

Logic Masters 2017

Round 4 – Ferris Wheel

Time: 90 minutes

4.1 Hexamine	10 points
4.2 Kagami	10 points
4.3 Trio Cut	10 points
4.4 Skyscrapers with Pedestrians	15 points
4.5 Lighthouses in the Water	15 points
4.6 Antimatter	20 points
4.7 Fillomino	20 points
4.8 Tents	20 points
4.9 Variable Tapasyu	25 points
4.10 From 1 to 25	25 points
4.11 Crossword Reconstruction	30 points
4.12 Kakuro – NED	30 points
4.13 Symbol Puzzle	30 points
4.14 Zigzag Path	30 points
4.15 Trees	35 points
4.16 Candles	35 points
4.17 Pentomino Dissection	35 points
4.18 Touching Pentominoes	35 points
4.19 Twilight Tapa	35 points
4.20 Curve Data	45 points
4.21 Word Placement	60 points
4.22 Japanese Sums	95 points

Total 665 points

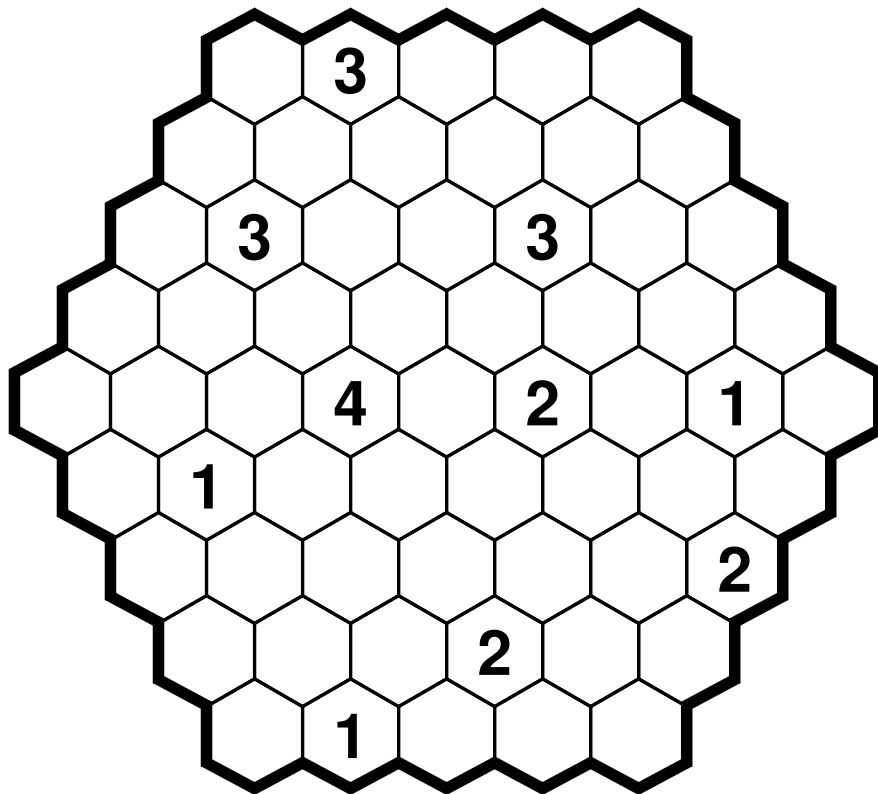
Bonus for every minute remaining 4 points

PUNKTE

4.1 Hexamine

10 Punkte

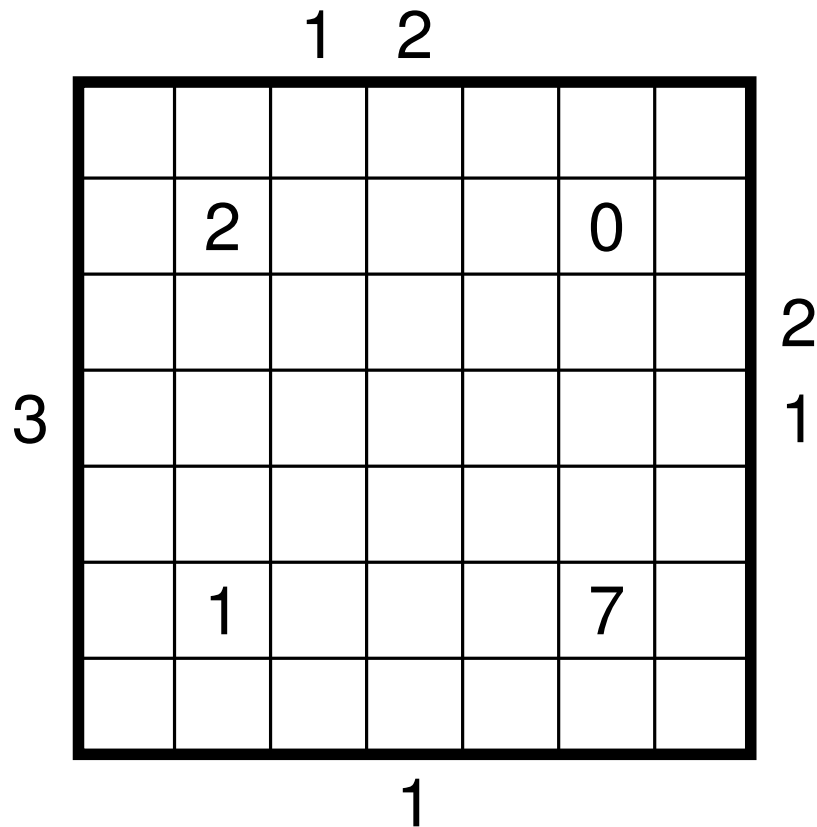
Place mines each consisting of two blackened cells in some of the empty cells. Numbers determine how many of the adjacent cells are black. Mines do not touch each other.



4.2 Kagami

10 Punkte

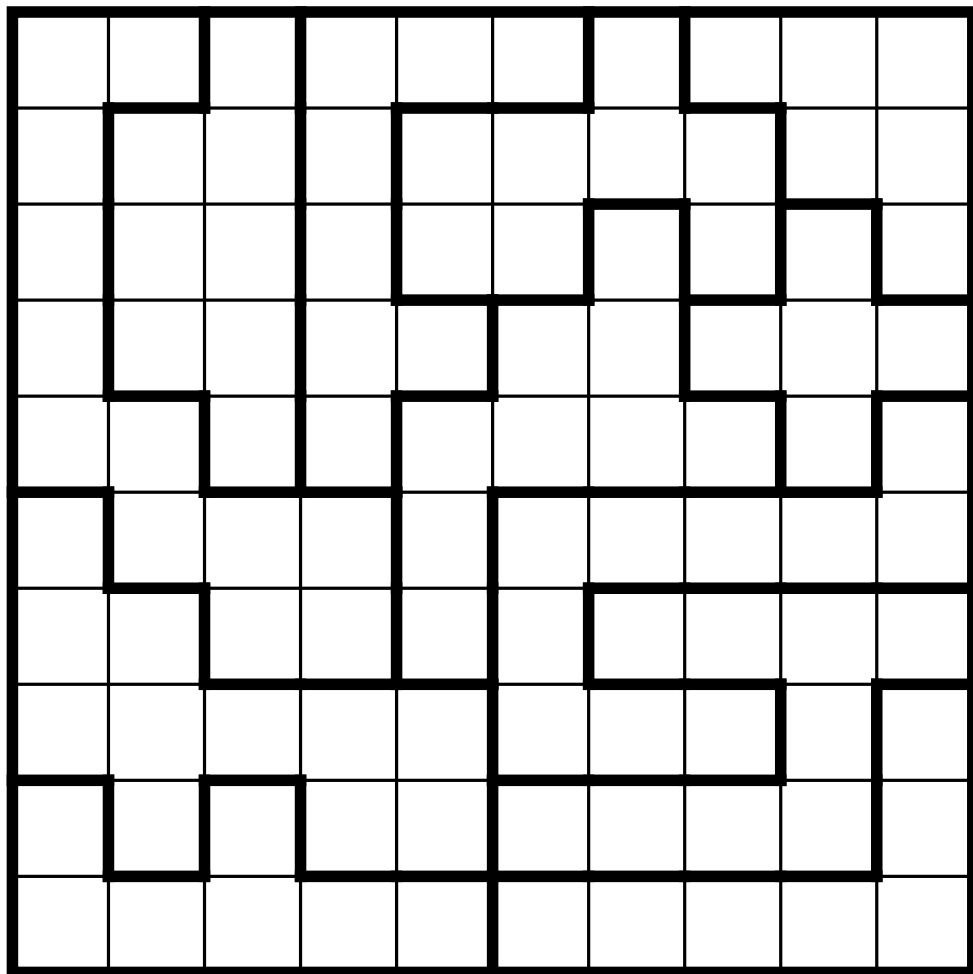
Numbers at the edge of the grid are lasers sending a ray of light into the grid orthogonally to the grid's border. Numbers in the grid mark the lasers' targets and indicate the sum of all lasers hitting this number. Rays may cross each other and end as soon as they hit a target. Place mirrors in some empty cells to direct the rays to the targets. Mirrors are placed diagonally in a cell and can be used from both sides. Cells with mirrors do not touch, not even diagonally. There are no unused mirrors.



4.3 Trio Cut

10 Punkte

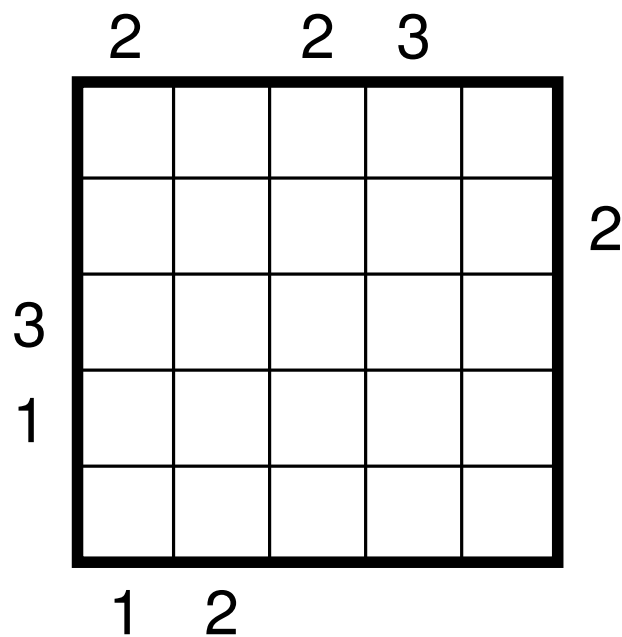
Blacken some cells to create trominos, each divided by two thick lines. Every tromino consists of three black cells. Different trominos do not share an edge, but may touch each other diagonally. Every region contains three black cells.



4.4 Skyscrapers with Pedestrians

15 Punkte

Write the numbers 1 to 4, indicating the heights of skyscrapers, or 0, indicating a park, into the grid such that in every row and column every number appears exactly once. Numbers on the edge of the grid determine how many skyscrapers are visible for pedestrians walking in the park in the respective row or column who have that number behind them. Higher skyscrapers hide lower skyscrapers.



4.5 Lighthouses in the Water

15 Punkte

Place ships in some empty cells such that cells with a ship do not touch each other, not even diagonally. Numbers determine how many ships are visible from a lighthouse in this cell, looking straight in horizontal or vertical direction. Ships or lighthouses do not block the view of lighthouses. Every ship can be seen from at least one lighthouse. Cells with a ship may touch cells with a lighthouse.

1							
		4					
				1			
					7		
	4						
							2

4.6 Antimatter

20 Punkte

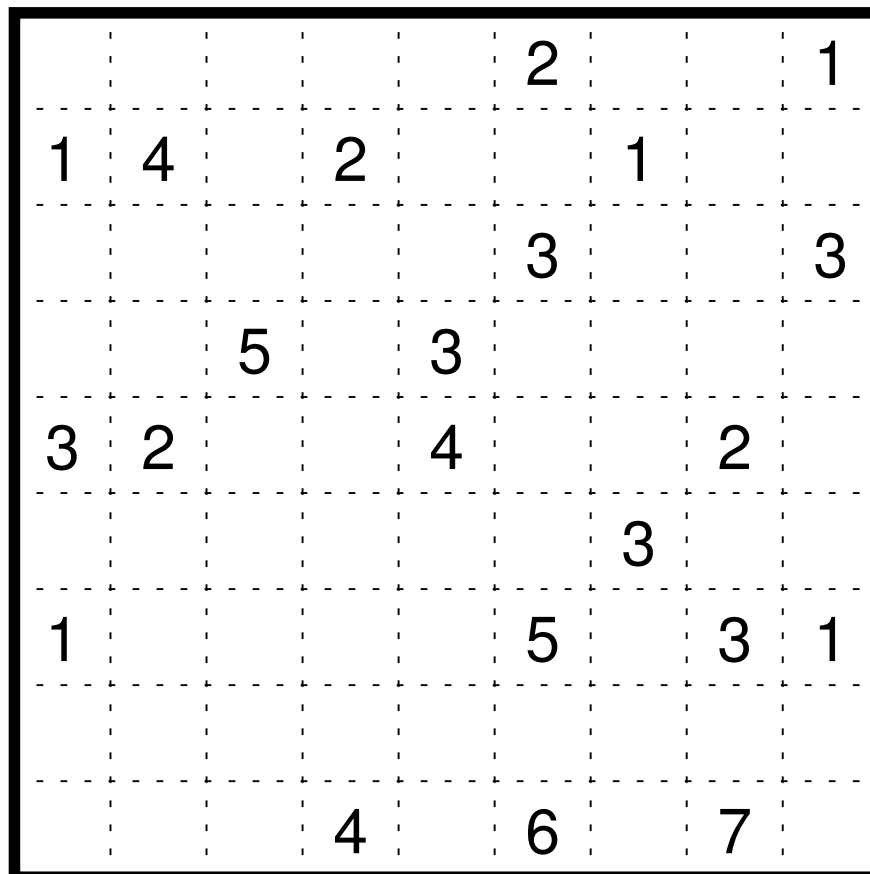
Put black or white circles in some empty cells such that no 2x2 area is filled completely with circles of the same color. Clues determine the difference of the number of black and white circles in the eight adjacent cells. The clue cell is white if there are more white than black circles in the adjacent cells and black if there are more black than white circles.

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

4.7 Fillomino

20 Punkte

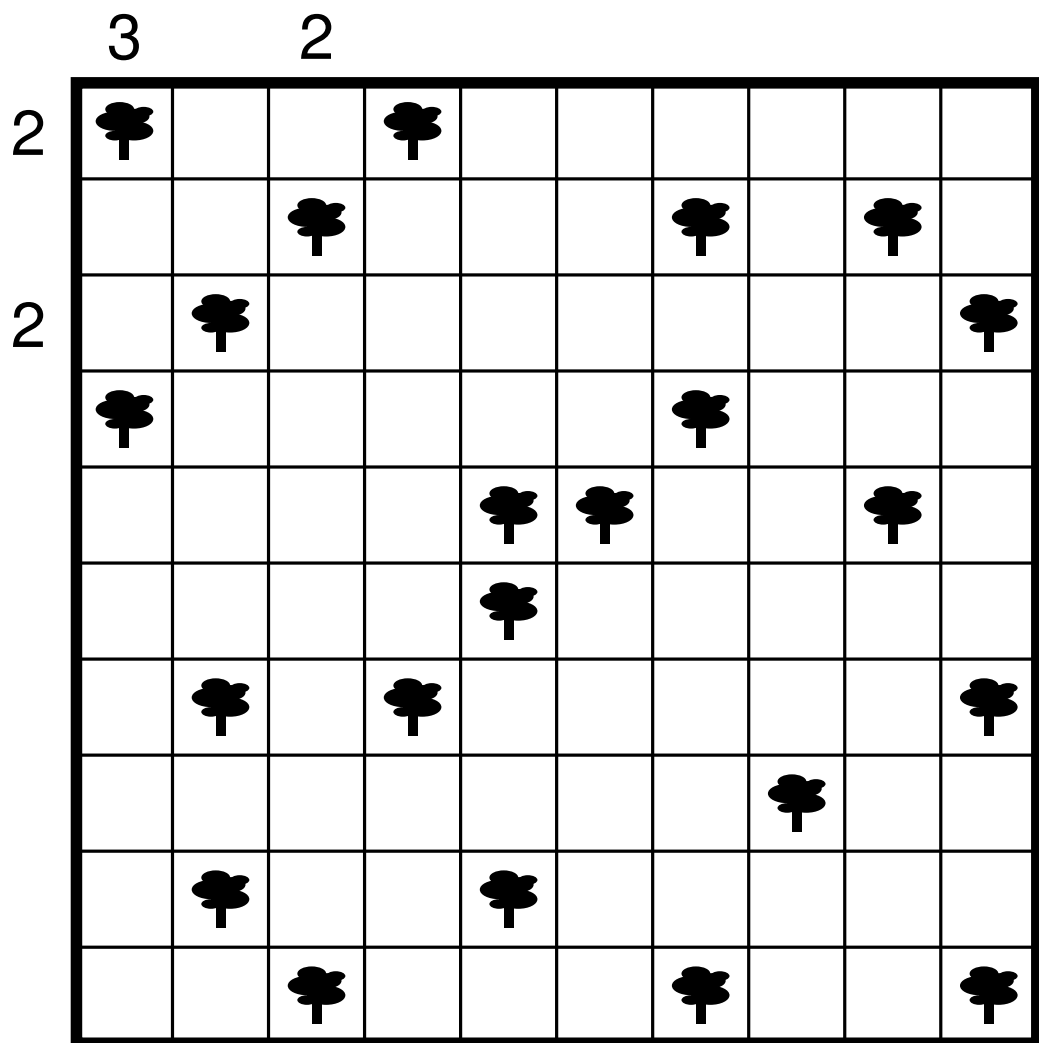
Divide the grid into regions and write a number into each cell, indicating the region's area. Regions of the same area do not share an edge. Given numbers may belong to the same region. There may be regions not containing any given number, even with numbers bigger than any given number.



4.8 Tents

20 Punkte

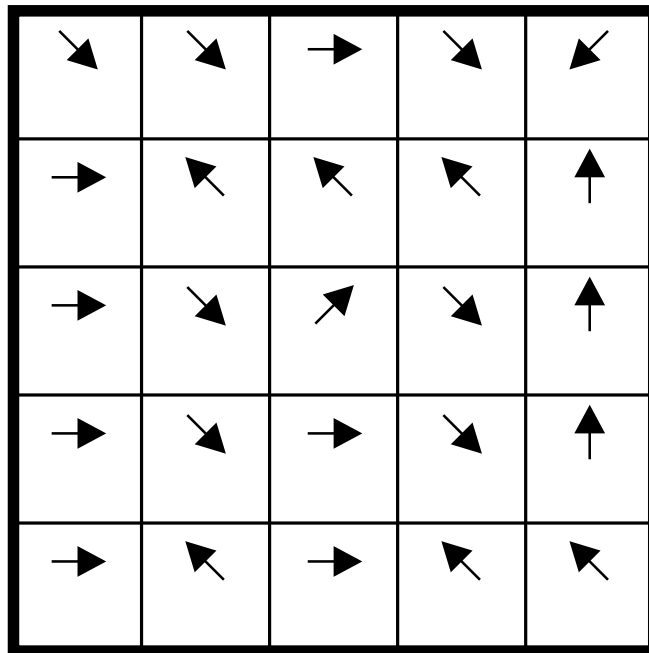
Place tents in some of the empty cells. Every tent belongs to a tree and is vertically or horizontally adjacent to this tree. Cells with tents do not touch each other, not even diagonally. Numbers at the edge of the grid determine the number of tents in the respective row or column.



4.10 From 1 to 25

25 Punkte

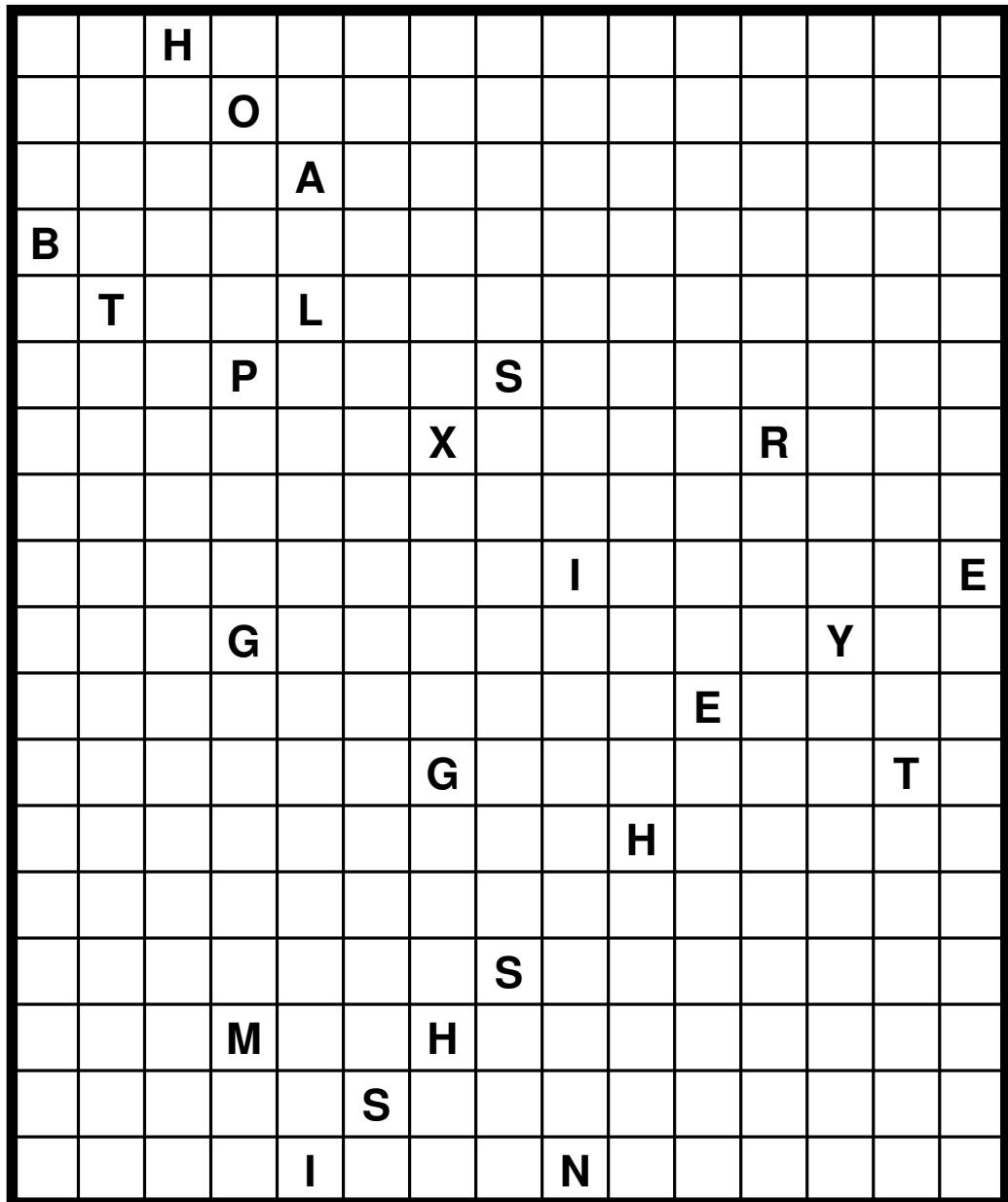
Fill the grid with numbers from 1 to 25 such that every arrow except the one next to the biggest number points at the next number.



4.11 Crossword Reconstruction

30 Punkte

Write the given words in the grid to create a connected crossword puzzle. No other words, not even two-letter words, are allowed. Words are written left to right or top to bottom. Every cell contains at most one letter. Exactly one letter of each word is provided.

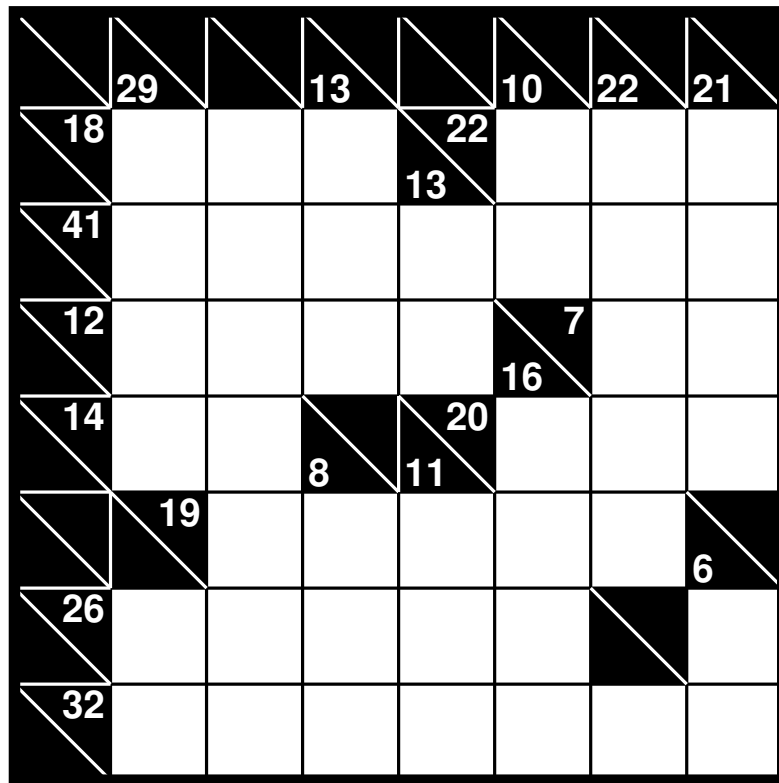


- | | | | |
|---------|--------|---------|---------|
| ALPHA | ETA | NY | TAU |
| BETA | THETA | XI | YPSILON |
| GAMMA | IOTA | OMIKRON | PHI |
| DELTA | KAPPA | PI | CHI |
| EPSILON | LAMBDA | RHO | PSI |
| ZETA | MY | SIGMA | OMEGA |

4.12 Kakuro – NED

30 Punkte

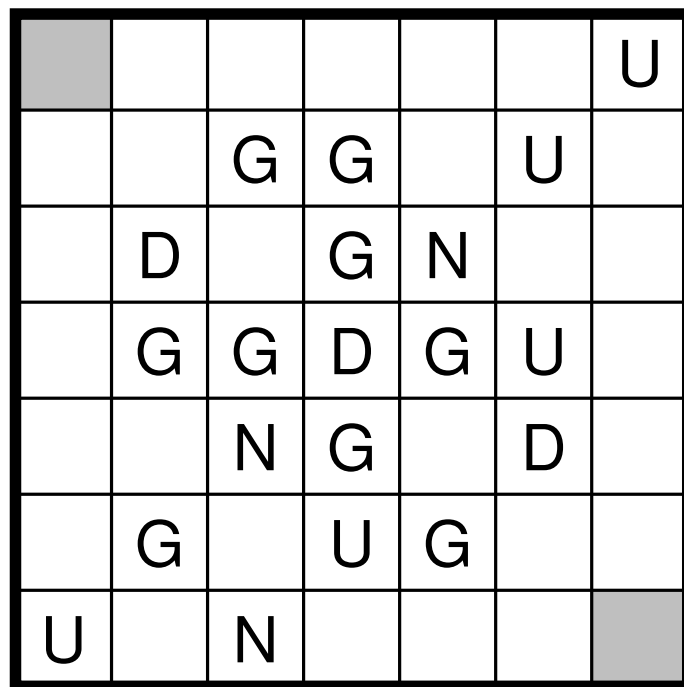
Fill the grid with numbers from 1 to 9. The clues determine the sum of all numbers to the next black cell or the edge of the grid. No number may be used multiple times in one sum. White cells containing the same number may not touch each other diagonally.



4.14 Zigzag Path

30 Punkte

Write one of the letters of the given word into every empty cell. Then draw a path into the grid starting in the top left cell and ending in the bottom right cell using every cell exactly once, connecting the cells' centers horizontally, vertically or diagonally without intersecting itself. Along the path, the letters spell out the given word repeatedly.



GNUDUNG

4.15 Trees

35 Punkte

Put trees in some empty cells such that every number is the total height of all trees in the eight adjacent cells. Trees without adjacent trees have height 1. A tree grows by 1 for every horizontally or vertically adjacent tree. Diagonally adjacent trees have no influence. The maximum height of a tree is 5. A solution is considered correct if the position of the trees is correct. Inscribing the heights of the trees is optional.

				5			
13		12					9
			10	11		2	
6		4					
					7		
	8		1				3

4.16 Candles

35 Punkte

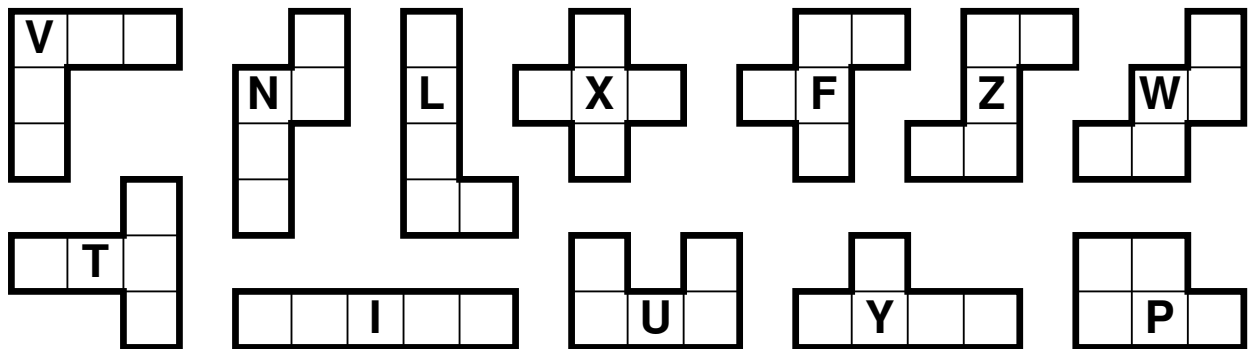
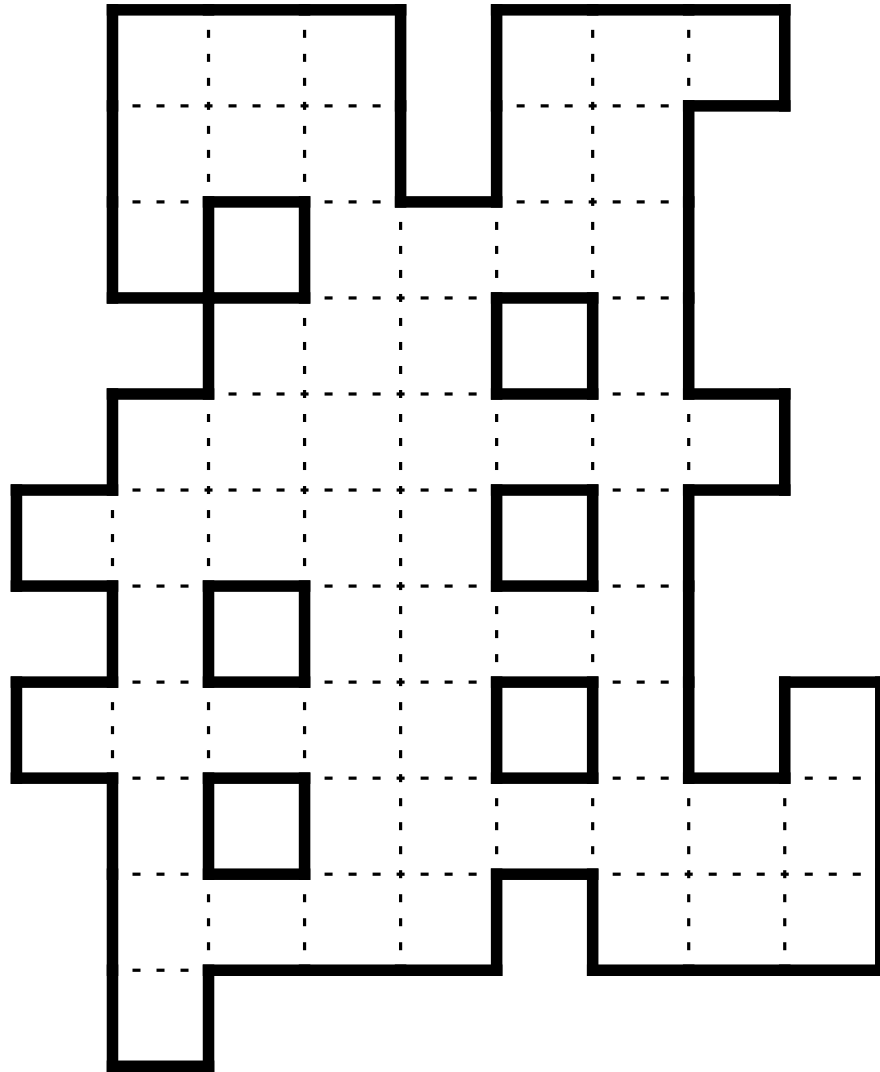
Write numbers from 1 to 4 in some empty cells, representing candles with the respective height. Given numbers indicate the total height of all candles in the eight adjacent cells. Candles without adjacent candles have height 4. As the heat of nearby candles melts wax, the height of a candle has to be reduced by 1 for each horizontally or vertically adjacent candle. Diagonally adjacent candles do not melt wax. There are no candles of height 0, thus no candle may be adjacent to four other candles. A solution is considered correct if the position of the candles is correct. Inscribing the heights of the candles is optional.

		2	4				6
	11						
							3
				10			
	13		12				5
	8				9		
					7		

4.17 Pentomino Dissection

35 Punkte

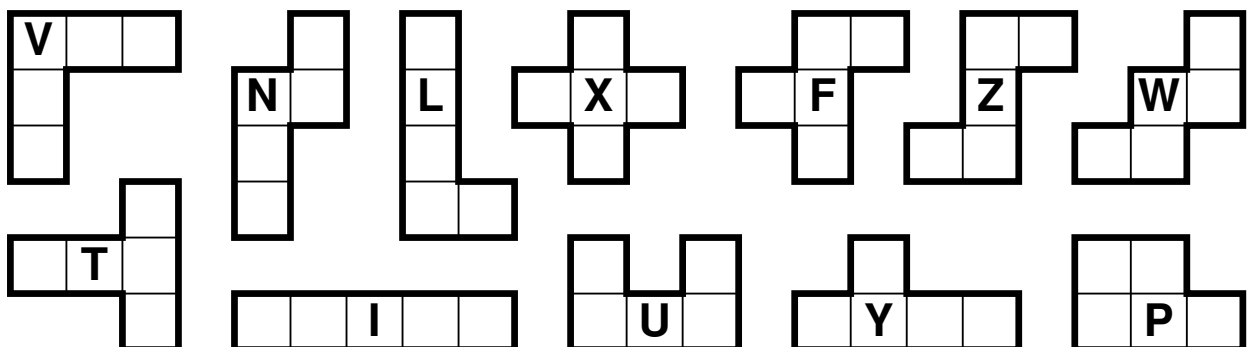
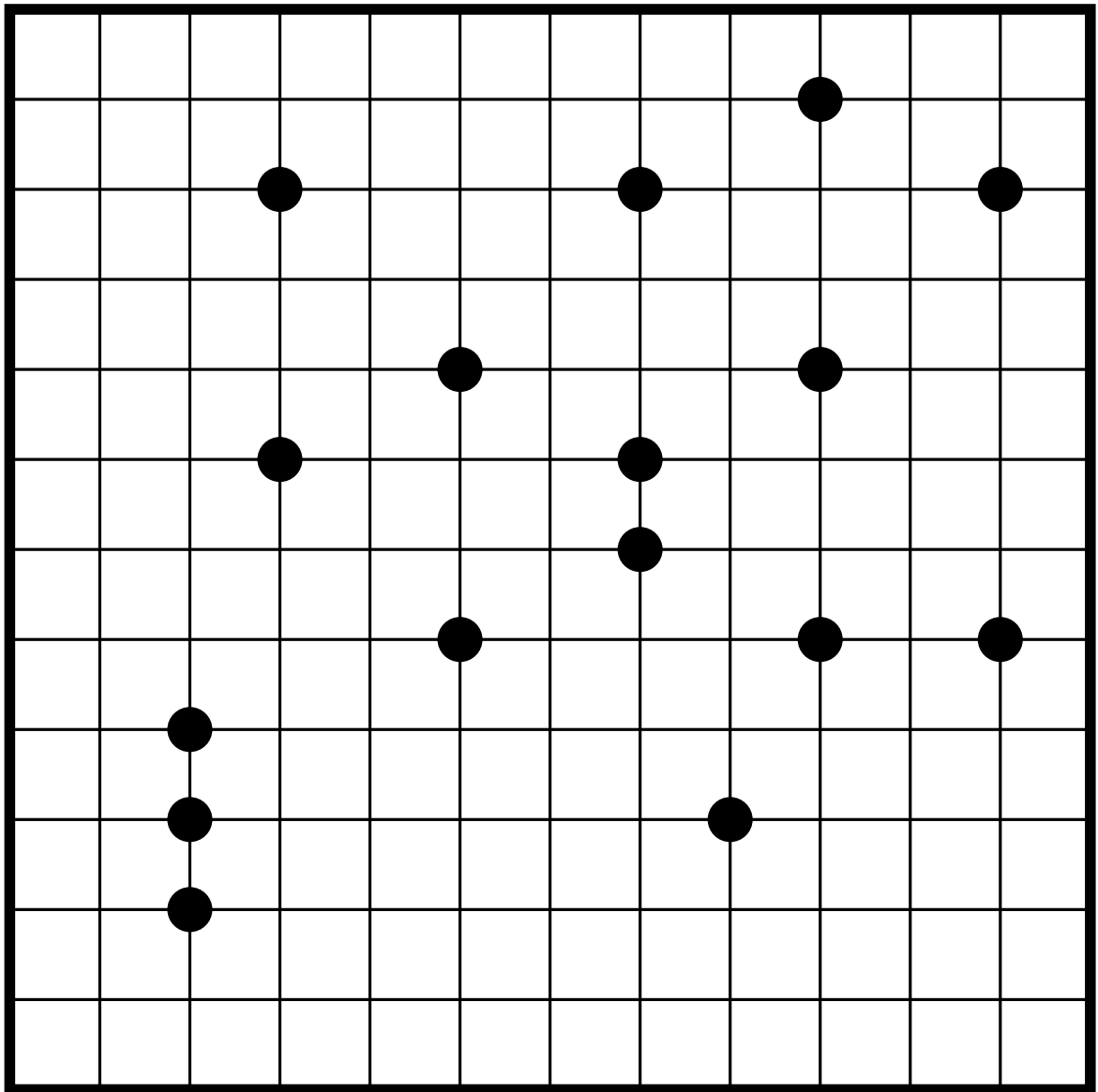
Divide the grid along the dotted lines into the twelve different pentominoes. Pentominoes may be mirrored and rotated.



4.18 Touching Pentominoes

35 Punkte

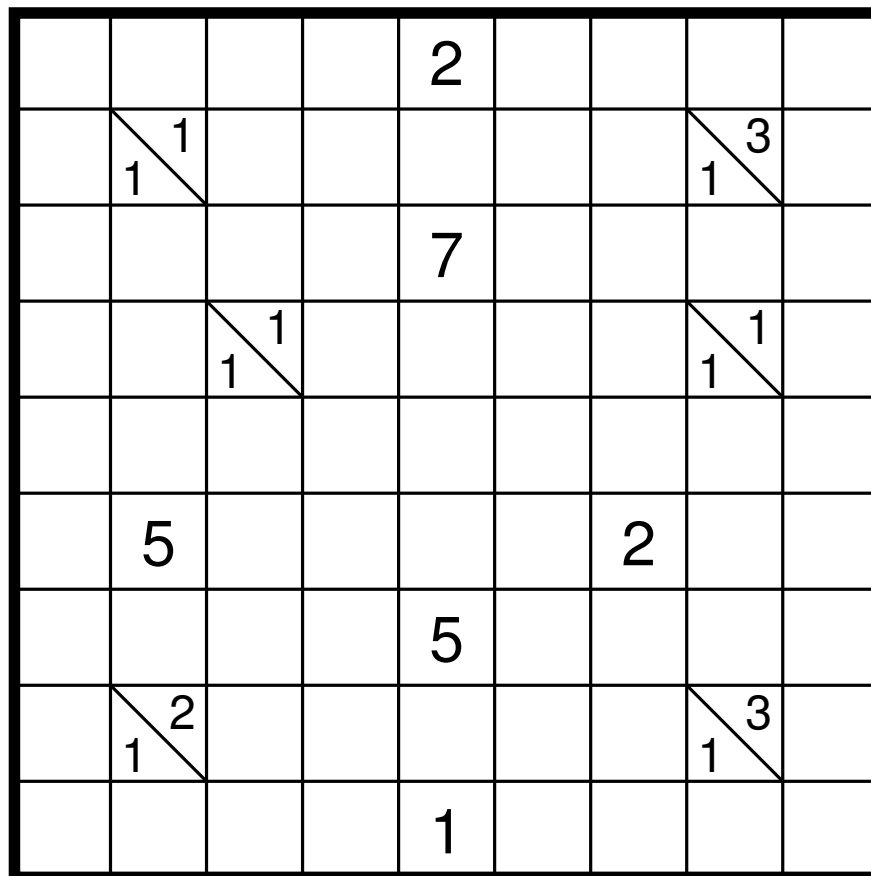
Place twelve different pentominoes in the grid. All points where two pentominoes touch each other diagonally are marked with circles. Pentominoes do not touch at any other points and do not share edges. There may be pentominoes that do not touch any of the circles. Pentominoes may be mirrored and rotated.



4.19 Twilight Tapa

35 Punkte

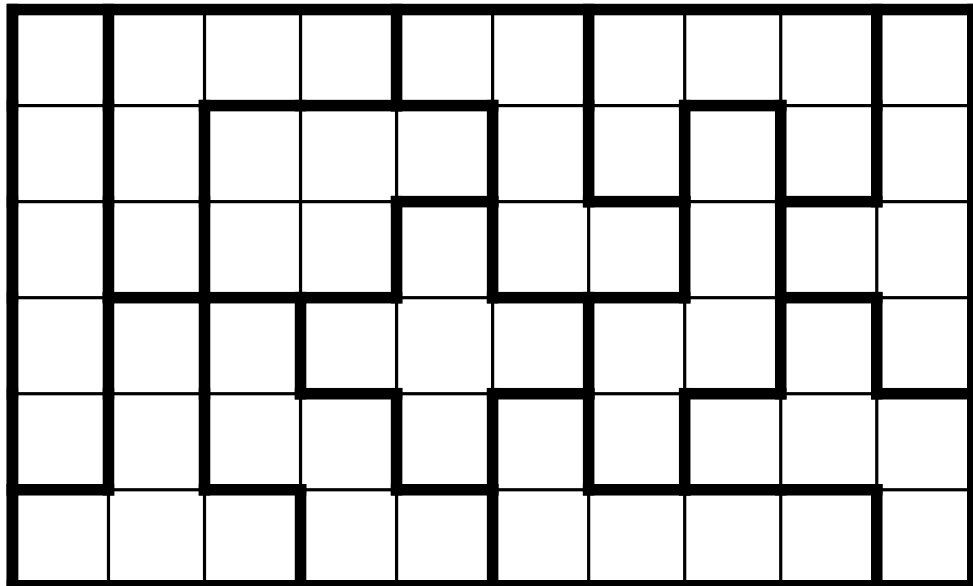
Blacken some cells such that all black cells are connected but no 2x2 area is blackened completely. Cells are connected if they share an edge. Numbers in white cells determine the size of all black groups in the eight adjacent cells. Numbers in black cells determine the size of all white groups in the eight adjacent cells. A group is a sequence of connected cells having the same color. Different groups are separated by at least one cell of a different color. The order of numbers in a clue cell is irrelevant.



4.21 Word Placement

60 Punkte

Write one of the given words in every region, line by line from left to right, such that identical letters do not touch, not even diagonally. Every word is used exactly once.



EMDEN

HUSUM

MAINZ

RHADE

HALLE

KOELN

MELLE

TRIER

HANAU

LAUTA

REGEN

USLAR

