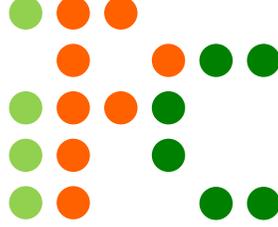


puzzle Ramayan

and



Episode – 2
3rd – 9th February 2023

Evergreens and Rule Pool
by
Chandrachud Nanduri

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=PR202302>

Discussion Thread : <http://logicmastersindia.com/t/?tid=3084>

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* Anglers
- 3* Battleships
- 3* Skyscrapers
- 2* Battleships [Yajilin]
- 3* Rule Pool A
- 3* Rule Pool B
- 3* Rule Pool C
- 2* Rule Pool A/B/C+

How to participate?

- Understand the rules of different puzzles that will appear in this episode. This Instruction Booklet has rules for each puzzle/section where it's relevant.
- Any time on or after 3rd February (but on or before 9th February), 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.**

Anglers	1, 4, 6
Battleships	1, 5, 7
Skyscrapers	3, 3, 4
Battleships [Yajilin]	11, 6
Rule Pool A	2, 4, 7
Rule Pool B	3, 3, 4
Rule Pool C	4, 5, 9
Rule Pool A/B/C+	2, 6

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 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 12 pages. This is relevant only for paper solvers.

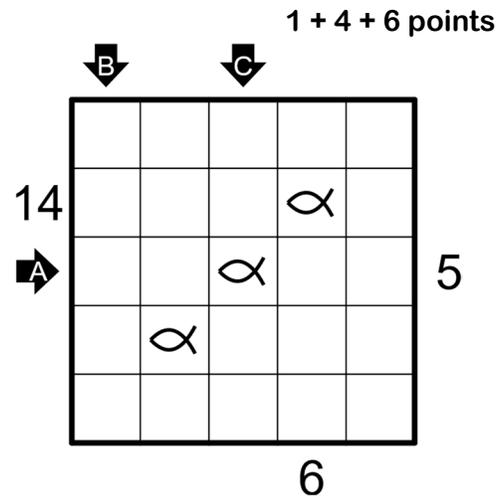
Solutions and keys (including the key explanation) to examples are towards the end of the booklet in the Solutions section.

1-3 Anglers

From each number outside the grid, draw a path which immediately goes into the nearest cell of the grid and then travels through the centers of some cells until arriving at a fish. Paths may not cross themselves, each other, or fish. Every cell must be used by a path. The number at the beginning of a path indicates how many cells in the grid the path occupies, including the cell with the fish.

[The puzzles in the contest will be of sizes 7x7, 9x9 and 10x10. This example is 5x5.]

Penpa for example: <https://tinyurl.com/22355z6f>

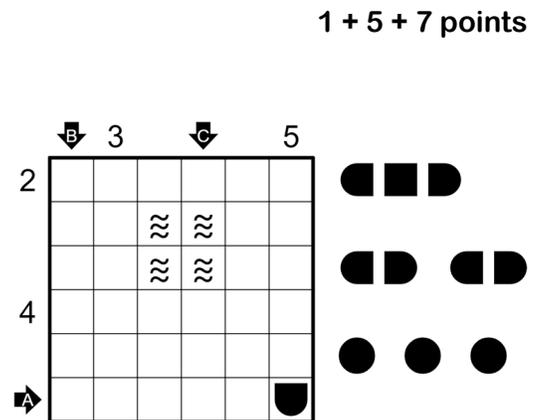


4-6 Battleships

Place the given fleet of ships into the grid so that no two ships are touching, not even diagonally. Rotating ships is permitted. A clue outside the grid indicates the number of cells in the corresponding row or column that are occupied by ships. Cells with waves cannot be occupied by a ship. A given ship segment must be used as the part of a ship that its shape represents.

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

Penpa for example: <https://tinyurl.com/26895pmb>

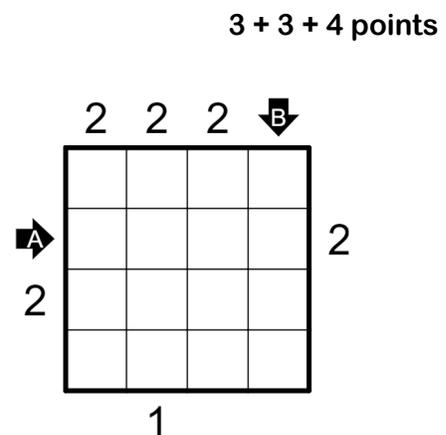


7-9 Skyscrapers

Insert a digit from 1 to N into each cell in the N by N grid so that no digit repeats in any row or column. Also, each number in the grid represents the height of a building and the clues on the outside of the grid indicate how many buildings can be "seen" when looking from that direction. Taller buildings block the view of smaller buildings.

[The puzzles in the contest will be of sizes 6x6, 6x6 and 7x7. This example is 4x4.]

Penpa for example: <https://tinyurl.com/3b2n95fc>

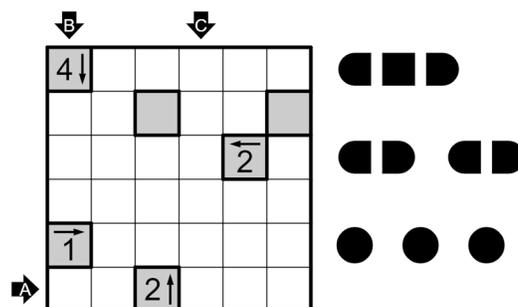


10-11 Battleships [Yajilin]

11 + 6 points

Place the given fleet of ships into some empty cells of the grid so that no two ships are touching, not even diagonally. Rotating ships is permitted. Additionally, draw a non-intersecting loop through the centers of all the remaining empty cells. Clues represent the number of cells occupied by ships in a straight line in the indicated direction.

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



Penpa for example: <https://tinyurl.com/23ajbbwx>

12-22 Rule Pool

(2 + 4 + 7) + (3 + 3 + 4) + (4 + 5 + 9) + (2 + 6) points

This is a section where there will be visual depictions taken from a pool of rules given below. Note that it is just a pool to refer to, and there isn't anything linking sets matching rules, etc. The images required to solve each section/puzzle will be given appropriately.

The common rule stands for all puzzles:

Draw a non-intersecting loop through the centers of some cells. The loop cannot visit black cells and cells with numbers.

Beyond that, apply the corresponding rules from the depicted images to the puzzle and solve it. At the end of the pool, we have showed one sample of how a puzzle will look.

The Puzzle Booklet will also contain 1 page with the pool.

There will be 3 sets (A, B, C). Within a set all 3 puzzles will follow the same set of rules, depicted by 3 images from the pool.

There will be two variants, which will each contain the same rules as one of the earlier sets but with one added rule, depicted by a 4th image.

[The puzzles in the contest will be of sizes as follows:

A – 8x8, 9x9 and 10x10.

B – 9x9, 11x11 and 12x12.

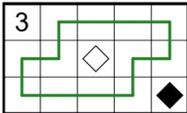
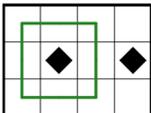
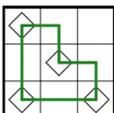
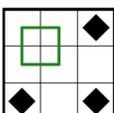
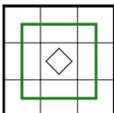
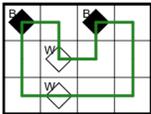
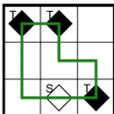
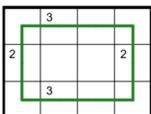
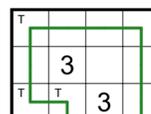
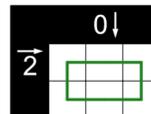
C – 8x8, 9x9 and 10x10.

A/B/C+ 1 – 12x12. A/B/C+ 2 – 10x10.

The example below is 10x10.]

Queries Answered: The rule pool page will be exactly as the next page, in the PB too, and the two variants will also take their added rule from this pool.

Rule Pool:

1.  : The loop must visit all non-black cells of the grid. (Black cells are NOT same as black diamonds, refer to rule 11 for what is meant by Black cells)
2.  : The loop must visit all empty (no symbol, no number) cells of the grid.
3.  : The loop does not visit any cells with black diamonds.
4.  : The loop visits all cells with white diamonds.
5.  : All black diamonds are outside the loop (cells visited by the loop are neither outside nor inside).
6.  : All white diamonds are inside the loop (cells visited by the loop are neither outside nor inside).
7.  : The loop visits all diamonds, alternating between blacks and whites.
8.  : The loop turns on black diamonds and goes straight through white diamonds.
9.  : Two consecutive line segments cannot have the same length.
10.  : A clue gives the number of turns in the 8 cells around it.
11.  : A clue gives the total length of line segments in that direction, taking center to center as one unit length.

Example:

Rules: Draw a non-intersecting loop through the centers of some cells. The loop cannot visit black cells and cells with numbers.

Penpa for example: <https://tinyurl.com/2yl9gg4j>

Solutions

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

The keys are given section by section.

Anglers, Battleships [Yajilin], Rule Pool A,B,C,A/B/C+ – For each marked row/column, enter the lengths of all loop segments in the direction of the arrow. Enter 0 if there are none.

Battleships – For each marked row/column, enter either the size of the ship that has a segment in the cell, or X for cells without ship segments, in the direction of the arrow.

Skyscrapers – For each marked row/column, enter the digits in the direction of the arrow, excluding digits outside the grid.

Anglers

Key: 111,12,11

Battleships

Key: X1XXX3,XXX2XX,XXX1XX

Skyscrapers

	2	2	2	↓ B	
	1	3	2	4	
→ A	4	2	1	3	2
2	3	1	4	2	
	2	4	3	1	
		1			

Key: 4213,4321

Battleships [Yajilin]

	↓ B		↓ C		
	4 ↓				●
	●				●
	●			← 2	●
	●				●
	→ 1				
→ A	●	●	2 ↑		

Key: 2,0,21

Rule Pool Example

						↓ C	↓ D
	◆			5		◆	
		◇				◆	
	5		◆	◆		◆	
		◇	1	◇		◆	
						◆	
	1				6	◆	
		◇				◆	
→ A			◇				
→ B							2

Key: 3,9,1111,26