WPF SUDOKU/PUZZLE **GRAND PRIX** 2019

ROUND 6

WPF PUZZLE GP 2019 INSTRUCTION BOOKLET

Host Country: Bulgaria

Deyan Razsadov

Special Notes: None.

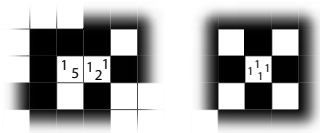
Points:			**10.**	**Yajilin (Minesweeper)**	**16**
1.	**Tapa**	**16**	**11.**	**Yajilin (Minesweeper)**	**24**
2.	**Four Winds**	**11**	**12.**	**Nurikabe (Snake)**	**29**
3.	**Four Winds**	**10**	**13.**	**Nurikabe (Snake)**	**46**
4.	**Cave**	**35**	**14.**	**Arrows**	**62**
5.	**Cave**	**46**	**15.**	**Arrows**	**82**
6.	**Snake (Ends)**	**28**	**16.**	**Coral**	**40**
7.	**Snake (Ends)**	**23**	**17.**	**Coral**	**74**
8.	**Skyscrapers (Park)**	**7**	**18.**	**Magnets**	**47**
9.	**Skyscrapers (Park)**	**29**	**19.**	**Japanese Sums (Hitori)**	**58**
			TOTAL:		683

---

1. Tapa (16 points)

Shade some empty cells black; cells with numbers cannot be shaded. All black 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 black.

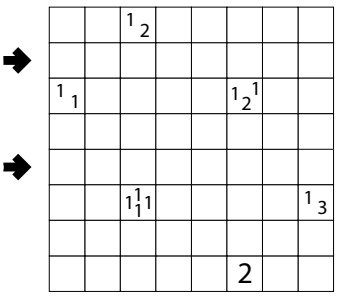
Tapa Clue Examples

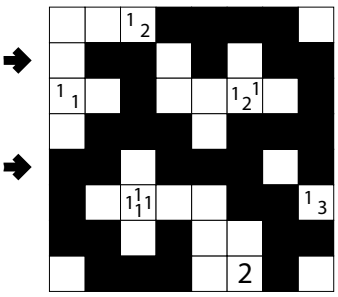


Numbers in a cell indicate the lengths of contiguous black cell groups along the "ring" of 8 cells touching that cell (fewer for cells along the outside edge). If there is more than one number in a cell, then there must be at least one white (unshaded) cell between the black cell groups. The numbers 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 may be shaded black.

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

Example Answer: `212,231`





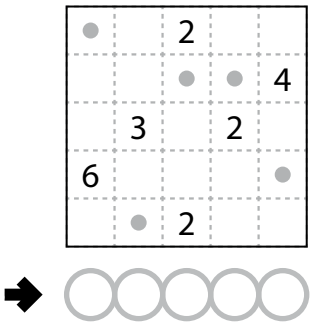
2-3. Four Winds (11, 10 points)

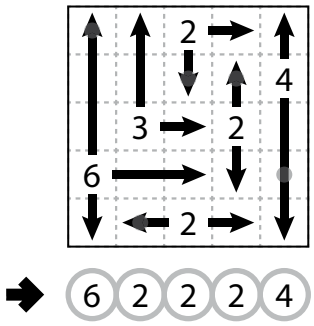
Draw arrows in the empty cells in the grid. Arrows can only go in the four standard directions and must begin at the edge of a cell with a number. Each empty cell must be covered by exactly one arrow. Each number indicates the total length of all the arrows that begin at an edge next to that number's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



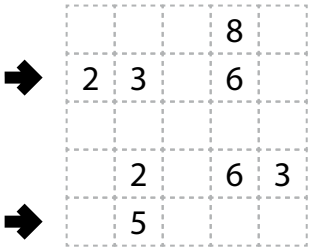


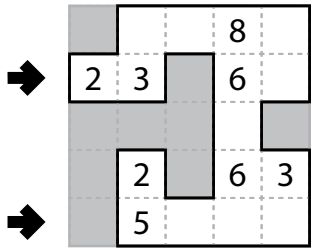
4-5. Cave (35, 46 points)

Shade some cells to leave behind a single orthogonally-connected group — the cave — with no shaded cells enclosed within the cave. In other words, all shaded cells must be connected edge-wise by other shaded cells to an edge of the grid. All numbered cells must be a part of the cave (and therefore not shaded). Each number indicates the total count of non-shaded cells connected in line vertically and horizontally to the numbered cell *including the cell itself*.

Answer: For each designated row, enter the length in cells of each of the cave segments (*not the shaded cells outside the cave*) from left to right. Use only the last digit for two-digit numbers; e.g., use '0' for a segment of length 10. If there are no cells belonging to the cave in the row, enter a single digit '0'.

Example Answer: 22,4





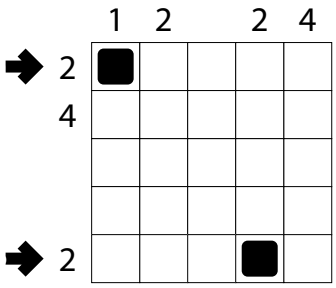
6-7. Snake (Ends) (28, 23 points)

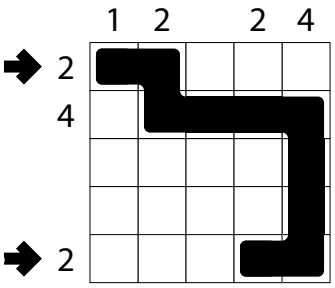
Locate a "snake" in the grid. The snake is a path that starts in a cell, goes through some number of cells orthogonally, and ends in a cell. The snake cannot go through any cells marked with 'x'. Each cell is used at most once by the snake. The snake may not loop around to touch itself, not even diagonally. (In other words, if two cells in the snake touch orthogonally, then they must be exactly one cell apart along the path of the snake, and if two cells in the snake touch diagonally, then they must be exactly two cells apart along the path of the snake.) Numbers outside the grid, if given, indicate how many cells in that row or column are occupied by the snake.

The two cells containing the ends of the snake are shaded.

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. You may reverse the two symbols, as long as you are consistent.

Example Answer: `OOXXX (or XXOOO),XXXOO (or OOOXX)`

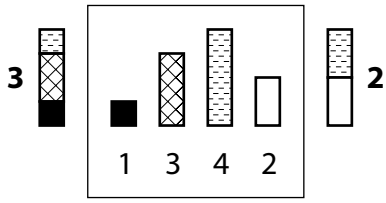




8-9. Skyscrapers (Park) (7, 29 points)

Place a number from 1 to X (integers only) into some cells so that each number appears exactly once in each row and column. (X is *one less* than 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.

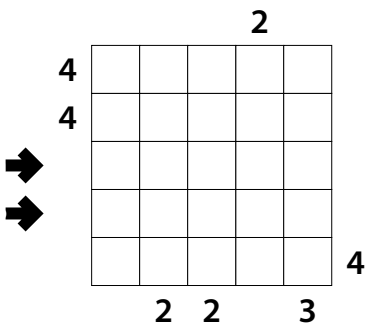
Skyscraper Clue Examples

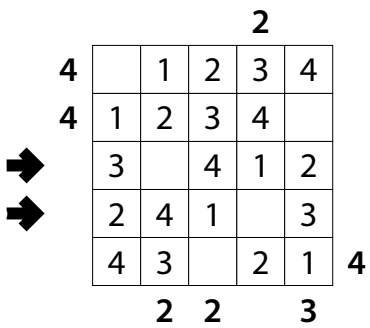


There will be one empty cell (a "park") in each row and column, which does not count as a skyscraper and does not block any skyscraper from view.

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

Example Answer: `3X412,241X3`





10-11. Yajilin (Minesweeper) (16, 24 points)

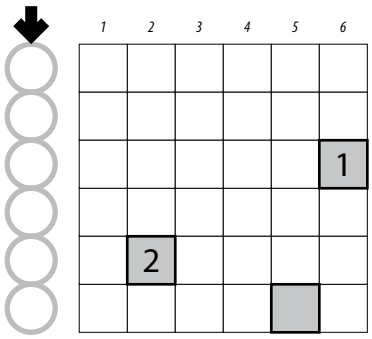
Blacken some white cells and then draw a single closed loop (without intersections or crossings) through all remaining white cells. Loop paths must be orthogonal. Blackened cells cannot share an edge with each other. Some cells are outlined and in gray and cannot be part of the loop.

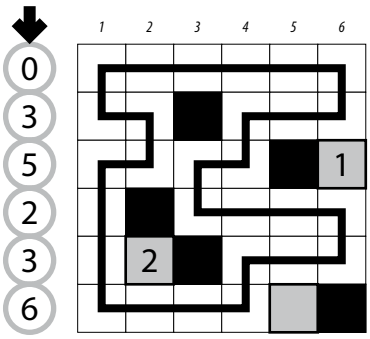
Numbers in grey cells indicate the total number of blackened cells adjacent to that cell (including diagonally adjacent cells).

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

Answer: For each row from top to bottom, enter the column number of the left-most blackened cell. (Outlined gray cells are not blackened.) Use only the last digit for two-digit numbers; e.g., use '0' for column 10. If none of the cells in a row are blackened, enter '0' for that row.

Example Answer: 035236





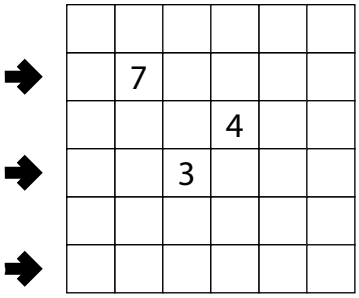
12-13. Nurikabe (Snake) (29, 46 points)

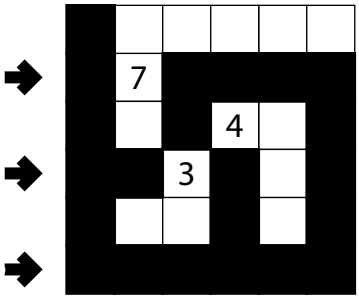
Shade some empty (non-numbered) cells black (leaving the other cells white) so that the grid is divided into non-overlapping regions; cells of the same color are considered in the same region if they are adjacent along edges. Each given number must be in a white region that has the same area in cells 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.

Each white region must also be a valid "snake": a path that starts in a cell, goes through some number of cells orthogonally, and ends in a cell. No 2×2 group of cells can be entirely white.

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: 14,211,6



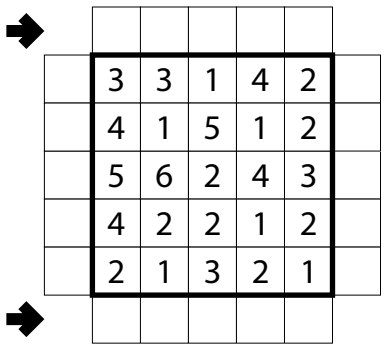


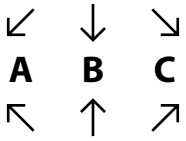
14-15. Arrows (62, 82 points)

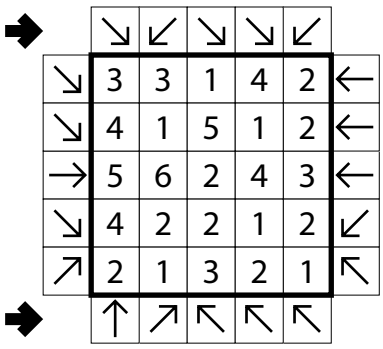
Draw an arrow in each of the empty cells outside the main grid. Each arrow must point in one of the eight standard directions, and must point to at least one numbered cell. Each numbered cell must be pointed at by exactly that number of arrows.

Answer: The contents of indicated rows, from left to right. Use 'A' for an arrow pointing diagonally left, a 'B' for an arrow pointing vertically, and 'C' for an arrow pointing diagonally right.

Example Answer: CACCA,BCAAA







16-17. Coral (40, 74 points)

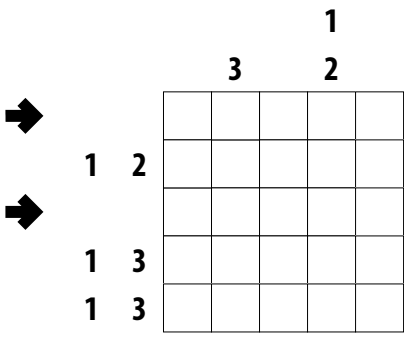
Shade some cells black (leaving the other cells white) such that all shaded cells are connected orthogonally into a single region. All non-shaded cells must be connected orthogonally (through other non-shaded cells) to the edge of the grid. No 2×2 group of cells can be entirely shaded black.

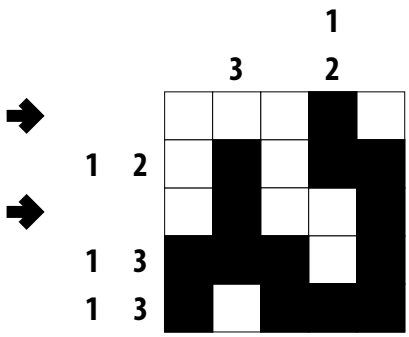
The numbers to the left of (and above) the main grid represent the lengths of contiguous blackened cell blocks in the corresponding row (or column). The lengths are *not* necessarily given in order from left to right (or top to bottom), and cell blocks must contain at least one unblackened cell between 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. You may reverse the two symbols, as long as you are consistent.

Example Answer: OOOXO (or XXXOX),OXOOX (or XOXXO)





18. Magnets (47 points)

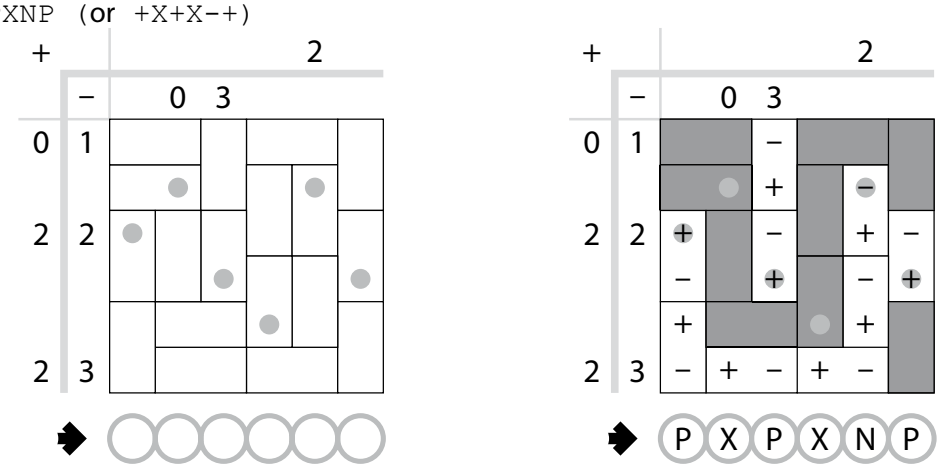
The grid is partitioned into regions of two square cells each (note that only region borders are drawn). Put "positive" (+) and "negative" (–) symbols into some cells, at most one symbol per cell, such that each region either has two symbols or no symbols at all. Adjacent cells (even within a region) cannot contain the same symbol.

The numbers above and to the left of the grid indicate the exact number of symbols of the specified type that must be placed in each column or row, respectively. If a number is not given, there might be any number of symbols of the specified type.

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

Answer: Enter the contents of each dotted cell, reading the dots from left to right. (Ignore which row the dots are in.) Use 'P' for a "positive" (+) symbol, 'N' for a "negative" (–) symbol, and 'X' for an empty cell. Alternatively, you may use '+' for a positive symbol, '-' for a negative symbol, and 'X' for an empty cell, but do not mix the two systems!

Example Answer: PXPXNP (or +X+X-+)



19. Japanese Sums (Hitori) (58 points)

Place a digit from the specified list into some cells so that no digit appears more than once in each row or column. Cells may remain empty. Numbers outside the grid indicate all sums of continuous groups of digits (including "sums" of a single digit) along that row or column. These groups are separated by empty cells. These sums are given in the same order as their corresponding groups of digits.

The value of some sums are unknown to you and have been replaced by question marks ('?'). Sums are never zero. All numbers are connected orthogonally and no two empty cells are adjacent orthogonally.

Answer: For each designated row, enter its contents, using 'X' for an empty cell. Do not include any numbers or question marks from outside the grid.

Example Answer: 4X512x,52134X