puzzle
Ramayan
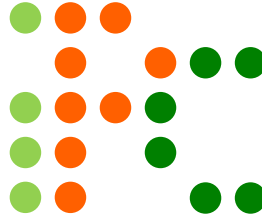
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Episode – 2
26th – 28th September

Numbers by Deb Mohanty

Puzzle Ramayan rounds will also serve as qualifiers for Indian Puzzle Championship for year 2016. Please check http://logicmastersindia.com/PR/2015-16pr.asp for details.

About this Episode

This episode has 22 puzzles, with 5 base puzzle types and 2 derived puzzles.

• 4* Kakuro • 4* Magic Snail • 4* Kropki • 4* Skyscrapers • 4* Easy As ABC [Numbers]	• 1* KropKuro (Kropki + Kakuro) • 1* ABC Skyscrapers (Easy As ABC + Skyscrapers)

How to participate?

- Understand the rules of different puzzles that will appear in this episode. This Instruction Booklet has rules for each puzzle.
- 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.
- Any time after 26th September (but before 29th September (not including 29th), login at the submission page using your LMI userid and password.
- Please check the submission page for exact timing.
- Click on "Start". At this time, password for pdf will be shown and timer will start.
- The puzzle booklet should be downloaded, printed and solved on paper.
- There will not be any interface / applet to solve the puzzles on web browser.
- Most of the puzzles are designed to be solved faster on paper.
- We advise you to have a printer accessible with enough paper.
- 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.
- You are allowed to use writing implements, eraser, 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=381.

About answer keys and Submission

- There are two types of answer keys used in this episode.
- For Kropki, 1 or 2 rows will be marked. You need to enter the digits in the marked rows, from left to right. Enter the top marked row first, then the bottom row marked row, if multiple rows are marked.
- For all other puzzles, some columns have one circled cell. Enter the symbols in the circles from left to right. Be careful not to enter it top to bottom.
- In case of blank cells, use "X" across all puzzles.

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.

Kakuro	2, 3, 4, 5
Magic Snail	2, 5, 3, 5
Kropki	1, 4, 7, 3
Skyscrapers	2, 6, 6, 7
Easy As ABC [Numbers]	2, 4, 3, 7
KropKuro	12
ABC Skyscrapers	7

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Instant Grading

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 submission reduces the potential score to 90%, 70%, 40%, and 0% respectively.

Bonus and Ranking

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

Ranking will be based on following rules in order:
1. Most total points
2. Earliest final submission time, upto seconds (ignoring incorrect submissions)

About the Puzzle Booklet

The password protected Puzzle booklet will have **7** pages. We expect you to print and solve on page, so you would need to have a printer accessible with enough paper.

The font sizes, cell sizes, colors, borders, shading, margin in the puzzle booklet and instruction booklet will be identical.

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Kakuro　　　　　　　　　　　　　　　　　　　　　　　2 + 3 + 4 + 5 points

> ➢ Fill in the white cells in the grid with digits from 1 to 9.
> ➢ The sum of digits in each horizontal / vertical group of cells is given on its left/top.
> ➢ Digits do not repeat within any set of consecutive white cells.

Ignore the circles while solving. They are used for answer key purposes only.

Answer key: Some columns have one circled cell. Enter the symbols in the circles from left to right. For the example, the answer key is 9269
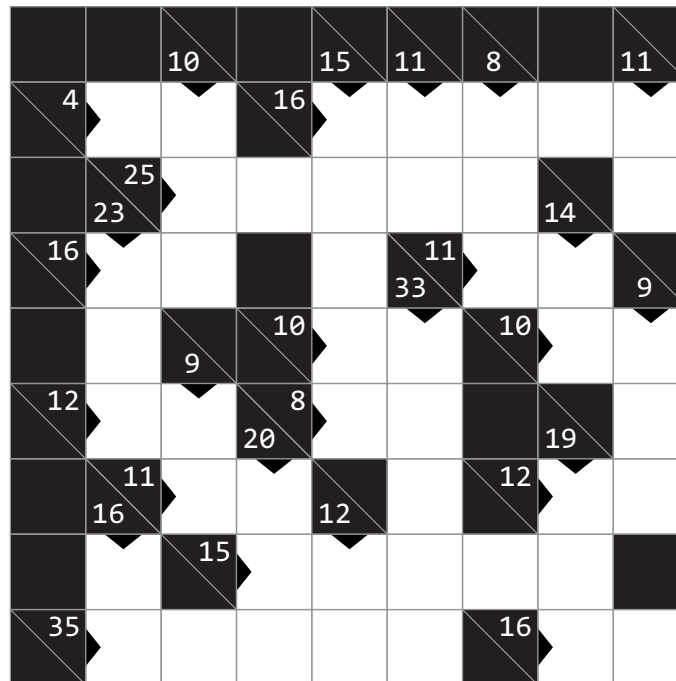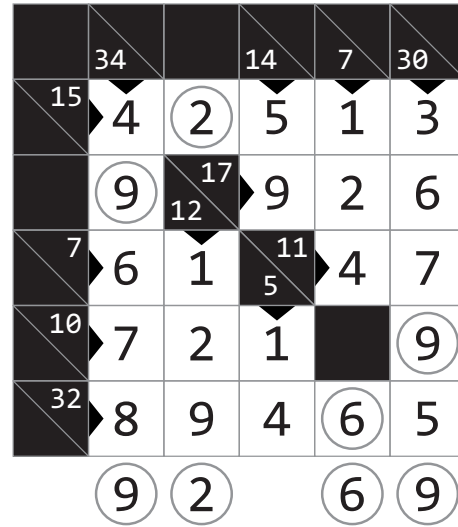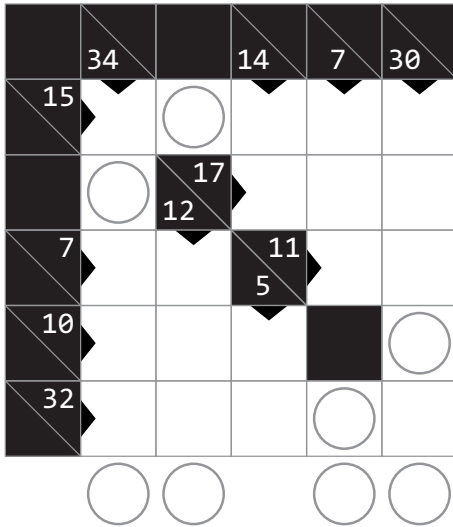
Magic Snail

2 + 5 + 3 + 5 points

➢ Fill in the snail like grid such that each row and column has some re-arrangement of all the letters of the given key.
➢ Some cells will remain blank.
➢ While reading the letters from outside towards the center, the order of the letters is to be same as the key. [E.g. in the example it should read as A-B-C-A-B-C…]

Ignore the circles while solving; they are used for answer key purposes.

Answer key: Some columns have one circled cell. Enter the symbols in the circles from left to right. Enter X for blank cells. For the example, the answer key is BAXXX

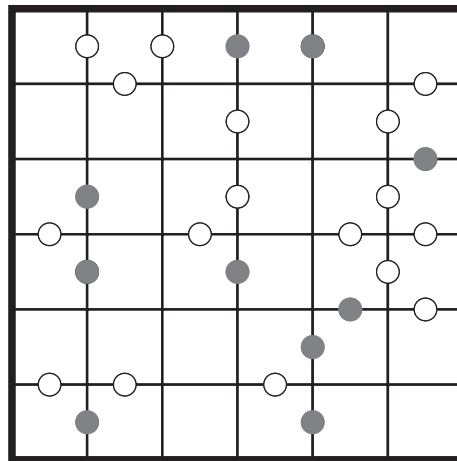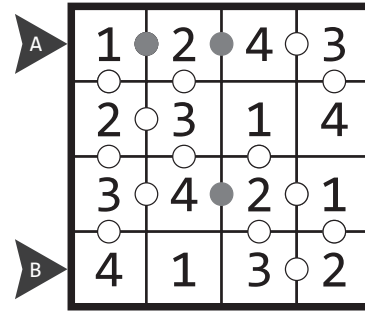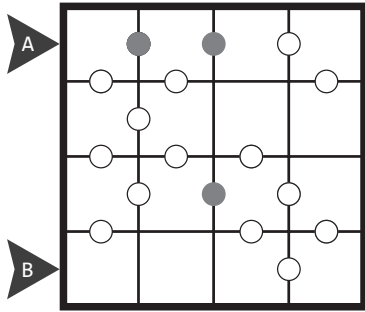## ABC

ABC

LOOP

Kropki   1 + 4 + 7 + 3 points

➢ Fill in the grid with digits 1 – N where N is the size of the grid so that each row and column contains each digit exactly once.
➢ If two consecutive digits appear in two neighboring cells, they are separated by white dot.
➢ If digit in a cell is half of digit in the neighboring cell, then they are marked by black dot.
➢ The dot between 1 and 2 can either be white or be black.

Answer key: Enter the digits in the marked rows. For the example, the answer key is 1243, 4132

Skyscrapers   2 + 6 + 6 + 7 points

> ➢ Fill in the grid with digits 1 – N where N is the size of the grid so that each row and column contains each digit exactly once.
> ➢ Each number inside the grid represents the height of a building.
> ➢ The clues outside of the grid indicate how many buildings can be seen when looking from that direction.
> ➢ Taller buildings block the view of smaller buildings.

Ignore the circles while solving. They are used for answer key purposes only.

Answer key: Some columns have one circled cell. Enter the symbols in the circles from left to right. For the example, the answer key is 3212

Easy As ABC [Numbers]   **2 + 4 + 3 + 7 points**

- Fill in the grid with letters from the given range so that each row and column contains each letter exactly once.
- Each row and column contains one blank cell.
- The clues outside the grid in the form X_N, indicate that X is the Nth letter seen in that row or column, in the corresponding direction.

Ignore the circles while solving. They are used for answer key purposes only.

Answer key: Some columns have one circled cell. Enter the symbols in the circles from left to right. Enter X for blank cells. For the example, the answer key is XACB

A-C

A-C

A-F

KropKuro   **12 points**

➢ Apply Kakuro rules.
➢ If two consecutive digits appear in two neighboring cells, they are separated by white dot.
➢ If digit in a cell is half of digit in the neighboring cell, then they are marked by black dot.
➢ The dot between 1 and 2 can either be white or be black.

Ignore the circles while solving. They are used for answer key purposes only.

Answer key: Some columns have one circled cell. Enter the symbols in the circles from left to right. For the example, the answer key is 741

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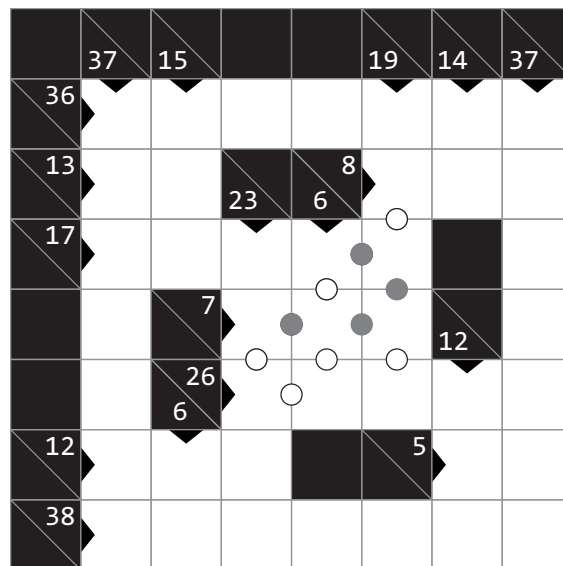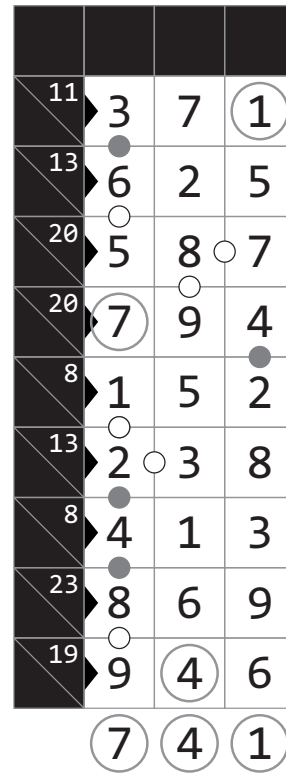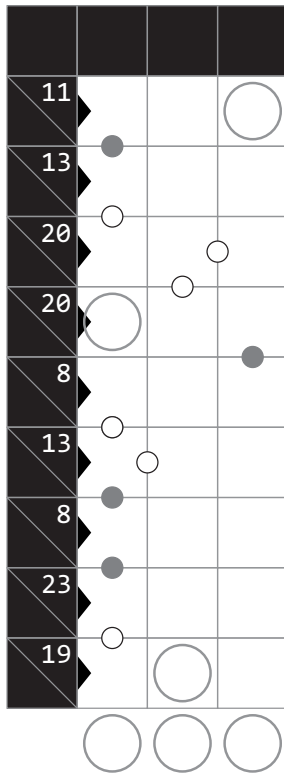
ABC Skyscrapers   **7 points**

- Fill in the grid with letters A, B, C and digits 1, 2, 3 so that each row and column contains different symbols. (The first example uses A, B, 1, 2)
- Each number inside the grid represents the height of a building.
- The number clues outside of the grid indicate how many buildings can be seen when looking from that direction.
- Taller buildings block the view of smaller buildings, but letters do not affect visibility.
- Letters outside the grid indicate the first seen letters from the corresponding direction.

Ignore the circles while solving. They are used for answer key purposes only.

Answer key: Some columns have one circled cell. Enter the symbols in the circles from left to right. For the example, the answer key is 2B21
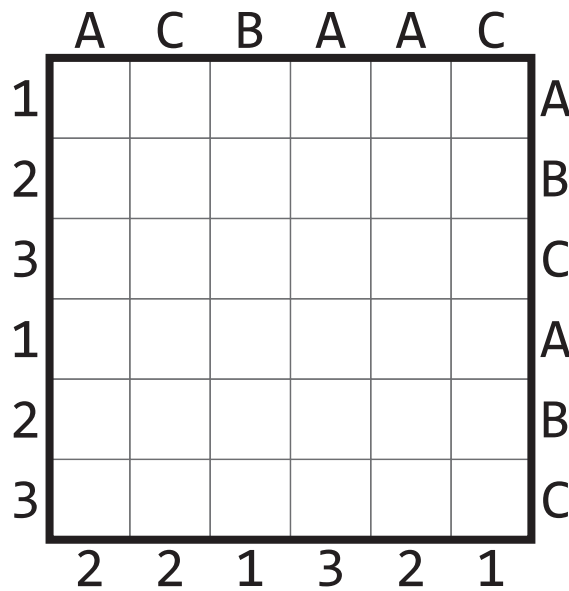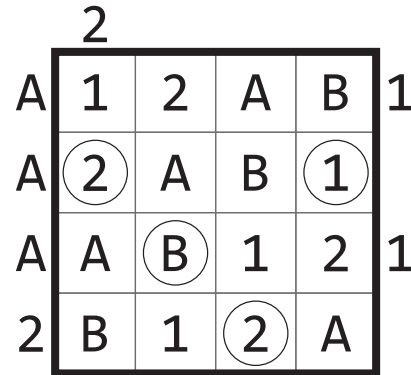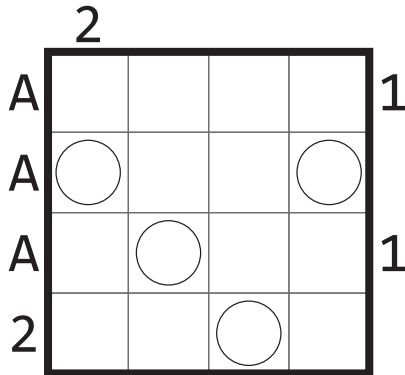
Solutions

Kakuro grid

		10		15	11	8		11
4	3	1	16	4	3	2	1	6
23/25		2	9	5	8	1	14	5
16	9	7		3	33/11	5	6	9
	6	9	10	2	8	10	8	2
12	8	4	20/8	1	7		19	3
16/11		5	6	12	9	12	8	4
	9	15	5	4	3	1	2	
35	7	5	9	8	6	16	9	7

LOOP

	L	O	O	P		
O	P		L		O	
O		O	P			L
		P		L	O	O
L			O	O	P	
P	O	L				O
	O			O	L	P

Number loop grid (bottom left)

6	5	4	2	1	3
1	4	6	5	3	2
3	6	2	1	5	4
2	1	3	6	4	5
5	3	1	4	2	6
4	2	5	3	6	1

Skyscraper grid (bottom right)

	5			2	2		
	2	1	3	4	5	6	
2	3	6	4	2	1	5	
3	4	5	6	3	2	1	4
4	1	2	5	6	4	3	3
	5	3	2	1	6	4	2
	6	4	1	5	3	2	
		3	4			4	

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Solutions

A–F

	A1	B2	C3	D4	E5	F6	
A3		E	B	A	F	D	C	F3
B3	A		D	B	C	E	F	D5
C1	C	B		F	D	A	E	A2
A4	E	F	C		A	B	D	B2
A3	F	C	A	D	E		B	B1
E4	B	D	F	E		C	A	A1
B5	D	A	E	C	B	F		A5

Kakuro solution grid:

	37	15			19	14	37
36	1	3	8	2	7	9	6
13	8	5	23	8/6	1	5	2
17	3	7	4	1	2		7
	5	7	1	2	4	12	4
	9	26/6	2	3	5	7	9
12	4	1	7		5	4	1
38	7	5	9	2	6	1	8

	A	C	B	A	A	C	
1	3	C	B	A	1	2	A
2	A	2	C	B	3	1	B
3	1	B	2	3	A	C	C
1	C	3	1	2	B	A	A
2	2	A	3	1	C	B	B
3	B	1	A	C	2	3	C
	2	2	1	3	2	1	