WPF SUDOKU/PUZZLE GRAND PRIX 2016

ROUND 5

WPF PUZZLE GP 2016 INSTRUCTION BOOKLET

Host Country: USA

Thomas Snyder, Grant Fikes, Roger Barkan, Nick Baxter

Special Notes: Note that some puzzles in the Casual Section cannot be solved without the help of other puzzles. Scissors and tape are permitted for the Casual Section.

Points, Casual Section:

1.	**Escape the Grand Prix Row 1**	57
2.	**Escape the Grand Prix Row 2**	15
3.	**Escape the Grand Prix Row 3**	3
4.	**Escape the Grand Prix Row 4**	3
5.	**Escape the Grand Prix Row 5**	3
6.	**E.t.G.P.: Mastermind**	76
7.	**Maze**	20
8.	**Old Maid**	13
9.	**Word Search**	41
10.	**Fold-In Criss Cross**	34
11.	**Arithmetic Square**	29
12.	**Arithmetic Square**	15
13.	**Fillomino**	23
14.	**Fillomino**	38
15.	**Minesweeper**	14
16.	**Minesweeper**	29
17.	**Skyscrapers**	41
18.	**Skyscrapers**	46
TOTAL:		500

Points, Competitve Section:

19.	**Slitherlink**	12
20.	**Slitherlink**	27
21.	**Slitherlink**	30
22.	**Star Battle**	22
23.	**Star Battle**	70
24.	**Star Battle**	21
25.	**Cave**	49
26.	**Cave**	46
27.	**Cave**	69
28.	**TomTom**	8
29.	**TomTom**	17
30.	**TomTom**	89
31.	**Nanro Signpost**	53
32.	**Nanro Signpost**	72
33.	**Nanro Signpost**	14
34.	**Pentominous Borders**	20
35.	**Pentominous Borders**	26
36.	**Pentominous Borders**	22
TOTAL:		667

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Casual Section (500 total points)

1-5. Escape the Grand Prix [Nick Baxter, Thomas Snyder] (57, 15, 3, 3, 3 points)

You are trapped in a room with a stack of puzzles, wondering if you'll be able finish all of them. Between you and the end is one Mastermind puzzle. But it seems to be in code, with twenty different letters corresponding to different digit values from 1 to 9 (e.g., X = 2 or Y = 6). Perhaps solving the other puzzles, some normal in appearance and others with some of the same code letters, will help. Not all puzzles will be useful to crack the code, but you never know where important clues will be found so search everywhere. Can you figure out what digit each letter stands for and "Escape the Grand Prix" before time runs out?

Partial credit will be given for finding the correct digits matching each Mastermind row. Each Mastermind row has its own point value. Points will be given for a row as long as at no more than one digit is incorrect; for instance, if a row has value 1234, you would get credit for 1237 or 1734 (but not 1243).

Answer: For each Mastermind row, enter the decoded digits.

To solve the example puzzle, you'll need to interpret some strange text elsewhere in this booklet.

Example Answer: 314,546,215,421

6. Escape the Grand Prix: Mastermind [Thomas Snyder] (76 points)

Each row represents a guess at a secret code. A black dot represents a digit in the guess that is in the same position as a digit in the secret code. A white dot represents a digit in the guess that is in the secret code, but not in the same position. The dots are given in no specific order, and each letter in the secret code contributes at most one dot with black dots given priority over white dots in case of ambiguity (for example, if the guess was 12334 and the codeword was 53363, the puzzle would display 1 black and 1 white). Each digit in the secret code appears in at least one guess.

The last line with empty space for the secret code is given for aesthetic reasons only. The point value of this puzzle is artifically inflated to encourage a correct solve and your escape from the Grand Prix!

**Answer**: Enter the secret code.

Example Answer: 122

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7. Maze [Thomas Snyder] (20 points)

Find a path through the maze from the entrance to the exit.

Answer: For each designated line from top to bottom, enter the number of times the path crosses that line. Use only the last digit for two digit numbers; e.g., use '0' for a line that is crossed 10 times.

Example Answer: 06062

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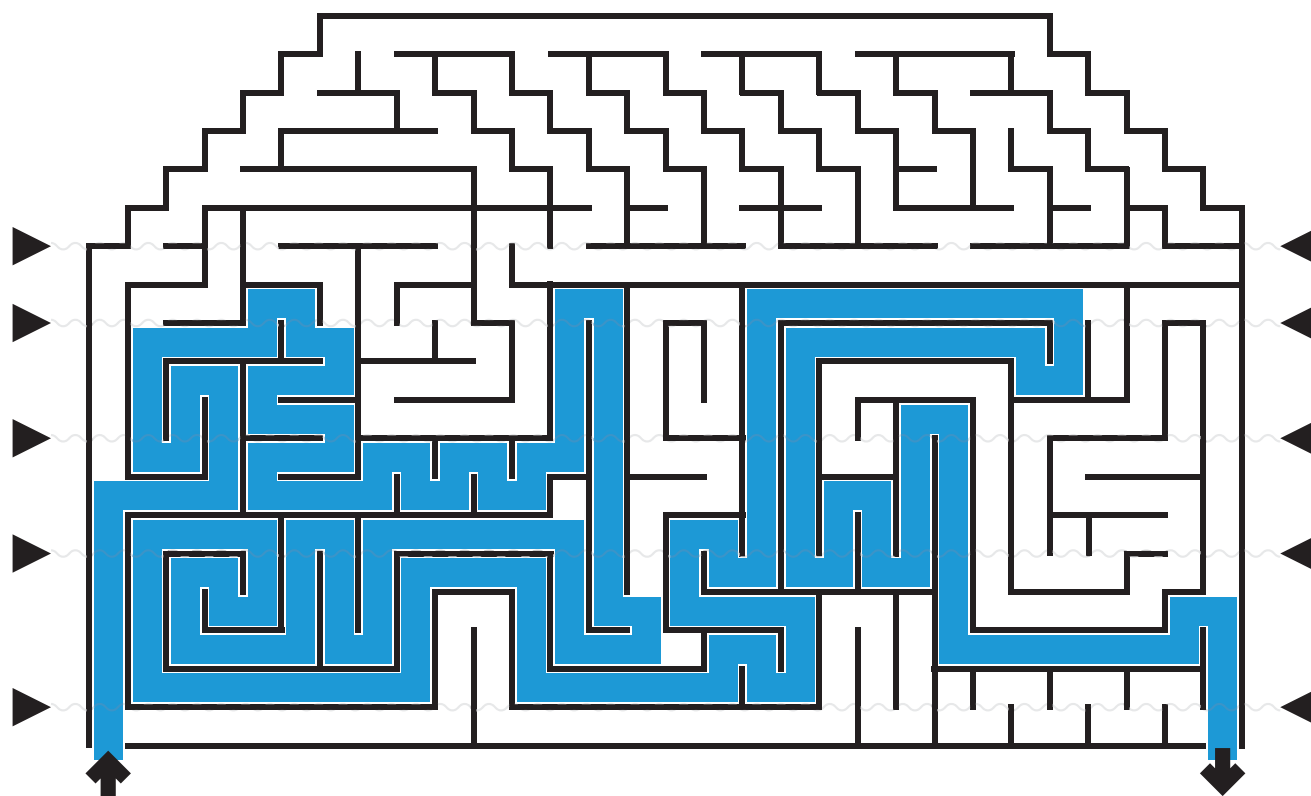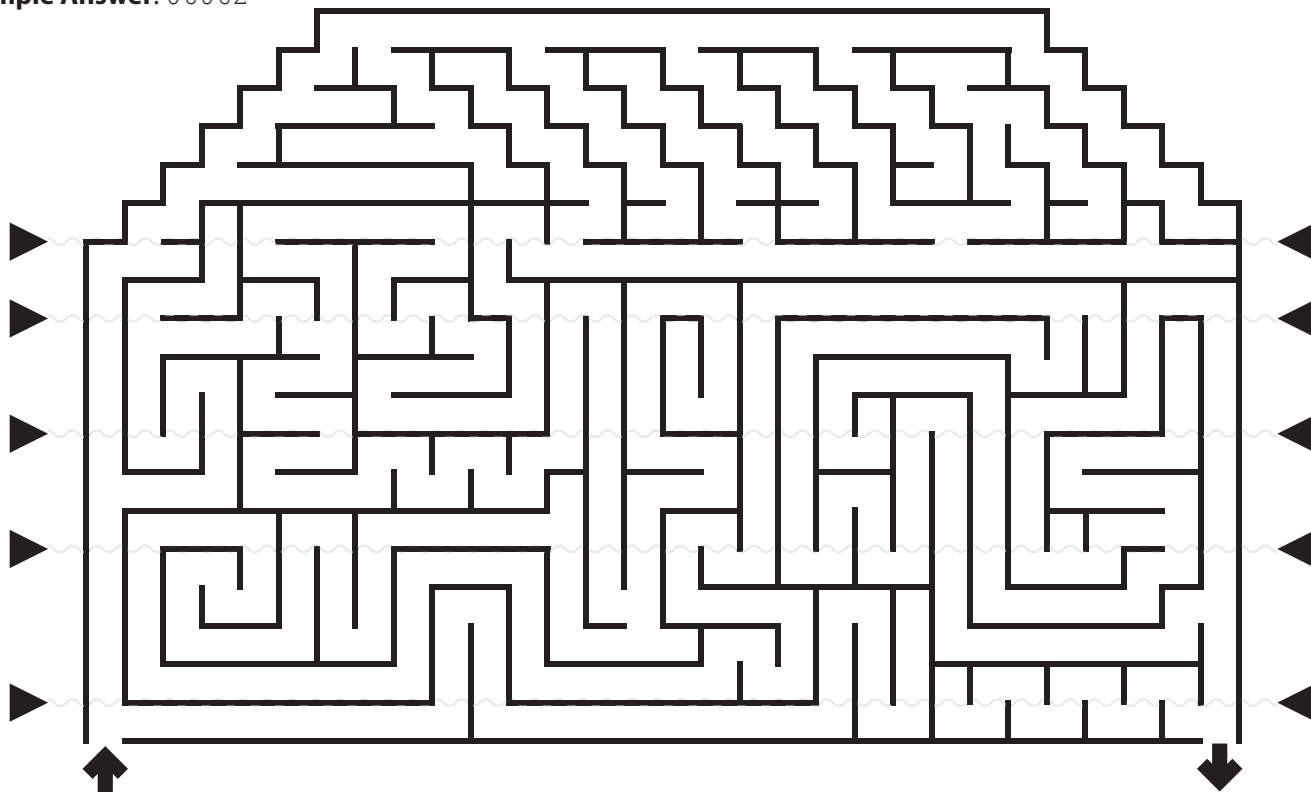
8. Old Maid [Thomas Snyder] (13 points)

Each box in the grid contains an image. Each image, except two, appears in two boxes. Find the two boxes that contain images that only appear once. Images can be rotated but not reflected.

Answer: For each image that only appears once, enter its row letter followed by its column letter.

Example Answer: BR, CS

9. Word Search [Thomas Snyder] (41 points)

Locate the list of words in the grid. Words always appear in a line in one of the eight standard directions.

Two words will not be found in the grid.

Answer: Enter the two words that cannot be found in the grid.

Example Answer: GRAB, SLAB

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10. Fold-In Criss-Cross [Thomas Snyder] (34 points)

Fold the paper to hide 4×4 regions (bordered by thick lines), resulting in a 12×12 crisscross grid. Do not change the orientation of any of the cells. Then enter the given words in the grid, one character per cell, to complete the crisscross. Each word is used exactly once, and will either read left-to-right or top-to-bottom.

The blank 12×12 grid can be used to copy your grid and/or answer, and is necessary to figure out which rows to enter your answer for. The example puzzle uses 3×3 regions and a final 6×6 grid instead of 4×4 regions and a final 12×12 grid.

Answer: For each designated row, enter its contents from left-to-right. Skip past any unused cells.

Example Answer: `AI,UEYE`
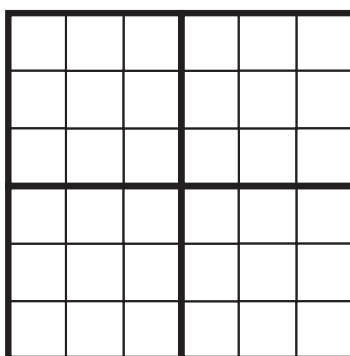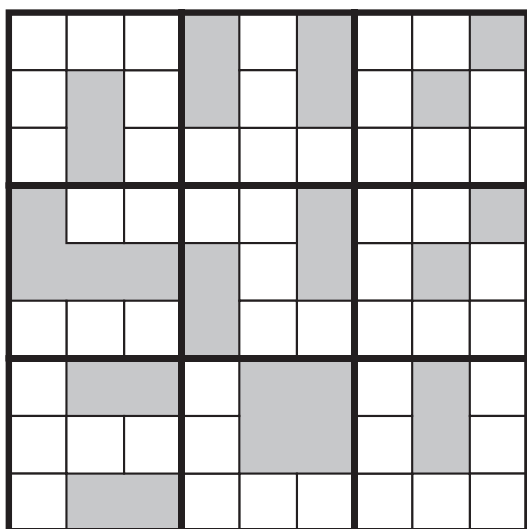
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E Y E
F I L L
T E S T
T O F U
I S S U E
S A M P L E
T H U M B S
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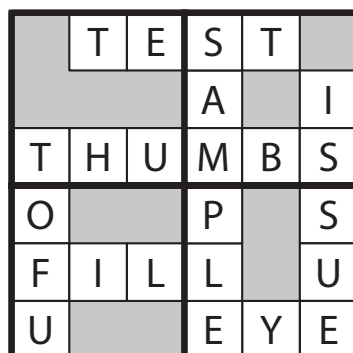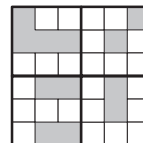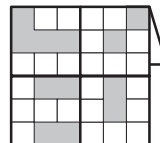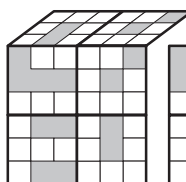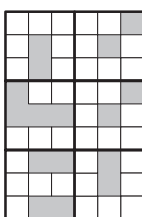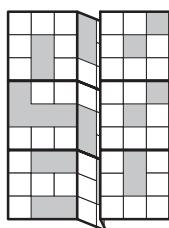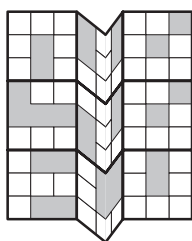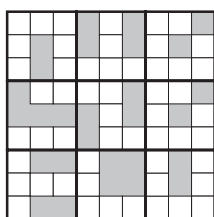
11-12. Arithmetic Square [Thomas Snyder] (29, 15 points)

Place each number from 1 to 9 into the cells (a different single number in each cell) so that the indicated equations/relations are correct. Evaluate from left-to-right and top-to-bottom (ignoring usual order of operations).

It is possible for expressions and partial expressions to be negative or non-integral.

Answer: For each designated row, enter the contents of the cells, in order from left to right.

Example Answer: 987,643,521

➡ ☐ + ☐ + ☐ > 23
   +   −   +
➡ ☐ × ☐ ÷ ☐ = 8
   ×   ×   −
➡ ☐ × ☐ + ☐ = 11
   =   =   =
   75   8   9

➡ 9 + 8 + 7 > 23
   +   −   +
➡ 6 × 4 ÷ 3 = 8
   ×   ×   −
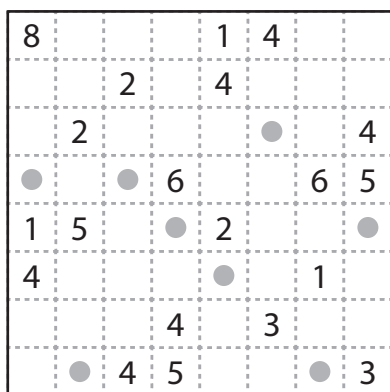➡ 5 × 2 + 1 = 11
   =   =   =
   75   8   9

13-14. Fillomino [Thomas Snyder] (23, 38 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.)
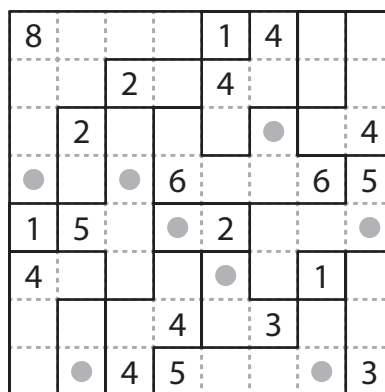
The dots in cells are only used for entering your answers.

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

➡ 8 2 5 2 3 6 5 5   ➡ 8 2 5 2 3 6 5 5

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15-16. Minesweeper [Thomas Snyder] (14, 29 points)

Place mines into the un-numbered cells in the grid, at most one mine per cell, so that each number in a cell represents the number of mines adjacent to that cell (including diagonally adjacent cells).

The number of mines you must locate is NOT provided.

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

Example Answer: XXOO,XOXX

17-18. Skyscrapers [Thomas Snyder] (41, 46 points)

Place a digit from 1 to X into each cell so that each digit appears exactly once in each row and column. (X is the number of cells in each row.) The digits represent skyscrapers of their respective heights. 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 digits 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

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# Competitive Section (667 total points)

19-21. Slitherlink [Thomas Snyder] (12, 27, 30 points)

Draw a single, non-intersecting loop that only consists of horizontal and vertical 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
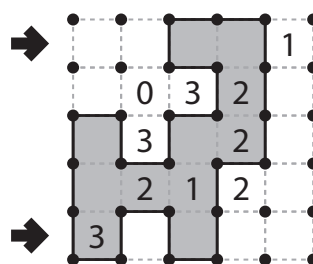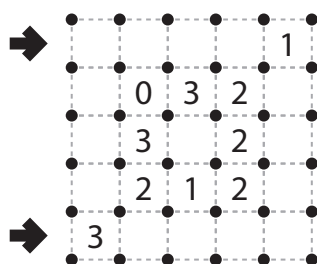
22-24. Star Battle [Thomas Snyder] (22, 70, 21 points)

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

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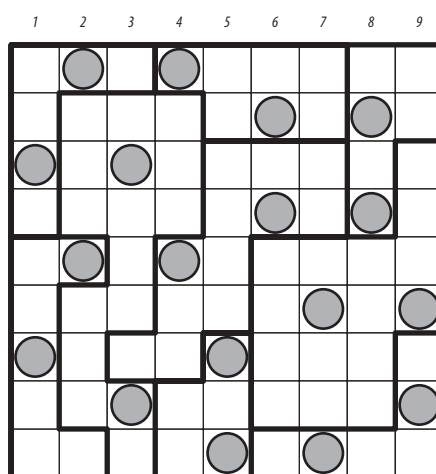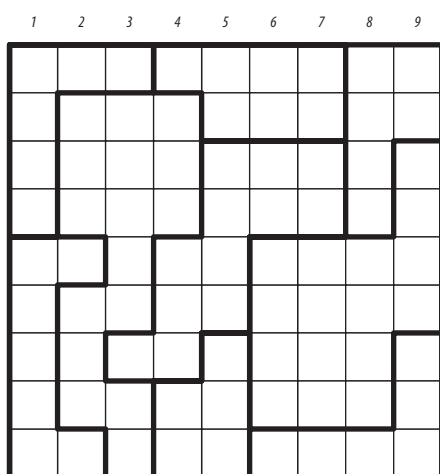
25-27. Cave [Thomas Snyder, Roger Barkan] (49, 46, 69 points)

Shade some cells to leave behind a single 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
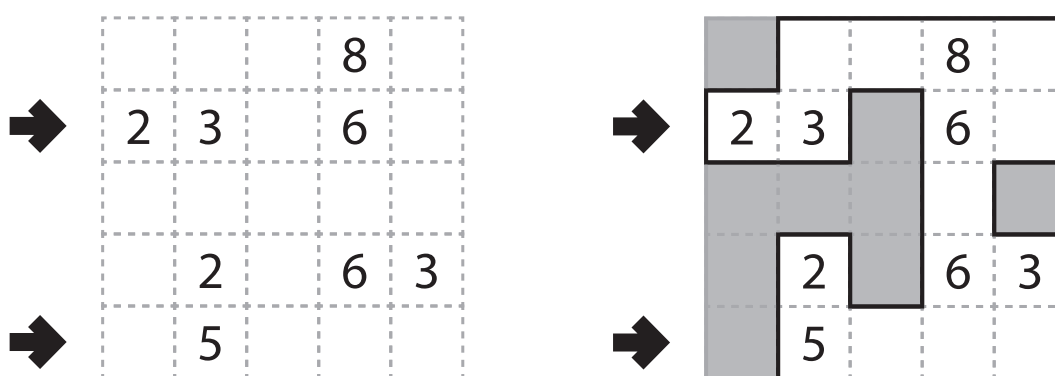
28-30. TomTom [Thomas Snyder] (8, 17, 89 points)

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

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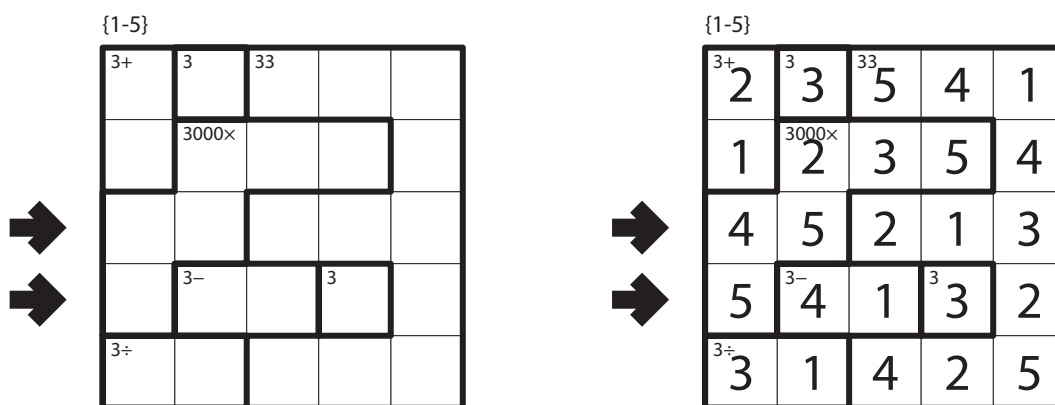
31-33. Nanro Signpost [Thomas Snyder] (53, 72, 14 points)

Label some cells with numbers such that each bold region contains at least one labeled cell. Each number (including any given numbers) must equal the total count of labeled cells in that region; for some regions, that number is given to you in the upper-left cell of the region (but not which cells are labeled). When two labeled cells from different regions are connected orthogonally, they must contain different numbers. All labeled cells are connected orthogonally. No 2×2 group of cells can be entirely labeled.

While not required, it may be helpful to shade in the unlabeled cells (as in the displayed solution).

Answer: For each designated row, enter its contents, from left to right. Use 'X' for an unlabeled cell. Use only the last digit for two-digit numbers; e.g., use '0' for a cell labeled with 10.

Example Answer: 4X221X,X1X2X3
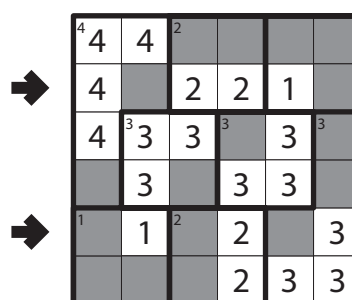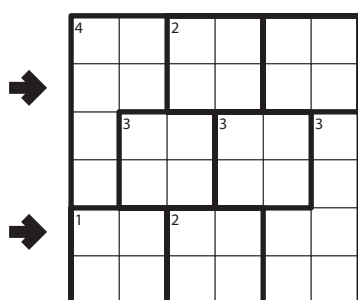
34-36. Pentominous Borders [Grant Fikes] (20, 26, 22 points)

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 borders are given in the grid. Each border must separate two pentominoes. (It is possible for some pentomino shapes to never appear in the grid, or more than once.)

The list of pentominoes is only used for entering your answer.

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

Example Answer: IPPPI,IUFUI