WPF PUZZLE GP 2024 INSTRUCTION BOOKLET

Host Country: Serbia

Nikola Živanović, Čedomir Milanović, Zoran Tanasić

Special Notes: None.

Points:					
1.	Battleships	12	12.	Meandering Words	18
2.	Easy As	11	13.	Scrabble	22
3.	Shikaku	11	14.	Ripple Effect	17
4.	Skyscrapers	4	15.	Ripple Effect	71
5.	Skyscrapers	31	16.	Sudoku (Unmarked Thermo)	29
6.	Tapa (Island Sizes)	17	17.	Sudoku (Unmarked Thermo)	64
7.	Tapa (Island Sizes)	52	18.	Compass	17
8.	Yajilin	7	19.	Compass	104
9.	Yajilin	14	20.	Fillomino (Galaxies)	50
10.	Dominion	16	21.	Pentominous	26
11.	Gaps (No Touch)	37	22.	Sashigane	21
				TOTAL:	651

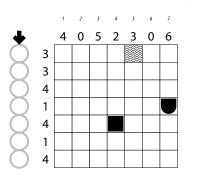### 1. Battleships [Nikola Živanović] (12 points)

Locate the indicated fleet of ships in the grid. Ships may be rotated before being placed in the grid. Each piece of a ship occupies a single cell. A cell that does not contain a ship piece is considered "sea". Ships do not touch each other, not even diagonally (that is, if two ship pieces are in cells that share an edge or a corner, they must be part of the same ship). The contents of some cells are given for you (wavy lines indicate "sea").
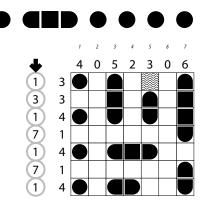
Each number to the top or left of the grid reveals the number of ship pieces that must be located in that row or column (including any that might be given for you).

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

Answer: For each row from top to bottom, enter the number of the first column from the left where a ship piece appears (the number on the far top of that column). Use only the last digit for two-digit numbers; e.g., use '0' if the first ship piece appears in column 10. If the row has no ship pieces, enter '0'.

Example Answer: 1317171

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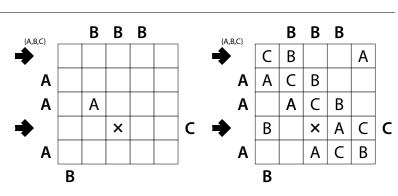WORLD PUZZLE FEDERATION

Pg 2 of 6

2. Easy As [Nikola Živanović] (11 points)

Place letters of the specified list into some cells, no more than one letter per cell, so that each letter appears exactly once in each row and column. The letters outside the grid indicate the first letter that can be seen in the respective row or column from the respective direction. Some letters may already be filled in for you. Some cells might be marked with a cross; do not put any letters into those cells.

Answer: For each designated row, enter its contents. Do *not* include any letters outside the grid. Use 'X' for an empty cell.

Example Answer: CBXXA,BXXAC

3. Shikaku [Nikola Živanović] (11 points)

Divide the grid into rectangles along the grid lines such that each cell is in exactly one rectangle and each rectangle contains exactly one given number. The number must equal the area of the rectangle (in cells).

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

Answer: Enter the number in the rectangle each dot is in, 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 rectangle with a 10 inside it.
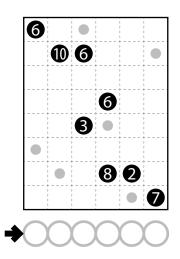
Example Answer: 086627

4-5. Skyscrapers [Čedomir Milanović, Nikola Živanović] (4, 31 points)

Place a number from 1 to X 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; shorter skyscrapers are hidden behind taller ones. Some numbers may already be filled in for you.

Answer: For each designated row, enter its contents from left to right. Do *not* include any numbers outside the grid.
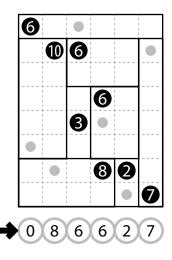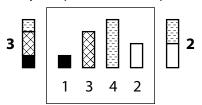
Example Answer: 45312,23541

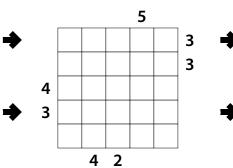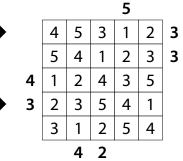Skyscraper Clue Examples

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Pg 3 of 6

6-7. Tapa (Island Sizes) [Čedomir Milanović, Nikola Živanović] (17, 52 points)

Shade some empty cells; cells with numbers cannot be shaded. All shaded cells connect along edges to create a single connected region. (It is permissible for the region to touch itself at a corner, but touching at a corner does not connect the region.) No 2×2 group of squares can be entirely shaded.

Numbers in a cell indicate the lengths of contiguous shaded cell groups along the "ring" of 8 cells touching that cell (fewer for cells along the outside edge). If there is more than one number in a cell, then there must be at least one white (unshaded) cell between the shaded cell groups. The numbers are given in *no particular order*. As a special case, if the number given in a cell is a zero (0), it means that none of the cells around that cell can be shaded.

Unshaded cells also connect along edges to create multiple regions. The set of the sizes of these regions (in cells) are provided -- for example, a set of {4,4,5} indicates that there are two regions of size 4 and one region of size 5.

Answer: For each designated row, enter its contents from left to right. Use 'x' for an unshaded cell and 'o' for a shaded cell. You may use two other letters or numbers, as long as they are distinct.

Example Answer:
XOOXOXOO, OOXOOOXO

Tapa Clue Examples

{1,1,1,1,1,7,7,10}

{1,1,1,1,1,7,7,10}

8-9. Yajilin [Čedomir Milanović, Nikola Živanović] (7, 14 points)

Draw a single closed loop that passes orthogonally through centers of some empty cells in the grid. The loop connects centers of orthogonally adjacent cells, makes only right-angle turns or goes straight, and does not intersect or cross itself.

Some cells will remain empty; such cells are "unused" and cannot share an edge with each other.
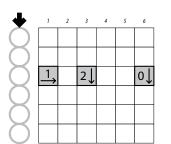
The grid contains some outlined gray cells that cannot be part of the loop. Numbered arrows in such cells indicate the total number of unused cells along the direction of the arrow, starting in the arrowed cell and going along a row or column to the edge of the grid.

The numbers on top of the diagram are for Answer purposes only. It may be helpful to shade the unused cells, as per the example answer.
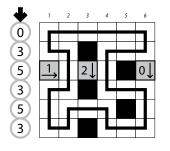
Answer: For each row from top to bottom, enter the column number of the leftmost unused cell. (Outlined cells are not unused.) Use only the last digit for two-digit numbers; e.g., use '0' for column 10. If all of the cells in a row are used, enter '0' for that row.
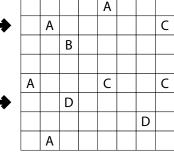
Example Answer:
035353

10. Dominion [Nikola Živanović] (16 points)

Shade some empty (non-lettered) 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. All black regions must have exactly 2 cells. All white regions must contain at least one lettered cell. All lettered cells within the same (white) region must contain the same letter. All cells that contain the same letter must be in the same region.
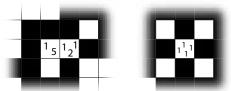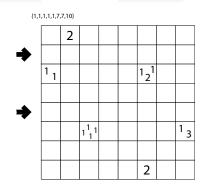
Answer: For each designated row, enter its contents from left to right. For the contents of a white cell, enter the letter for a lettered cell in that region. For the contents of a black cell, enter the letter 'x'.
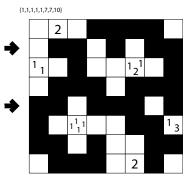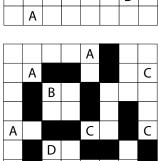
Example Answer:
AAXXAXCC, AXDDXXDX

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Pg 4 of 6

11. Gaps (No Touch) [Nikola Živanović] (37 points)

Shade some cells in the grid such that each row and each column contains exactly two shaded cells. The numbers to the left of (or above) the grid indicate the number of unshaded cells between the shaded cells in that row (or column). Shaded cells may not touch each other, not even diagonally.

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

Answer: For each row from top to bottom, enter the number of the first column from the left where a shaded cell appears (the number on the far top of that column). Use only the last digit for two-digit numbers; e.g., use '0' if the first shaded cell appears in column 10.

Example Answer: 273151626

12. Meandering Words [Nikola Živanović] (18 points)

Place a letter into each empty cell so that each cell has exactly one letter and cells that contain the same letter do not touch each other along an edge or a corner. Each outlined area must contain the letters from one of the words in the word list such that it must be possible to draw an orthogonally-connected path that spells out the word, going through each cell exactly once.
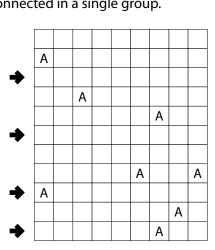
If a cell is marked with a square, it means that cell is where the path begins. Not all such cells are marked.

You may only use the same word in multiple regions if that word appears multiple times in the word list, and it may not be used in more regions than the number of times it appears in the list.

Answer: For each designated row, enter its contents from left to right.

Example Answer: CEFGA, ACBIC

A B C
A B C
A B C D
A B C D E F
A B C D E F G H I

C	E	F	G	A
B	D	A	H	B
A	C	B	I	C
E	F	A	D	A
D	C	B	C	B

13. Scrabble [Čedomir Milanović] (22 points)

Put at most one letter into each cell so that the given words can be read either across (left-to-right) or down (top-to-bottom) in consecutive cells in the grid. Every word must appear in the grid exactly once, and no other words of two or more letters may appear in the grid (that is, if two cells are filled and are adjacent orthogonally, then there must be a word that uses both of them). Every word must have either a blank cell or the edge of the grid before and after it. All letters must be (orthogonally) connected in a single group.
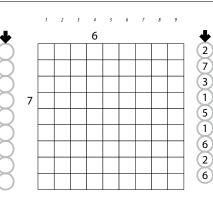
Answer: For each designated row, enter its contents from left to right, ignoring any blank cells. If all cells in the row are blank, enter a single letter 'X'.

Example Answer: CYPRUSO, ONMUO, AUR, GA

AUSTRIA
CROATIA
CYPRUS
GEORGIA
ICELAND
LUXEMBOURG
MACEDONIA
MOLDOVA
SPAIN

M					
A	S		L		M
C	Y	P	R	U	S	O
E		A	X		L
D	I	C	E	L	A	N	D
O	N		M	U		O
N		B		S	V
I	C	R	O	A	T	I	A
A		U	R		
	G	E	O	R	G	I	A
		G	A		

14-15. Ripple Effect [Zoran Tanasić] (17, 71 points)
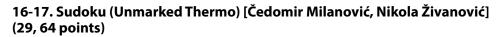
Place a number into each cell so that each outlined region contains the numbers from 1 to X, where X is the number of cells in the region. Cells containing the same number N within the same row (or column) must have at least N cells between them in that row (or column). (For example, cells containing "1" cannot touch along an edge, cells containing "2" cannot touch or have exactly one cell between them in the same row or column, and so on.) Some numbers may be already filled in the grid.

Answer: For each designated row, enter its contents from left to right (including any given numbers).

Example Answer: 121314,213241

16-17. Sudoku (Unmarked Thermo) [Čedomir Milanović, Nikola Živanović] (29, 64 points)

Place a number from the range 1-X in each unnumbered cell in the grid such that each row, column and marked box contains each number from the range 1-X exactly once, where X is the number of cells in each row.

Several "thermometers" in the grid each indicate a sequence of cells. The numbers in a thermometer must be strictly increasing (no duplicates) from one end of the thermometer to the other. You are not told which end is which.

Answer: For each designated row, enter its contents, including that of any cells already filled in for you.

Example Answer: 546123,461235

18-19. Compass [Čedomir Milanović, Nikola Živanović] (17, 104 points)

Divide the grid along the dotted lines into regions (groups of cells that are connected orthogonally). Each cell must be in exactly one region, and each region must contain exactly one clue (an X-like symbol that contains up to four numbers). For each clue, the number in the north part (north being towards the top of the page) indicates how many cells of that clue's region are located north of the clue cell (ignoring their east-west location). Analogously, numbers in the west, east, and south part indicate how many cells of that region are located west, east and south of the clue cell. If there is no number in a part, the number of cells in that direction are not given to you.
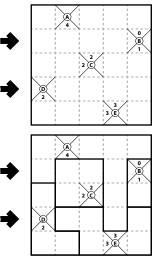
The letters in the clue cells are for Answer purposes only.

Answer: For each designated row, enter the letter of the region each cell belongs to, from left to right.

Example Answer: ACCAB,DEEAE

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Pg 6 of 6

20. Fillomino (Galaxies) [Nikola Živanović] (50 points)

Divide the grid along the dotted lines into regions (called polyominoes) so that no two polyominoes with the same area share an edge. Inside some cells are numbers; each number must equal the area of the polyomino it belongs to. A polyomino may contain zero, one, or more of the given numbers. (It is possible to have a "hidden" polyomino: a polyomino without any of the given numbers. "Hidden" polyominoes may have any area, including a value not present in the starting grid, such as a 6 in a puzzle with only clues numbered 1-5.)

Each polyomino must be rotationally symmetric.

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

Answer: Enter the area of the polyomino each dot is in, 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 polyomino of size 10.

Example Answer: 26542

21. Pentominous [Nikola Živanović] (26 points)

Divide the grid into pentominoes such that every cell in the grid is part of exactly one pentomino. Pentominoes of the same shape (rotations and reflections of a pentomino count as the same shape) cannot touch each other along an edge (but they may touch diagonally). Some letters are given in the grid. Each letter must be part of a pentomino with that letter's shape. It is permissible for a pentomino to contain more than one letter. (It is possible for some pentomino shapes to never appear in the grid, or more than once.)

The letter-to-shape correspondence for pentominoes has been supplied for you.

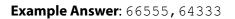*In the competition puzzle, there may be black areas that are not part of the grid.*

Answer: For each designated row, enter the letter for the pentomino that each cell belongs to, from left to right.
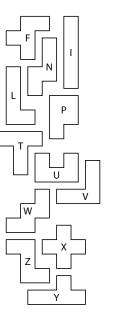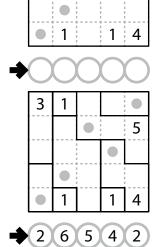
Example Answer: IPPPI,IUFUI

22. Sashigane [Nikola Živanović] (21 points)

Divide the grid into "L"-shaped regions along the grid lines. An "L"-shaped region includes one "pivot" cell and two "end" cells (all three must be distinct). Each end cell must be in the same row or column as the pivot, and all cells between the end and pivot along that row or column must be in the region. No other cells are allowed to be in the region. The two end cells cannot be in the same row or column. Some cells are marked with circles; those must be pivot cells. Some cells are marked with arrows; those must be end cells with the arrow pointing towards its pivot. Some cells have numbers in them; each such number indicates the area of its region.

Answer: For each designated row, enter the cell's number, from left to right. The number of a cell is the area of the region that cell is in. Use only the last digit for two-digit numbers; e.g., use '0' for a polyomino of size 10.

Example Answer: 66555,64333