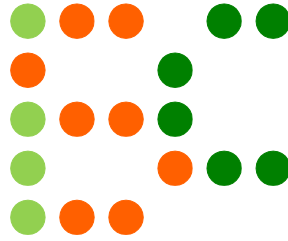


इयतरेकेय ललहलभहरलत



Episode – 4
3rd – 8th April 2020

Math Variations
By
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Sudoku Mahabharat rounds will also serve as qualifiers for Indian Sudoku Championship for year 2020. Please check <http://logicmastersindia.com/SM/2020sm.asp> for details.

Important Links

Submission Page : <http://logicmastersindia.com/SM/202004>

Discussion Thread : <http://logicmastersindia.com/t/?tid=2733>

F. A. Q. : <http://logicmastersindia.com/t/?tid=381>

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

About this Episode

This episode has the following Sudokus:

- Mini Classic Sudoku (4)
- Classic Sudoku (4)
- Division Sudoku (2)
- Serbian Frame Sudoku (2)
- Killer Sudoku (2)
- X Sums Sudoku (2)
- Little Killer Sudoku (2)

How to participate?

- Understand the rules of different Sudokus that will appear in this episode. This Instruction Booklet has rules and examples for each Sudoku.
- Download the password protected Sudoku booklet (will be uploaded before the test starts). The Sudoku booklet contains the actual Sudokus to be solved. It is password protected, so you won't be able to open it.
- Any time on or after 3rd April (but on or before 8th April), 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.
- You can either solve online using flash interface or print the pdf and solve on paper.
- Each Sudoku will be marked with two arrows
- If solving on paper
 - Fill the answer form with digits along the marked arrow(s)
 - Click submit button
- If solving online
 - After solving the Sudoku, click on "Submit" button below the grid
 - Each Sudoku grid has different submit buttons

If you are participating at LMI for first time, you must check the F.A.Q. at:
<http://logicmastersindia.com/t/?tid=381>.

Points Table and Scoring

Points typically indicate difficulty of the Sudokus and time required to solve them. While the organizers have made best efforts to match them, your personal experience and preference may differ.

This test uses instant grading where a solver confirmation that the solution is correct or sudoku's potential score. The first, second, third, and fourth incorrect submissions reduce the potential score to 90%, 70%, 40%, and 0% respectively.

Mini Classic 1-6	1, 1, 1, 1
Classic 1-9	5, 4, 3, 4
Division 1-6, 1-9	2, 10
Serbian Frame 1-6,1-9	3, 10
Killer 1-6,1-9	2, 12
X Sums 1-6,1-9	4, 14
Little Killer 1-6,1-9	4, 19

Bonus

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

General Rules

To make the rules less repetitive, you will see following line “Apply standard Sudoku rules” in most Sudoku rules. This means “Place a digit from 1 to N, where N is the size of the grid, in each empty cell so that each digit appears exactly once in each row, column and outlined region.” These outlined regions could be 3X3 boxes, or other shapes.

Each Sudoku will be marked with, at max, 2 lettered arrows. If you are solving on paper, you need to submit the digits in these arrows, in order, including the givens. For example, the answer key for the Sudoku at the right is 162897453, 517698432.

3	8	7	4	6	5	1	2	9
9	5	4	2	3	1	7	6	8
1	6	2	8	9	7	4	5	3
2	9	3	1	4	6	8	7	5
8	7	1	5	2	9	3	4	6
5	4	6	3	7	8	9	1	2
7	2	5	9	8	4	6	3	1
6	1	9	7	5	3	2	8	4
4	3	8	6	1	2	5	9	7

About the Sudoku Booklet

The password protected Sudoku booklet will have 8 pages. If you are planning to solve on paper, we advise you to have a printer accessible with enough paper.

The Sudoku booklet will look similar to the next pages in this instruction booklet. The font sizes, cell sizes, colors, borders, shading, margin will be similar. We recommend you to print few pages of this instruction booklet. You can avoid any last minute surprise during the test.

1-4 Mini Classic Sudoku

1+1+1+1 points

Place a digit from 1 to 6 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box.

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

5-8 Classic Sudoku

5+4+3+4 points

Classic Sudoku

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 3X3 box.

	1						8	
8		7				4		2
	9		4		2		3	
		9		3		7		
			5		4			
		6		9		5		
	7		1		6		5	
1		4				6		3
	6						7	

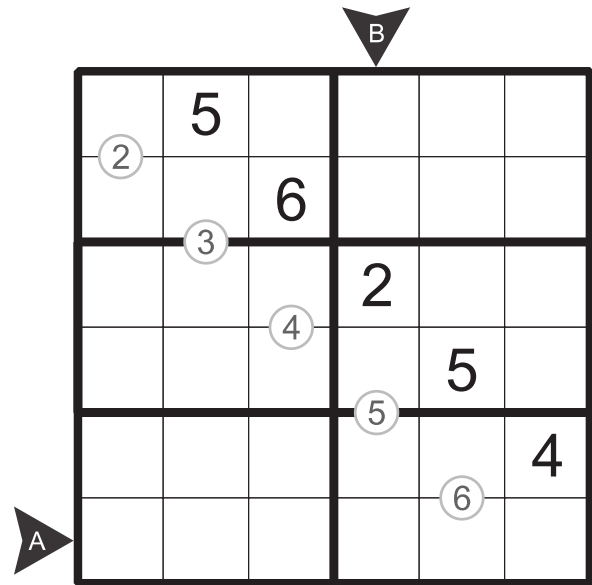
Division Sudoku - 1

2 points

Apply mini classic Sudoku rules.

Additionally, the circled number between two cells indicates the quotient when the larger digit is divided by the smaller digit.

The remainder must be zero.



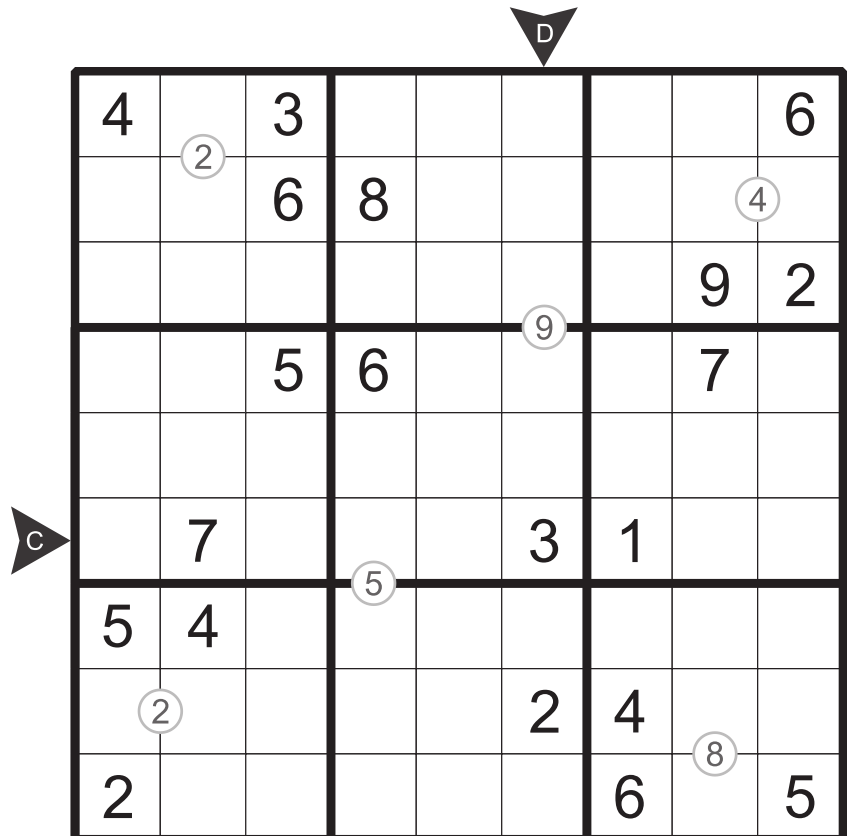
Division Sudoku - 2

10 points

Apply classic Sudoku rules.

Additionally, the circled number between two cells indicates the quotient when the larger digit is divided by the smaller digit.

The remainder must be zero.



Serbian Frame Sudoku - 1

3 points

Apply mini classic Sudoku rules.

Additionally, the clues outside the rows indicate the sum of the numbers to be placed in the 1st and 2nd cells in the corresponding directions.

The clues outside the columns indicate the sums of the numbers to be placed in the 2nd and 3rd cells in the corresponding directions.

							7	8	9
▶ E									
		2							
				3					
11						3			
10								2	
▶ F									

Serbian Frame Sudoku - 2

10 points

Apply classic Sudoku rules.

Additionally, the clues outside the rows indicate the sum of the numbers to be placed in the 2nd and 3rd cells in the corresponding directions.

The clues outside the columns indicate the sums of the numbers to be placed in the 3rd and 4th cells in the corresponding directions.

													16	14	11	5	9	4	7	10	14					
8																									13	
9																										12
12																										8
▶ G	13																									9
7																										7
▶ H	11																									9
10																										12
8																										14
12																										6
	6	12	9	7	17	6	5	16	12																	

Killer Sudoku - 1

2 points

Apply mini classic Sudoku rules.

Additionally, the sum of digits in cells inside every cage must equal the total given for the cage at the upper left cell.

Digits do not repeat inside a cage.

A 6x6 grid for Killer Sudoku - 1. The grid is divided into a 3x2 grid of 3x3 mini-grids. Cages are defined by dashed lines, and their sums are given in the top-left cell of each cage. A large arrow labeled 'J' points to the top of the grid, and a large arrow labeled 'I' points to the left side of the grid.

8	8			8	
	9			10	9
9	11	11			
		9			
		12			6
7		9			

Killer Sudoku - 2

12 points

Apply classic Sudoku rules.

Additionally, the sum of digits in cells inside every cage must equal the total given for the cage at the upper left cell.

Digits do not repeat inside a cage.

A 6x6 grid for Killer Sudoku - 2. The grid is divided into a 3x2 grid of 3x3 mini-grids. Cages are defined by dashed lines, and their sums are given in the top-left cell of each cage. A large arrow labeled 'L' points to the top of the grid, and a large arrow labeled 'K' points to the left side of the grid.

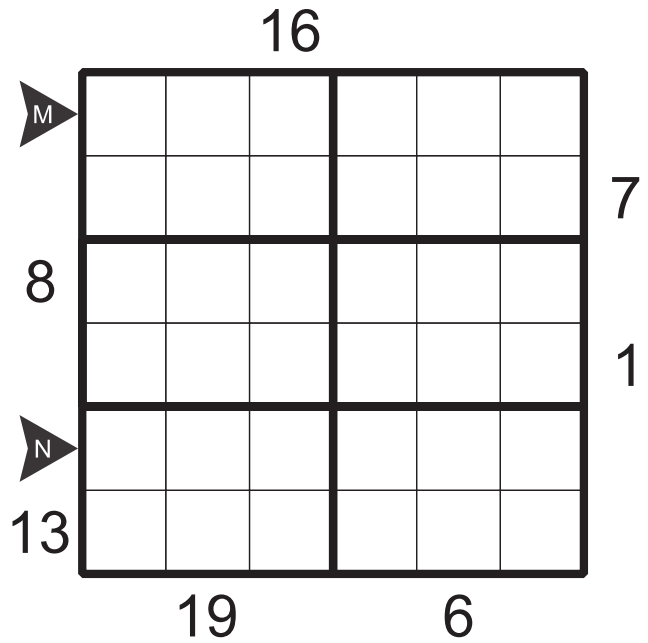
12	3	11	14	15		12	5	17
					17			
11		20				11		
13			5	24		10		15
	9				11	16		
	11		12			8		
14				32			13	
11	15	5			5	11	14	3

X Sums Sudoku - 1

4 points

Apply mini classic Sudoku rules.

Additionally the clues outside the grid indicate the sum of the first X numbers placed in the corresponding direction, where X is equal to the first number placed in that direction.

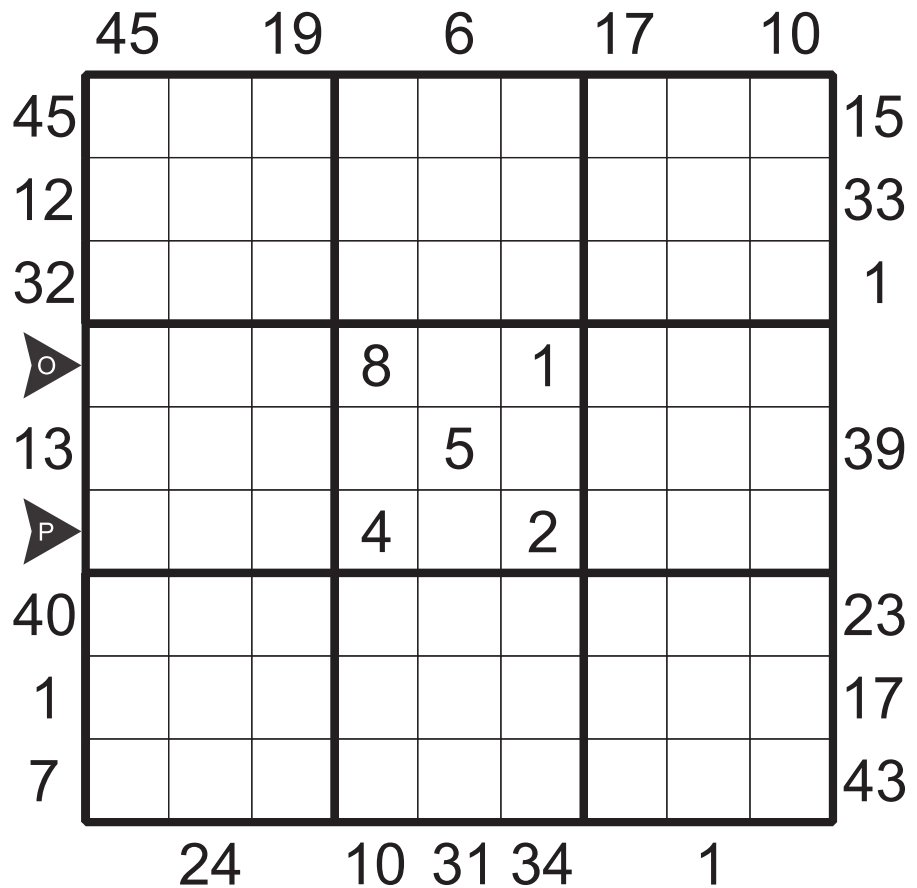


X Sums Sudoku - 2

14 points

Apply classic Sudoku rules.

Additionally the clues outside the grid indicate the sum of the first X numbers placed in the corresponding direction, where X is equal to the first number placed in that direction.



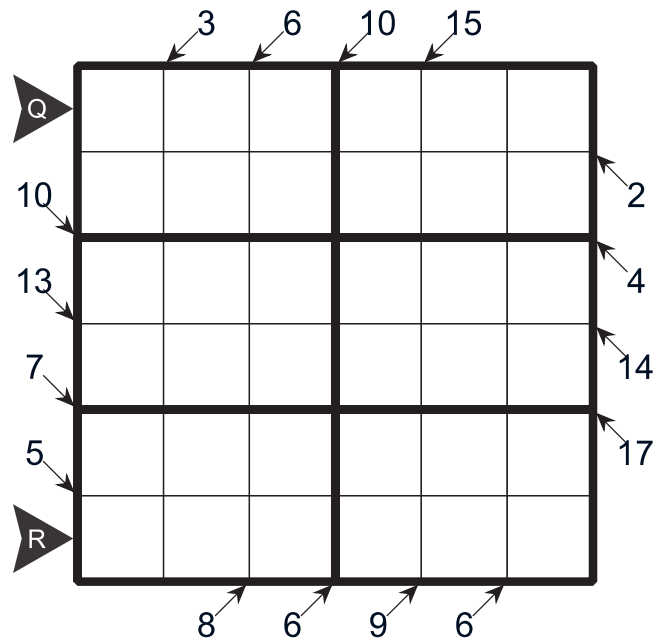
Little Killer Sudoku - 1

4 points

Apply mini classic Sudoku rules.

Additionally, the numbers with arrows outside the grid indicate the sum of the digits appearing in the cells in the corresponding direction.

Digits can repeat in the direction of the arrow.



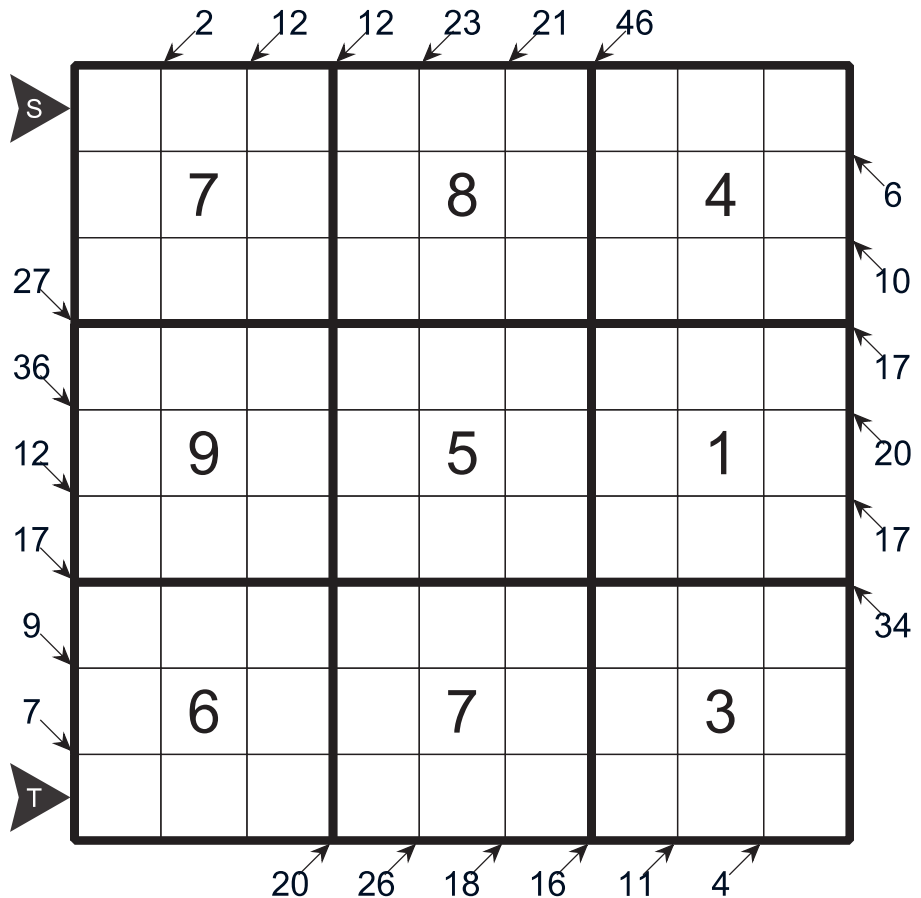
Little Killer Sudoku - 2

19 points

Apply classic Sudoku rules.

Additionally, the numbers with arrows outside the grid indicate the sum of the digits appearing in the cells in the corresponding direction.

Digits can repeat in the direction of the arrow.



Mini Classic

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

Classic

4	1	2	6	7	3	9	8	5
8	3	7	9	1	5	4	6	2
6	9	5	4	8	2	1	3	7
2	5	9	8	3	1	7	4	6
7	8	1	5	6	4	3	2	9
3	4	6	2	9	7	5	1	8
9	7	3	1	2	6	8	5	4
1	2	4	7	5	8	6	9	3
5	6	8	3	4	9	2	7	1

Division - 1

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

Serbian Frame - 1

		7	8	9	
1	3	5	2	4	6
4	2	6	1	3	5
2	1	3	6	5	4
5	6	4	3	1	2
6	4	1	5	2	3
3	5	2	4	6	1

Division - 2

4	1	3	2	9	7	8	5	6
9	2	6	8	3	5	7	4	1
7	5	8	4	6	1	3	9	2
1	3	5	6	4	9	2	7	8
6	9	2	7	1	8	5	3	4
8	7	4	5	2	3	1	6	9
5	4	7	1	8	6	9	2	3
3	6	1	9	5	2	4	8	7
2	8	9	3	7	4	6	1	5

Serbian Frame - 2

		16	14	11	5	9	4	7	10	14	
8	3	6	2	8	7	5	9	4	1	13	
9	4	1	8	9	2	6	7	5	3	12	
12	9	5	7	3	4	1	6	2	8	8	
13	7	9	4	2	5	3	1	8	6	9	
7	6	2	5	7	1	8	4	3	9	7	
11	1	8	3	6	9	4	2	7	5	9	
10	5	4	6	1	8	2	3	9	7	12	
8	2	7	1	5	3	9	8	6	4	14	
12	8	3	9	4	6	7	5	1	2	6	
		6	12	9	7	17	6	5	16	12	

Killer - 1

	8	8		8	
	5	1	4	3	2
	3	9	2	1	5
	2	11	11	5	1
9	1	5	9	3	6
	6	2	12	4	3
7	4	3	9	1	2

X Sums - 1

	16				
M	5	2	4	6	1
	1	3	6	4	5
8	2	6	1	5	3
	3	4	5	2	6
N	6	1	2	3	4
13	4	5	3	1	2
	19				6

Killer - 2

	12	3	11	14	15	12	5	17
	9	2	5	6	3	4	7	1
	3	1	6	8	2	7	5	4
	7	4	8	5	1	9	6	2
K	4	5	7	3	9	1	2	8
	1	6	3	2	8	5	9	7
	8	9	2	4	7	6	1	3
	2	3	9	1	5	8	4	6
	5	8	4	7	6	2	3	9
	6	7	1	9	4	3	8	5

X Sums - 2

	45	19	6	17	10
45	9	7	5	1	2
12	3	1	8	7	4
32	6	4	2	9	8
	5	9	3	8	7
13	4	2	1	6	5
	7	8	6	4	3
40	8	3	9	2	1
1	1	6	7	5	9
7	2	5	4	3	6
	24		10	31	34

Little Killer - 1

		3	6	10	15
Q	3	5	6	4	1
10	1	2	4	5	6
13	2	1	3	6	5
7	6	4	5	3	2
5	4	6	2	1	3
R	5	3	1	2	4
		8	6	9	6

Little Killer - 2

	2	12	12	23	21	46
S	2	3	4	5	1	7
	9	7	5	2	8	6
27	1	8	6	9	4	3
36	5	4	7	1	2	8
12	8	9	3	6	5	4
17	6	2	1	7	3	9
9	3	1	9	4	6	2
7	4	6	2	8	7	5
T	7	5	8	3	9	1
		20	26	18	16	11