WPF SUDOKU/PUZZLE **GRAND PRIX** 2017

ROUND 4A

WPF PUZZLE GP 2017 INSTRUCTION BOOKLET

Host Country: USA

Author: Thomas Snyder; Organizer: Nick Baxter

Special Notes: None.

Points:

A1.	**Star Battle**	20	**A7.**	**Nurikabe**	48
A2.	**Masyu**	27	**A8.**	**Skyscrapers**	57
A3.	**Fillomino**	28	**A9.**	**TomTom**	69
A4.	**Slitherlink**	38	**A10.**	**Cave**	102
A5.	**Battleships**	19			
A6.	**Tapa**	40	**TOTAL**:		448

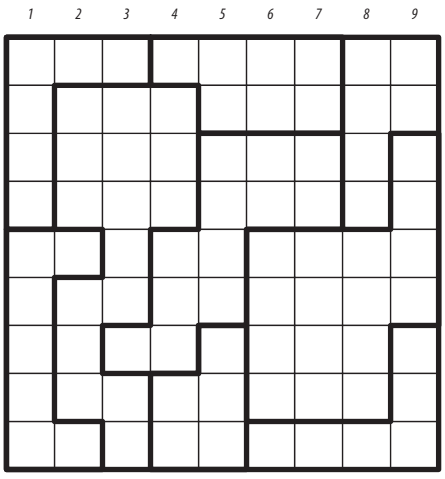
A1. Star Battle (20 points)

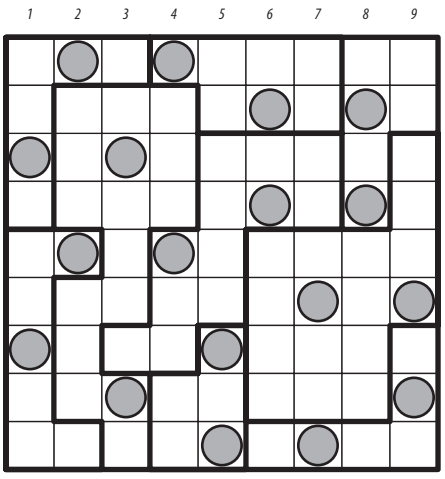
Place stars into some cells in the grid, no more than one star per cell. Each row, each column, and each outlined region must contain exactly two stars. Cells with stars may not touch each other, not even diagonally.

The numbers on 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 star appears (the number on top of that column). Use only the last digit for two-digit numbers; e.g., use '0' if the star piece appears in column 10.

Example Answer: 261627135



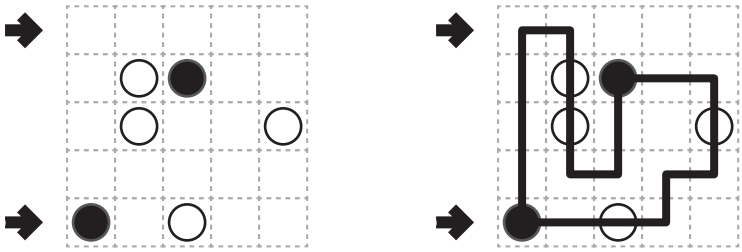


A2. Masyu (27 points)

Draw a single, non-intersecting loop that passes orthogonally through all circled cells. 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



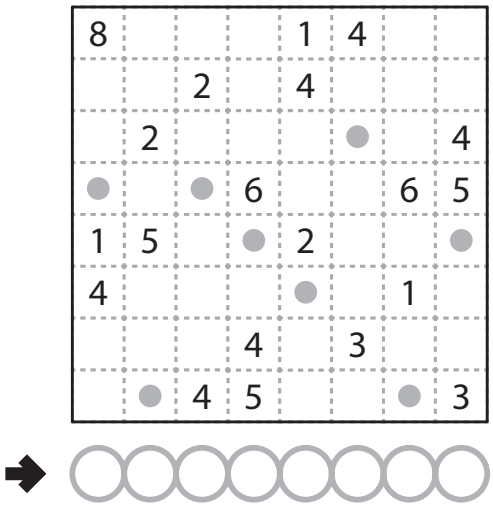
A3. Fillomino (28 points)

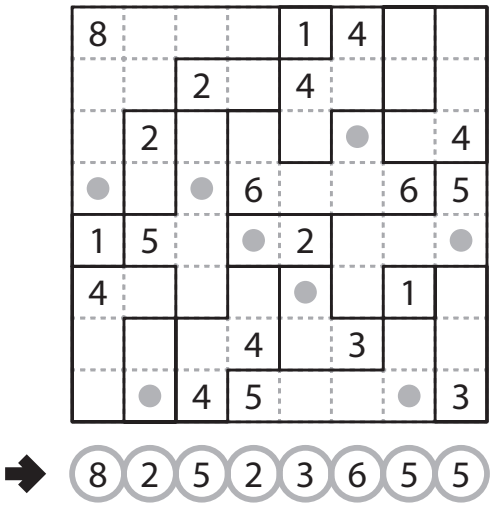
Divide the grid along the dotted lines into regions (called polyominoes) so that no two polyominoes with the same area share an edge. Inside some cells are numbers; each number must equal the area of the polyomino it belongs to. A polyomino may contain zero, one, or more of the given numbers. (It is 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.)

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: 82523655





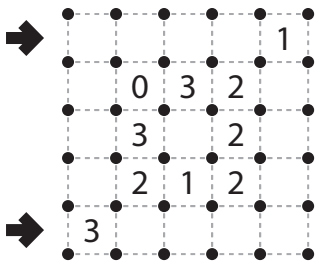
A4. Slitherlink (38 points)

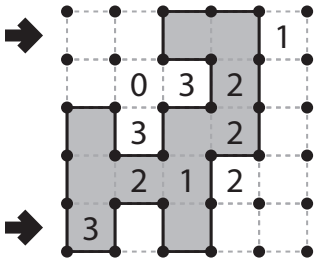
Draw a single, non-intersecting loop that only consists of line segments between the dots. A number inside a cell indicates how many of the edges of that cell are part of the loop.

You may only draw on the grid along the dotted lines.

Answer: For each designated row, enter the lengths (number of cells) of each segment of cells *inside* the loop, 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 inside the loop for a row, enter the single digit '0'.

Example Answer: 2,11





A5. Battleships (19 points)

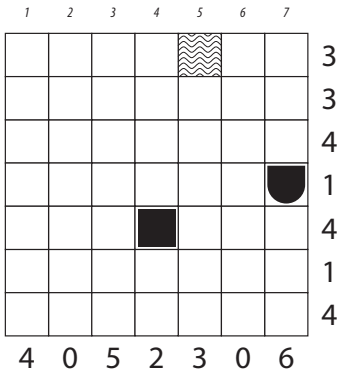
Locate the indicated fleet in the grid. Each piece of a ship occupies a single cell. A cell that does not contain a ship piece is considered "sea". Ships can be rotated. Ships do not touch each other, not even diagonally (that is, if two ship pieces are in adjacent cells, they must be part of the same ship). The contents of some cells are given for you.

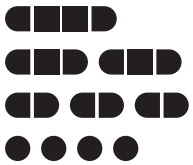
Each number to the right and bottom of the grid reveals the number of ship pieces that must be located in that row or column (including any that might be given for you).

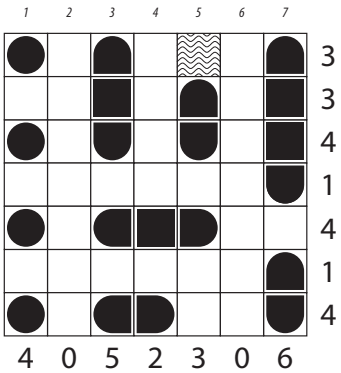
The numbers on top of the diagram are for Answer purposes only.

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 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 is empty, enter '0'.

Example Answer: 1317171

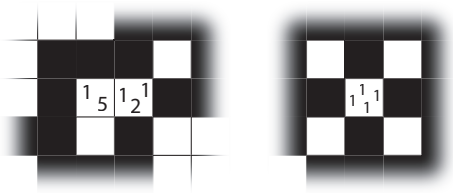






A6. Tapa (40 points)

Tapa Clue Examples

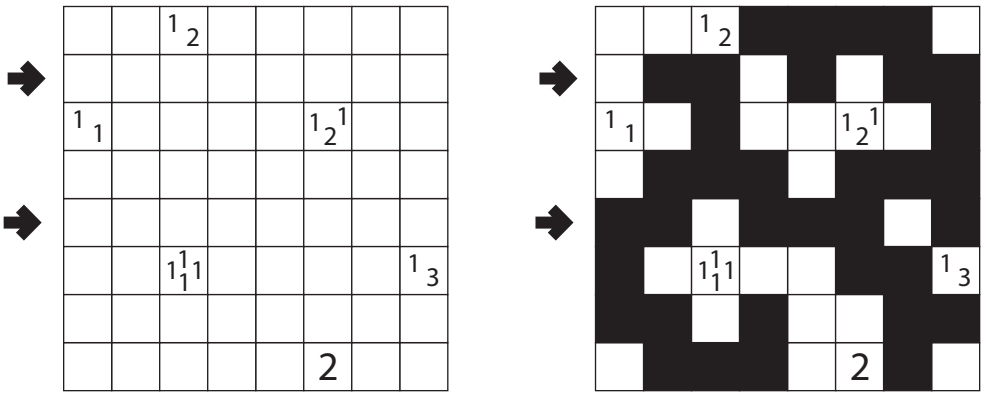


Shade some empty cells black (cells with numbers cannot be shaded). All black cells connect along edges to create a single connected region. (It is permissible for the region to touch itself at a corner, but touching at a corner does not connect the region.) No 2×2 group of squares can be entirely shaded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

Numbers in a cell indicate the lengths of contiguous black cell groups along the "ring" of (up to) 8 cells touching that cell. (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

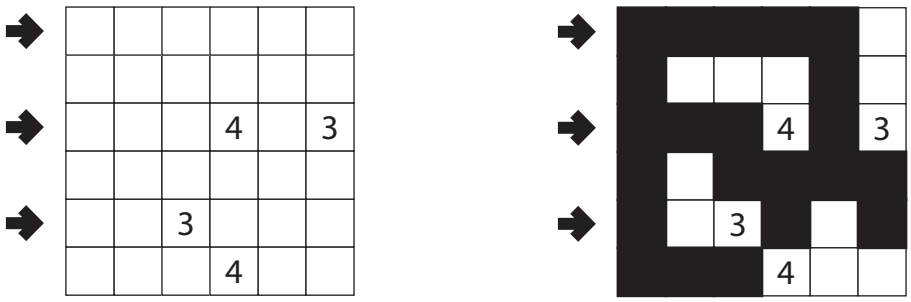


A7. Nurikabe (48 points)

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.

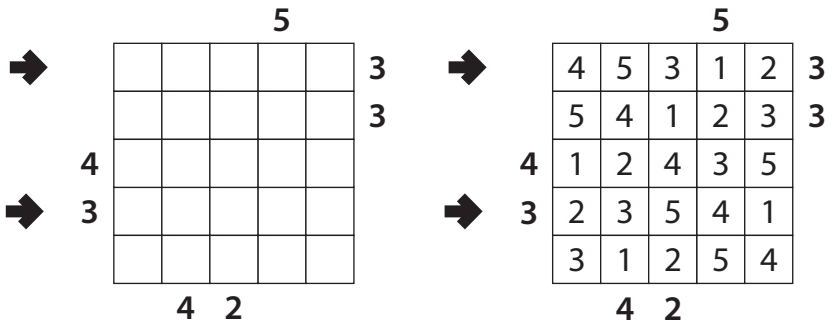
Answer: For each designated row, enter the lengths (number of cells) of the black segments from left to right. If there are no black cells in the row, enter a single digit '0'. Use only the last digit for two-digit numbers; e.g., use '0' for a black segment of length 10.

Example Answer: 5,31,111



A8. Skyscrapers (57 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.

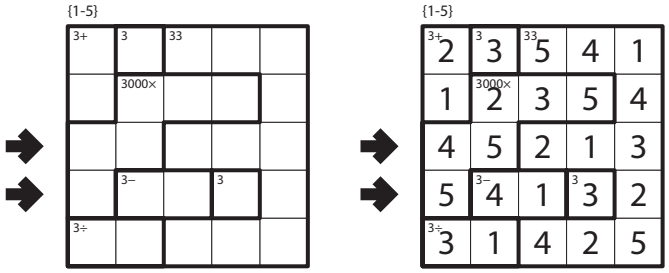


Answer: For each designated row, enter its contents. Do *not* include any numbers outside the grid.

Example Answer: `45312,23541`

A9. TomTom (69 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.) The number in the upper-left corner of each outlined region indicates the value of one of the four basic operations applied to all numbers in the region, starting with the largest number for subtraction and division (e.g., 1, 2, 4 with division has a clue of 2÷ as 4÷2÷1=2). The operation may or may not be given in the region, but at least one of the four operations must apply. Numbers may repeat within a region.

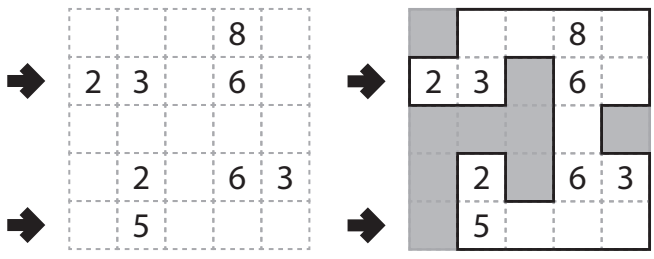


Answer: For each designated row, enter its contents, from left to right.

Example Answer: `45213,54132`

A10. Cave (102 points)

Shade some cells to leave behind a single orthogonally-connected group — the cave — with no enclosed shaded cells. 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, with each number indicating the total count of 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`