puzzle
ramayan

and

Episode – 5
3ʳᵈ – 8ᵗʰ June 2022

Loops & Shading
by
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Puzzle Ramayan rounds will also serve as qualifiers for Indian Puzzle Championship for year 2022. Please check http://logicmastersindia.com/PR/2022pr.asp **for details.**

About this Episode

This episode has 22 Puzzles from the following puzzle types:

- 3* Masyu
- 3* Maxi Loop
- 3* Country Road
- 3* Tapa
- 3* Kurodoko
- 3* Yajisan Kazusan
- 2* Country Road [Tetromino]
- 2* Yajisan Kazusan [Loop]

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 3rd June (but on or before 8th June), 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.**

Masyu	1,2,3
Maxi Loop	4,8,8
Country Road	2,4,9
Tapa	1,2,4
Kurodoko	2,4,4
Yajisan Kazusan	3,8,8
Country Road [Tetromino]	3,7
Yajisan Kazusan [Loop]	5,8

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 |

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 |

Bonus and Ranking

If you submitted all Puzzles correctly, you can have bonus points 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
- **David Altizio (A.K.A. djmathman) & Jacob Cohen (A.K.A. Conflux)** 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.

1-3 Masyu

1 + 2 + 3 points

Draw a non-intersecting loop, traveling orthogonally through the centers of some cells, that passes through every circle.

The loop must turn on black circles and travel straight through the cells on either side. The loop must go straight through white circles, and turn in at least one of the cells on either side.

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

Penpa for example: https://tinyurl.com/2gsbpu79

4-6 Maxi Loop

4 + 8 + 8 points
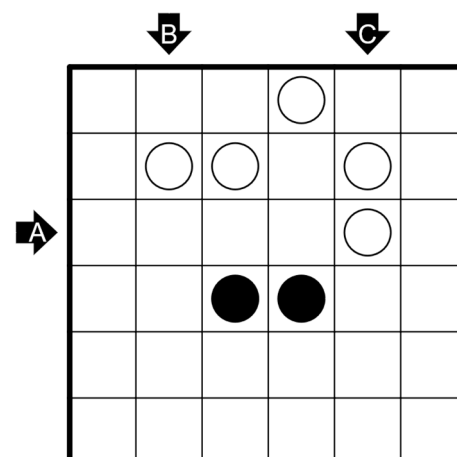
Draw a non-intersecting loop traveling orthogonally through the centers of all <u>white</u> cells.
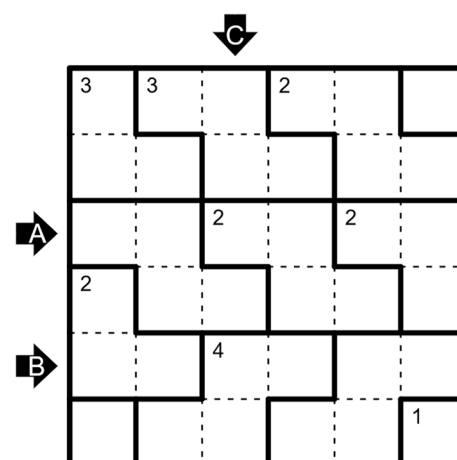
A number in a region represents the number of cells occupied by the largest continuous loop segment within the region.

<u>The loop does not travel through black cells.</u>

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

Penpa for example: https://tinyurl.com/2jkb5ykz

7-9 Country Road

2 + 4 + 9 points

Draw a non-intersecting loop traveling orthogonally through the centers of some cells which passes through each region exactly once.

A number in a region represents how many cells in the region are visited by the loop. Orthogonally adjacent cells across a region border may not both be unused.

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

Penpa for example: https://tinyurl.com/2jt6f5kw
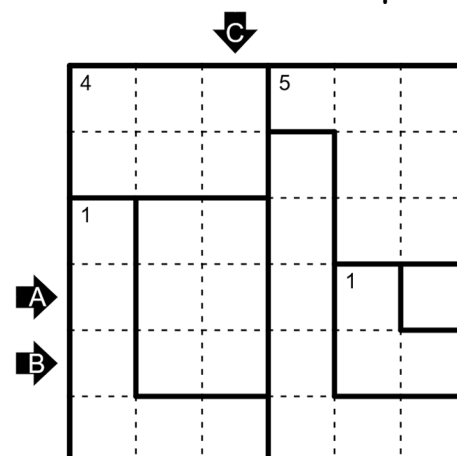
10-12 Tapa

Shade some cells so that all shaded cells form one orthogonally connected area.

Clues cannot be shaded, and represent the lengths of the blocks of consecutive shaded cells in the (up to) eight cells surrounding the clue. No 2x2 region may be entirely shaded.

'?'s can stand for any non-zero digit.

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

Penpa for example: https://tinyurl.com/2h46hqea
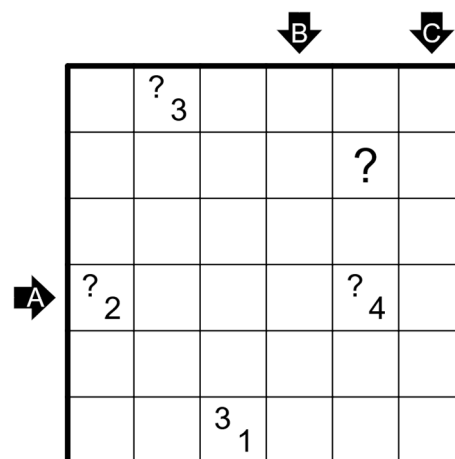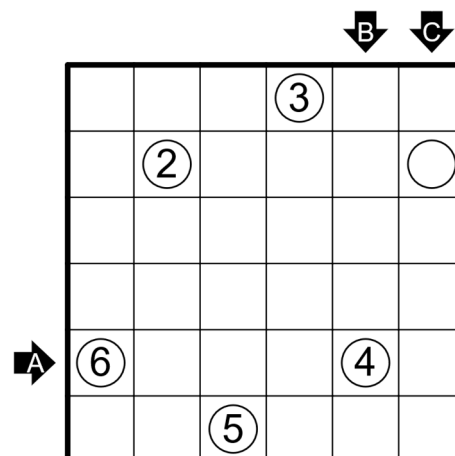
13-15 Kurodoko

2 + 4 + 4 points

Shade some cells so that no two shaded cells are orthogonally adjacent and the remaining unshaded cells form one orthogonally connected area.

Circled clues cannot be shaded, and if they contain a number, it represents the total number of unshaded cells that can be seen in a straight line vertically or horizontally, including itself.

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

Penpa for example: https://tinyurl.com/2j6sjqp3

16-18 Yajisan Kazusan

3 + 8 + 8 points

Shade some cells so that no two shaded cells are orthogonally adjacent and the remaining unshaded cells form one orthogonally connected area.

If a cell with a number in it is unshaded, the number represents how many shaded cells are in a straight line in the indicated direction. If a cell with a number in it is shaded, the number is meaningless.

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

Penpa for example: https://tinyurl.com/2mhkg8te
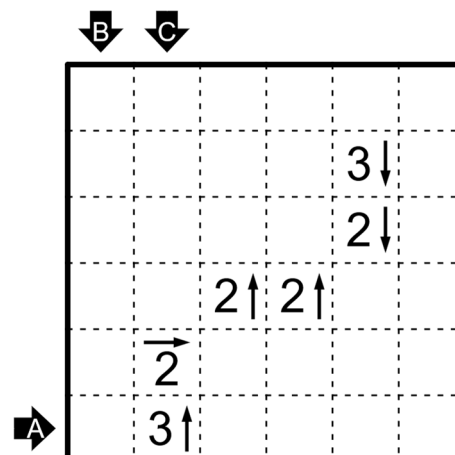
19-20 Country Road [Tetromino]
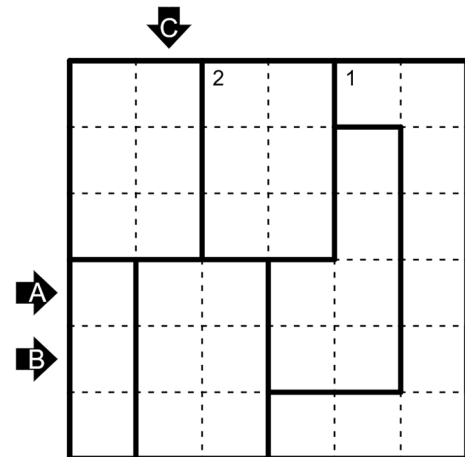
3 + 7 points

Draw a non-intersecting loop traveling orthogonally through the centers of some cells which passes through each region exactly once.

A number in a region represents how many cells in the region are visited by the loop. Orthogonally adjacent cells across a region border may not both be unused.

<u>Additionally, all unused cells must be part of tetromino shapes. Shapes cannot overlap. Shapes that are the same, allowing for rotation and reflection, cannot share an edge.</u>

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

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

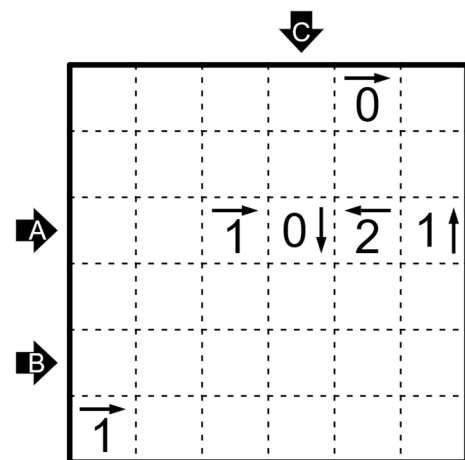## 21-22 Yajisan Kazusan [Loop]

5 + 8 points

Shade some cells so that no two shaded cells are orthogonally adjacent and the remaining unshaded cells form one orthogonally connected area.

If a cell with a number in it is unshaded, the number represents how many shaded cells are in a straight line in the indicated direction. If a cell with a number in it is shaded, the number is meaningless.

<u>Additionally, draw a non-intersecting loop traveling orthogonally through the centers of all unshaded cells.</u>

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

Penpa for example: <u>https://tinyurl.com/2joz3j65</u>

Solutions

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

The keys are given section by section.

Masyu, Maxi Loop, Country Road, Country Road [Tetromino], Yajisan Kazusan [Loop] –
For each marked row/column, enter the lengths of all loop segments in the direction of
the arrow. Enter 0 if there are none.

Tapa, Kurodoko, Yajisan Kazusan – For each marked row/column, enter the number of
consecutive shaded and unshaded cells in the direction of the arrow. (only for the
10x10 puzzles) enter 0 if all 10 cells are entirely shaded or entirely unshaded.

Masyu

Key: 12, 2, 0

Maxi Loop

Key: 11, 111, 31

Country Road

Key: 0, 1, 12

Tapa

Key: 2121, 321, 51

Kurodoko

Key: 213, 1212, 6

Yajisan Kazusan

Key: 411, 6, 111111

Country Road [Tetromino]

Key: 2, 11, 11

Yajisan Kazusan [Loop]

Key: 1, 12, 11