be located on an island.



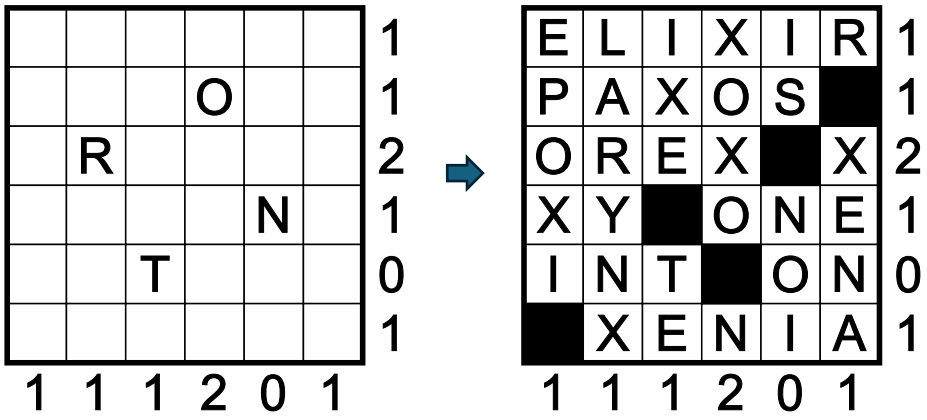
Puzzle 31 – X-Crossword [100 points]

[László Mérő]

Place all given words into the grid across and down. No unlisted word of at least length two can appear anywhere in the grid. Additionally, shade 12 squares black (5 in the example). Black cells are allowed to share corners or edges, but the white (letter) cells must remain connected.

Numbers around the grid reveal how many times the letter “X” appears in the given row / column. Some letters may be given in advance, their cells cannot be shaded black.

6 letters:
ELIXIR, LARYNX
5 letters:
EPOXI, PAXOS, XENIA
4 letters:
OREX, XENA, XOXO
3 letters:
INT, IXE, NOI, ONE
2 letters:
IS, ON, TE, XY



ROUND 10	Nemo	
Individual round	30 minutes	500 points

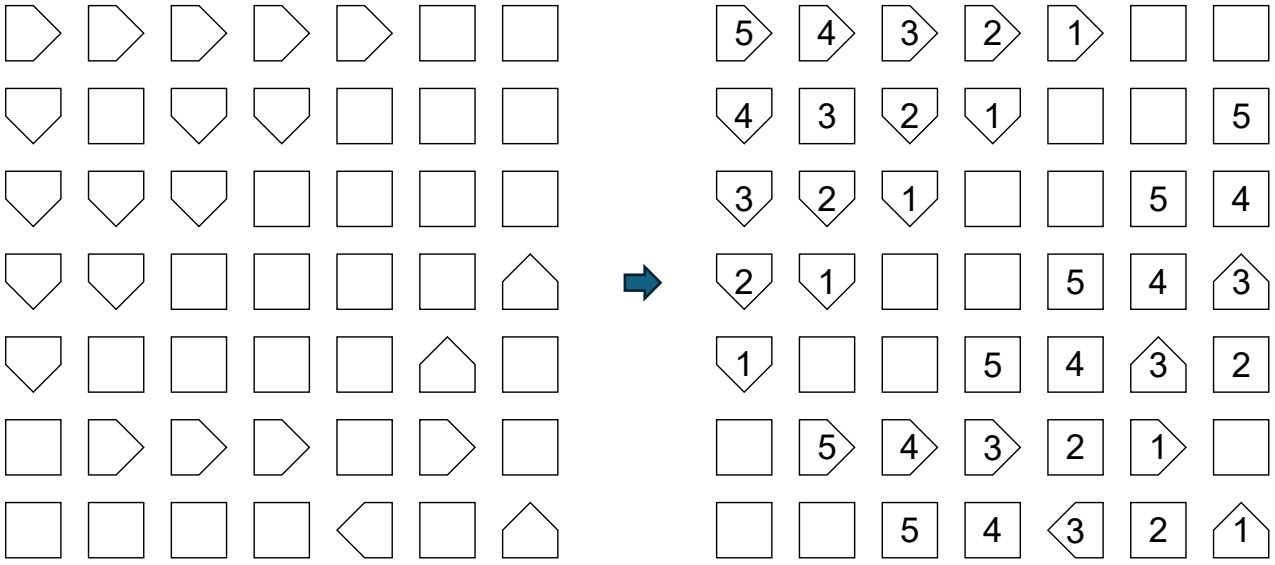
Rules

[All puzzles by László G. Nagy]

Fill in the grid of shapes with numbers between 1 and N–2 (where N is the size of the grid) so that every row and every column has exactly two empty shapes and no number is repeated in any row or column. (In the example N=7 and numbers run 1-5.)

All arrow shapes must have a number. Squares may have a number or remain empty.

Numbers in arrow shapes indicate the distance of the first empty shape in the arrow's direction.



	Nemo	[20 + 35 + 40 + 45 + 50 + 85 + 100 + 125]
	Total	**500 points**

ROUND 11	Eger Castle	
Individual round	40 minutes	450 points

Overview

This round represents the siege of the castle of Eger – you can fight your way through various lines of defense to achieve victory! There are three lines of defense: The Great Plains, The Wall and finally The Castle.

To progress between lines of defenses, you will first need to solve the puzzles in The Great Plains (Yajilin, LITS and Easy as 123 puzzles, three of each). Each puzzle will reveal some information to be carried forward into the specified puzzles in the puzzles on The Wall (Simple Loop, Windows and Easy as 123 puzzles, one of each), which in turn will reveal further information to the puzzle in The Castle (fittingly, a Castle Wall puzzle).

The forward carrying applies between puzzles where it's explicitly marked with arrows, and its mechanism varies across layers:

- In the Plains and Wall puzzles there are regions highlighted with dotted lines. Whenever two regions have the same shape, size and orientation between two puzzles linked by an arrow, the contents of those regions need to be identical (without rotation or reflection, even if the shapes would allow). This includes cells being shaded or unshaded, line segments and numbers (but ignore any region boundaries).
- In the Wall and Castle puzzles there are some cells that contain small letters. Whenever a letter appears in two different puzzles that are linked by an arrow, a certain property of those two cells must be identical, as detailed later.

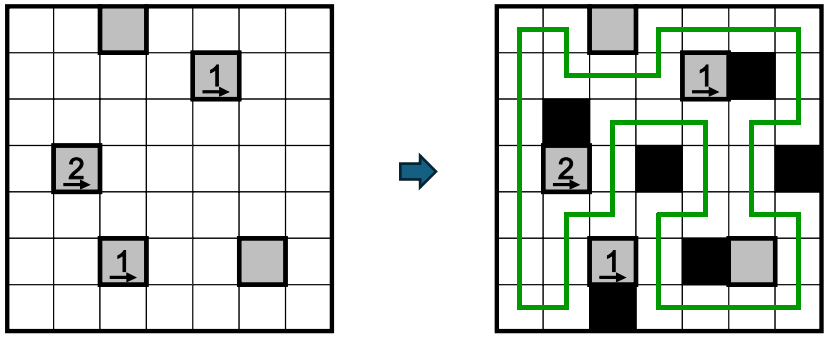
All puzzles in The Great Plains have a unique solution on their own. The remaining puzzles' solution only becomes unique when all available information is carried over from the puzzles in the previous layers.

The Great Plains – Puzzle rules

Puzzle 01-03 – Yajilin [10+20+40 points]

[Zoltán Németh]

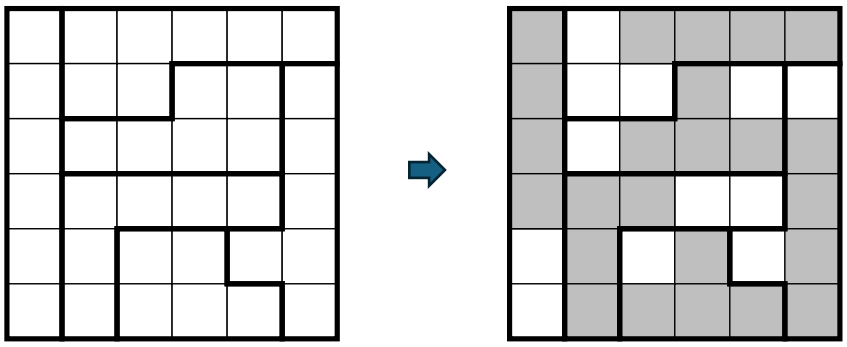
Shade some cells black and then draw a single non-intersecting loop through all remaining cells. Black cells cannot share an edge with each other. Cells that are already shaded grey are not part of the loop. Numbered arrows in such cells indicate the number of cells shaded black in that direction in the grid.



Puzzle 04-06 – LITS [30+40+50 points]

[Zoltán Németh]

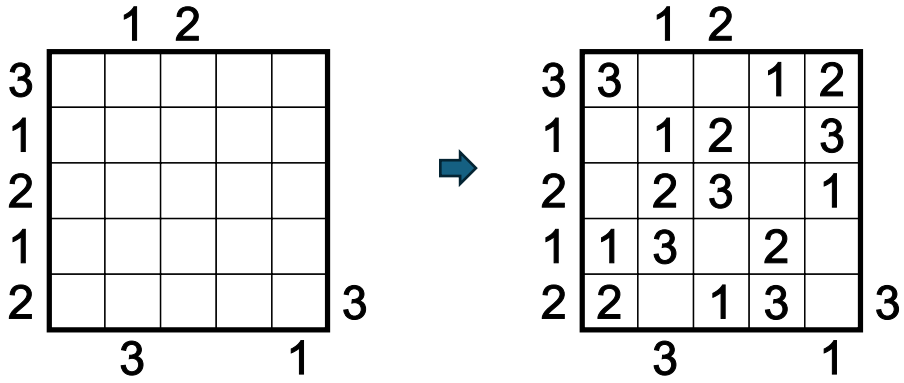
Shade exactly four connected cells in each outlined region, to form an L, I, T, or S tetromino, so that the following conditions are true: (1) All shaded cells are connected with each other; (2) No 2×2 group of cells can be entirely shaded black; (3) When two tetrominoes in adjacent regions share an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



Puzzle 07-09 – Easy as 123 [10+30+60 points]

[Zoltán Németh, Gyula Slenker]

Enter digits 1-2-3 into some of the cells so that each row and each column contains each digit exactly once. Digits outside the grids indicate the first digit seen from that direction.



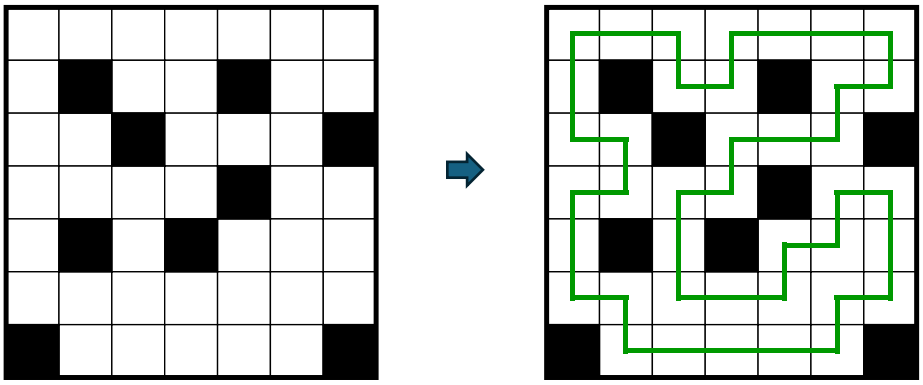
The Wall – Puzzle rules

Puzzle 10 – Simple Loop [20 points]

[Zoltán Németh]

Draw a single closed loop without overlaps or intersections through all unshaded cells.

The highlighted regions must have identical content with their counterparts in The Great Plain puzzles, including the location of black cells and line segments.

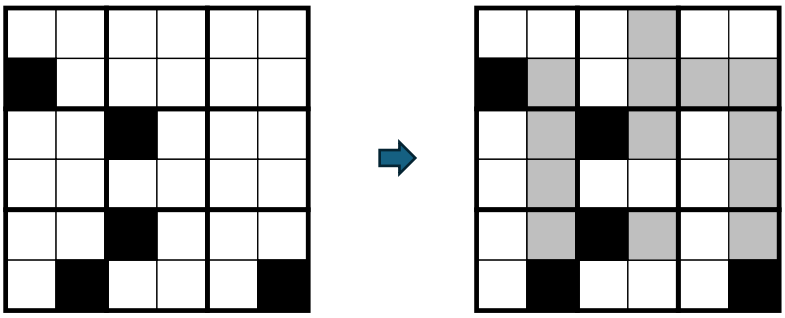


Puzzle 11 – Windows [30 points]

[Zoltán Németh]

Shade some cells black so that in every highlighted 2×2 region (“the windows”) there are exactly two connected shaded cells and two connected unshaded cells. All shaded cells must form a single connected group, and all unshaded cells must be connected to the edge of the grid. No 2×2 area can be entirely shaded or entirely unshaded.

The highlighted regions must have identical content with their counterparts in The Great Plain puzzles, including the location of shaded and unshaded cells.



Puzzle 12 – Easy as 123 [40 points]

[Gyula Slenker]

Enter digits 1-2-3 into some of the cells so that each row and each column contains each digit exactly once. Digits outside the grids indicate the first digit seen from that direction. *See example puzzle above.*

The highlighted regions must have identical content with their counterparts in The Great Plain puzzles, including the location of digits and empty cells.

The Castle – Puzzle rules

Puzzle 13 – Castle Wall [70 points]

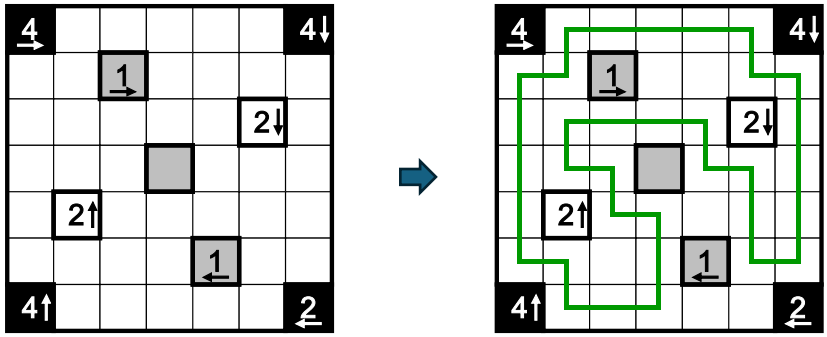
[Zoltán Horváth]

Draw a non-intersecting close loop through some of the empty cells. Some cells are highlighted as regions, outlined with thick borders, and/or shading, these cells are not considered empty and thus cannot be visited by the loop.

Regions shaded black must lie entirely outside the loop. Regions shaded white must lie entirely inside the loop. Regions shaded grey may lie inside or outside the loop. Numbers represent the total length of loop segments in the direction indicated by arrows.

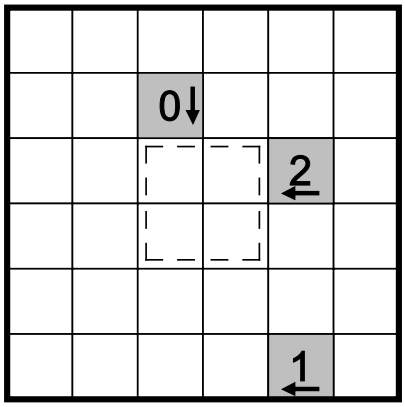
Cells with letters need to share certain properties with the cells in the counterpart puzzles in The Wall puzzles, according to the following rules:

- *Cells that share a letter with the Simple Loop puzzle in The Wall will have identical line segments (letter cells are guaranteed to not have black squares in Simple Loop).*
- *Cells that share a letter with the Windows puzzle in The Wall will have identical colour (black or white, but not grey).*
- *Cells that share a letter with the Easy as 123 puzzle in The Wall must have an identical digit. In case the Wall puzzle has an empty square at the letter, a zero must be used for the Castle puzzle.*

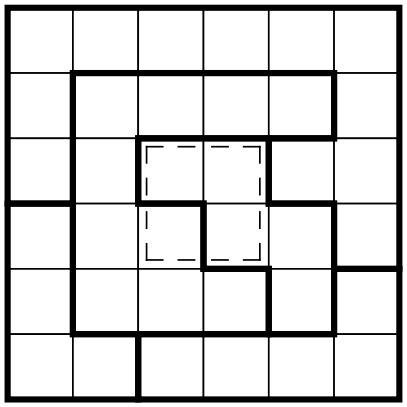


Example Round

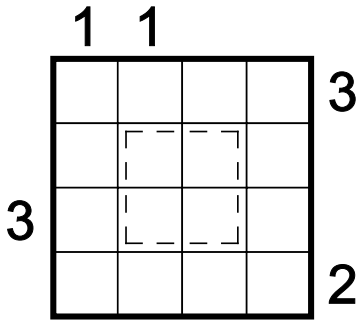
The Great Plains



Yajilin

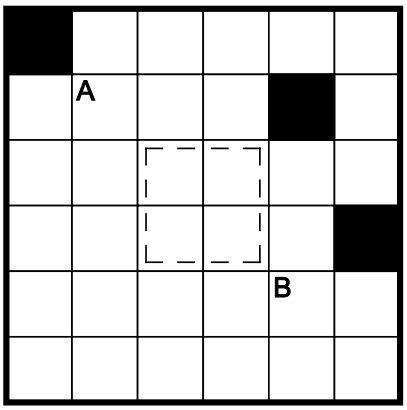


LITS

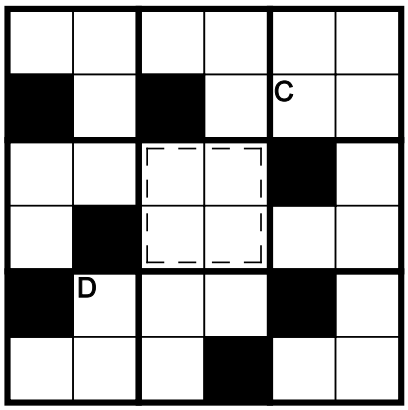


Easy as 123

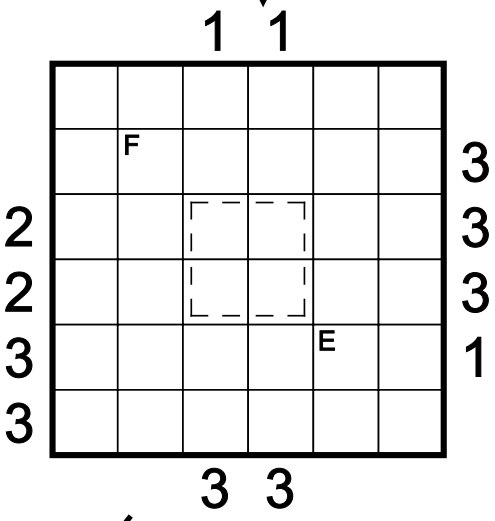
The Wall



Simple Loop

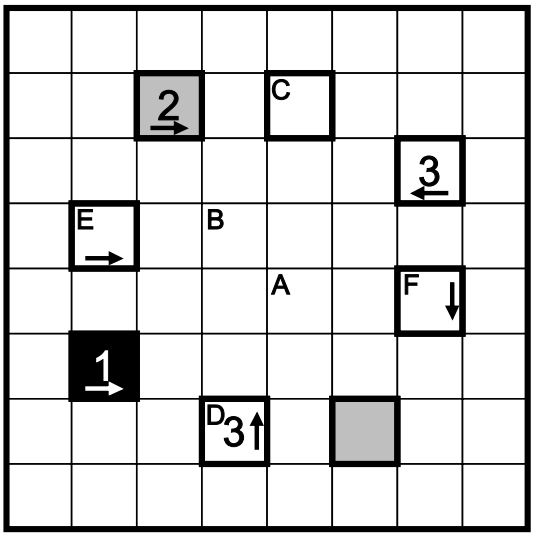


Windows



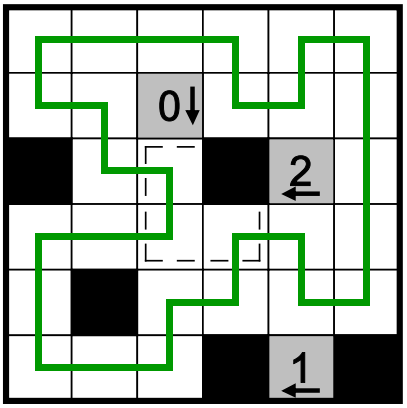
Easy as 123

The Castle

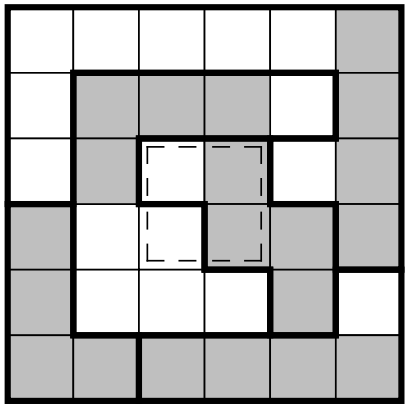


Castle Wall

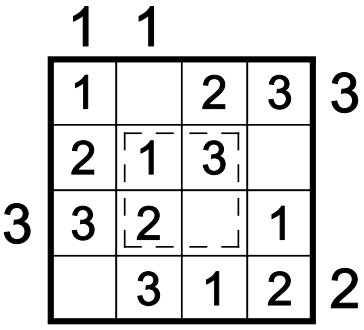
Example Round – Solution



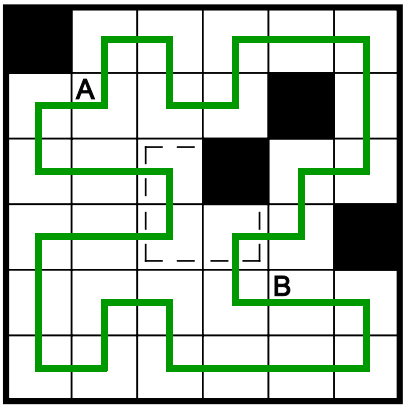
Yajilin



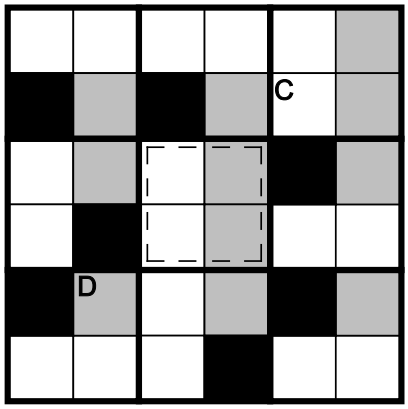
LITS



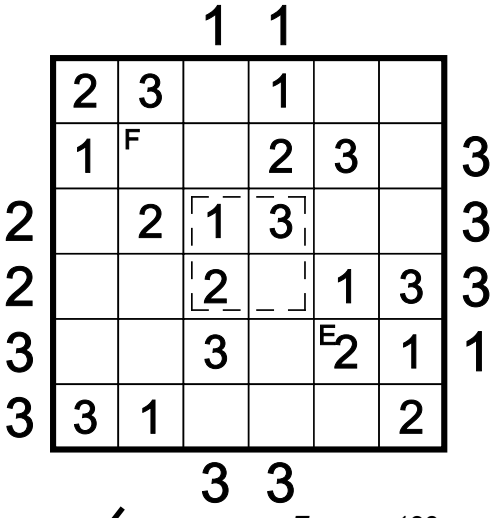
Easy as 123



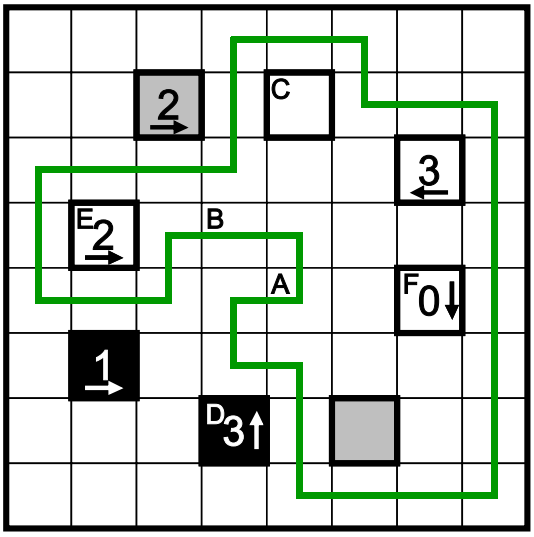
Simple Loop



Windows



Easy as 123



Castle Wall

ROUND 12	Hexa Hungary	
Individual round	35 minutes	400 points

Overview

[Round design by Zoltán Horváth]

This is a single shading puzzle over the (approximate) map of Hungary.

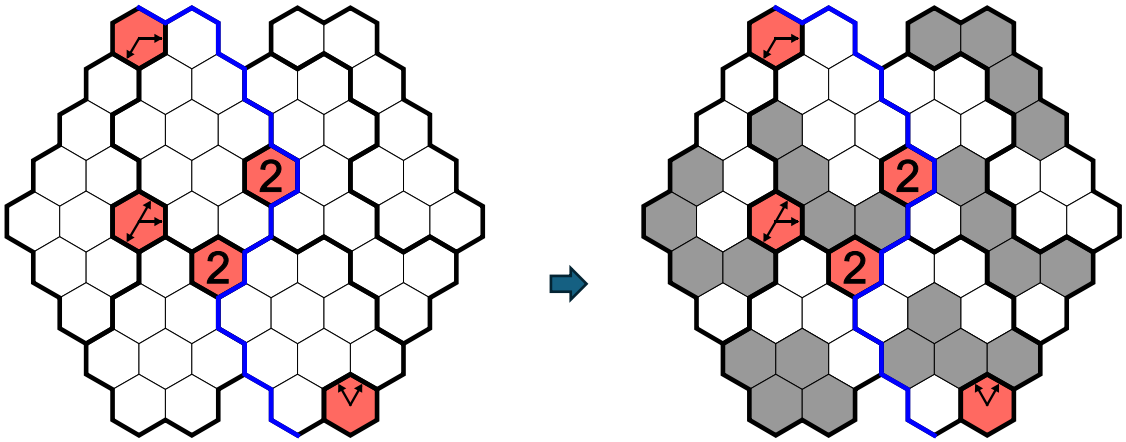
Rules

Shade some cells in the grid so that there are exactly six connected shaded cells in every region (four in the example puzzle below). If two adjacent cells belong to different regions, they cannot both be shaded. Number clues indicate the number of the adjacent cells (out of up to six) that are shaded. Arrow clues indicate all directions (out of up to six) where shaded cells appear closest. The arrows' range of visibility is not blocked by clue cells, region or puzzle boundaries.

Cells with number clues or arrow clues are considered (and must remain) unshaded, even though they are highlighted. The colouring of the thick lines only serves aesthetic purposes and can be ignored – all thick lines define regions no matter their colour.

Scoring

Partial scoring is available in this round. Each region is worth 10 points, these points shall be granted if and only if there are exactly six cells shaded in the region and the region's shading matches the solution exactly. There are 37 regions in the competition puzzle.



ROUND 13	Pangaea Proxima	
Team round	45 minutes	2000 points

Overview

In this round, there are eight puzzles in total.

The first seven puzzles can be solved independently of each other and they represent the seven continents with the approximate shapes of their mainlands („continent puzzles”).

The eighth puzzle („Pangaea-puzzle”) represents Pangaea, a super-continent that existed before the currently known continents were formed; some theories assert its next version may be formed in the far future (hence the round naming). This puzzle can be solved using the outcome of the first seven puzzles, as detailed below.

General rules

Each of the continent puzzles is a combination of two distinct sub-puzzles (three for Asia) – in some cases of different types. The whereabouts and the boundaries of the sub-puzzles is not given: finding the line(s) of division between them is also part of the continent puzzle. All sub-puzzles consist of connected regions that are also connected to the edge of the continent puzzle (no „islands” allowed); every cell of the puzzle must be part of exactly one sub-puzzle.

By identifying and solving the sub-puzzles correctly, you get a solution in which the continent shape gets divided into two connected parts (three for Asia). The division lines consist of grid lines only and must fully separate the pieces from each other, according to any further rules specified in the individual puzzles.

Upon solving the continent puzzles correctly, the Pangaea puzzle will require the shapes of the divided continent puzzles. You do not need to cut the papers to obtain those pieces physically. Instead, you will be given a 3D printed version of each piece. Then you need to use these pieces to solve the Pangaea puzzle.

Handling

At the beginning of the round, only the continent puzzles will be distributed to teams in an envelope, along with the Pangaea-puzzle’s grid. However, the Pangaea-puzzle pieces will be carried by the room helpers.

When a team believes they completely solved one of the continent puzzles, first they need to ensure that they drew the sub-puzzle boundaries in a very visible way. Then they must signal to the room helper nearby for checking that puzzle. The helpers will not be checking the puzzle solutions in detail, they will be instructed to only look at the sub-puzzle boundaries. When they believe the boundary is correct, the helper will give the team the 3D pieces for that puzzle (which, expectedly, will be the same shapes as those in the puzzle).

It is these pieces that need to be used to solve the Pangaea-puzzle. Teams are free to determine when to start working on the Pangaea-puzzle – as soon as they receive some pieces, it may be possible to make progress in that puzzle.

When a team is ready with the entire round (or when the time for the round expires), teams must put all their continent puzzles back into the same envelope they received them in. We ask teams to leave the Pangaea puzzle and the 3D printed elements on the team desk.

It is strictly forbidden for competitors, captains and guests to touch any other team’s desk or anything on top of it during or after the round, up to the point of leaving the room.

Scoring

All puzzles are assigned point values as detailed with their instructions.

Partial scores are available in this round: for continent puzzles, if at least one of the sub-puzzles is solved correctly, that sub-puzzle will be awarded 160 points in case of the Asia puzzle, and half the score associated with the puzzle for all the other puzzles.

Please note that if the boundary between two sub-puzzles is incorrectly drawn, that renders both sub-puzzles to have been solved incorrectly. If the boundary is not completely drawn but can be inferred from the solution, then this alone will not prevent the sub-puzzles from scoring (but will block the team's ability to receive Pangaea pieces).

In the Pangaea-puzzle, any piece placed correctly will earn 20 points, as long as the piece does not overlap with any other pieces and its placement is the same as that in the final solution of the entire puzzle.

Puzzle 01 – Africa

[Zoltán Németh]

Scrabble + Nurikabe Snakes [260 points]

This is a combination of two distinct sub-puzzles: Scrabble and Nurikabe Snakes.

Scrabble rules
Place some of the given words into the grid so that each word can be read across or down and all letters form a single connected group. Ignore any spaces in the words. No other strings should be formed anywhere in the grid except for the listed words. The first letter of each word is given in the grid.

Nurikabe Snakes rules
Shade some empty cells black so that the grid is divided into white areas. These white areas must all take the shape of a snake (i.e. a that of a one-cell wide path without self-touching in any way, branching or containing a 2x2 area) and each of them must contain exactly one given letter at one end of the snake. Two white areas may only touch diagonally. All blackened cells form one connected group but no 2x2 group of cells can be shaded entirely black.

Then place some of the given words into the white areas such that each word completely fills its white area. The letter given in the area must be the first letter of the word.

It is not specified which words go into each sub-puzzle, but each word must be used exactly once in total.

Division rules
The division line cannot share an edge with an empty cell from the Scrabble part. The division line also cannot share an edge with a word cell from the Nurikabe Snakes part.

N			E					F
				S				
				T				
				O				

N	■	I	E	■	■	■	■	F
I	■	G	■	S	I	X	■	I
N	■	H	■	■	■	■	■	V
E	■	T	■	T	H	R	E	E
T	■	Y	■	W				
Y	■	■	■	O	N	E		

ONE
TWO
SIX
FIVE
THREE
EIGHTY
NINETY

Puzzle 02 – Antarctica

[Viktor Samu]

Ice Walk + Double Choco [200 points]

This is a combination of two distinct sub-puzzles: Ice Walk and Double Choco.

Ice Walk rules

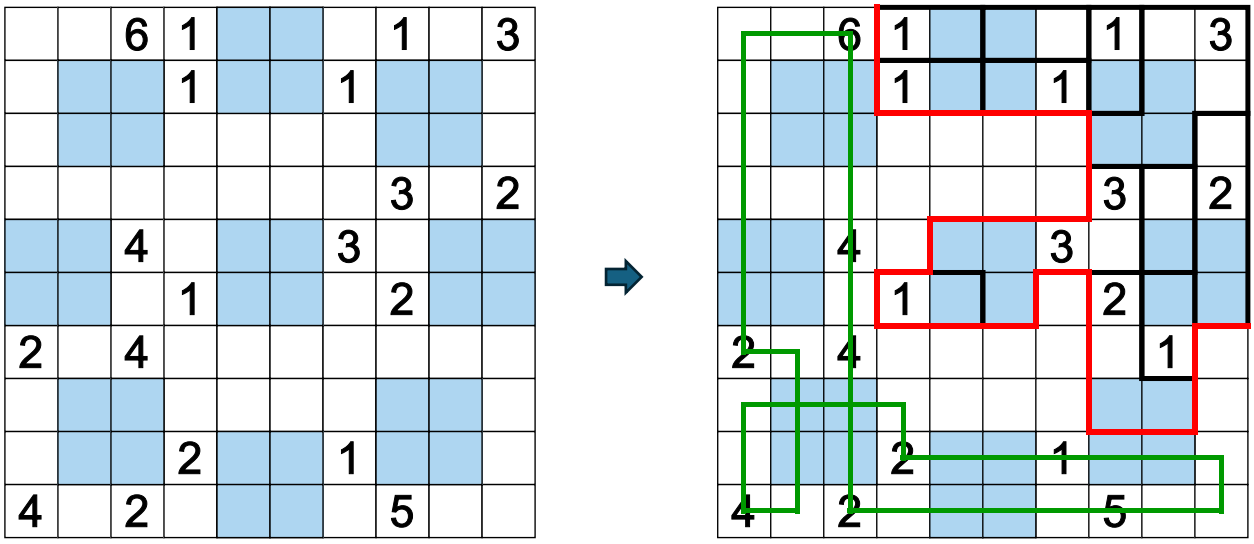
Draw a single closed loop through some of the cells. The loop may cross itself but only on shaded (“icy”) cells. The loop cannot make a turn on shaded (“icy”) cells. The loop must go through all given numbers and each number indicates how many cells make up the continuous unshaded (“non-icy”) section of the loop that the number is on.

The loop must go through at least one cell of every shaded region within the Ice Walk sub-puzzle. If two or more shaded regions are not connected within the Ice Walk sub-puzzle but connected when considering the entire puzzle, then they need to be considered as separate regions for the Ice Walk sub-puzzle and the loop needs to go through each of them.

Double Choco rules

Divide the grid into regions of connected cells, each containing a connected group of shaded cells and a connected group of unshaded cells, such that the shape of the shaded group is identical to the shape of the unshaded group (allowing rotations and reflections).

Each number indicates the size of shaded/unshaded group within the region it belongs to. Regions may contain zero, one or more than one numbers.



Puzzle 03 – Asia

[Zoltán Horváth]

Heyawake + Island Nations + LITS (size) [500 points]

This is a combination of three sub-puzzles: Heyawake, Island Nations and LITS (size).

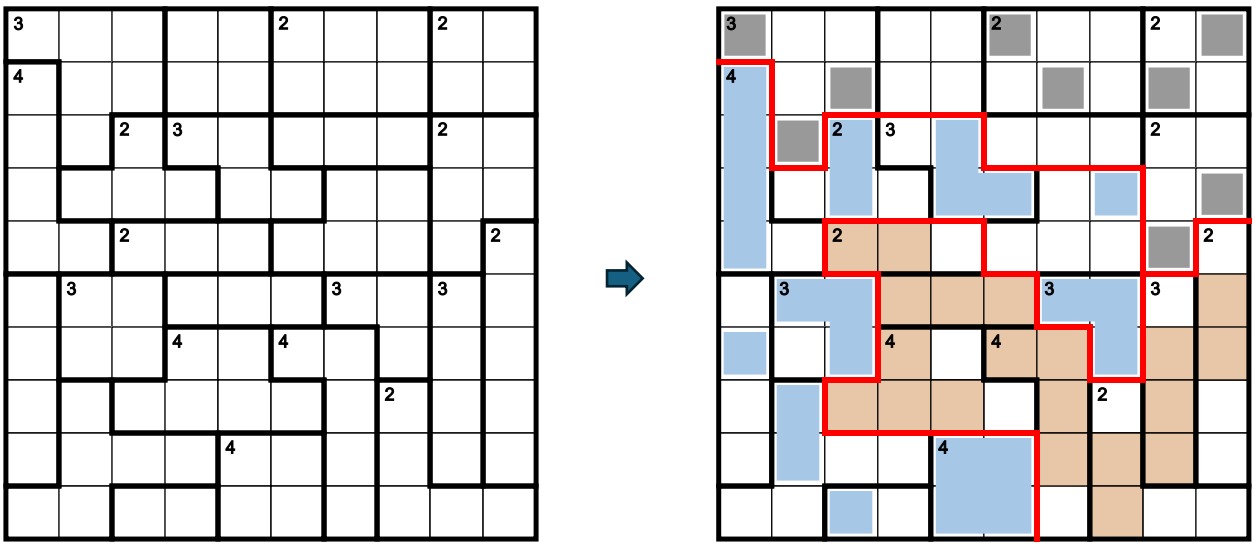
Note that sub-puzzle rules only apply to regions and cells that are in the same sub-puzzle.

Heyawake rules
Shade some cells black so that all remaining white cells are connected as part of a single connected group. Shaded cells cannot share an edge. No unbroken sequence of white cells in any row or column can cross two thick boundaries. A number in a region indicates the number of shaded cells in that region. Cells with numbers can be shaded over.

Island Nations rules
Shade a polyomino (of any non-zero size) within each region so that regions sharing an edge cannot have polyominoes of the same size. Polyominoes cannot share an edge. A number in a region indicates the size of the polyomino in that region.

LITS (size) rules
Shade a polyomino (of any non-zero size) in each outlined region, so that the following 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 polyominoes in adjacent regions share an edge, they must not be of the same size; (4) a number in a region indicates the size of the polyomino in that region.

Division rules
The division lines must follow the given thick region borders.



Puzzle 04 – Australia

[Zoltán Németh]

Shikaku (upside down?) [80 points]

This is a combination of two Shikaku puzzles.

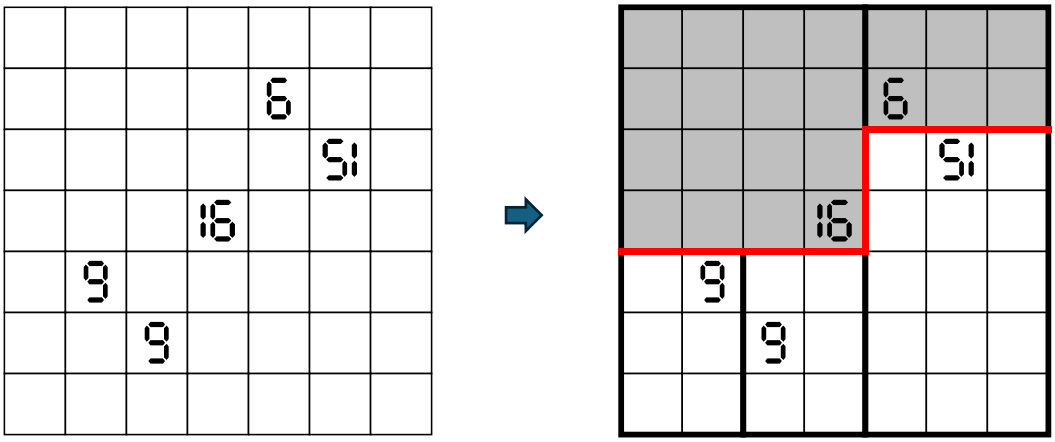
In one of the puzzles, all numbers are shown upside down. In the other puzzle, all numbers are shown oriented normally.

Shikaku rules

Divide the grid into non-overlapping rectangles so that each rectangle contains exactly one number and that number equals to the area of the rectangle. Every cell must belong to exactly one rectangle.

Division rules

The puzzle must be divided into two sub-puzzles such that all rectangles with an upside down number must be entirely in one of them; all rectangles with a number oriented normally must be entirely in the other.



Puzzle 05 – Europe

[Zoltán Horváth]

Ripple Effect + Suguru [280 points]

This is a combination of two distinct sub-puzzles: Ripple Effect and Suguru.

Note that the individual puzzle rules only apply to regions and cells that are in the same sub-puzzle, but in the “Ripple effect” sub-puzzle, the scope of the ripple rule may involve bridging over puzzle or sub-puzzle boundaries. See R2C7 and R7C7 in the example below: those 4’s are (required to be) separated by at least 4 cells between them, even though those 4 cells do not belong to the same sub-puzzle.

Ripple Effect rules
Enter a number into each cell such that every region contains the numbers from 1 to N exacly once, where N is the size of the region. If two identical numbers appear in the same row or column, then at least that many cells or an equivalent distance must separate them.

Suguru rules
Enter a number into each cell such that every region contains the numbers from 1 to N exacly once, where N is the size of the region. Cells containing identical numbers cannot share an edge or a corner.

Division rules
The division lines must follow the given thick region borders.

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

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

Puzzle 06 – North America

[Zoltán Horváth]

Double Country Road [240 points]

This is a combination of two Country Road puzzles.

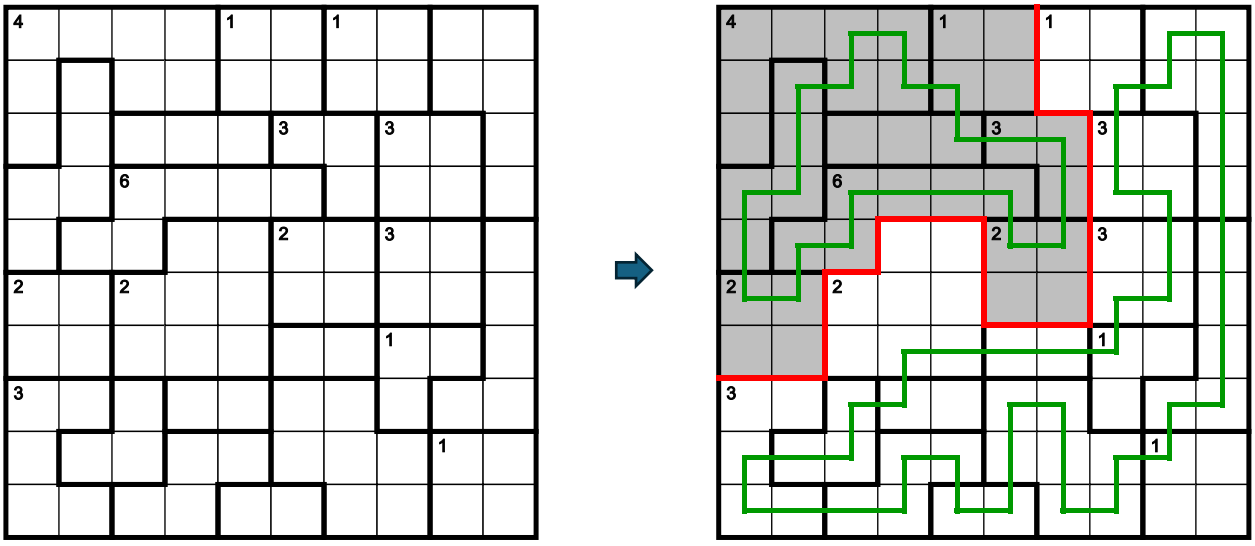
Note that the individual puzzle rules only apply within the area of the puzzle part but not necessarily across division lines. See R6C5 and R6C6 in the example below.

Country Road rules

Draw a single, non-intersecting loop in the grid that enters and exits each region exactly once. If a number clue is given in a region, that number indicates the number of cells used by the loop in that region. Cells not visited by the loop cannot share an edge across different regions.

Division rules

The division lines must follow the given region borders in a way that the regions containing one of the loops must be entirely in one sub-puzzle; the regions containing the other loop must be entirely in the other sub-puzzle.



Puzzle 07 – South America

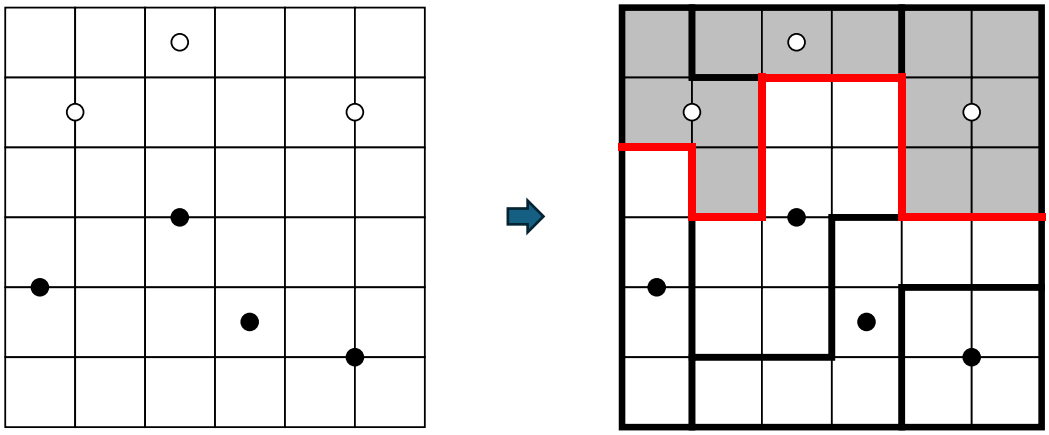
[Zoltán Németh]

Double Galaxies [140 points]

This is a combination of two Galaxies sub-puzzles.

Galaxies rules
Divide the grid into connected regions with rotational symmetry. Each region must have exactly one circle at its centre of rotational symmetry.

Division rules
All regions with white circles must be entirely in one sub-puzzle; all regions with black circles must be entirely in the other.



Puzzle 08 – Pangaea Proxima

Shape Filler [300 points]

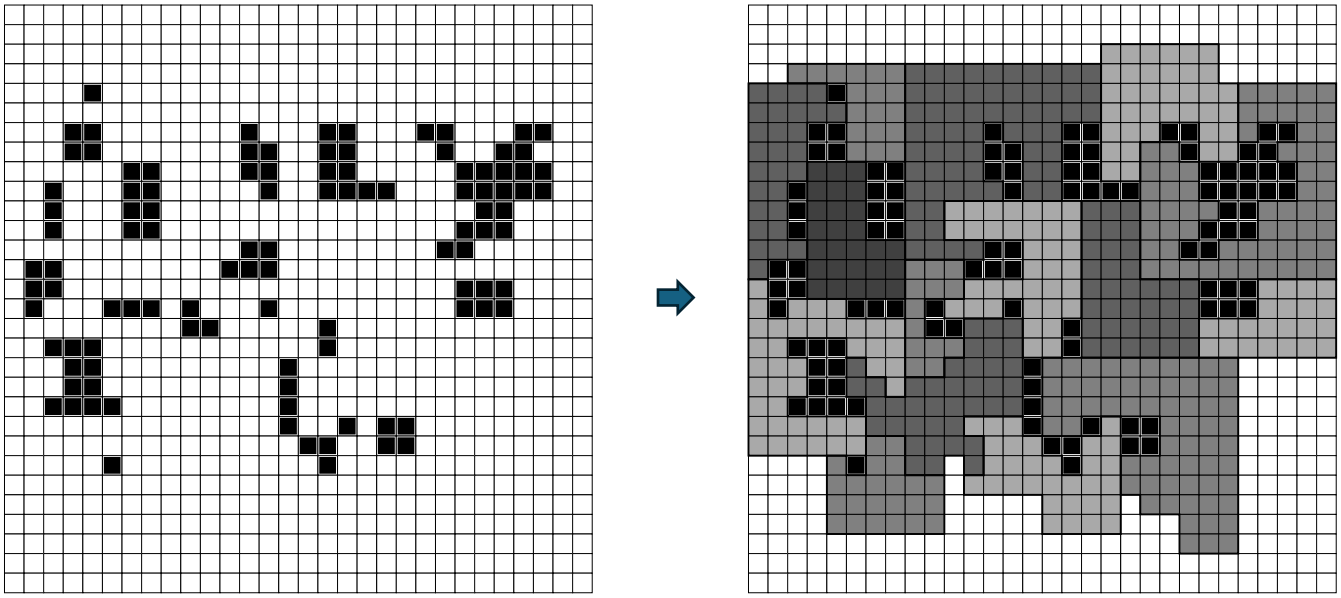
[Viktor Samu]

Place all the given shapes onto the grid so that they do not overlap each other and no black cell in the grid is covered. Shapes may be rotated but they must not be reflected / flipped over.

In the final solution, each cell of the grid that is not covered by a shape and is not orthogonally connected to the edge of the grid is shaded black. All possible black cells are given.

In this example puzzle, the shapes obtained from the previous seven puzzles are used.

In the competition puzzles, the 3D printed pieces will have one of their sides painted, that side should be facing upwards. The other, white side should be facing downwards.



ROUND 14	Solar System	
Team round	75 minutes	3000 points

Overview

In this round, there are nine puzzles in total.

The first eight puzzles can be solved independently of each other and they represent the eight major planets in the Solar System ("planet puzzles"). The ninth puzzle ("Solar System puzzle"), fittingly, represents the Solar System and can be solved using the outcome of the first eight puzzles, as detailed below.

Planet puzzles – general rules

Each of the planet puzzles has a three-layered circular layout and will be handed out to competitors as such.

The puzzles consist of three circle shaped pieces of paper ("rings") that will be assembled together: the three rings are placed on top of each other (size increasing top-down) so that their centre points are aligned, and they are attached to each other using their centre points. However, it is possible (and necessary) to rotate the rings relative to each other. It is strictly forbidden to disassemble the puzzles.

For this round, the following definitions apply to all planet puzzles:

- "row" – all cells in the puzzle that are of the same distance from the centre point.
- "column" – all cells in the puzzle that are in the same direction from the centre point.
- "horizontal" – travelling across a "row"
- "vertical" – travelling across a "column"
- "length", when travelling across "rows" and/or "columns" – the number of cell boundaries crossed, rather than any actual distance
- "size" of a region – the number of cells it consists of, rather than its actual area
- "shape" of a region – to be interpreted based on the connectivity of the cells involved, rather than any actual geometric properties. E.g. a region of three connected cells in the same "row" and another region of three connected cells in the same "column" are considered to have the same "shape".

There are many ways that the radial grid lines align, but it is part of the puzzle to figure out the correct rotation of the rings relative to each other. Each planet puzzle has a unique solution. This means that there is exactly one configuration of the rings that yield at least one solution; and that configuration yields exactly one solution.

Solar System puzzle – prerequisites

In the centre area of every planet puzzle there is the name of one of the planets (as indicated in the title of the puzzles), along with two arrows pointing outwards. On the outer ring, each sector is labelled with either the name of a different planet or the Sun.

When a planet puzzle is solved correctly, meaning its rings are positioned correctly, those arrows indicate the two targets from that planet. This becomes relevant for solving the Solar System puzzle.

Handling

The planet puzzles and the tokens will be given to teams in an envelope. The Solar System puzzle will be printed on a single sheet of paper and will be placed onto the team table.

To hand in solutions, please ensure that at the end of the round (or when you choose to submit your solutions, if earlier) all planet puzzles are put back into the same envelope you received them in. The score will be awarded for these puzzles if the correct solution is drawn onto all its rings, irrespective of their rotations.

For the Solar System puzzle, once you identified the location of the tokens, please make sure you mark these locations clearly on the puzzle sheet. There is no need to draw arrows, let alone be exact about their directions. Instead it is sufficient to just identify the spot of each token. The score for this round will be awarded if there is exactly one clear marking on every planet's orbit and it matches with the correct solution. Then please fold the Solar System puzzle sheet and place it into the envelope as well.

Scoring

All puzzles in this round are assigned point values as detailed with their instructions.

Partial scores are available for planet puzzles: an attempt that differs from the correct solution of that puzzle impacting no more than five cells shall be considered "almost correct" as long as, in the opinion of the judges, a genuine attempt was made to complete that puzzle. An "almost correct" solution will be awarded 50% of the score available for that puzzle.

Competition puzzles – authors as indicated

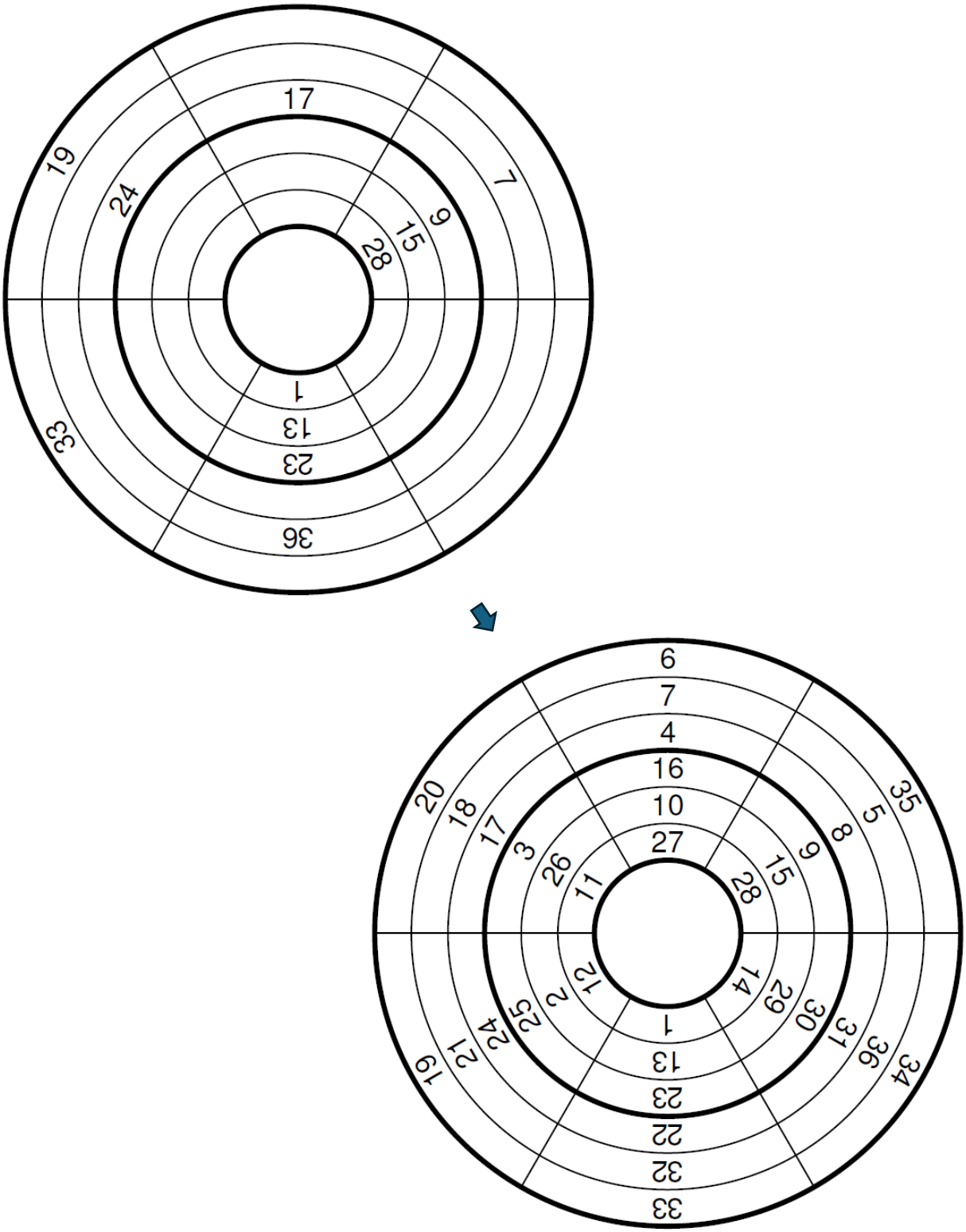
Example puzzles: Viktor Samu (planet puzzles), Pál Madarassy (Solar System puzzle)

Puzzle 01 – Hidato (Mercury) [400 points]

[Kartal Nagy]

Enter exactly one number into every empty cell of the grid. The grid must contain every number from 1 to N exactly once (where N is the total count of cells in the grid). If two of these numbers differ by one, their cells must share an edge or a corner.

In other words, there exists a path from the cell with 1 to the cell with N that visits all cells in the order of their numbers ascending, and consecutive cells share at least a point.



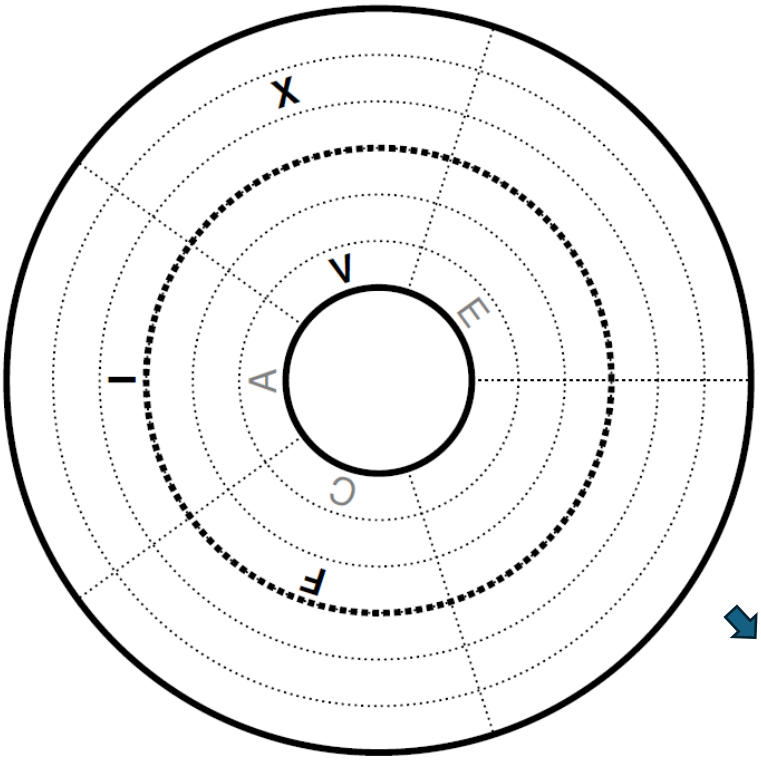
Puzzle 02 – Pentominous (Venus) [400 points]

[Kartal Nagy]

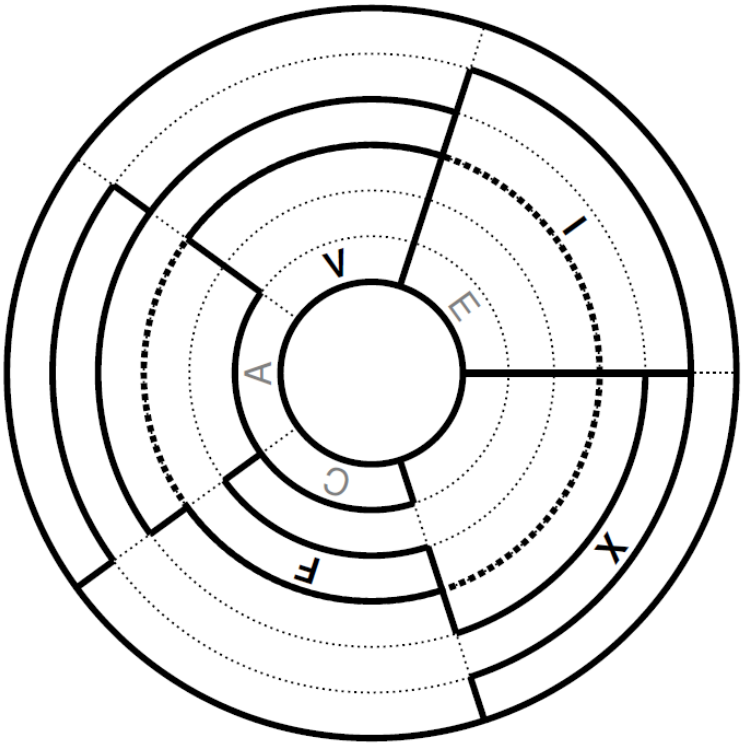
Divide the grid into regions that have a “size” of exactly five (5) so that no two regions of the same “shape” (including rotations/reflections) share an edge. A cell with a letter in it must be part of a region whose “shape” is that of the pentomino normally associated with that letter.

The list of pentominos and their letter associations will not be separately provided for this round, but can be found in this Instruction Booklet, e.g. under Round 09 Puzzle 19-20 (Pentonuri Romanis).

Ignore all letters typeset in grey. These are letters that are not normally associated with a pentomino shape (e.g. C, A, E in the example) and serve no purpose in the puzzle, other than aesthetics. Every letter that is normally associated with a pentomino shape will be typeset in bold black and does serve as a clue.



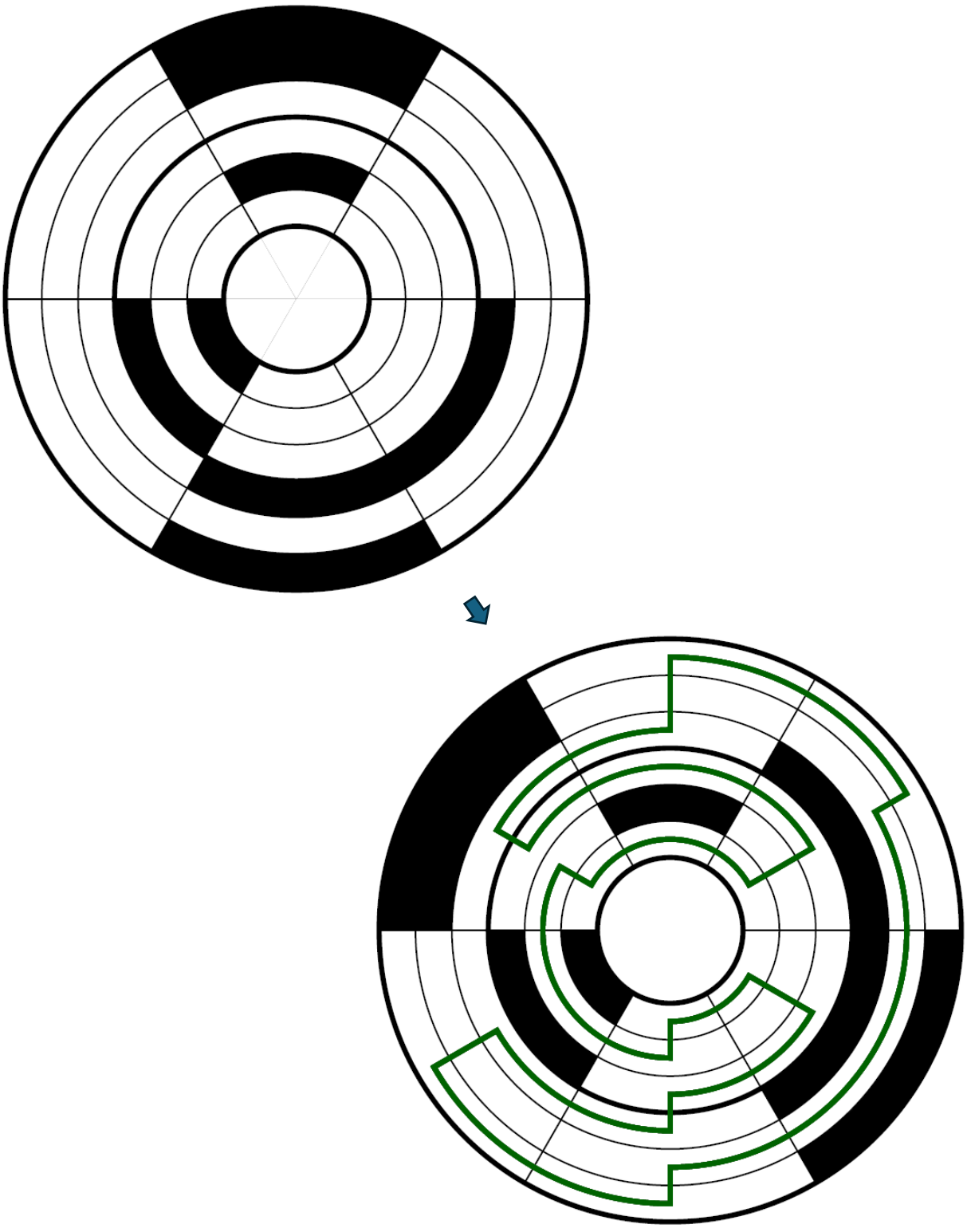
(In the example puzzle an I-shape could theoretically wrap around to touch itself. The competition puzzle has more than 5 sectors so this possibility never comes around.)



Puzzle 03 – Simple Loop (Earth) [300 points]

[Kartal Nagy]

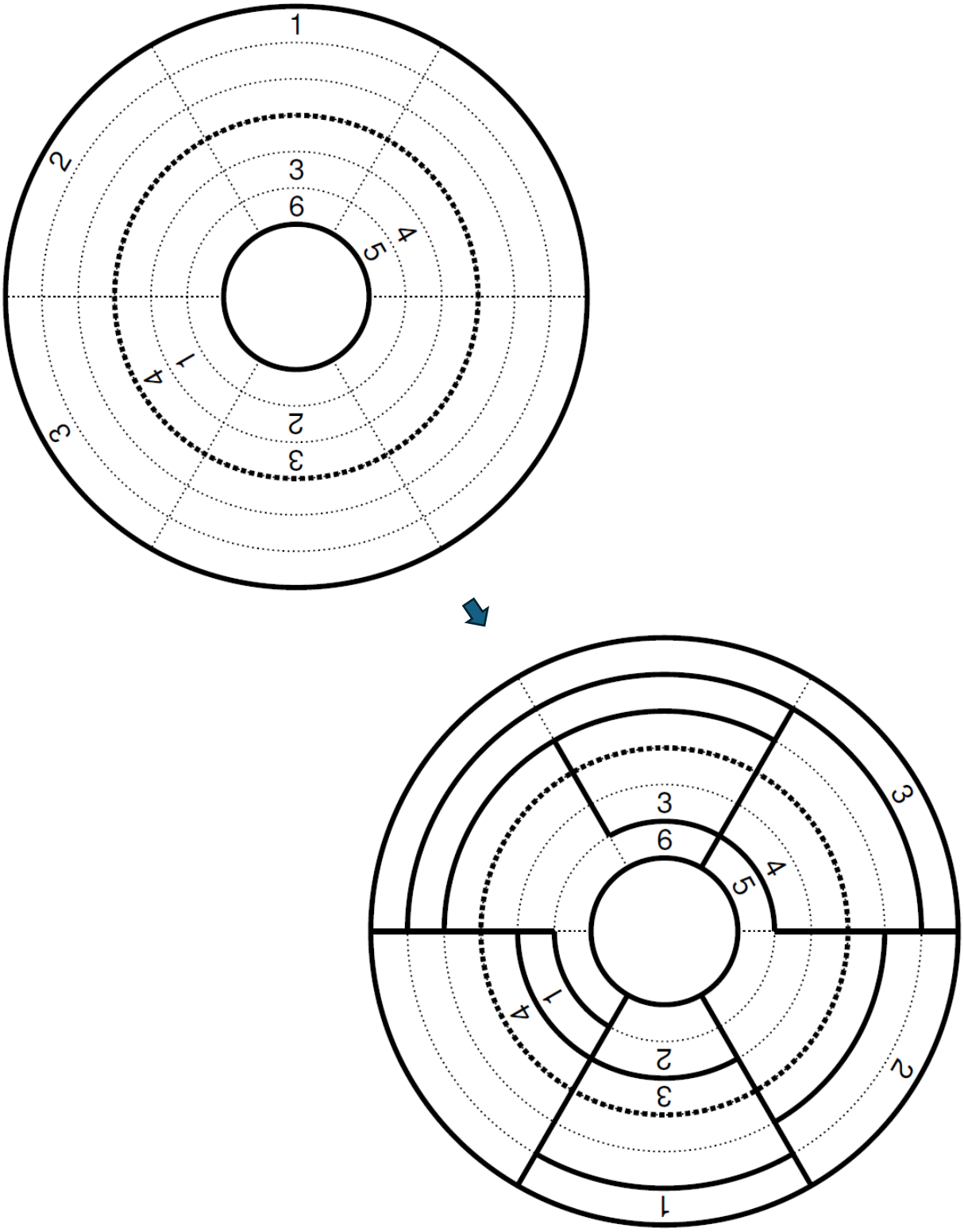
Draw a single closed loop without overlaps or intersections through all unshaded cells. The loop can only contain “horizontal” or “vertical” segments. Every unshaded cell is visited exactly once.



Puzzle 04 – Fillomino (Mars) [500 points]

[Kartal Nagy]

Divide the grid into regions so that no two regions of the same “size” share an edge. Any number in an unshaded cell must be equal to the “size” of the region it belongs to. A region can contain zero, one or more numbers.

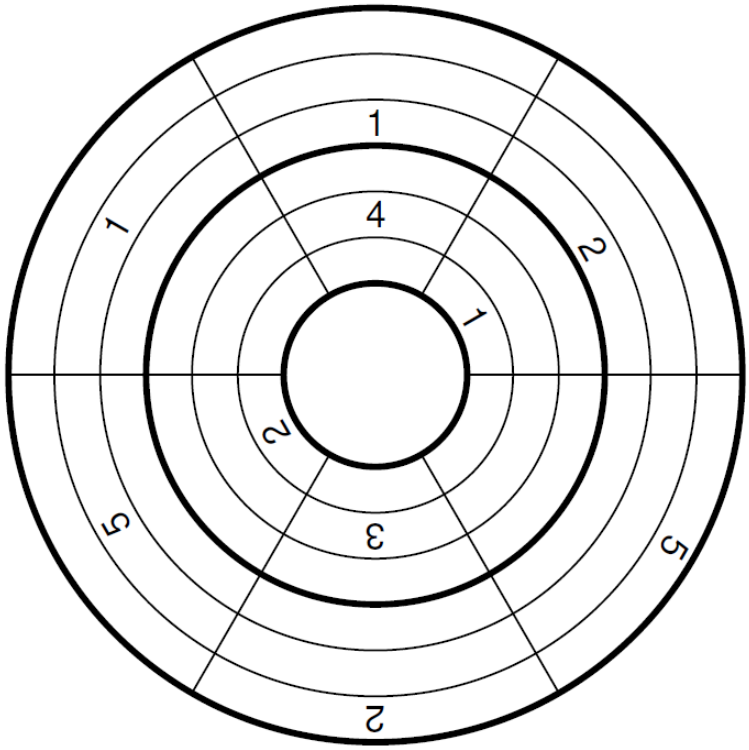


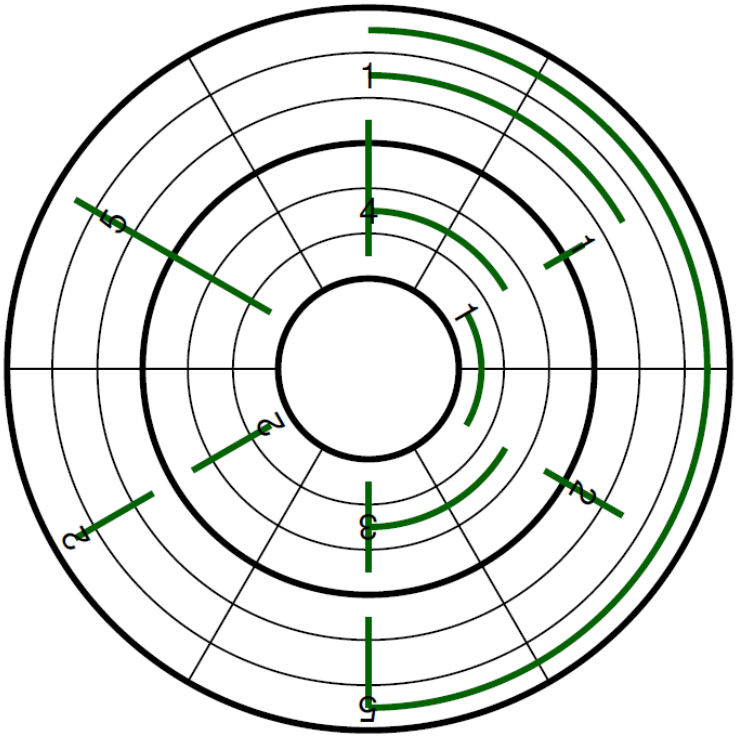
Puzzle 05 – Four Winds (Jupiter) [180 points]

[Kartal Nagy]

Draw some arrows starting from the numbers so that these arrows do not cross or overlap each other. Each arrow must travel either along a “row” or a “column”. All cells without a number are visited by exactly one arrow.

Each number denotes the total “length” of the arrows starting from its cell.





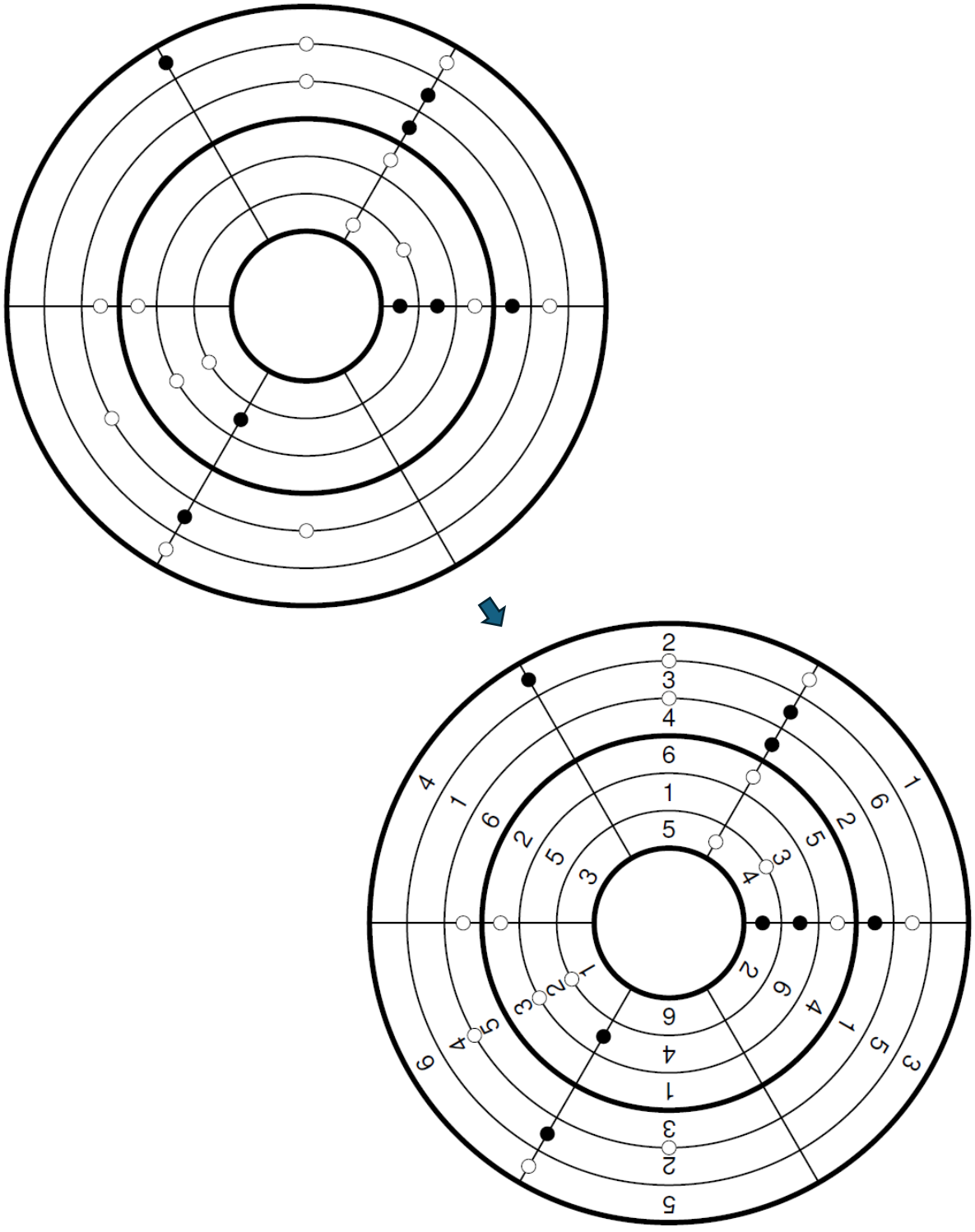
Puzzle 06 – Kropki (Saturn) [340 points]

[Zoltán Horváth]

Enter exactly one number between 1-N into every empty cell of the grid, where N equals to the size of the grid (measured as the total number of cells in a “row” or “column”). Each “row” and each “column” contains each number exactly once.

A black dot is placed on the edge between two cells if the number in one of the cells is twice the number in the other cell. A white dot is placed on the edge between two cells if the numbers in those two cells are consecutive. Adjacent cells with the numbers 1 and 2 in them may have either a white or a black dot shown between them. All possible dot locations are given.

These rules also apply on the ring boundaries, but similarly to the example below, there will be no dots placed on those boundaries in the competition puzzle.



Puzzle 07 – Black Hole Tapa (Uranus) [400 points]

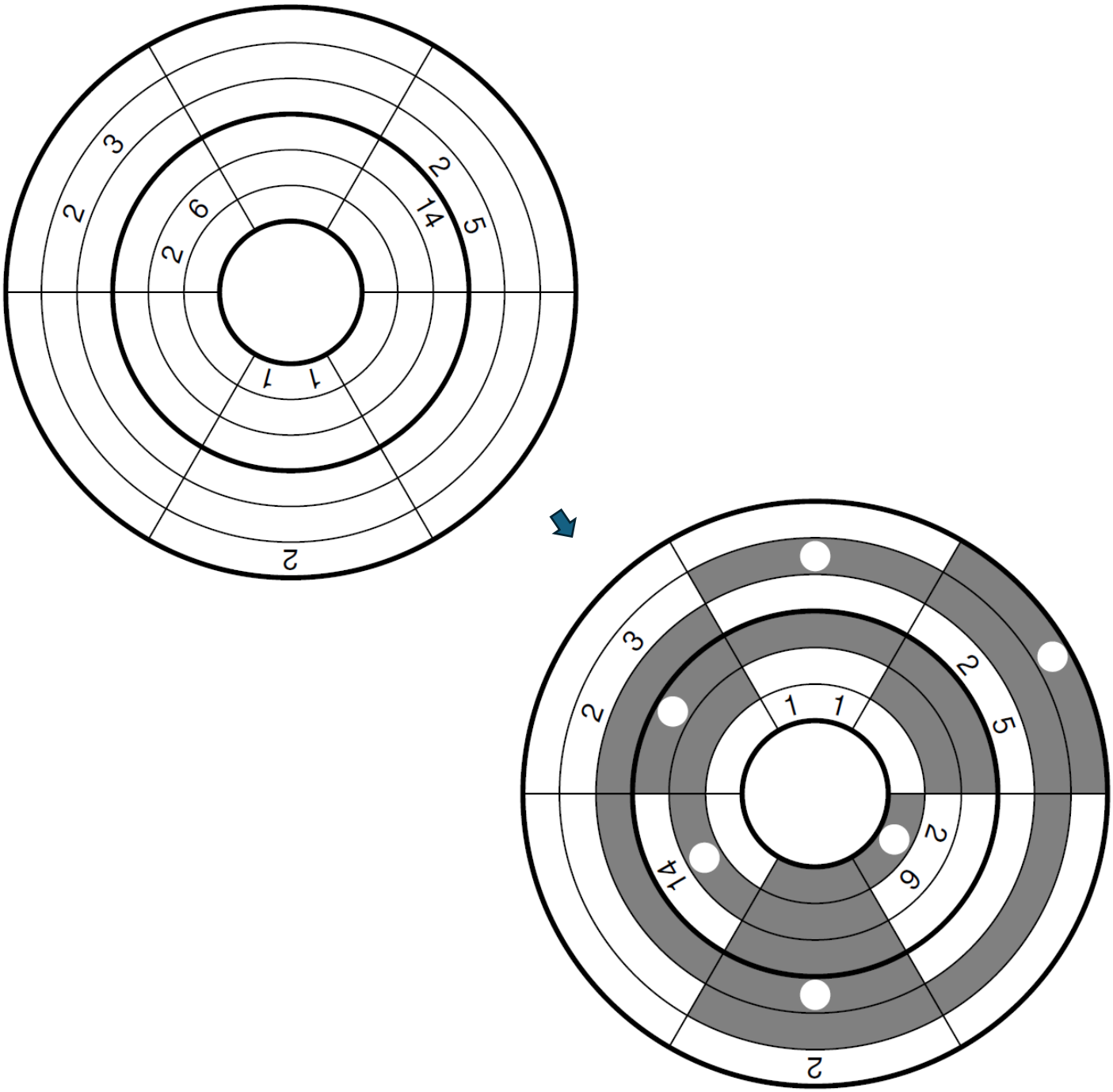
[Zoltán Horváth]

Shade some empty cells black to create a single connected wall. Cells with numbers cannot be shaded, and the shaded cells cannot form a 2×2 square anywhere in the grid.

Then find the location of black holes into the grid so that all of them must be placed into cells that are shaded. Each “row” and each “column” contains exactly one (1) black hole. Cells with black holes are allowed to share a corner.

Numbers in a cell indicate the size of consecutive shaded blocks in the (orthogonally or diagonally) neighbouring cells, measured as number of cells occupied by each shaded block. 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. Please ensure you take note of the different spacing of two single-digit numbers vs one double-digit number (1,1 vs 14 below).

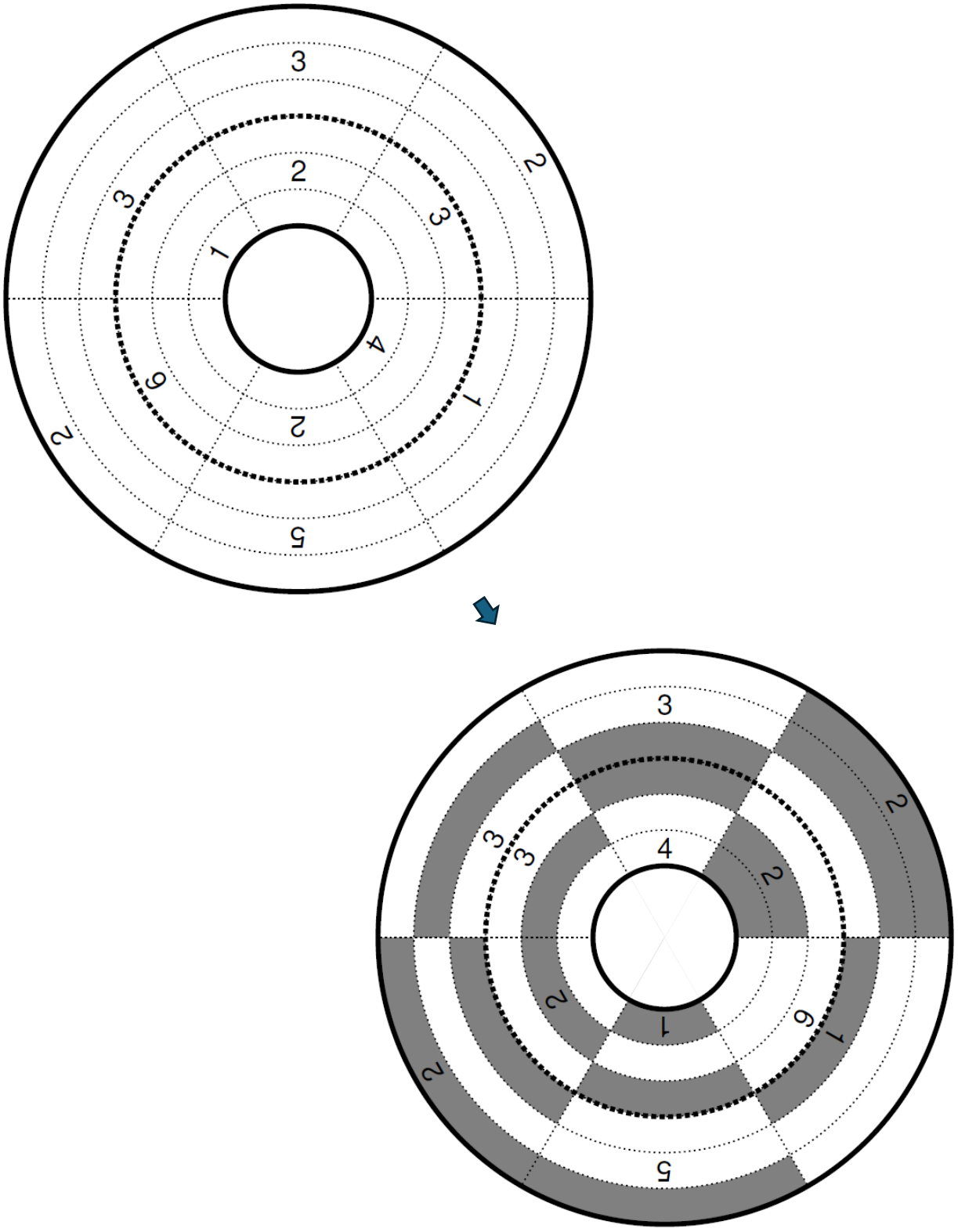
A black hole counts as exactly three (3) for the purposes of calculating block sizes for numbers in a cell (instead of 1).



Puzzle 08 – Choco Banana (Neptune) [280 points]

[Viktor Samu]

Shade some cells in the grid – cells with numbers can be shaded over. Connected shaded regions must have a rectangular “shape”. Connected unshaded regions must not have a rectangular “shape”. Each cell with a number must belong to a region whose “size” is equal to that number. A shaded or unshaded region may contain zero, one or more numbers.

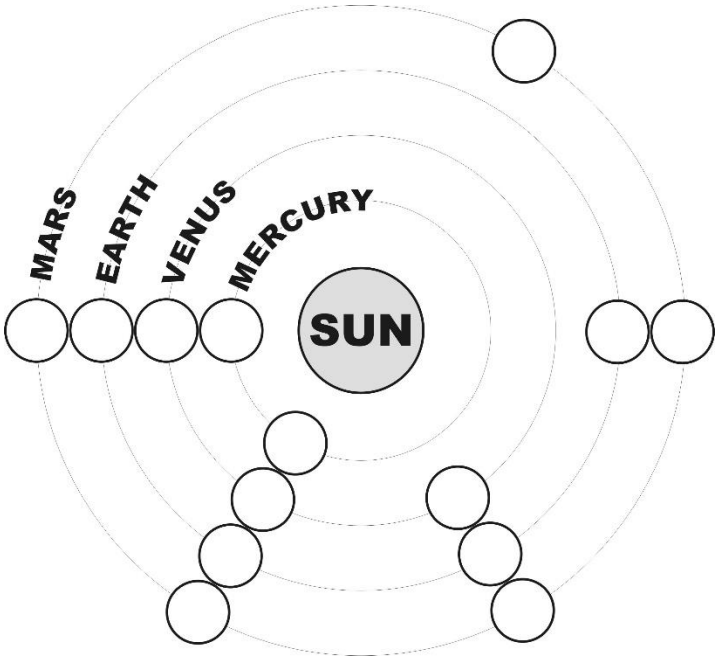


Puzzle 09 – Solar System [200 points]

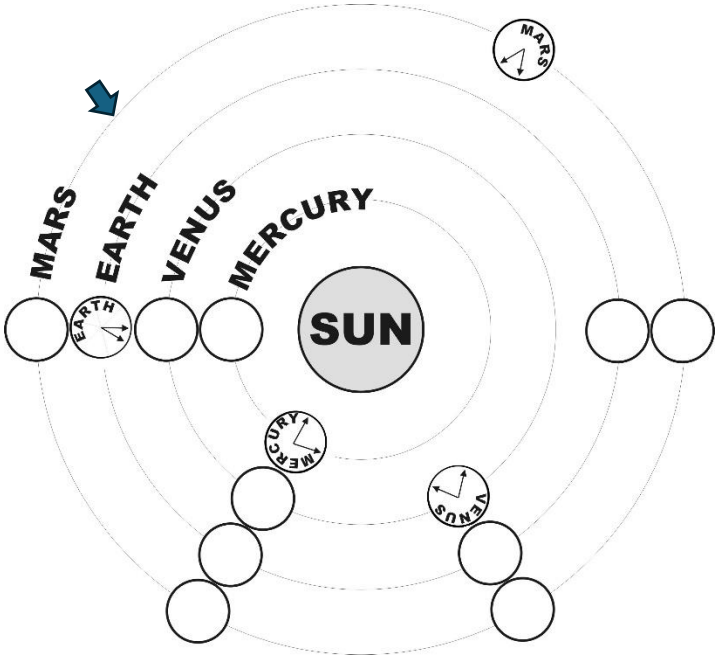
[Pál Madarassy]

Place the planet tokens onto the map so that each planet ends up in one of the designated spots on its own orbit. The side with the arrows on each token must face upwards and those two arrows must point to the exact direction of the location of the targeted tokens (or the Sun, if that was identified as a target).

To identify the targets of the arrows, please refer to the “Solar System puzzle – prerequisites” section at the beginning of the description of this round. But here we provide an explained example: in the Hidato example puzzle, the correct solution is based on rotating the rings in a position where the two arrows on the center token points to sectors that have “Sun” and “Venus” written on their exterior (please check the solutions in the round’s Appendix, as these links are only provided there). Therefore, in the Solar System puzzle, the “Mercury” token needs to be placed so that one of its arrows must point towards the Sun and the other arrow points towards the placed Venus token.



Token	Targets pointed at
	Sun, Venus
	Mercury, Mars
	Sun, Mercury
	Venus, Earth



ROUND 15	Singularity	
Individual round	50 minutes	900 points

Overview

In this round, each puzzle revolves around a singular number, defined by the following rules:

- Every given clue in the puzzle is equal to this singular number.
- All possibly valid clues that could be equal to the singular number are explicitly provided (see puzzle specific rules).

General notes:

- In this round, the absence of clues matters in every puzzle. For example, in the Singular Cave puzzle shown below: solving it as a standard Cave puzzle yields multiple solutions. However, once you apply the rule that all possible “3” clues are given – meaning no unshaded cell can contain another valid “3” clue – the solution becomes unique.
- If the singular number is 1, and a clue like 11 could theoretically appear, it would not be provided. The rule applies to numbers, not digits.
- If a non-clue cell becomes shaded or occupied by an artifact during solving, it is no longer considered a candidate for holding a clue. That is, such cells are excluded from the set of “possible clues”.

ROUND 15	Singularity

Singular Cave	**140 points**	[30 + 50 + 60]
Singular Akari	**120 points**	[60 + 25 + 35]
Singular Skyscrapers	**150 points**	[40 + 60 + 50]
Singular Slitherlink	**120 points**	[25 + 35 + 60]
Singular Compass	**170 points**	[40 + 70 + 60]
Singular Bosnian Road	**200 points**	[50 + 60 + 90]

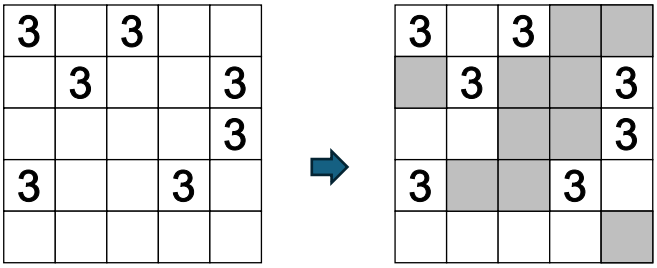
50 minutes **Maximum score: 900 points**

Puzzle 01-03 – Singular Cave [30+50+60 points]

[Zoltán Németh]

Shade some cells so that all unshaded cells are connected, and all shaded cells are connected to the border of the grid. Cells with numbers cannot be shaded. Numbers indicate the total count of unshaded cells that can be seen in all four directions, including the numbered cell itself.

Every cell that is unshaded in the final solution and could contain the singular number as a valid clue actually contains that number.

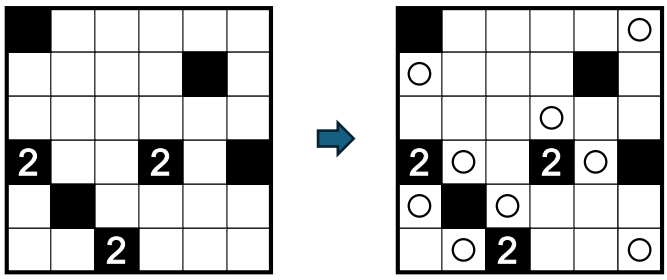


Puzzle 04-06 – Singular Akari [60+25+35 points]

[Péter Gyimesi]

Place light bulbs in some of the unshaded cells so that in the end all unshaded cells are illuminated. Each bulb illuminates the cell it is in, as well as all cells it sees in a straight line horizontally or vertically. Black cells obstruct visibility. No bulb can illuminate another bulb. Numbered black cells indicate how many of their orthogonally adjacent unshaded cells contain bulbs.

Every black cell that could contain the singular number as a valid clue actually contains that number.

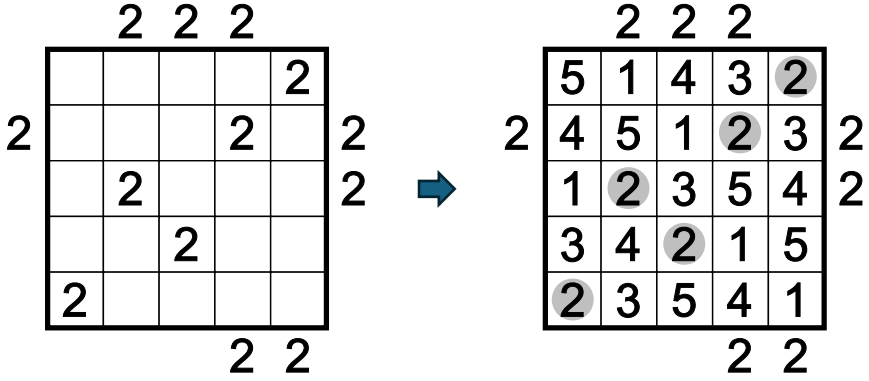


Puzzle 07-09 – Singular Skyscrapers [40+60+50 points]

[Gyula Slenker]

Enter a number from 1 to N into every cell, where N is the size of the grid, so that no number repeats in any row or column. Numbers outside the grid indicate how many cells in the corresponding row or column contain a larger number than all cells before it in that row or column from the direction of the clue.

Every cell inside or outside the grid that could contain the singular number either as a valid clue or as part of the correct solution actually contains that number.

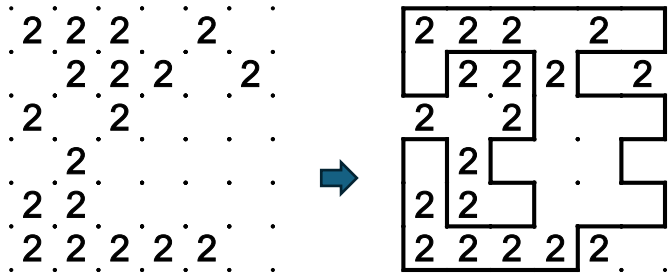


Puzzle 10-12 – Singular Slitherlink [25+35+60 points]

[Gyula Slenker]

Draw a single, non-intersecting loop into the grid that connects horizontally or vertically adjacent dots. Numbers inside a cell indicate how many of the edges of that cell are part of the loop.

Every cell that could contain the singular number as a valid clue actually contains that number.

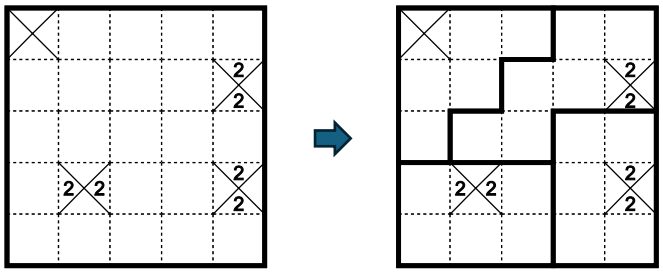


Puzzle 13-15 – Singular Compass [40+70+60 points]

[Kartal Nagy]

Divide the grid into regions of orthogonally connected cells, each containing exactly one compass. Each compass is divided into four quadrants, corresponding to the four cardinal directions: North (up), East (right), South (down) and West (left). A number in a compass quadrant indicates how many cells in its region lie further in that cardinal direction than the compass itself.

Every compass quadrant that could contain the singular number as a valid clue actually contains that number.

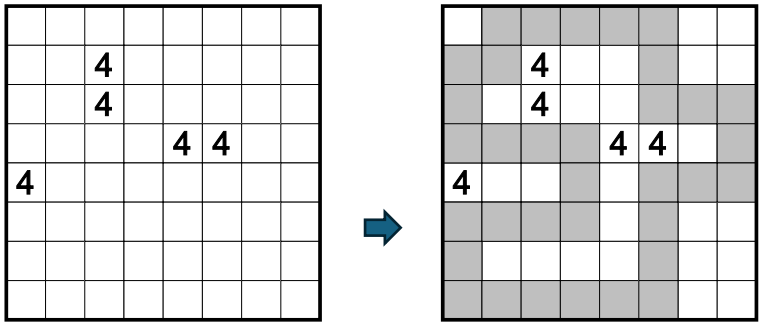


Puzzle 16-18 – Singular Bosnian Road [50+60+90 points]

[Gyula Slenker]

Draw a closed loop into the grid that runs horizontally and vertically and passes through each cell at most once. The loop cannot pass through cells with numbers. Cells occupied by the loop cannot share a single point (except if they are at most two cells away from each other when travelling along the loop); in other words, the loop cannot touch itself, not even diagonally. The numbers indicate how many horizontally, vertically and diagonally neighbouring cells (out of up to 8) are used by the loop.

Every cell that is unshaded in the final solution and could contain the singular number as a valid clue actually contains that number.



ROUND 16	Coded Puzzles	
Individual round	60 minutes	750 points

Overview

All puzzles in this round use letters instead of numbers as clues. Each letter uniquely represents a number, and each number is represented by exactly one letter. This mapping is consistent across all puzzles: the same letter always stands for the same number, and different letters stand for different numbers.

The competition puzzle uses numbers 0–25, represented by all 26 letters of the English alphabet, with one puzzle from each type included.

The rules of the individual puzzle types is provided below (without replacing the clues with letters). Then an example of the entire round is provided using numbers 0–11, represented by letters A–L, showcasing only a subset of the puzzle types.

Handling & Scoring

Please do not use coded letters for solving puzzles that require writing numbers. For Math Path and Meandering Numbers puzzles, it is acceptable to draw the path(s) as a solution, as long as (1) that path notation is consistently used across the entire puzzle, and (2) for each path its direction is clearly indicated, e.g. by an arrow or by writing “1” into the path’s starting cell, etc.

No number clues are given for this round, so if you see “O”, “I”, etc, those always represent letters and should not be treated as numbers.

The score of a puzzle will only be awarded if its solution is identical to the solution to that puzzle in the entire round’s solution. There may be puzzles that are solvable using a different encoding of the numbers, but that encoding won’t work with the rest of the round – such solutions will not be awarded the points associated to that puzzle.

The total score associated with the puzzles is 490 points. There is an additional 260 points to be scored by identifying the mapping between the letters and the numbers (10 points each). As shown in the example round, two additional coding grids will be provided – one listing the numbers and another one listing the letters. The 10 points available for identifying the mapping between a letter and a number will be awarded if and only if at least one of the following is true:

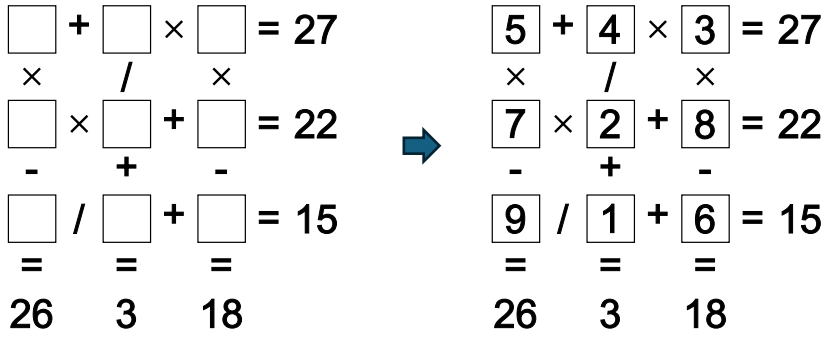
- If every puzzle in the entire round is solved correctly (in this case we don’t even check the grids and award the 260 points automatically)
- A pairing between a letter and a number is correctly indicated in both grids, and neither the letter nor the number is duplicated in either grid
- A pairing between a letter and a number is correctly indicated in exactly one grid, and is left blank in the other grid, and neither the letter nor the number is duplicated in either grid

You have the option to cross out one of the grids and mark it as draft – in that case only the other grid will be considered for scoring the mapping points.

Puzzle 01 – Arithmetic Square [40 points]

[Kartal Nagy]

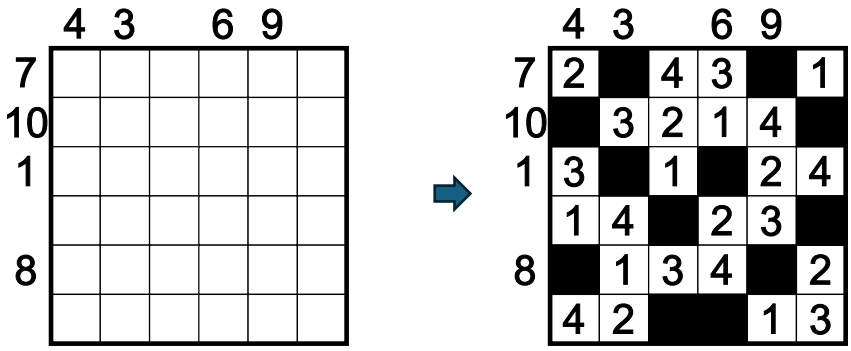
Enter digits 1–9 into the empty squares such that every square holds exactly one number, and each number appears exactly once. Reading the rows and columns yields mathematically true equations. Unlike standard mathematics rules, the order of the operators is strictly from left to right and from top to bottom, i.e. multiplication and division do not take precedence over addition and subtraction (this is how in the top row, 5+4*3 evaluates to 27, rather than to 17).



Puzzle 02 – Doppelblock [40 points]

[Kartal Nagy]

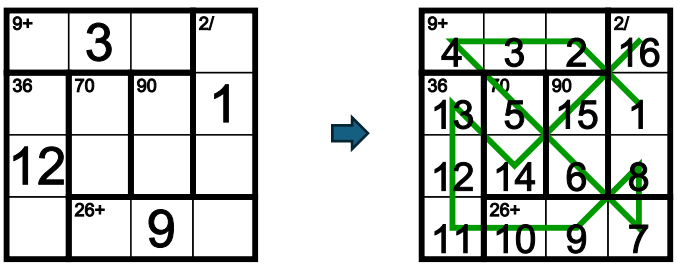
Enter digits 1 to N–2 into some cells and shade the remaining cells black such that each row and each column contains exactly two black squares and each of the digits exactly once (N is the size of the grid). Clues outside the grid indicate the sum of the digits that appear between the two black cells in the corresponding row or column.



Puzzle 03 – Math Path [50 points]

[Kartal Nagy]

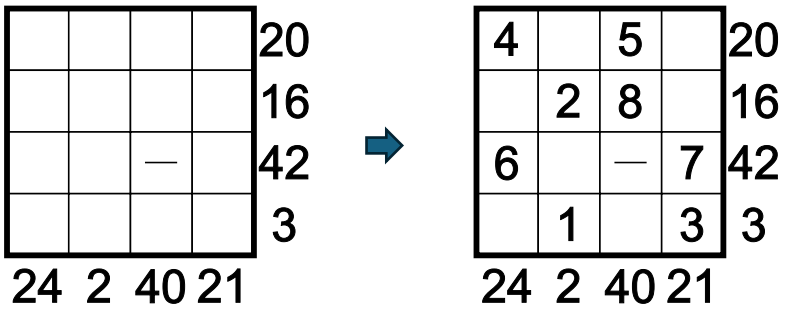
Enter a number from 1 to N (where N is the number of cells) into each cell so that every number appears in the grid exactly once. Cells containing consecutive numbers must share an edge or corner, so that there is a path using orthogonally or diagonally adjacent cells to travel between consecutive numbers from 1 to N. The path may cross itself. A clue number within a region indicates the result of a mathematical operation (addition, subtraction, multiplication, division) applied successively to all numbers in that region, starting with the largest number for subtraction and division (e.g. in the top-right region 16 / 1 / 8 = 2). The operation may or may not be given in the region, but at least one of the four operations must hold true. Some numbers may be given.



Puzzle 04 – Products [20 points]

[Kartal Nagy]

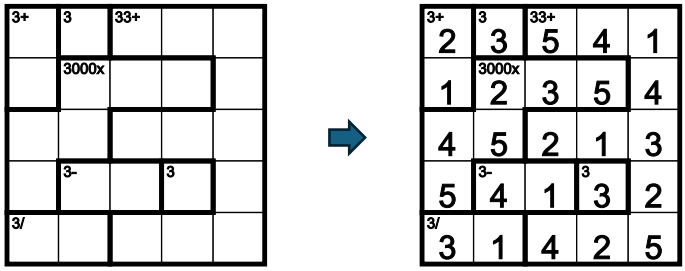
Enter numbers 1 to 2*N into the grid, each of them exactly once, where N is the size of the grid, so that there are exactly two numbers in each row and each column. Numbers outside the grid indicate the product of the two numbers in the corresponding row or column. A cell with a "-" sign cannot contain any number.



Puzzle 05 – TomTom [40 points]

[Kartal Nagy]

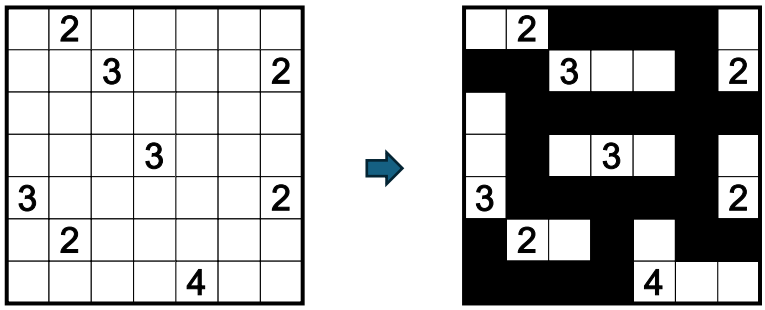
Enter a number from 1 to N into each cell in the N by N grid so that no number repeats in any row or column. A clue number within a region indicates the result of a mathematical operation (addition, subtraction, multiplication, division) applied successively to all numbers in that region, starting with the largest number for subtraction and division (e.g. in the top-right region 16 / 1 / 8 = 2). The operation may or may not be given in the region, but at least one of the four operations must hold true. Numbers may repeat in regions.



Puzzle 06 – Nurikabe [30 points]

[Zoltán Horváth]

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 form a single connected group, but no 2×2 group of cells can be entirely shaded black. No clues can be zero.

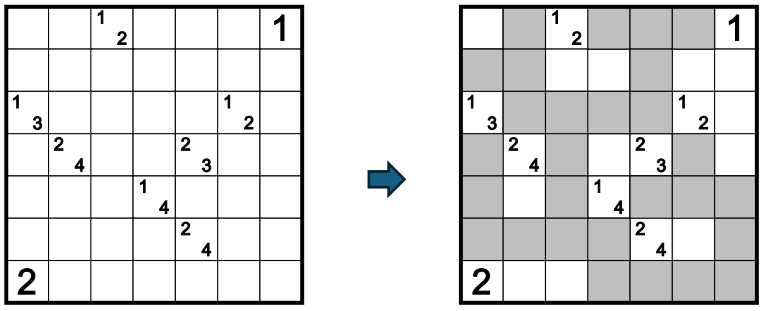


Puzzle 07 – Tapa [50 points]

[Zoltán Horváth]

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.

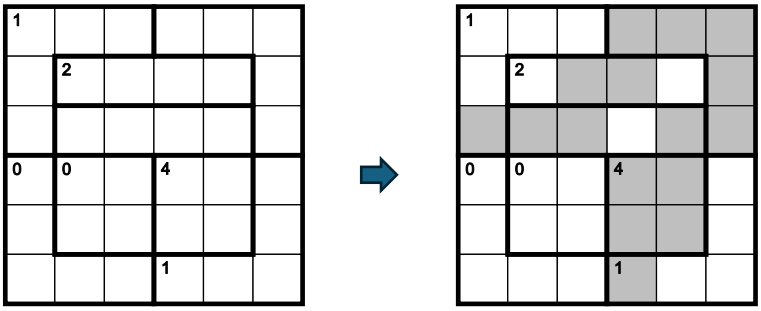
Round-specific interpretation: a clue letter may represent a double-digit number, in that case the two digits must be considered as a two-digit Tapa clue, irrespective of digit order. Digit zero translates to an empty Tapa clue. Example: A letter that represents 12 or 21 will be interpreted as a "1_2" clue, while another letter that represents 2 or 20 will be interpreted as a "2" clue. See the coded example puzzle at the end of this round.



Puzzle 08 – Aqre [60 points]

[Kartal Nagy]

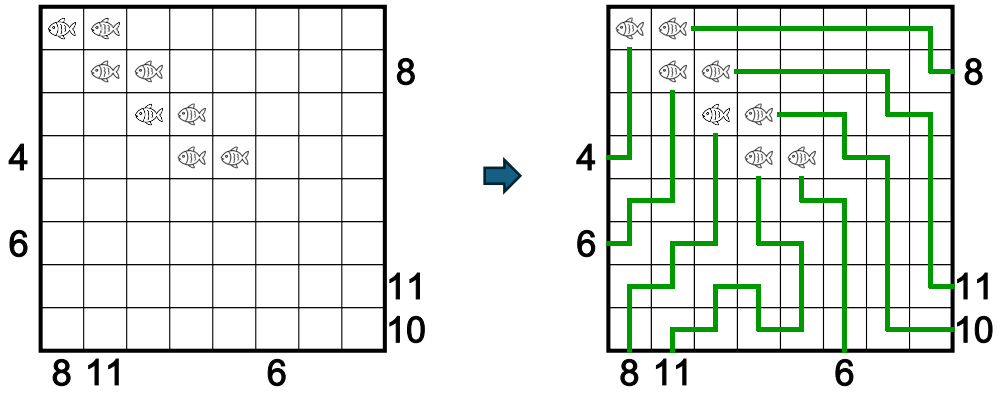
Shade some cells so that all shaded cells form one connected group. Regions with numbers must contain the indicated count of shaded cells, and it is allowed to shade over the numbered cells. There may not exist a run of four or more consecutive shaded or unshaded cells horizontally or vertically anywhere in the grid.



Puzzle 09 – Anglers [60 points]

[Kartal Nagy]

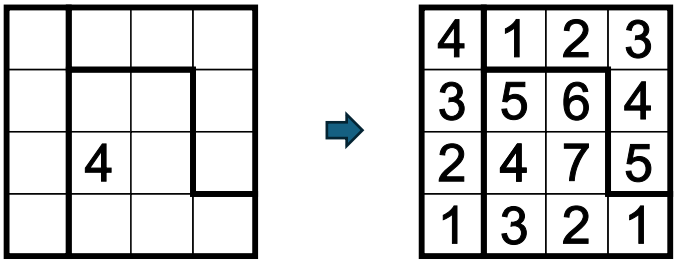
Draw all fishing lines into the grid so that the following rules are all followed. Numbers outside the grid represent anglers, each of whom have caught a fish. The fishing lines do not cross or overlap any other fish, themselves or each other, and their length is given by the number outside. Every cell without the fish is visited by exactly one of the fishing lines.



Puzzle 10 – Meandering Numbers [50 points]

[Kartal Nagy]

Place a number into each cell so that each region contains an orthogonally-connected chain of consecutive numbers from 1 to N, where N is the number of cells in the region. Numbers of the same value may not touch one another, not even diagonally.

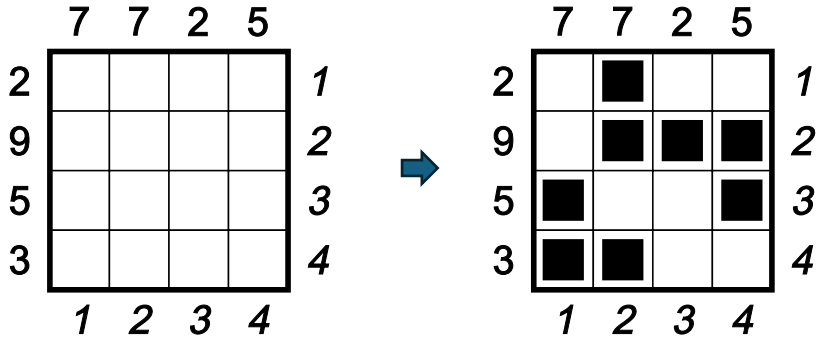


Puzzle 11 – Kakurasu [50 points]

[Kartal Nagy]

Shade some of the cells in the grid. Numbers 1 to N to the right and below the grid, typeset in italic, indicate the values assigned to each row and column. When considering a row, each cell takes the value of its column. When considering a column, each cell takes the value of its row.

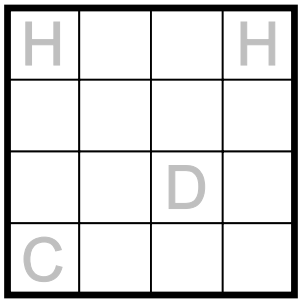
Numbers to the left and above the grid indicate the sum of the values of the shaded cells in the corresponding row or column.

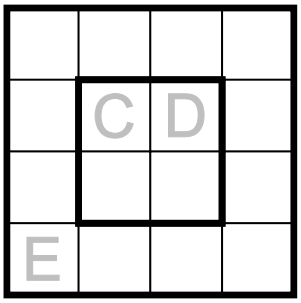


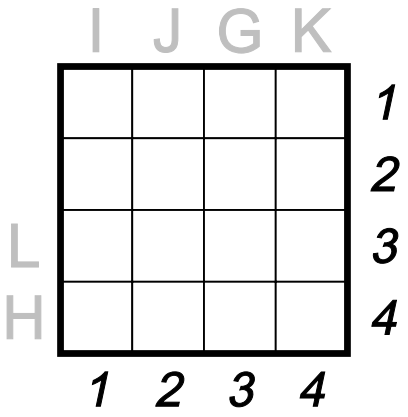
Coded Puzzles – Example Round

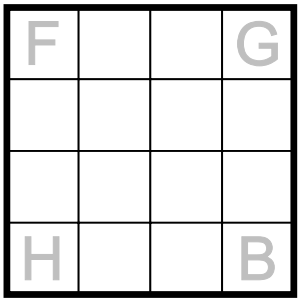
0	1	2	3	4	5	6	7	8	9	10	11

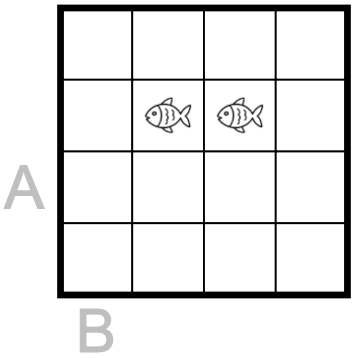
A	B	C	D	E	F	G	H	I	J	K	L

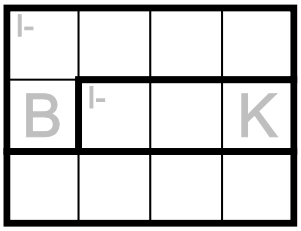








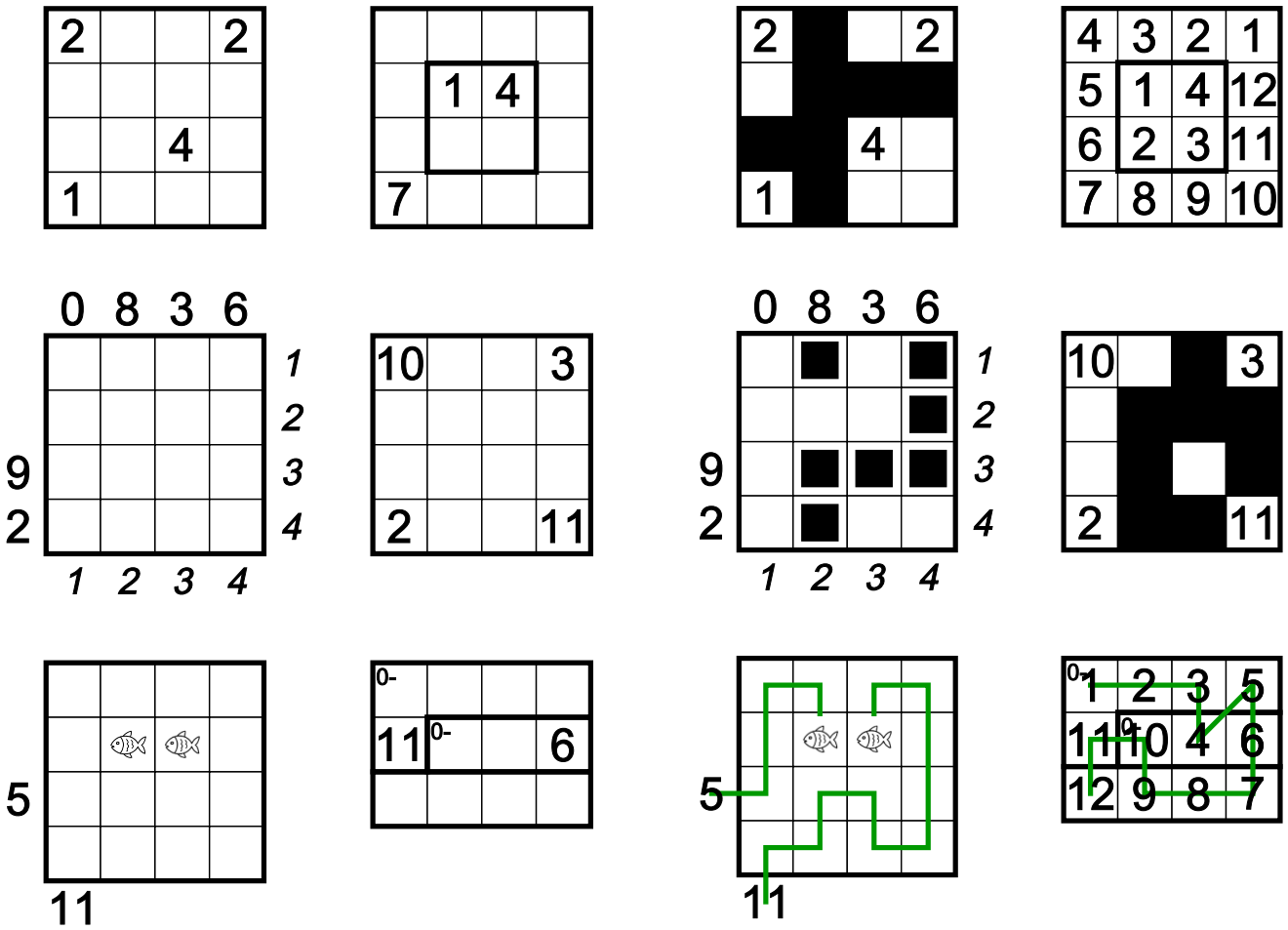




Nurikabe	Meandering Numbers
Kakurasu	Tapa
Anglers	Math Path

Coded Puzzles – Example Round – Solution

A	B	C	D	E	F	G	H	I	J	K	L
5	11	1	4	7	10	3	2	0	8	6	9



Round design: Kartal Nagy

Round puzzles: Kartal Nagy, Zoltán Horváth (as stated within the instructions)

Example coded round design and all puzzles within: Viktor Samu

Instruction puzzles:

- *Thomas Snyder / GMPuzzles (TomTom)*
- *Zoltán Horváth (Arithmetic Square)*
- *Zoltán Németh (all others)*

ROUND 17	The Casino	
Individual round	70 minutes	1050 points

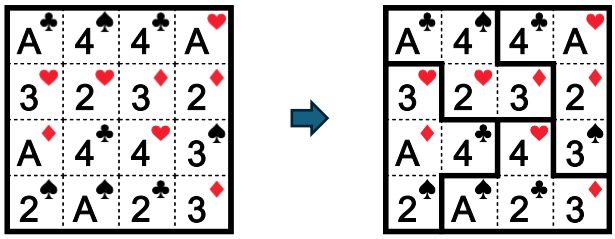
Welcome to the Casino!

ROUND 17	The Casino	
Sign of Four	**100 points**	[20 + 80]
Poker Divider	**115 points**	[45 + 70]
Domino Construction	**150 points**	[20 + 50 + 80]
Darts	**70 points**	[20 + 50]
Suguru Dice Builder	**185 points**	[50 + 135]
Dice Poker	**430 points**	[40 + 60 + 80 + 100 + 150]
70 minutes	**Maximum score: 1050 points**	

Puzzle 01-02 – Sign of Four [20+80 points]

[Zoltán Németh, Pál Madarassy]

Divide the grid into connected regions of exactly four cells. No suit or rank should appear more than once in any of the regions.



Puzzle 03-04 – Poker Divider [45+70 points]

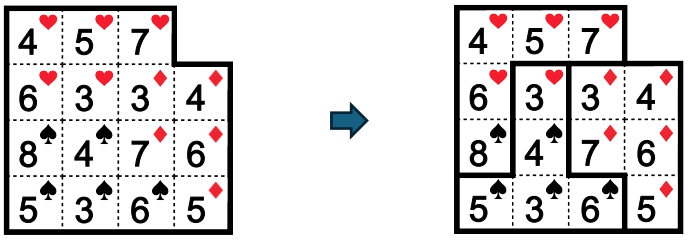
[Kartal Nagy]

Divide the grid into regions of exactly five cells so that when considering the five cards in each region as a poker hand, the list of the highest possible values of those hands is identical to the list given.

For the purposes of this puzzle, the list of possible hands, their ordering (of highest to lowest value) and their definitions are:

- Royal Flush: 10-J-Q-K-A, all of the same suit.
- Straight Flush[1]: five cards of sequential rank, all of the same suit (without being Royal).
- Four-of-a-kind: four cards of one rank and one card of another rank.
- Full House: three cards of one rank and two cards of another rank.
- Flush: five cards all of the same suit, not all of sequential rank.
- Straight[1]: five cards of sequential rank, not all of the same suit.
- Three-of-a-kind: three cards of one rank and two cards of two other ranks.
- Two Pair: two cards of one rank, two cards of another rank and one card of a third rank.
- One Pair: two cards of one rank and three cards of three other ranks.
- High Card: any other hand

```
Straight flush   x1
Straight         x1
One Pair         x1
```

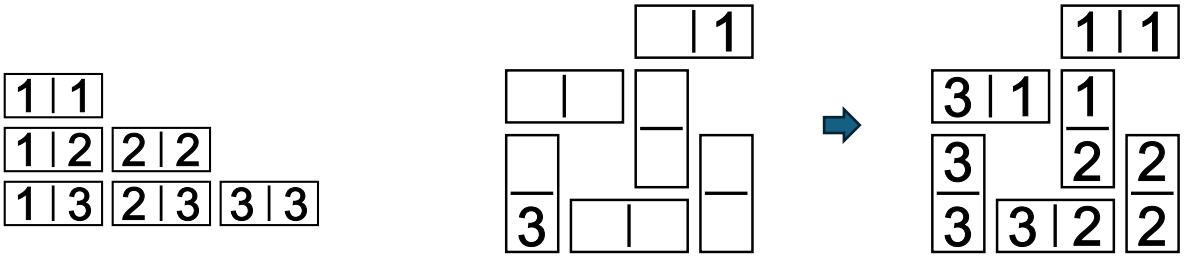


[1] Aces rank either high or low, but not both in the same hand, i.e. 10-J-Q-K-A and A-2-3-4-5 are both considered straights but Q-K-A-2-3 is not.

Puzzle 05-07 – Domino Construction [20+50+80 points]

[Zoltán Horváth]

Place the given full set of dominoes into the grid. If two dominoes share an edge, their adjacent halves must contain the same number. Some numbers are given.

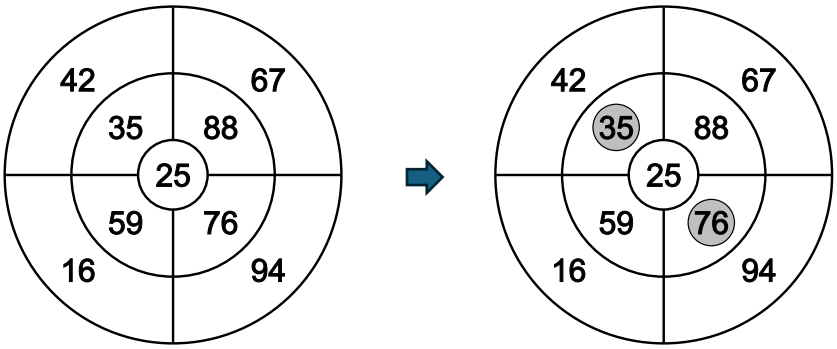


Puzzle 08-09 – Darts [20+50 points]

[Kartal Nagy]

Throw the specified number of darts onto the board such that the sum of the numbers they hit equals to the target value provided for the puzzle. Each dart must land on a different number.

Target: 111



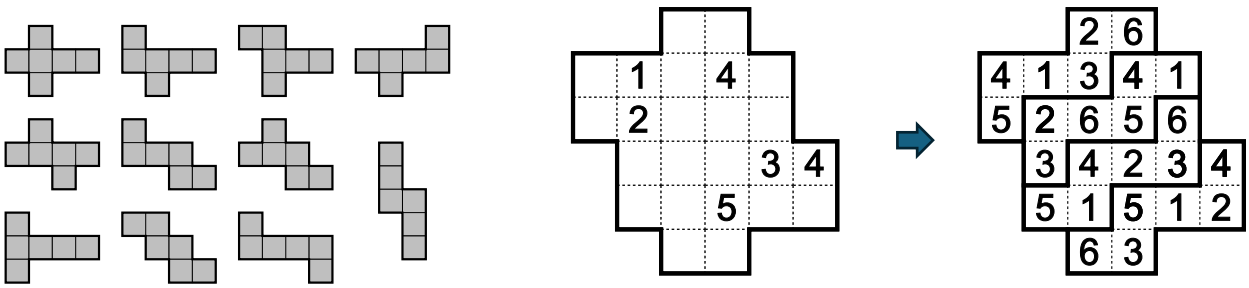
Puzzle 10-11 – Suguru Dice Builder [50+135 points]

[Kartal Nagy]

Enter exactly one number from 1 to 6 into each empty cell so that cells containing the same number cannot share an edge or corner. Then divide the grid into regions that each have exactly six cells. Every region must have the shape of a valid cube net, and it must be possible to construct a valid die from that cube net (by folding along edges without cuts). A die is considered valid if and only if its opposite faces add up to seven.

You must clearly indicate both the regions and fill in all numbers to receive credit for this puzzle.

The list of valid cube nets is provided below and will also be available in the competition puzzle booklet.



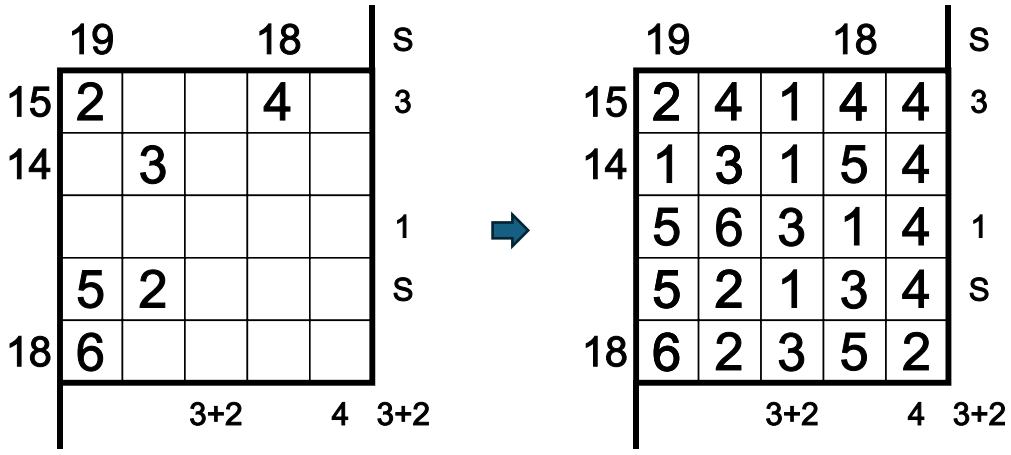
Puzzle 12-16 – Dice Poker [40+60+80+100+150 points]

[Kartal Nagy]

Enter exactly one number from 1 to 6 into each empty cell. Numbers of the left and top indicate the sum of the numbers in that row, column or the main diagonal. Numbers on the right and bottom indicate the strongest dice poker combinations in that row, column or the main diagonal.

For the purposes of this puzzle, the list of possible hands, their ordering (of highest to lowest value) and their definitions are:

- S: five consecutive numbers (e.g. 1-2-3-4-5)
- 5: all five numbers are the same (e.g. 3-3-3-3-3)
- 4: four identical numbers and one different number (e.g. 5-5-5-5-4)
- 3+2: three identical numbers and another two identical numbers (e.g. 1-1-1-6-6)
- 3: three identical numbers and the two other numbers are all different (e.g. 4-4-4-2-1)
- 2+2: two pairs of identical numbers and one different number (e.g. 3-3-6-6-1)
- 2: one pair of identical numbers and the three other numbers are all different (e.g. 2-2-4-5-6)
- 1: All numbers are different and not consecutive (e.g. 1-2-3-5-6)



ROUND 18	Full Loops	
Individual round	50 minutes	600 points

Rules

[Round design and all puzzles by Zoltán Németh]

Draw a single closed loop (without crossings or overlaps) through **all** white cells. In addition, the following four rules are in effect at all times.

Masyu rules

The loop must go straight through the cells with *large* white circles, with a turn in at least one of the cells immediately before/after each *large* white circle. The loop must make a turn in all the cells with *large* black circles but must go straight in both cells immediately before/after each *large* black circle.

Mid-loop rules

The loop must go straight through all *small* black circles, with the circle marking the centre of that straight segment.

Equal segments region rules

A region outlined with *dotted* lines is considered an “equal segments region”, in which each loop segment passing through that region must be of equal length, meaning the loop must go through an equal number of cells within the region every time it visits the region. If a number is given in an equal segments region, it must be equal to the lengths of all loop segments visiting that region. Otherwise, a “?” will be given, denoting an unspecified non-zero number, which must be equal to all loop segments visiting that region.

Symmetry region rules

A region outlined with *solid* lines is considered a “symmetry region” whose shape has 180 degrees rotational symmetry, and its centre point is marked with a *small* white circle. The way the loop passes through the cells of a symmetry region must also be rotationally symmetric with regards to the centre point / small circle. The loop is allowed to make multiple entries / exits in a symmetry region, so long as symmetry is maintained. Note that the centre point may or may not be contained inside the region. Also note that if a region surrounds some cells that are not part of the region, then the cells of that “island” are not in scope for the symmetry rule with regards to that region.

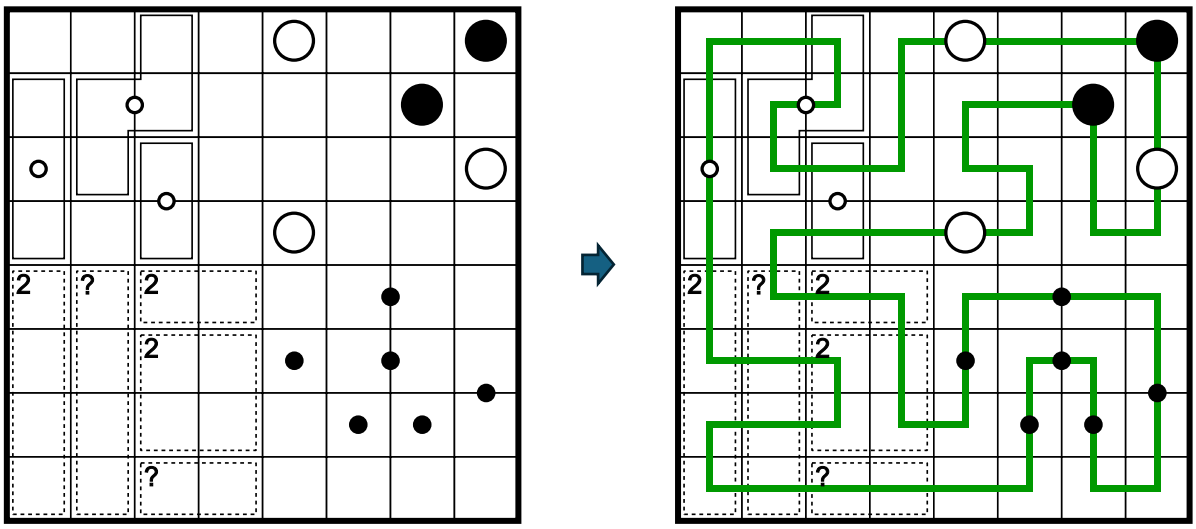
Notes

The use of numbers or a “?” symbol in the equal segments regions and the use of small white circles in the symmetry regions is also designed to allow solvers to visually distinguish between the two types of regions more easily during solving.

In the competition puzzles, no two regions of any kind contain or overlap each other.

Additional information

In this round, although every puzzle has the exact same set of rules, each one of them utilises a different subset of those rules, as depicted in the table below. For instance, Puzzle 01 will only feature large black and white circles, therefore equivalent to a Full Masyu, and so on. Fortunately, none of the rules has a “negative” implication, so no need to keep any of this in mind – you only need to satisfy a clue when you see it!



	Masyu	Mid-Loop	Eq Sgmts	Sym Rgn	
Puzzle 01	✓				**10**
Puzzle 02			✓		**15**
Puzzle 03				✓	**25**
Puzzle 04		✓			**15**
Puzzle 05	✓			✓	**30**
Puzzle 06		✓	✓		**40**
Puzzle 07	✓		✓		**45**
Puzzle 08		✓		✓	**45**

	Masyu	Mid-Loop	Eq Sgmts	Sym Rgn	
Puzzle 09			✓	✓	**45**
Puzzle 10	✓	✓			**25**
Puzzle 11	✓		✓	✓	**45**
Puzzle 12		✓	✓	✓	**45**
Puzzle 13	✓	✓	✓		**55**
Puzzle 14	✓	✓		✓	**70**
“The Boss” – Puzzle 15	✓	✓	✓	✓	**90**
Total					**600 points**