

1. Hex Tapa

(12 points)

Paint some empty cells black to form a continuous wall. Each clue indicates the lengths of the consecutive blocks of black cells among the adjacent cells: each number represents one block of black cells, and when there is more than one number, the black cell blocks must be separated by at least one white cell. The order in which the numbers are given is irrelevant. Three hexagons sharing a corner cannot all be black.

Answer key: enter the lengths of the consecutive groups of black cells in the marked rows A and B (left to right). Enter "0" if there are none.

Example :

Solution :
21,11

2. Hex Dominos

(13 points)

A domino set consisting of the 28 dominos from 0-0 to 6-6 has been placed into the grid, without overlapping. The borders of the dominos have been erased. Reconstruct the missing borders so that each domino can be found exactly once in the diagram.

Answer key: for each cell in marked rows A and B, enter one of '-', '/', '\' to indicate the direction of the domino it belongs to (horizontal, diagonally upwards, diagonally downwards).

Example :
(0-0 to 2-2)

Solution :
\--, \\\//

010, 011, 012, 013, 014, 015, 016, 111, 112, 113, 114, 115, 116, 212, 213, 214, 215, 216, 313, 314, 315, 316, 414, 415, 416, 515, 516, 616

3. Hex Skyscrapers

(20 points)

Each row and diagonal of the grid contains 4 skyscrapers of different heights from 1 to 4. The numbers outside the grid indicate how many skyscrapers are visible from that direction (a building located behind a taller one in the same row is completely hidden).

Answer key: enter the contents of the marked rows A and B. Enter X for empty cells.

Example :
(1 to 2)

Solution :
XX12, 2XXXI

4. Hex Tents

(20 points)

The grid represents the site of a campground. Each tree is connected to exactly one tent, found in an adjacent cell. Tents do not touch each other. The numbers outside the grid reveal the total number of tents in the corresponding row or diagonal. Locate the tents.

Answer key: enter the lengths of the consecutive groups of empty cells in marked rows A and B. Enter "0" if there are none.

Example :

Solution :
2,3I

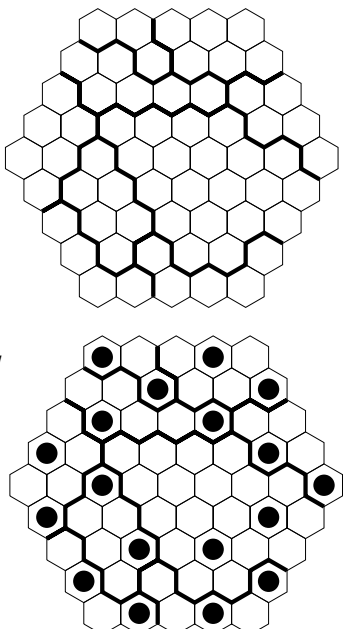
7. Hex Star Battle

(35 points)

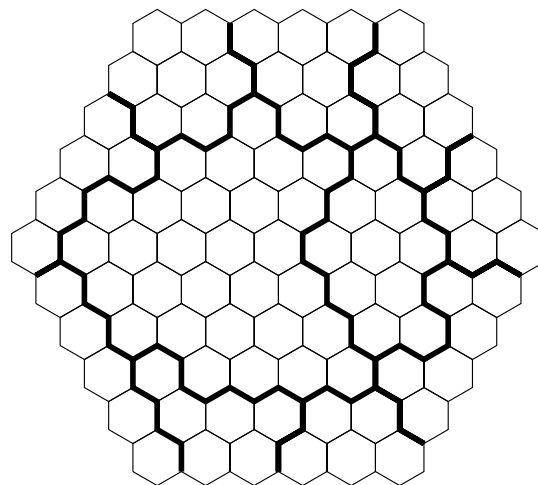
Place stars into the grid so that every highlighted area, every row and every diagonal contains exactly 2 stars. The stars cannot touch each other.

Answer key: enter the number of empty cells between the two stars in each horizontal row, from top to bottom.

Example :



Solution :
222555141



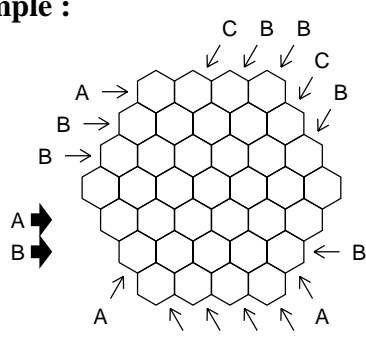
8. Hex End View

(45 points)

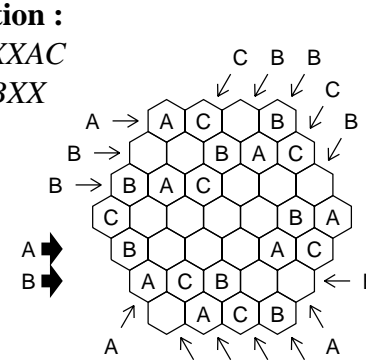
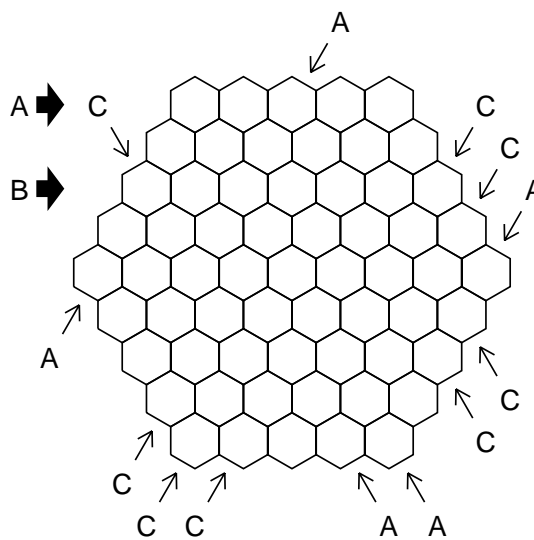
Place letters A,B,C into the diagram, so that each letter occurs exactly once in each row and each diagonal. The clues outside the diagram indicate the first letter seen from that direction.

Answer key: enter the contents of marked rows A and B; enter X for empty cells.

Example :



Solution :
BXXXAC
ACBXX

9. Hex Kakuro

(55 points)

Place a digit (1–9) into each empty cell of the grid so that, along the rows and diagonals, the digits in each consecutive group are all different. The clues outside the grid give the sums of the digits in the first consecutive group encountered from that direction.

Answer key: enter the contents of marked rows A and B. Enter X for the black cells.

Example :

Solution :
69X7
3X869

Row A: 6 → 27 → ← 27 ← 15 ← 13 ← 24 ← 16
Row B: 27 → ← 15 ← 13 ← 24 ← 16

10. Hex Fences

(40 points)

Draw a single closed loop by connecting neighboring points along the grid lines. Each numbered cell indicates how many of its edges are used by the loop.

Answer key: enter the lengths of the consecutive blocks of cells enclosed by the loop in marked rows A and B. Enter “0” if there are none.

Example :

Solution :
3,11

Row A: 1 → 3 → 2 → 1 → 5
Row B: 3 → 3 → 2 → 4 → 3

11. Tapa Islands

(35 points)

Paint some empty cells black to form a continuous sea that separates the remaining cells into islands. The black cells must be connected to each other horizontally or vertically. No 2x2 square can be completely black.

Each island contains exactly one of the circled clues, which gives its area. The other clues indicate the lengths of the consecutive blocks of black cells among the adjacent squares (horizontally, vertically or diagonally): each number represents one block of black cells, and when there is more than one number in a square, the black cell blocks must be separated by at least one white cell. The order in which the numbers are given is irrelevant.

Answer key: enter the lengths of the consecutive groups of black cells in the marked row A (left to right), then in the marked column B (top to bottom). Enter "0" if there are none.

Example :		Solution :	
------------------	--	-------------------	--

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

13. Battleships and Anglers

(60 points)

The grid represents a lake, in which the given battleship fleet is hidden. Ships are oriented either horizontally or vertically, and they do not touch each other, not even diagonally. The non-bold numbers outside the grid indicate how many ship segments lie in a given row or column. There are no ship segments in the cells that contain fish.

Anglers are standing around the lake, at each position with a bold number. Each angler catches one fish. Their fishlines always connect the centers of adjacent squares, and do not intersect. The numbers indicate the number of squares traversed by each fishline. The fishlines cannot pass through the cells occupied by battleship segments. Every cell of the grid is occupied by either a battleship segment or a fishline.

Answer key: enter the lengths of the horizontal segments of fishlines in the marked rows A and B. Enter "0" if there are none.

Example :

		4	2	1	2	0	1	
A →	4							
	8							∞
	2							
	1							∞
B →	0	∞						
	3							
					8		10	

Fleet:

Solution :

1,11

		4	2	1	2	0	1	
A →	4	■	■	■	■			●
	8							∞
	2	■				●		
	1							∞
B →	0	∞						
	3							
					8		10	

		6	1	14	1	1	0	1	2	2	3
4											
0								∞			
4											
11			∞								
6											
3								∞			
A →	1										
B →	1									∞	
30										∞	
1											
		13						12			

Fleet:

14. Battleships in the Minefield

(60 points)

The 10-ship fleet shown next to the diagram (one 4-cell ship, two 3-cell ships, three 2-cell ships, four 1-cell ships) is hidden in the grid. Each segment of a ship occupies a single cell. Ships are oriented either horizontally or vertically, and they do not touch each other, not even diagonally. The numbers above and to the left of the grid indicate the total number of ship segments that appear in the corresponding row or column.

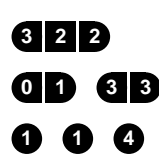
The grid also contains 30 mines, at most one per square. The digits already present in the grid, as well as those on the ship segments, indicate the number of mines present in the immediately adjacent squares (horizontally, vertically, and diagonally).

Locate the fleet and the mines, given that the squares containing a digit cannot contain a mine nor a ship segment, and that the squares containing a ship segment cannot contain a mine.

Answer key: enter the number of mines in each row from top to bottom.

Example : (6 ships, 10 mines)

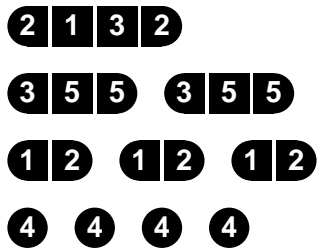
	2	2	4	0	0	2	
4							
0							
3				3			
0							
1						2	
2							



Solution : 141310

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

	1	1	2	1	2	5	0	2	2	4	
1	2							2			
2											
7									2		
0				3							
2								3		2	
2	2					2					
1											3
1						2					
3				2							
1									2		



16. End View Masyu

(60 points)

Place letters A,B,C,D into the diagram, so that each letter occurs exactly once in each row and column. The clues outside the diagram indicate the first letter seen from that direction.

Then, draw a single closed loop that passes through all the letters. The loop must go straight through the cells containing letters A and B, with a turn in at least one of the cells immediately before or after (“white circle”). The loop must make a turn in all the cells containing letters C and D, but must go straight in both cells immediately before and after (“black circle”).

Answer key: enter the lengths of the horizontal loop segments in the marked row A, then the lengths of the vertical loop segments in the marked column B. Enter “0” if there are none.

Example :
(A,C)

Solution :
12,41

17. Star Battle Sudoku

(70 points)

Every cell of the grid contains either a digit (from 1 to 7) or a star. Fill in the grid so that every highlighted area, every row and every column contains exactly 2 stars and once each digit from 1 to 7. The stars cannot touch each other, not even diagonally.

Answer key: enter the contents of the marked rows A and B. Enter X for cells containing stars.

<p>Example : (1 star and 1-4)</p>	A →	<table border="1" style="border-collapse: collapse; width: 100px; height: 100px;"> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td>2</td><td>1</td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td>3</td><td> </td><td>4</td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>							2	1									3		4							B →	<p>Solution : 1X234, X4312</p>	A →	<table border="1" style="border-collapse: collapse; width: 100px; height: 100px;"> <tr><td>1</td><td>●</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>4</td><td>2</td><td>1</td><td>●</td><td>3</td></tr> <tr><td>●</td><td>4</td><td>3</td><td>1</td><td>2</td></tr> <tr><td>2</td><td>3</td><td>●</td><td>4</td><td>1</td></tr> <tr><td>3</td><td>1</td><td>4</td><td>2</td><td>●</td></tr> </table>	1	●	2	3	4	4	2	1	●	3	●	4	3	1	2	2	3	●	4	1	3	1	4	2	●	B →
	2	1																																																							
	3		4																																																						
1	●	2	3	4																																																					
4	2	1	●	3																																																					
●	4	3	1	2																																																					
2	3	●	4	1																																																					
3	1	4	2	●																																																					

				3				2
5			4					
					1			
							7	
		2						
			5			6		
					4			
7								

A →

B →

18. Pentomino Blackout Dominos

(90 points)

A domino set consisting of the 36 dominos from 0-0 to 7-7 has been placed into the grid, without overlapping. The borders of the dominos have been erased, and additional digits have been written in the unused cells. The unused cells form a complete set of pentominos (as shown). The pentominos do not touch each other, not even diagonally. They can be rotated and reflected. The clues outside the grid indicate how many cells in the corresponding row or column are occupied by the pentominos.

Blacken the pentominos, and reconstruct the missing borders so that each domino can be found exactly once in the diagram.

Answer key: for each cell in marked rows A and B, enter '-' if it belongs to a horizontal domino, '|' if it belongs to a vertical domino, 'X' if it belongs to a pentomino.

Example : (0-0 to 3-3 + tetraminos)

3		2	1	0	3	1		
4	3	0	2	2	1	3	1	
A →	2	1	1	3	0	3	1	2
B →	2	2	3	2	3	0	0	1
4	1	3	0	1	2	1	2	
5	0	2	1	3	0	3	0	
	4	3	1	4	0	5	3	

Solution : -- |X|X|, X| |X-- |

3				0	3			
4			2	2	1			
A →	2	1	1	3		3	2	
B →	2		3	2		0	0	1
4		3	0		2			
5			1		0			
	4	3	1	4	0	5	3	

10	7	6	1	1	1	5	2	2	2	4	2	2	
4	0	7	0	1	0	7	0	2	4	3	0	1	
4	7	1	7	4	7	5	7	4	0	4	5	3	
5	7	0	2	5	3	4	2	5	4	2	0	7	
A →	5	5	3	5	6	4	1	3	6	1	6	2	5
6	1	6	6	4	0	4	1	3	7	3	0	6	
B →	5	4	6	6	7	4	3	5	2	3	4	3	0
4	0	1	6	5	7	4	2	7	2	7	0	0	
4	6	3	5	3	5	2	0	2	1	0	2	0	
6	0	6	1	6	0	1	2	3	5	6	1	3	
7	2	1	4	7	4	4	3	5	5	5	3	3	
	7	5	6	3	6	3	6	5	2	7	2	8	

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

20. Magnetic Kakuro

(115 points)

The grid is made up of magnetic and non-magnetic plates. Each magnetic plate has two halves: one positive and one negative. Halves with the same symbol cannot touch each other horizontally or vertically. The numbers to the right of the grid and below it indicate the number of magnetic halves in that particular row or column.

Then, enter a single digit from 1 to 9 into each magnetic half-plate so that, in each row and column, the sums of the numbers (with signs given by their polarity) in each consecutive group of magnetic halves are equal to the values given to the left of the grid and above it, in the given order. No digit can be repeated within a single group (irrespective of polarity). The non-magnetic plates do not contain any digits.

Answer key: enter the contents of row A, then the contents of column B. Ignore the signs of the magnetic half-plates (enter only the digits), and enter X for each non-magnetic half-plate.

<p>Example :</p> <div style="text-align: center;"> \downarrow B </div> <div style="text-align: center;"> 5 -6 -6 3 -1 6 </div> <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> \rightarrow A </div> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">-8</td> <td style="width: 20px;"> </td> <td style="width: 20px;"> </td> <td style="width: 20px;"> </td> <td style="width: 20px;"> </td> <td style="width: 20px;">2</td> <td style="width: 20px;">2</td> </tr> <tr> <td>-1</td> <td> </td> <td> </td> <td> </td> <td> </td> <td>1</td> <td>1</td> </tr> <tr> <td>3</td> <td> </td> <td> </td> <td> </td> <td> </td> <td>2</td> <td>2</td> </tr> <tr> <td></td> <td>1</td> <td>2</td> <td>0</td> <td>2</td> <td>+</td> <td></td> </tr> <tr> <td></td> <td>2</td> <td>0</td> <td>2</td> <td>1</td> <td>-</td> <td></td> </tr> </table> </div>	-8					2	2	-1					1	1	3					2	2		1	2	0	2	+			2	0	2	1	-		<p>Solution :</p> <div style="text-align: center;"> \downarrow B </div> <div style="text-align: center;"> 5 -6 -6 3 -1 6 </div> <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> \rightarrow A </div> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">-8</td> <td style="width: 20px;">-9</td> <td style="width: 20px;">+5</td> <td style="width: 20px;">-6</td> <td style="width: 20px;">+2</td> <td style="width: 20px;">2</td> <td style="width: 20px;">2</td> </tr> <tr> <td>-1</td> <td>+7</td> <td style="background-color: #cccccc;"> </td> <td>-1</td> <td> </td> <td>1</td> <td>1</td> </tr> <tr> <td>3</td> <td>-4</td> <td>+3</td> <td>-1</td> <td>+5</td> <td>2</td> <td>2</td> </tr> <tr> <td></td> <td>1</td> <td>2</td> <td>0</td> <td>2</td> <td>+</td> <td></td> </tr> <tr> <td></td> <td>2</td> <td>0</td> <td>2</td> <td>1</td> <td>-</td> <td></td> </tr> </table> </div>	-8	-9	+5	-6	+2	2	2	-1	+7		-1		1	1	3	-4	+3	-1	+5	2	2		1	2	0	2	+			2	0	2	1	-	
-8					2	2																																																																	
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-8	-9	+5	-6	+2	2	2																																																																	
-1	+7		-1		1	1																																																																	
3	-4	+3	-1	+5	2	2																																																																	
	1	2	0	2	+																																																																		
	2	0	2	1	-																																																																		

\downarrow
 B

8
 -7 4 -1 6 -2 19 -7 6 -5
 -5 -5 9 5 20 4 7 6 24 11

14	5	-2									4	3
-5	0										4	4
-16	-2										3	4
14	5										5	4
12	5										4	4
8	7										3	3
-8	7	5									3	3
\rightarrow A	7	4									4	5
14											3	4
23											4	3
	3	4	4	3	4	4	4	4	3	5	3	+
	3	3	4	4	4	4	3	4	4	4		-