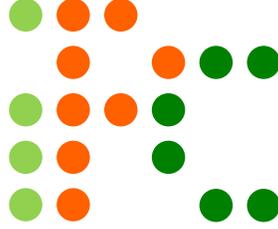


puzzle Ramayan

and



Episode – 3
24th February – 02nd March 2023

Shading & MII
by
Ashish Kumar & Pranav Kamesh S

Puzzle Ramayan rounds will also serve as qualifiers for Indian Puzzle Championship for year 2023. Please check <http://logicmastersindia.com/PR/2023pr.asp> for details.

Important Links

Submission Page : <http://logicmastersindia.com/live?contest=PR202303>

Discussion Thread : <http://logicmastersindia.com/t/?tid=3124>

F. A. Q. : <http://logicmastersindia.com/t/?tid=2773>

Registration, if required : <http://logicmastersindia.com/register.asp>

About this Episode

This episode has 22 Puzzles from the following puzzle types:

- 3* Nurikabe
- 3* Mochikoro
- 3* Context
- 2* Mochinyoro
- 3* Balance Loop
- 3* LUZ Loop
- 3* Consecutive Quads
- 2* Balance Loop [All Cells]

How to participate?

- Understand the rules of different puzzles that will appear in this episode. This Instruction Booklet has rules for each puzzle.
- Any time on or after 24th February (but on or before 2nd March), login at the submission page using your LMI user-id and password. Please check the submission page for exact timing.
- **If you plan to solve on paper:**
 - a) Download the password protected Puzzle booklet (will be uploaded before the test starts). The Puzzle booklet contains the actual Puzzles to be solved. It is password protected, so you won't be able to open it.
 - b) Click on "Start". At this time, password for pdf will be shown and timer will start. **The contest duration is 60 minutes.**
 - c) The puzzle booklet can be downloaded, printed and solved on paper.
 - d) We advise you to have a printer accessible with enough paper.
 - e) You are allowed to use writing implements, eraser, blank paper (including commercial graph paper), ruler, scissors, and tape.
- **If you plan to solve on LMI's Penpa-Integrated Interface:**
 - a) Click on this link and understand the instructions - <https://logicmastersindia.com/live/faq-online-solving.asp>
 - b) It is noted on the link too, but we note it here as well to be clear – the participants must still input the answer keys in the boxes below the puzzle and submit them to receive credit as given below.
- 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 permitted.
- Participants may use both paper solving and online solving, even interchangeably. Eventually our system will only count anything submitted in the submission boxes in either mode.

If you are participating at LMI for first time, it will be useful to check the F.A.Q. at <http://logicmastersindia.com/t/?tid=2773>.

About answer keys and Submission

- Each puzzle has some answer keys, as described in the instructions.
 - After solving the puzzle, you need to submit the puzzle using the answer keys.
 - You may submit the answer keys anytime during the test duration. You may consider submitting a puzzle as soon as you solve it.
 - 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 one row and one column is marked, enter the row first and then the column
-

- 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 does not matter for answer keys where letters must be entered.
- 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.**

Nurikabe	4, 3, 4
Mochikoro	4, 4, 5
Context	3, 6, 6
Mochinyoro	4, 5
Balance Loop	2, 5, 8
LUZ Loop	3, 4, 5
Consecutive Quads	4, 8, 5
Balance Loop [All Cells]	3, 5

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. A demonstration for this is shown below.

Original points

04 Araf	50 points	4A	Sum should be 10
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Potential points after 1 incorrect submission

04 Araf	45 / 50	4A	1234
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Potential points after 2 incorrect submissions

04 Araf	35 / 50	4A	23311
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Potential points after 3 incorrect submissions

04 Araf	20 / 50	4A	1111111111
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Potential points after 4 incorrect submissions

04 Araf	0 / 50	4A	541
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Bonus and Ranking

If you submitted all Puzzles correctly, you can have bonus points of 1 point per minute saved, computed up to seconds.

Ranking will be based on following rules in order:

1. Most total points
2. Earliest final submission time, up to seconds (ignoring incorrect submissions)

Credits

- **Botaku** for test solving the puzzles and providing invaluable feedback.
- 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/> and also working to integrate it with our contest engine.

About the Puzzle Booklet

The password protected Puzzle booklet will have 8 pages. This is relevant only for paper solvers.

Solutions and keys (including the key explanation) to examples are towards the end of the booklet in the Solutions section.

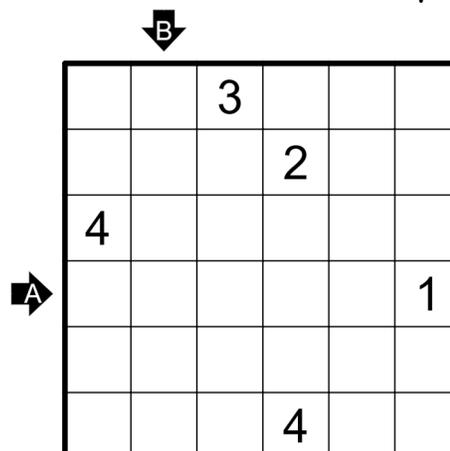
1-3 Nurikabe

4 + 3 + 4 points

Shade some cells so that all shaded cells form one orthogonally connected area. Clues cannot be shaded, and every orthogonally connected area of unshaded cells contains exactly one clue, the value of which represents the size of the area. No 2x2 region may be entirely shaded.

[The puzzles in the contest will be of sizes 9x9, 9x9 and 10x10. This example is 6x6.]

Penpa for example: <https://tinyurl.com/2l8qttqn>



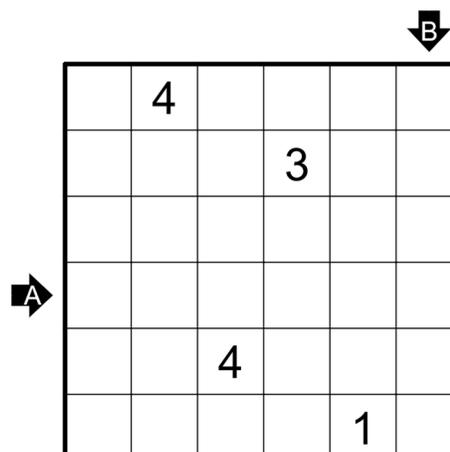
4-6 Mochikoro

4 + 4 + 5 points

Shade some cells so that all areas of orthogonally connected unshaded cells are rectangular. The unshaded rectangles must all be connected diagonally. Clues cannot be shaded, and represent the number of cells in the unshaded area they belong to. An unshaded area of cells contains either zero clues or one clue. No 2x2 region may be entirely shaded.

[The puzzles in the contest will be of sizes 9x9, 9x9 and 10x10. This example is 6x6.]

Penpa for example: <https://tinyurl.com/2oqez6es>



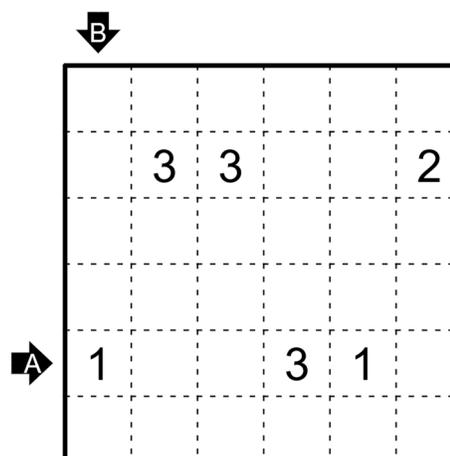
7-9 Context

3 + 6 + 6 points

Shade some cells so that no two shaded cells are orthogonally adjacent and the remaining unshaded cells form one orthogonally connected area. An unshaded clue indicates the number of orthogonally adjacent shaded cells. A shaded clue indicates the number of diagonally adjacent shaded cells.

[The puzzles in the contest will be of sizes 7x7, 9x9 and 10x10. This example is 6x6.]

Penpa for example: <https://tinyurl.com/2okmx9sr>



10-11 Mochinyoro

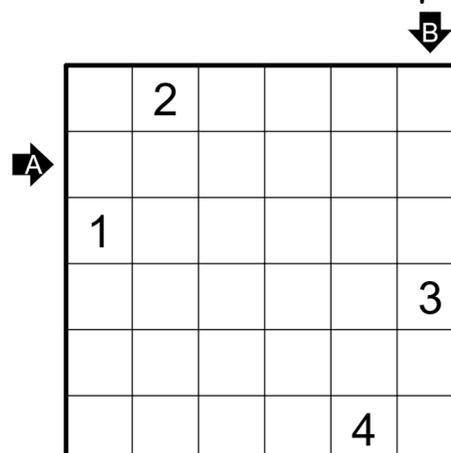
Apply regular Mochikoro rules.

Additionally, areas of orthogonally connected shaded cells cannot be rectangular.

[The puzzles in the contest will be of sizes 10x10 and 11x11. This example is 6x6.]

Penpa for example: <https://tinyurl.com/2zlcodjn>

4 + 5 points



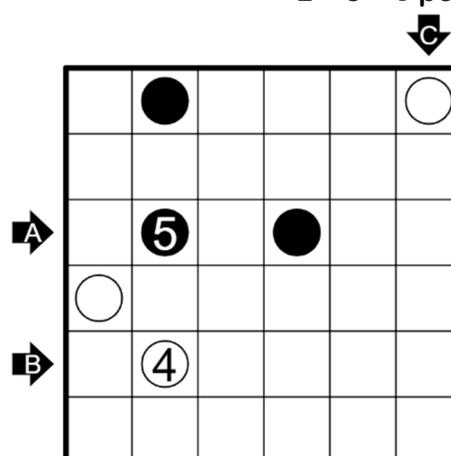
12-14 Balance Loop

Draw a non-intersecting loop through the centers of some cells that passes through every circle. The straight line segments coming out of a white circle must have equal length, while the straight line segments coming out of a black circle must have different lengths. A clue in a circle represents the sum of the lengths of these two line segments.

[The puzzles in the contest will be of sizes 8x8, 9x9 and 10x10. This example is 6x6.]

Penpa for example: <https://tinyurl.com/24atj8pv>

2 + 5 + 8 points



15-17 LUZ Loop

Draw a non-intersecting loop through the centers of some cells passing through every circle.

The loop turns on circles marked with L and goes straight through circles marked with U/Z.

When it passes through a Z it must turn in opposite directions on each side.

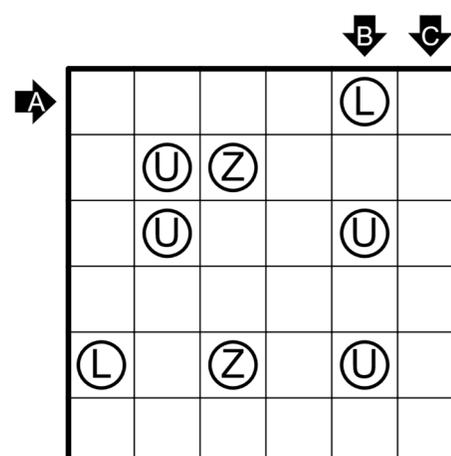
When it passes through a U it must turn in the same direction on each side.

There is no restriction on the distance a segment travels after passing through a U or Z before turning.

[The puzzles in the contest will be of sizes 8x8, 9x9 and 10x10. This example is 6x6.]

Penpa for example: <https://tinyurl.com/2n66rlxf>

3 + 4 + 5 points



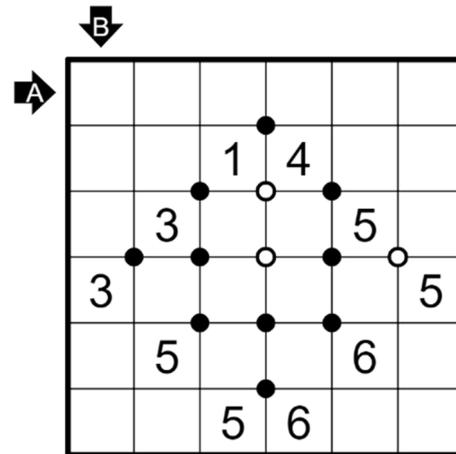
18-20 Consecutive Quads

4 + 8 + 5 points

Place a number from 1 to N into each cell so that each row and column contains every number from that range with no repeats, where N is the side length of the grid. A white dot indicates that exactly one pair of the cells it touches contains consecutive numbers. A black dot indicates that at least two pairs of the cells it touches contain consecutive numbers.

[The puzzles in the contest will be of sizes 5x5, 5x5 and 6x6. This example is 6x6.]

Penpa for example: <https://tinyurl.com/27sus2q5>



21-22 Balance Loop [All Cells]

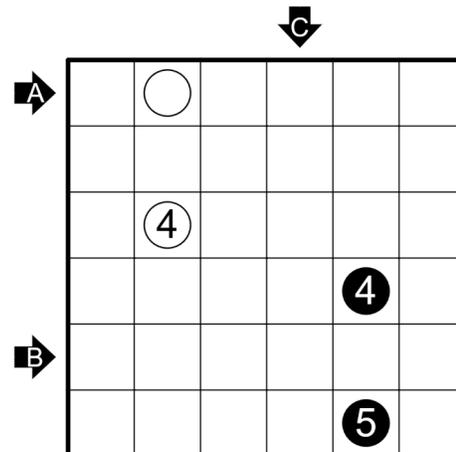
3 + 5 points

Apply regular Balance Loop rules.

Additionally, the loop must visit all cells of the grid.

[The puzzles in the contest will be of sizes 8x8 and 10x10. This example is 6x6.]

Penpa for example: <https://tinyurl.com/2zkzcx7f>



Origin Credits for MII:

Balance Loop	Prasanna Seshadri
LUZ Loop	Pranav Kamesh S
Consecutive Quads	Ashish Kumar

Solutions

For this round, all answer keys will NOT be the same for all puzzles.

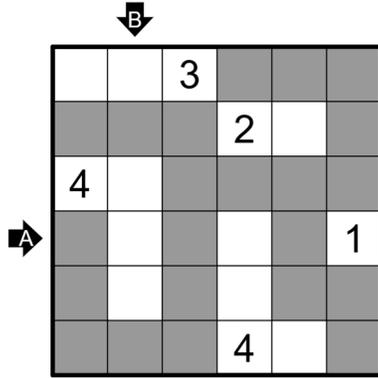
The keys are given section by section.

Nurikabe, Mochikoro, Context, Mochinyoro – For each marked row/column, enter the number of consecutive shaded and unshaded cells in the direction of the arrow.

Consecutive Quads – For each marked row/column, enter the digits in the direction of the arrow, including given digits.

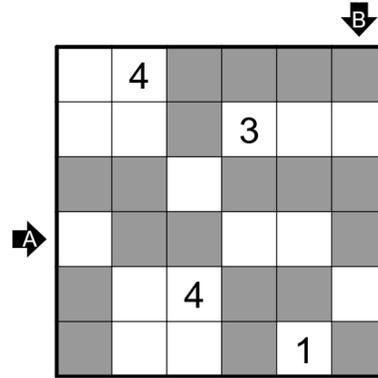
Balance Loop, LUZ Loop, Balance Loop [All Cells] – For each marked row/column, enter the lengths of separate loop segments in the direction of the arrow. Use unit's digit for double digit values. Enter 0 if there are no segments.

Nurikabe



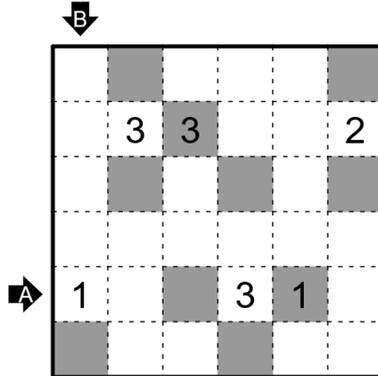
Key: 111111, 1131

Mochikoro



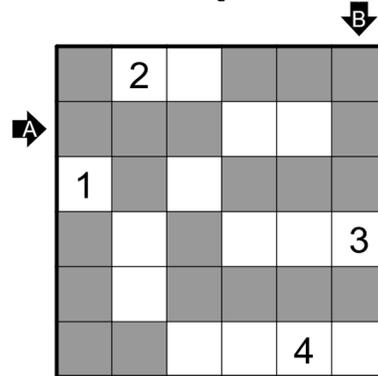
Key: 1221, 11211

Context



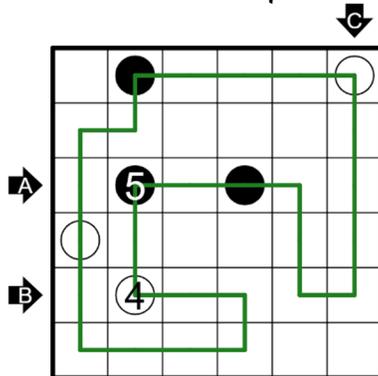
Key: 21111, 51

Mochinyoro



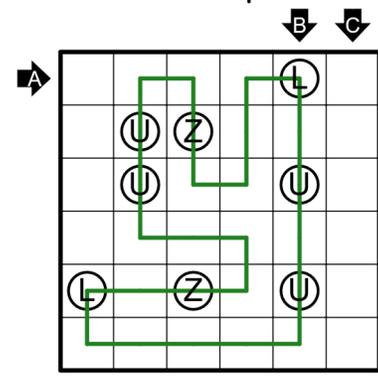
Key: 321, 3111

Balance Loop



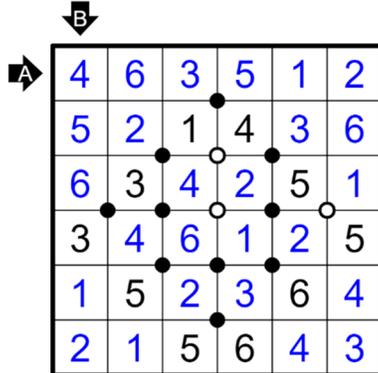
Key: 3, 21, 4

LUZ Loop



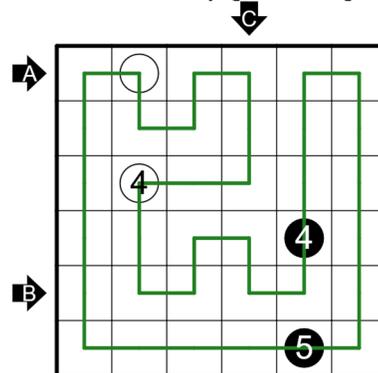
Key: 11, 5, 0

Consecutive Quads



Key: 463512, 456312

Balance Loop [All Cells]



Key: 111, 11, 21