PANFOPCWHTTAPA 3

(Picking A Name For Our Puzzle Contest Was Harder Than The Actual Puzzles Are)

Anniversary Edition!

David Altizio, Priyam Bhushan,
Jacob Cohen, Botaku

11th to 16th November 2022

We couldn't make a logo either!

How to Participate

This instruction booklet has the rules, example puzzles, and answer keys for all five puzzle types in this contest. Read them thoroughly! If you have any questions about how the rules work or how to solve the example puzzle, feel free to reach out to us.

Any time between **11th November** and **16th November** Indian Standard Time, the puzzle booklet will be available to download. Log in using your LMI User ID and Password, then click on "Start". At this time, the password for the PDF will be shown and the timer will start. **The contest duration is 60 minutes.**

The puzzle booklet can be downloaded, printed, and solved on paper. We advise you to have a printer accessible with enough paper, if possible. Additionally, we will have online solving available via LMI's integration with Penpa; more information about this can be found later in this instruction booklet.

Outside solving help of any kind is not permitted. This includes, but is not limited to: assistance of any kind from any other person, prepared notes, books, calculators, computers, or tools other than items explicitly prohibited. You are allowed to use writing implements, erasers, blank paper (including commercial graph paper), ruler, scissors, and tape.

If you are participating at LMI for first time, you must check the F.A.Q. at http://logicmastersindia.com/t/?tid=2773.

Answer Keys and Submission

Each puzzle has an answer key as described in the instructions. After solving any puzzle, you need to submit your answer using the answer keys. You may submit the answer keys any time during the test duration. Here are some general guidelines for answer keys in this contest.

- Answer keys are always to be entered from left to right or top to bottom.

- Don't enter any separator unless specified in the answer key.

- If horizontal and vertical keys are needed, first enter the horizontal and then the vertical. If multiple rows are marked, enter from top to bottom for marked rows. If multiple columns are marked, enter from left to right for marked columns.

- Uppercase or lower case of answer key does not matter. However, characters other than the ones explicitly expected by the answer key will cause the red highlight to appear around the submission box.

Points Table and Scoring

Points typically indicate difficulty of the puzzles and time required to solve them. You will get full points if you enter the correct answer key. While the organizers have made best efforts to match them, your personal experience and preference may differ. (Don't fret if a low-valued puzzle is giving you trouble!)

This test uses instant grading where a solver can submit any individual puzzle and receive confirmation that the solution is correct or not. Each incorrect submission reduces the puzzle's potential score. The first, second, third, and fourth incorrect submissions reduce the potential score to 90%, 70%, 40%, and 0% respectively.

Original points

04 Araf	50 points	4A	Sum should be 10

Potential points after 1 incorrect submission

04 Araf	45 / 50	4A	1234

Potential points after 2 incorrect submissions

04 Araf	35 / 50	4A	23311

Potential points after 3 incorrect submissions

04 Araf	20 / 50	4A	1111111111

Potential points after 4 incorrect submissions

04 Araf	0 / 50	4A	541

If you submitted all Puzzles correctly, you can have bonus points! You will earn 1 point per minute saved, computed up to seconds. Ranking will be based on the total points earned during the contest, including bonus points; ties are broken by the earliest final submission time, up to seconds (ignoring incorrect submissions).

Penpa Usage

This contest will also be solvable on the Penpa-Edit software. If you choose to solve the puzzles online, click the "Link for Online Solving" button before you start the contest.

The editor DOES NOT have a solution enabled so it will not check a solution. Participants must submit the answer key codes as they would with paper solving; these answer key forms will appear below the grid. After solving the puzzle, you use boxes at the bottom to submit the puzzle.

To practice on the editor, we have given links for solving the example puzzles.
To understand the online solving interface, and get a bit of practice, read the FAQ here: https://www.logicmastersindia.com/live/faq-online-solving.asp

Credits

Many people have helped make this contest possible! We would especially like to thank the following:

- **Lavaloid, TostCronch** and **DireKrow** for test solving the puzzles and providing invaluable feedback.

- **EctoPlasma** for maintaining the WPC Unofficial Wiki where many of the puzzle blurbs came from: https://wpcunofficial.miraheze.org/

- The original creator **opt-pan** for penpa edit - https://opt-pan.github.io/penpa-edit

- **Swaroop Guggilam** for his recent efforts in adding features to Penpa-edit - https://swaroopg92.github.io/penpa-edit/
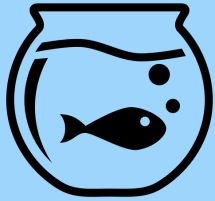
Genre 1: Aquarium
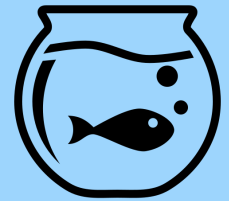
4 + 6 + 10 Points

Fill some cells with water (i.e. shade them) so that within each region, cells which are in the same row are either all full or all empty. (In particular, *water in any given region must have the same water level.*) When a row of cells within a region is filled with water, all cells below that row in that region must be filled as well.

Clues outside the grid represent the number of shaded cells in the corresponding row or column.

Penpa Solving Link for Example: https://tinyurl.com/2btwhq6d

Answer Key: For each marked row/column, enter the lengths of consecutive runs of shaded cells in the direction of the arrow. Input 0 if there are no shaded cells.
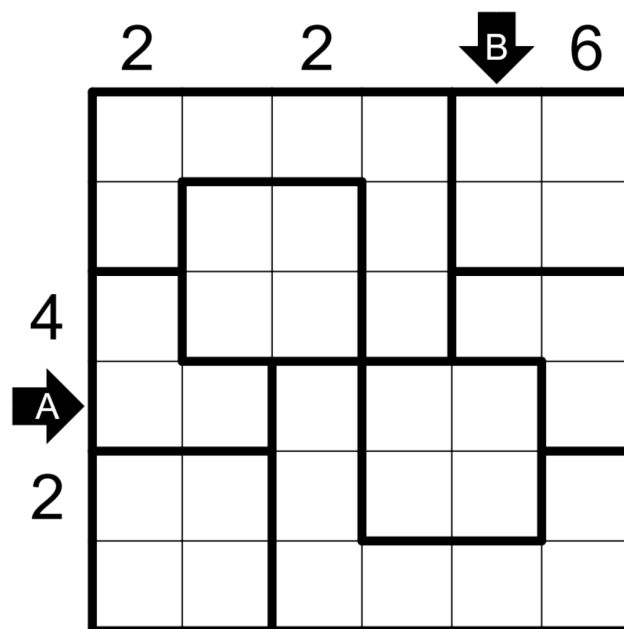
Aquarium is a genre praised for its simplicity and its beginner friendly nature. It was invented in 2004 by the prolific Japanese puzzle constructor **Naoki Inaba**. Its original name was アクアプレース meaning "Aqua Place".

A slightly more complicated ruleset for Aquarium (not in this contest!) allows for the water level to vary within the same region if allowed by the rules of physics. It is surprisingly difficult to develop a rigorous ruleset for the puzzle under this interpretation!

Genre 2: Akari

5 + 6 + 9 Points

Place lights in some cells so that every cell is illuminated. Each light bulb illuminates from the bulb to either a black square or the outer frame in each of the four cardinal directions. Lights may not illuminate each other.

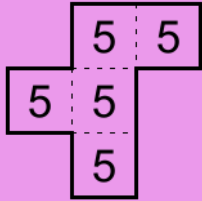Clues represent the number of lights in the (up to) four cells surrounding the clue.

Penpa Solving Link for Example: https://tinyurl.com/2bsgjyo3

Note: on Penpa, you can click and drag to mark lines of sight for light bulbs!

Answer Key: For each row from top to bottom enter the number of lightbulbs. If there are none in a row, enter 0 for that row.
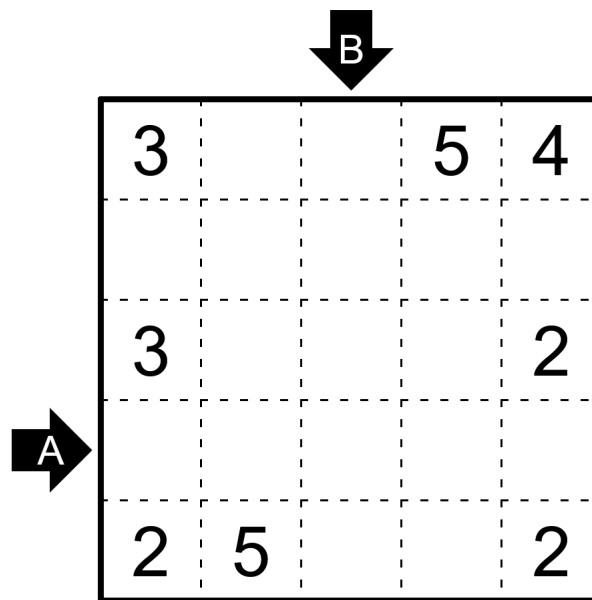
Genre 3: Fillomino

4 + 6 + 10 Points
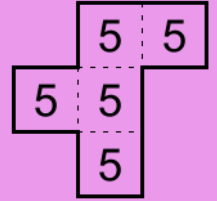
Divide the grid into regions of orthogonally connected cells and write a number in each cell.

Some numbers are given in the grid. The area (in cells) of the region containing that number must be equal to that number. (For example, any region containing a 2 must be a domino.) A region may have any number of given cells, including zero. This means it's possible to have a region of size 6 in a puzzle where the only clue cells are numbers from 1 to 5.

No two regions of the same size can be orthogonally adjacent.

Penpa Solving Link for Example: https://tinyurl.com/27myspul

Answer Key: For each marked row/column, enter the units digit of the number in each cell.

Fillomino is a titan among Japanese pencil puzzles. It first appeared in **Nikoli volume 47 (1994)** as a suggestion from すらんた (″**Suranta"**) . This genre is an extension of an earlier genre called **Fillmat**, where regions are restricted to rectangles with a width of one cell.

The main strength of Filllomino is the versatility of its clues. Clue cells can function in entirely different ways depending on context, and this variety allows for lots of puzzles which all feel distinct from each other. It is this reason that Fillomino has remained a staple in Nikoli magazines to this day.
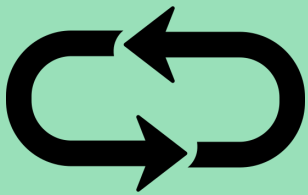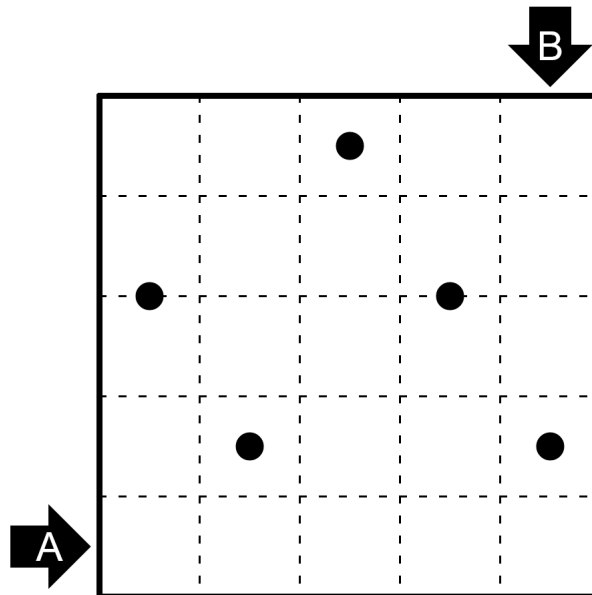
Genre 4: Midloop

5 + 7 + 8 Points
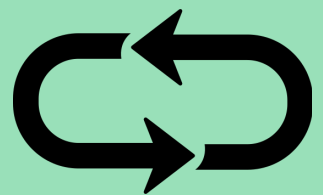
Draw a loop passing through the centers of some cells of the grid. This loop travels parallel to the sides of the grid and cannot cross itself.

The loop must pass through all circles in the grid. Each circle represents the midpoint of the segment the circle lies on. Not all circles are given.

Penpa Solving Link for Example: https://tinyurl.com/25lgezcg

Answer Key: For each marked row/column, enter the lengths of loop segments in that direction – from left to right/top to bottom, 0 if there are no segments.

Midloop is a more recent Nikoli genre. It originally debuted in **volume 162 (2018)** and was designed by 叶い星 (**"Kanaeboshi"**). As with many Nikoli genres, its strength lies in its simple ruleset which still allows for many interesting clue interactions. More recently, Midloop appeared as a genre in the 2021 Indian Puzzle Championship.
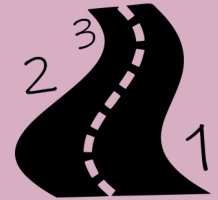
Place a number into some cells so that all cells with numbers form one orthogonally connected area. (The numbers within each region do *not* have to be connected; all that matters is that the whole grid is connected.)

Each region must contain at least one numbered cell, and every number in the region must be equal to how many numbered cells the region contains. Two cells containing the same number may not share a region border.

No 2x2 region may be entirely numbered.

Penpa Solving Link for Example: https://tinyurl.com/2xty2ebd

Answer Key: For each indicated row or column enter the contents of all cells in order. Use X for a cell with no number. Enter the units digit only for numbers with multiple digits.
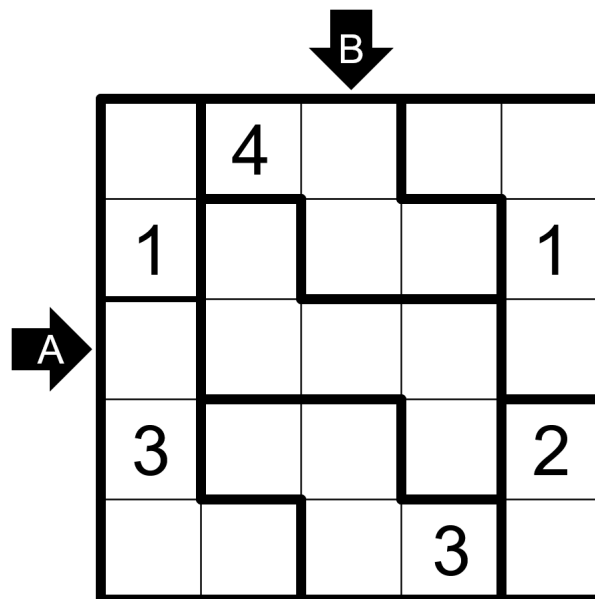

Nanro is a surprisingly old genre. It first appeared in **Nikoli volume 92 (2000)**. It was invented by にょろっぴぃ **("nyoroppyi")**, which is an alias of **Yuki Kawabe**. (Yuki is still around in the pencil puzzle scene — most recently, he was a member of the 2022 Japan A team!) Its original title ナンロー is a contraction of ナンバーロード **("Number Road")**.

Although Nanro is not regularly published in Nikoli anymore, it still lives on! It has appeared in many WPCs over the years, including 2013, 2017, 2019, and 2022. It also is a featured genre on GMPuzzles.
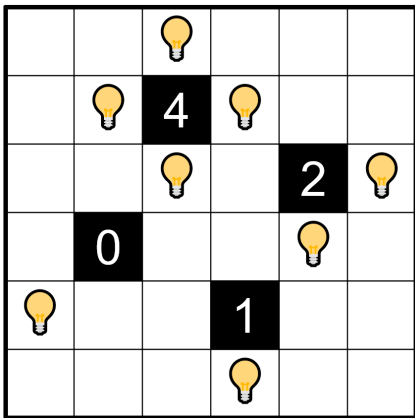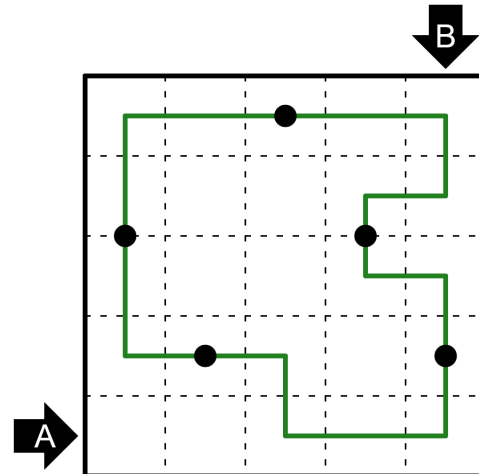
Example Puzzle Solutions
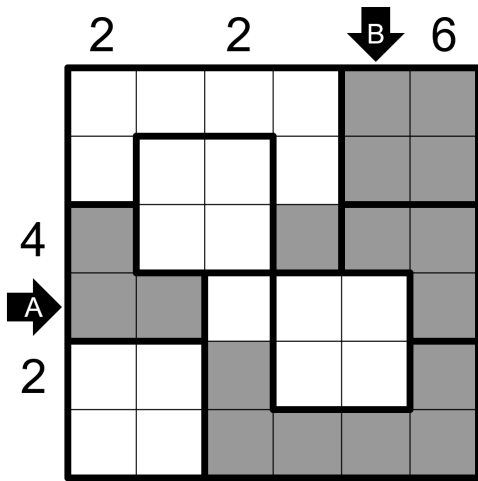
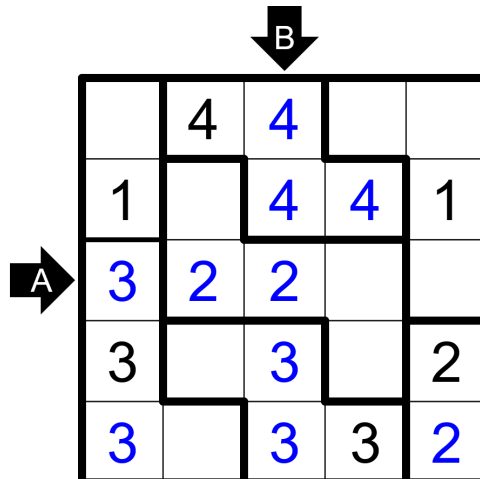Aquarium Answer Key: 21, 31
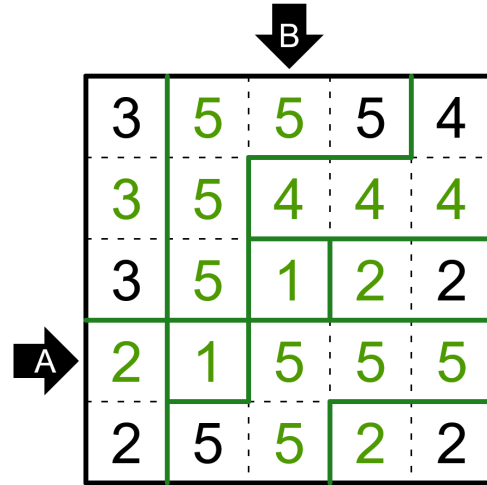
Fillomino Answer Key: 21555, 54155

Akari Answer Key: 122111

Midloop Answer Key: 2, 12

Nanro Answer Key: 322XX, 44233