WPF SUDOKU/PUZZLE GRAND PRIX 2018

ROUND 4

WPF PUZZLE GP 2018 COMPETITION BOOKLET

Host Country: Czech Republic

Jakub Hrazdira, Jiří Hrdina, Pavel Kadlečík, Petr Lichý, Jan Novotný, Zuzana Vytisková, Jan Zvěřina

Special Notes: An earlier version of the puzzle booklet accidentally labeled the arrows for puzzles 15-18 as 16-19. This has been corrected.

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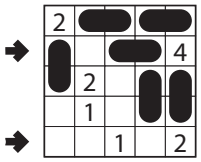
1. Minesweeper (Pills) [Pavel Kadlečík] (22 points)

Place mines into the un-numbered cells in the grid, so that each number in a cell represents the number of mines adjacent to that cell, including diagonally adjacent cells. (This is not necessarily the same as the number of adjacent cells occupied by mines.) Each mine occupies two orthogonally-adjacent cells. Mines do not share cells.

Answer: For each designated row, enter its contents from left to right. Use 'O' for a cell containing part of a mine and 'X' for a cell that does not contain a mine (but may contain a number).

Example Answer: OXOOX, XXXXX



1a

1b

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

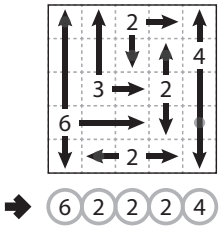
2. Four Winds [Jiří Hrdina] (21 points)

Draw arrows in the empty cells in the grid. Arrows can only go in the four standard directions and must begin at the edge of a cell with a number. Each empty cell must be covered by exactly one arrow. Each number indicates the total length of all the arrows that begin at an edge next to that number's cell.

The dots in cells are only used for entering your answers.

Answer: Enter the number whose arrow covers the dot, reading the dots *from left to right*. (Ignore which row the dots are in.) Use only the last digit for two-digit numbers; e.g., use '0' for a number labeled 10.

Example Answer: 62224



2

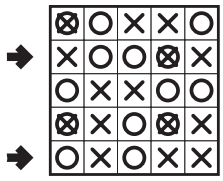
6		●						2
●	4						3	●
		2	●		●	2		
			1		3	●		
				7				
			6		2			
	●	1				2	●	
	3						4	
6				●				10

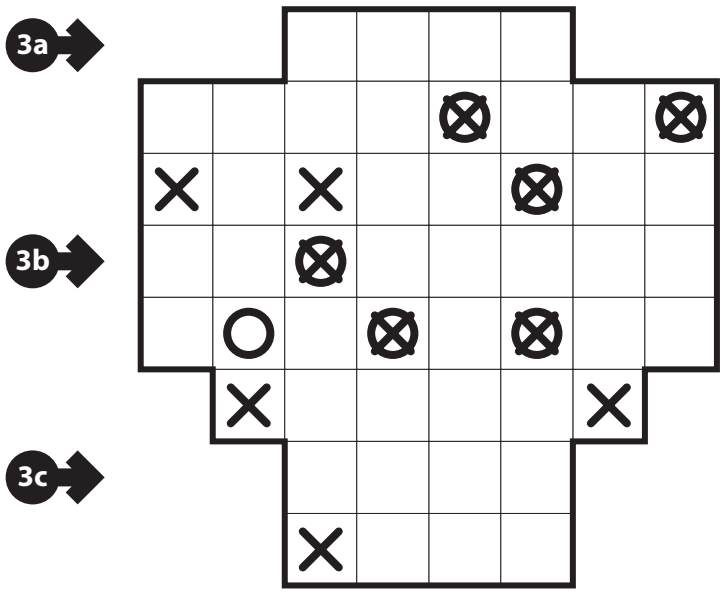
3. No Four in a Row (Overlapping) [Pavel Kadlečík] (14 points)

Place a circle or a cross into each empty cell, one symbol per empty cell, such that no row, column, or diagonal has four consecutive cells with the same symbol. Some cells have already been filled for you; it is possible for already-filled-in cells to contain both a circle and a cross.

Answer: For each designated row, enter its contents from left to right. Use 'O' for a cell occupied by a circle, 'X' for a cell occupied by a cross, and '2' for a cell occupied by a circle and a cross.

Example Answer: XOO2X, OXOXX





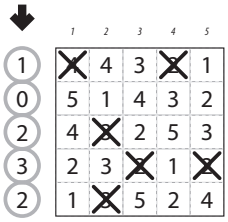
4. Hitori [Zuzana Vytisková] (13 points)

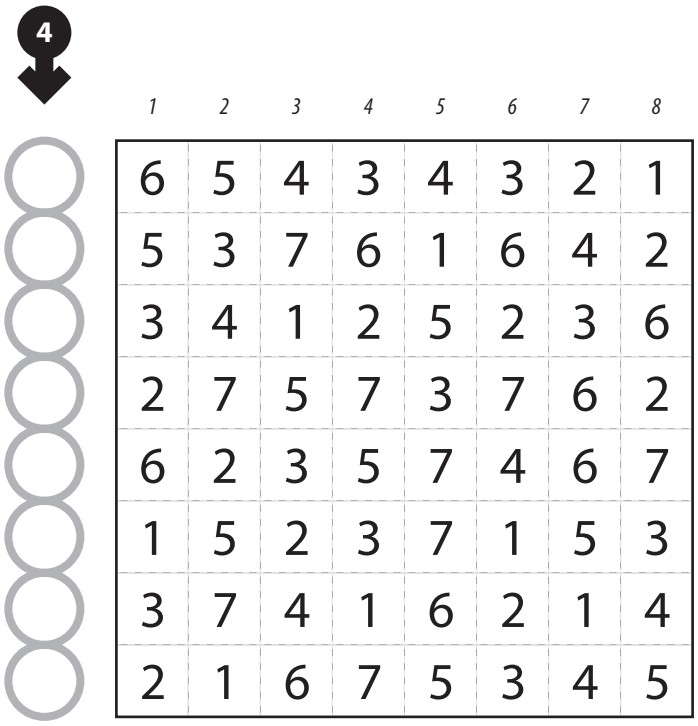
Remove some numbers from the grid so that all remaining numbers are connected orthogonally and no two removed numbers are adjacent orthogonally. Additionally, for each row and each column, the remaining numbers must be all different.

The numbers on top of the diagram are for Answer purposes only.

Answer: For each row from top to bottom, enter the number (on top) of the first column from the left that has a removed number. Use only the last digit for two-digit numbers; e.g., use '0' if the first removed number appears in column 10. If none of the numbers in the row are removed, enter '0'.

Example Answer: 10232





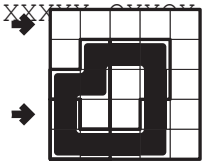
5. Snaky Loop (Regions) [Jan Novotný] (26 points)

Locate a "snaky loop" in the grid; it goes through some number of cells orthogonally and comes back to itself. Each cell is used at most once by the loop. The loop must occupy more than four cells and may not touch itself, not even diagonally. (In other words, if two cells in the loop touch orthogonally, then they must be exactly one cell apart along the path of the loop, and if two cells in the loop touch diagonally, then they must be exactly two cells apart along the path of the loop.)

The number of loop-occupied cells in each boldly-outlined region is the same. It is permissible for the loop to enter a region more than once.

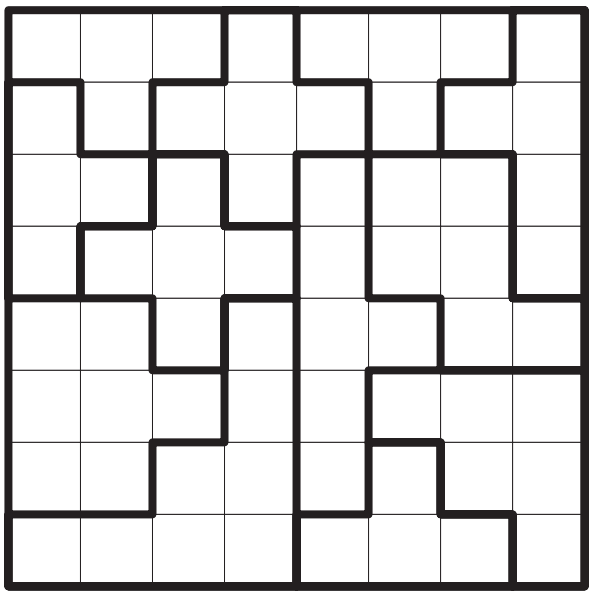
Answer: For each designated row, enter its contents. Use 'O' for a cell occupied by the snake and 'X' for a cell not occupied by the snake. (If you wish, you may reverse O and X, but you must be consistent within the same puzzle.)

Example Answer: XXXXX, OXXOX (or OOOOO, XOOXO)



5a

5b

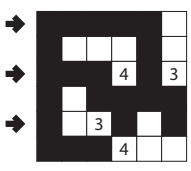


6. Nurikabe [Jan Zvěřina] (24 points)

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

Answer: For each designated row, enter the lengths (number of cells) of the black segments from left to right. If there are no black cells in the row, enter a single digit '0'. Use only the last digit for two-digit numbers; e.g., use '0' for a black segment of length 10.

Example Answer: 5,31,111



6a

6b

								7	
				5					
2						1			
		6					4		
			9						
	8				3				

7. Skyscrapers [Petr Lichý] (62 points)

Place a number from 1 to X (integers only) into each cell so that each number appears exactly once in each row and column. (X is the number of cells in each row.) Each number represents a skyscraper of its respective height. The numbers outside the grid indicate how many skyscrapers can be seen in the respective row or column from the respective direction; smaller skyscrapers are hidden behind higher ones. Some numbers may already be filled in for you.

Answer: For each designated row, enter its contents. Do *not* include any numbers outside the grid.

Example Answer: `45312,23541`

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

7a →

7b →

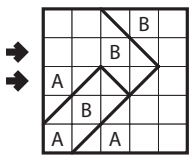
	5	2	2	3	4	1	2	3	2	
3	1								6	2
3		7						8		3
3			1		6		3			1
2				1	5	4				3
4			8	4	9	6	1			2
2				8	1	2				5
1			5		8		6			5
3		6						1		2
4	4								5	2
	2	3	3	2	4	5	2	1	3	

8. Slash Pack [Jan Zvěřina] (53 points)

Fill in some empty cells with diagonal lines such that the grid is divided by the diagonal lines into different regions (each diagonal line must be between two different regions). Each region must contain exactly one each of the symbols given in the grid.

Answer: For each designated row, enter its contents, from left to right. Use `N` for a cell with a diagonal line going from upper-left to lower-right, `Z` for a cell with a diagonal line going from upper-right to lower-left, and `O` for a cell without a diagonal line (including cells with symbols). If you wish, you may use `\` instead of `N` and `/` instead of `Z`, as long as you do so for all such usages.

Example Answer: `OOONO,OZNZO` (or `OOO\O,O/\/O`)

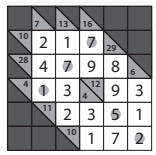


8a →

8b →

D				B			D			
			A			C				
	A						B		C	
			B							A
		D		C		D				
C							B			
	C				A				B	
			D							C
		A					D			
B				A				A		D
	C					B				

9. Kakuro [Pavel Kadlečík] (95 points)



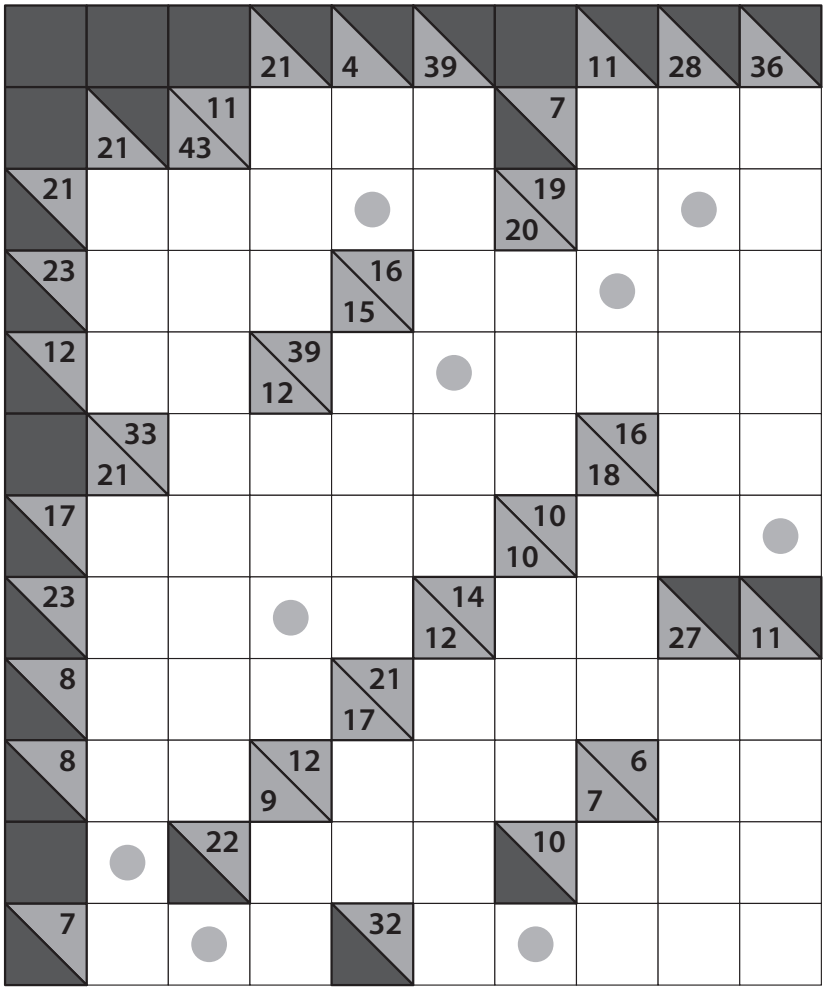
Place a digit from 1 to 9 into each white cell. The numbers in grey cells indicate the sum of digits in the adjacent "word" across or down. (Across "words" are to the right of their sums, Down "words" are below their sums.) Digits may not repeat within a "word."

Not all "words" will have a provided sum.

The dots in cells are only used for entering your answers.

Answer: Enter the number in the cells that each dot is in, reading the dots from left to right. (Ignore which row the dots are in.)

Example Answer: 17752



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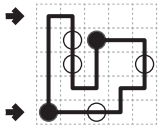
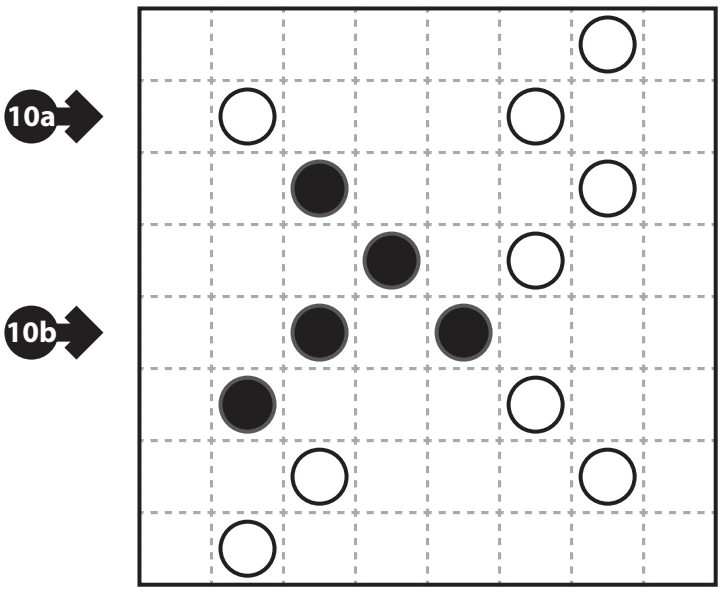
10. Masyu [Jan Novotný] (3 points)

Draw a single loop that passes orthogonally through centers of cells. The loop must go through all circled cells. The loop may not intersect itself or enter the same cell more than once. The loop must go straight through the cells with white circles, with a turn in at least one of the cells immediately before or after each white circle. The loop must make a turn in all the black circles, but must go straight in both cells immediately before and after each black circle.

Answer: For each designated row, enter the letter for each cell, from left to right. The letter for a cell is 'I' if the path goes straight through the cell, 'L' if the path turns in the cell, and 'X' if the path does not go through the cell.

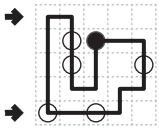
Example Answer: LLXXX,LIILX





11. Masyu (Single Liar) [Jakub Hrazdira] (26 points)

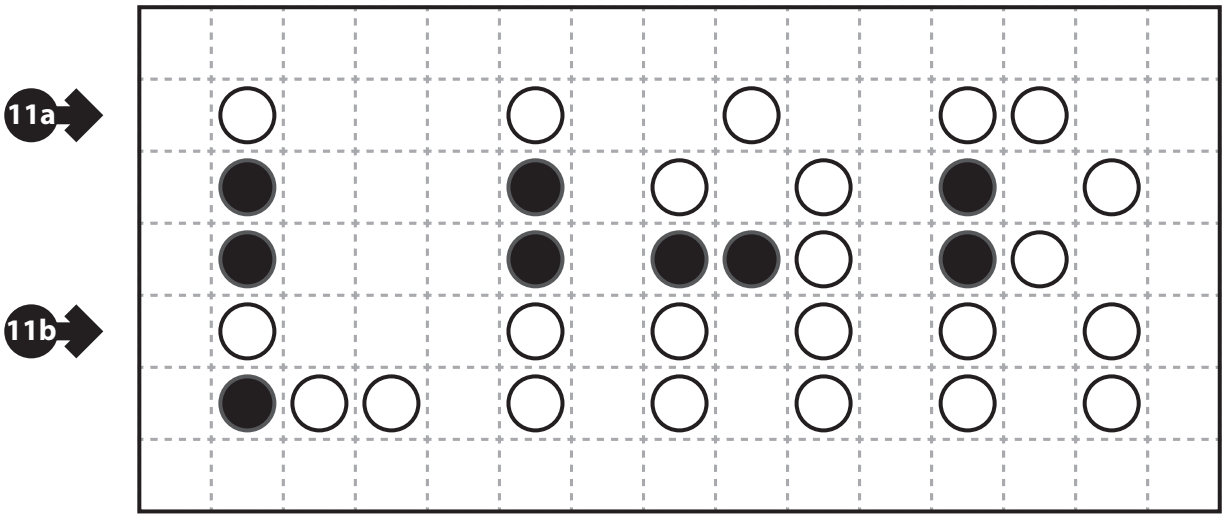
Draw a single loop that passes orthogonally through centers of cells. The loop must go through all circled cells. The loop may not intersect itself or enter the same cell more than once. The loop must go straight through the cells with white circles, with a turn in at least one of the cells immediately before or after each white circle. The loop must make a turn in all the black circles, but must go straight in both cells immediately before and after each black circle.



One circle is the wrong color (black instead of white, or white instead of black). Which one is for you to determine.

Answer: For each designated row, enter the letter for each cell, from left to right. The letter for a cell is 'I' if the path goes straight through the cell, 'L' if the path turns in the cell, and 'X' if the path does not go through the cell.

Example Answer: LLXXX,LIILX

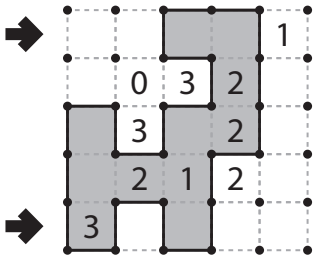


12. Slitherlink [Jakub Hrazdira] (27 points)

Draw a single, non-intersecting loop that only consists of line segments between the dots along the dotted lines. A number inside a cell indicates how many of the edges of that cell are part of the loop.

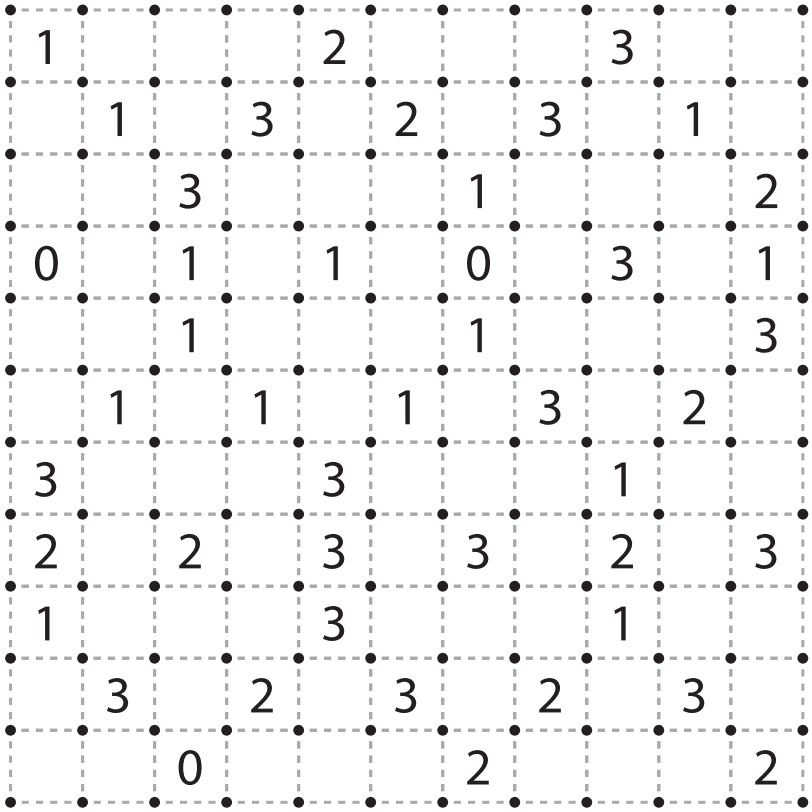
Answer: For each designated row, enter its contents from left-to-right. Use 'O' for a cell inside the loop and 'X' for a cell outside the loop.

Example Answer: XXOOX, OXOXX



12a

12b



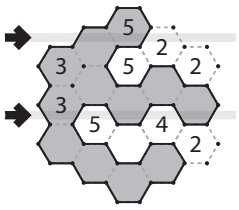
13. Slitherlink (Hexagonal) [Jan Novotný] (53 points)

Draw a single, non-intersecting loop that only consists of line segments between the dots along the dotted lines. A number inside a cell indicates how many of the edges of that cell are part of the loop.

The horizontal grey lines along the arrows are only used to help you enter your answer.

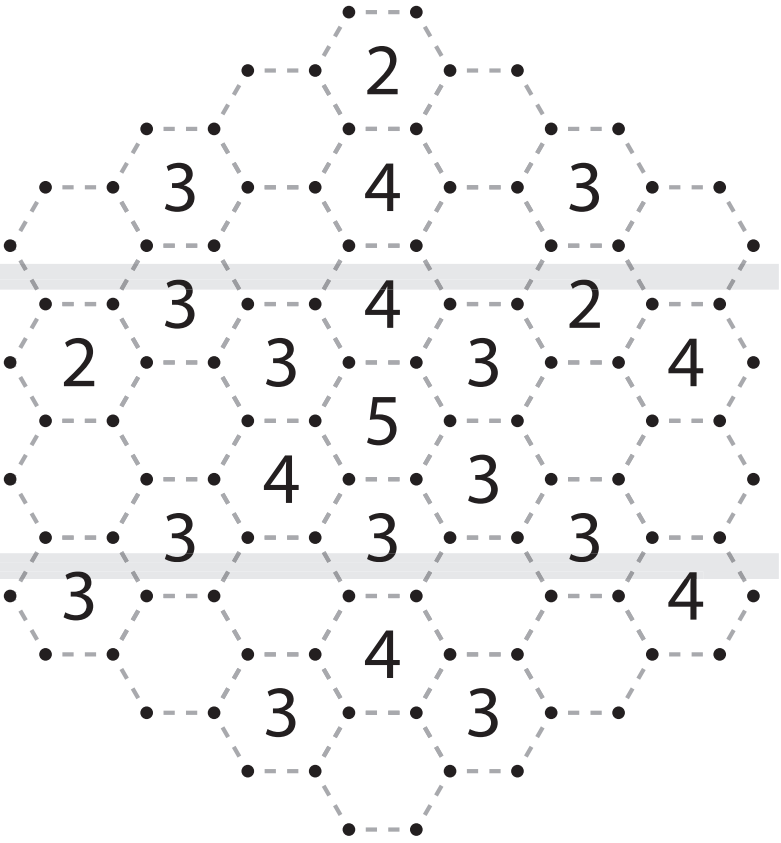
Answer: For each designated row, enter its contents from left-to-right. Use 'O' for a cell inside the loop and 'X' for a cell outside the loop.

Example Answer: OOX, OXOXO



13a

13b



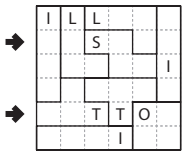
14. Tetromino Division [Jan Novotný] (5 points)

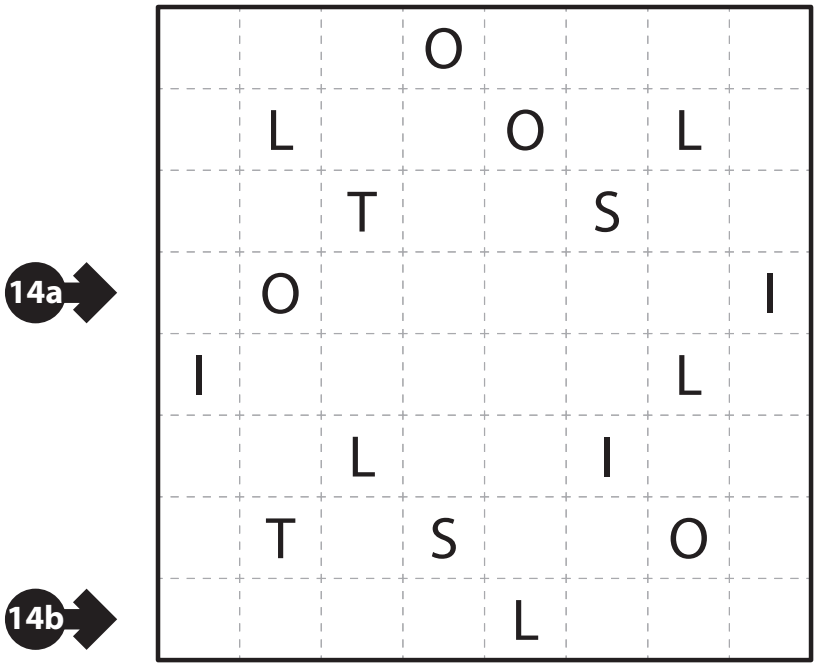
Divide the grid into tetrominoes such that every cell in the grid is part of exactly one tetromino. Some letters are given in the grid. Each tetromino must contain exactly one letter. All tetrominoes with the same shape (not counting rotations and reflections) must contain the same letter, and tetrominoes with different shapes must contain different letters.

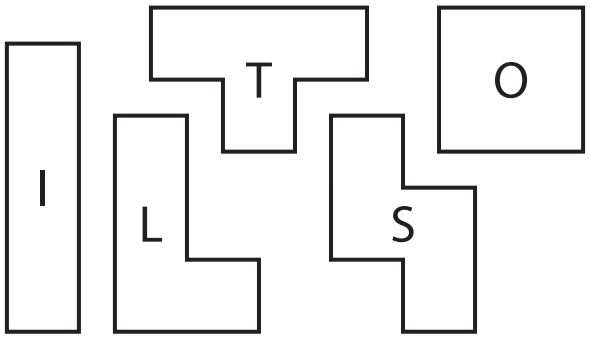
The mapping of letters to tetrominoes has been supplied for you.

Answer: For each designated row, enter the letter for the tetromino that each cell is part of, from left to right.

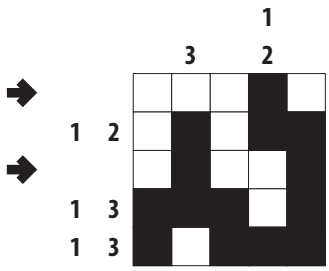
Example Answer: `ILSSLI,TTTTOO`







15. Coral [Jan Novotný] (17 points)



Shade some cells black (leaving the other cells white) such that all shaded cells are connected orthogonally into a single region. All non-shaded cells must be connected orthogonally (through other non-shaded cells) 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 blackened 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 unblackened cell between them. As a special case, if the single clue "0" is given, it means there should be no blackened cells in that row (or column).

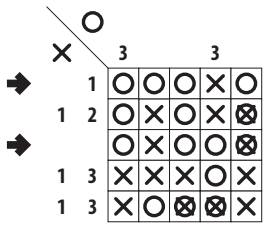
It is possible that not all rows and columns have given numbers. It is up to you to determine what cells to blacken without that information.

Answer: For each designated row, enter its contents from left to right. Use 'O' for an unshaded (white) cell and 'X' for a shaded (black) cell.

Example Answer: OOOXO, OXOOX

				1	1		1				
				2	1	1	1	2	3	1	2
				3	2	3	1	3	3	2	3
15a			4								
		1	3								
	1	2	3								
	1	1	1								
15b		2	3								
	1	1	1								
		2	4								
		1	4								

16. Coral (Overlapping) [Jan Novotný] (16 points)



Put a circle or a cross into every empty cell such that all cells with a circle are connected orthogonally into a single region, and all cells with a cross are connected orthogonally into a single region. All cells that do not have a circle must be connected orthogonally (through other cells that do not have a circle) to the edge of the grid. All cells that do not have a cross must be connected orthogonally (through other cells that do not have a cross) to the edge of the grid. No 2×2 group of cells may have circles in all four cells. No 2×2 group of cells may have crosses in all four cells.

Some cells contain both a circle and a cross; all such cells are given to you.

The numbers to the left of the main grid represent the lengths of contiguous cell blocks with crosses in the corresponding row. The numbers above the main grid represent the lengths of contiguous cell blocks with circles in the corresponding 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 cell without the relevant symbol between them. As a special case, if the single clue "0" is given, it means there should be no cells of the relevant symbol in that row (or column).

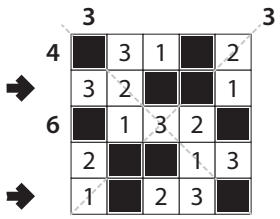
It is possible that not all rows and columns have given numbers. It is up to you to determine which symbols go in which cells without that information.

Answer: For each designated row, enter its contents from left to right. Use 'O' for a cell occupied by a circle, 'X' for a cell occupied by a cross, and '2' for a cell occupied by a circle and a cross.

Example Answer: OOOXO, OXOO2

				1		1				
			O	1	2	1	1	1	1	1	2
			X	1	3	3	2	4	3	2	3
16a →		1	3								
	1	1	1	⊗						⊗	
			8						⊗		
		1	1								
		1	4		⊗						
	1	1	2				⊗				
16b →	1	1	2								
		1	5								

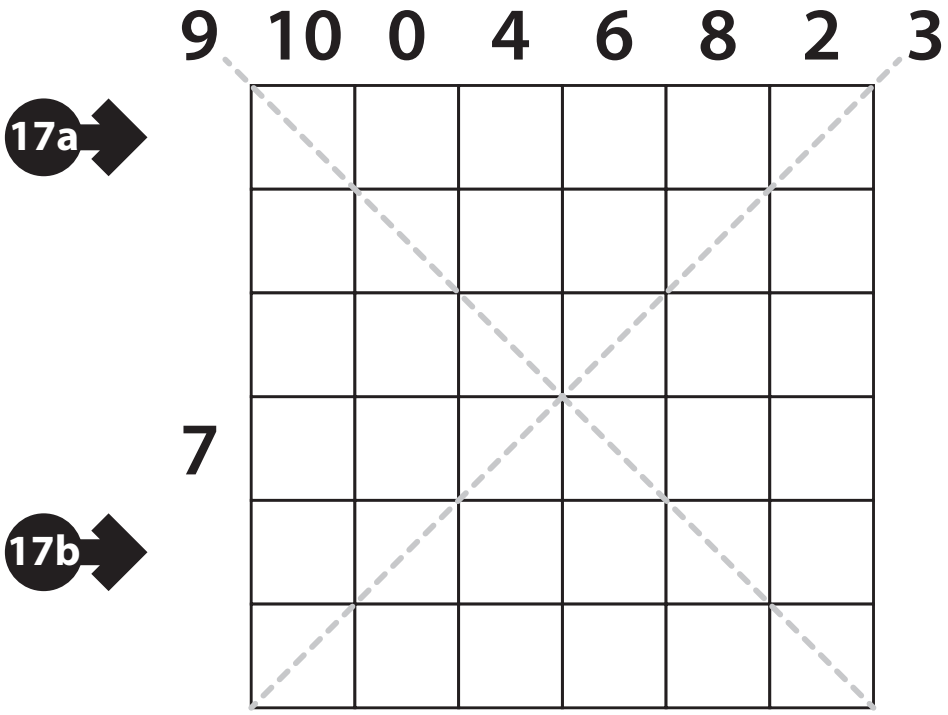
17. Doppelblock (Diagonals) [Jan Novotný] (11 points)



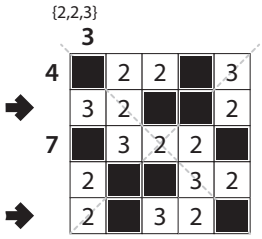
Place either a block or a number from 1 to X (integers only) into each cell so that each number appears exactly once in each row, column, and long diagonal. (X is two fewer than the number of cells in each row.) Each row, column, and long diagonal will therefore have exactly two cells with blocks in them. The numbers outside the grid indicate the sum of the numbers between the two blocks. Some cells may already be filled in for you.

Answer: For each designated row, enter its contents from left to right. Use 'X' to denote a block. Use only the last digit for two digit numbers; e.g., use '0' for the number 10. Do not include any given numbers outside the grid.

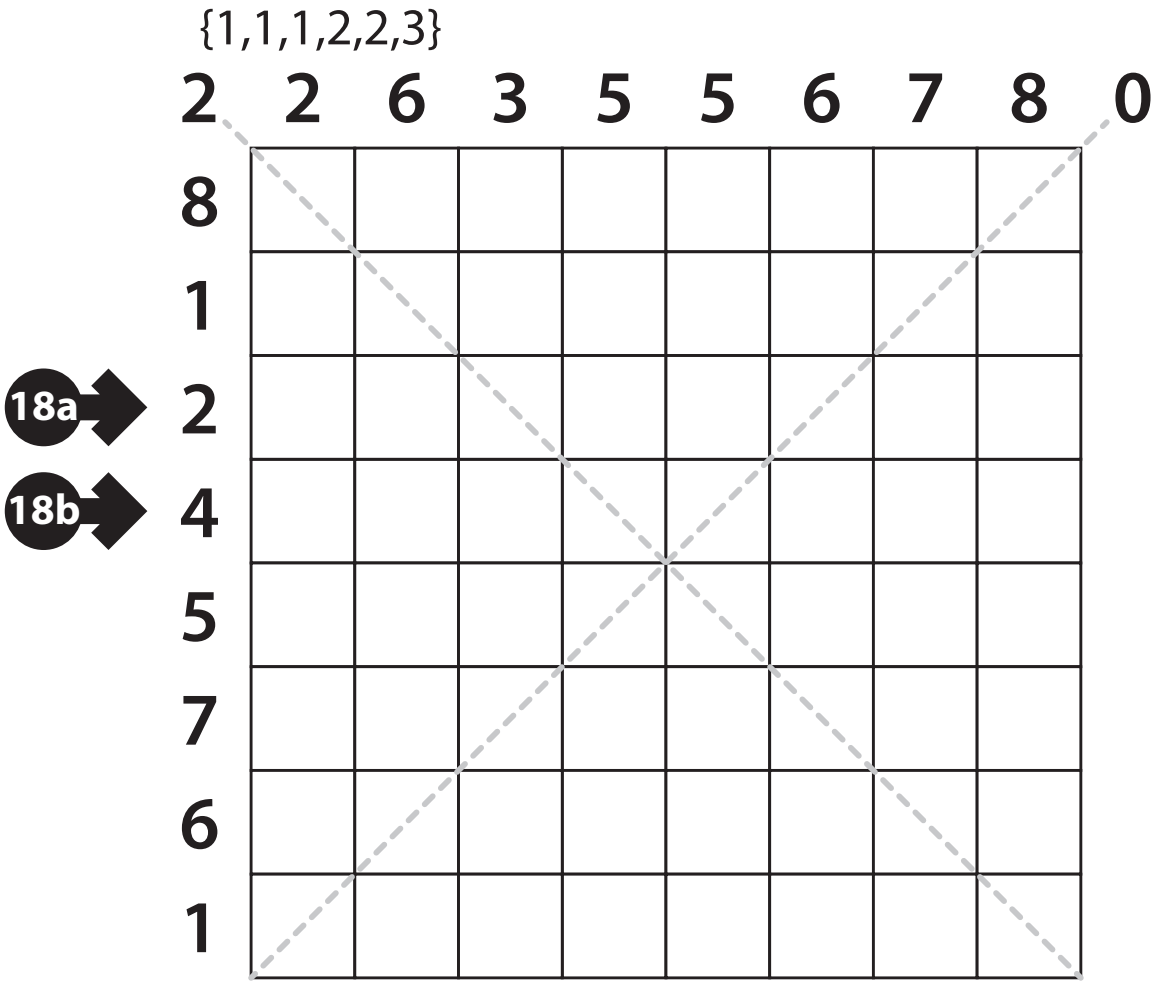
Example Answer: `32XX1,1X23X`



18. Doppelblock (Set, Diagonals) [Jan Novotný] (84 points)



Place either a block or a number into each cell so that the numbers that appear in each row, column, and long diagonal are the designated (multi)set. Each row, column, and long diagonal has exactly two cells with blocks in them. The numbers outside the grid indicate the sum of the numbers between the two blocks. Some cells may already be filled in for you.

Answer: For each designated row, enter its contents from left to right. Use 'X' to denote a block. Use only the last digit for two digit numbers; e.g., use '0' for the number 10. Do not include any given numbers outside the grid.

Example Answer: 32XX2,2X32X