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Logic Masters 2019 Round 4 – Mixed

Time: 100 minutes

4.1 Pyramid	points
4.2 Skyscrapers	points
4.3 Double block	points
$4.4 \ {\rm Geisterbahn-Tapa} \qquad \dots \qquad 15$	points
4.5 Fillomino	points
$4.6 \ {\rm Masyu} \ \ldots \ldots 15$	points
4.7 Simple Loop	points
4.8 Slither Link $\dots \dots \dots$	points
4.9 Touching Fences	points
4.10 Land measurement $\ldots \ldots 25$	points
4.11 Land measurement $\dots \dots \dots$	points
4.12 Tilted Aquarium	points
4.13 Elastic Bands $\dots \dots 45$	points
4.14 Clockfaces Sudoku $\dots\dots\dots25$	points
4.15 Daisho $\ldots \ldots 50$	points
$4.16 \ Starbattle \ \ldots \ldots 50$	points
4.17 Yin Yang	points
4.18 Infection	points
$4.19 \ Heyawake \ \dots \dots 20$	points
4.20 Yajiwake	points
Total	points

Bonus for every 30 seconds remaining2 points

PUNKTE	

4.1 Pyramid

Fill the diagram with numbers from 1 to 9, such that every number is either the sum of difference of the two numbers below. In gray rows, no number may occur twice. In white rows at least one number does occur a least twice.



4.2 Skyscrapers

10 Punkte

Fill the grid with scycrapers of heights 1 to n (n the number of rows) such that every height occurs exactly once in every row and column. Numbers at the edge of the grid determine how many skyscrapers are visible in this direction. Higher skyscrapers hide lower skyscrapers.



4.3 Double block

Blacken some cells and fill the remaining cells with numbers from 1 to n (n the number of row minus two) such that in every row and column two cells are blackend and every number occurs exactly once. Numbers at the edge indicate the sum of all numbers between the two blackened cells in the respective row or column.



4.4 Geisterbahn-Tapa

15 Punkte

Blacken some cells of the grid such that all connected components of black cells are different. Components that match each other when they are rotated or reflected are considered identical. Different groups are separated by at least one white cell. The order of numbers in a cell does not matter.

8				8		1 1		8	
33		1/1		33				33	
8				8		1		8	

4.5 Fillomino

25 Punkte

Divide the grid into regions and write a number into each cell, indicating the region's area. Regions of the same area do not share an edge. Given numbers may belong to the same region. There may be regions not containing any given number, even with numbers bigger than any given number.

		1			1			1	1
1			12			14			•
	3			1			1		1
		1				10			
1					1			1	4
		1				9			 - - - -
	7			1			1		1
1			3			8			
		1			1			1	· · · · · · · · · · · · · · · · · · ·

4.6 Masyu

15 Punkte

Draw a loop into the grid that connects the centers of horizontally or vertically adjacent cells, passing every cell at most once. The loop visits every cell with a circle. In cells with white circles the loop keeps straight on but turns in at least one of the adjacent cells (following the loop). In cells with black circles the loop turns but keeps straight on in both adjacent cells.



4.7 Simple Loop

Draw a loop into the grid connecting the centers of horizontally or vertically adjacent cells using every white cell exactly once.

4.8 Slither Link

Draw a loop along the dotted lines using every point of the grid at most once. Numbers indicate how many edges of the cell are used by the loop.

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

4.9 Touching Fences

Draw a loop along the dotted lines using every point of the grid at most once. Numbers indicate how often the loop touches the respective cell.

•										
						1				
2	1		3		2	1		2	2	
						4				
	2	1		3				1		
2		3			2				2	
		1			3			3		
			2		3					
	3			1				3	2	
				1			2	2		
•	• • • • •									y

4.10 Land measurement

Blacken some cells of the grid such that for any two black cells there is at most one path along black cells connecting them. The path connects horizontally and vertically neighboring black cells. That means, there cannot be a closed loop on the black cells. Numbers indicate the length of the shortest path that visits all black cells among the four touched cells. An infinity symbol ∞ means that there is no such path.



4.11 Land measurement

40 Punkte



4.12 Tilted Aquarium

35 Punkte

Fill some cells or half cells with water. Regions are filled with water from bottom to top. Within one row of a region, the water-level of all cells is identical. Numbers at the edge of the grid indicate how much water there is in the respective (diagonal) line.



4.13 Elastic Bands

45 Punkte

The first diagrams shows labelled balls that are connected by elastic bands. In the second diagram, the balls have changed their position, but the connections stayed the same. Find the labels of the balls in the second diagram.



4.14 Clockfaces Sudoku

25 Punkte

Fill the diagram with numbers from 1 to n (n the number of rows), such that every number occurs exactly once in every row, column and region. Numbers around a white circle are sorted increasingly clockwise, beginning in any cell. Numbers around a black circle are sorted increasingly counter-clockwise, beginning in any cell. If there is no circle, the numbers are not sorted.



4.15 Daisho

50 Punkte

Divide the diagram into rectangles along the dotted lines. Each rectangle occupies at least 2 cells. The relation symbols indicate which of the two adjacent rectangles has the larger area.



4.16 Starbattle

Place some stars into the grid such that there are exactly two stars in every row, column and region. Each star occupies exactly one cell. Stars do not touch each other, not even diagonally.

4.17 Yin Yang

Fill each cell with either a black or a white circle, such that all circles of the same color are horizontally and vertically connected and no 2x2 area is completely filled with circles of the same color.



Fill the grid with numbers from 1 to 4. Every number indicates the number of different numbers in the vertically and horizontally adjacent cells. Numbres separated by a think line are not considered adjacent.

1			
	3		

4.19 Heyawake

20 Punkte

Blacken some cells, such that no two black cells share an edge and all white cells are connected. It is allowed to blacken cells containing numbers. There is no connected sequence of white cells in any row or column which extends to more that two regions. Numbers determine the number of black cells in the respective regions.



4.20 Yajiwake

50 Punkte

Blacken some cells, such that no two black cells share an edge and all white cells are connected. It is allowed to blacken cells containing numbers. There is no connected sequence of white cells in any row or column which extends to more that two regions. Numbers determine the number of black cells in the respective regions. Draw a loop through all remaining cells (including white cells with numbers) that connects the centers of horizontally or vertically adjacent cells.

				0		
2						
	2			3		2
		2				