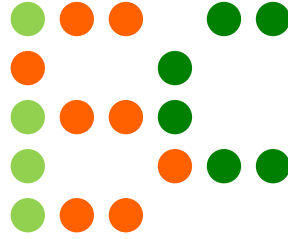


इयवठेय mahabharat



Episode – 3
03rd – 06th March
Outside & Math Variations
By Jan Zverina

Sudoku Mahabharat rounds will also serve as qualifiers for Indian Sudoku Championship for year 2017. Please check <http://logicmastersindia.com/SM/2016-17.asp> for details.

Important Links

Submission Page : <http://logicmastersindia.com/SM/201703>

Discussion Thread : <http://logicmastersindia.com/t/?tid=1393>

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

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

About this Episode

Apart from classic Sudokus of different sizes, this episode has the following six variants

- Skyscraper Sudoku
- Outside Exclusion Sudoku
- Outside Consecutive Sudoku
- Arrow Sudoku
- Killer Sudoku
- Sum Frame Sudoku

How to participate?

- Understand the rules of different Sudokus that will appear in this episode. This Instruction Booklet has rules 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 after 3rd March (but before 6th March), 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)
 - Digits outside the grid SHOULD NOT be included in the answer key
 - 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 can submit any individual Sudoku and receive confirmation that the solution is correct or not.

Each incorrect submission

reduces the sudoku's potential score. The first, second, third, and fourth incorrect submission reduces the potential score to 90%, 70%, 40%, and 0% respectively.

Standard 1-6	1, 1
Standard 1-9	3, 5, 5, 5
Skyscraper 1-6, 1-9	3, 11
Outside Exclusion 1-6, 1-9	2, 10
Outside Consecutive 1-6, 1-9	4, 11
Arrow 1-6, 1-9	3, 11
Killer 1-6, 1-9	2, 15
Sum Frame 1-6, 1-9	2, 6

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 9 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 exactly like next 9 pages in this instruction booklet. The font sizes, cell sizes, colors, borders, shading, margin will be identical. We recommend you to print few pages of this instruction booklet. You can avoid any last minute surprise during the test.

Standard Sudoku

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 point

A

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

1 point

B

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

Standard Sudoku

3 points

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.

D

	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	

C

Standard Sudoku

5 points

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.

F

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

E

Standard Sudoku

5 points

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.

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

Standard Sudoku

5 points

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.

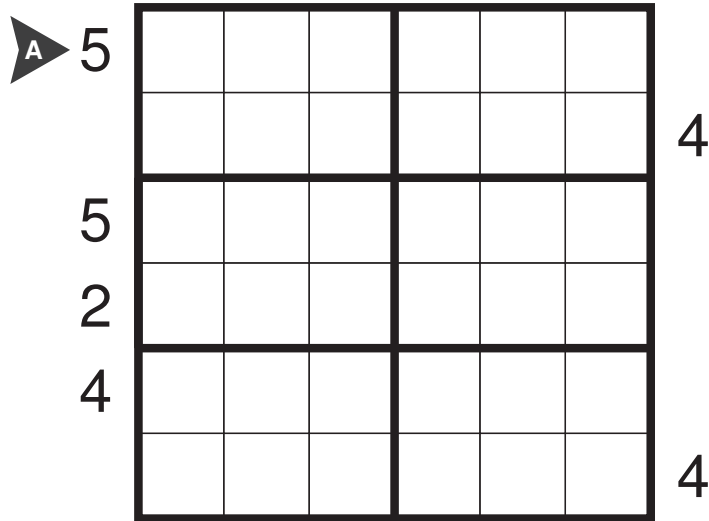
2				6				3
			4		1			
5	1						4	6
		9		5		6		
	7		6		8		1	
		5		3		4		
9	5						6	4
			2		5			
7				9				5

Skyscraper Sudoku

3 points

Apply standard Sudoku rules.

Consider each number to be the height of a building. The numbers outside the grid indicate how many buildings can be seen when looking in that direction (taller buildings conceal smaller buildings behind them).

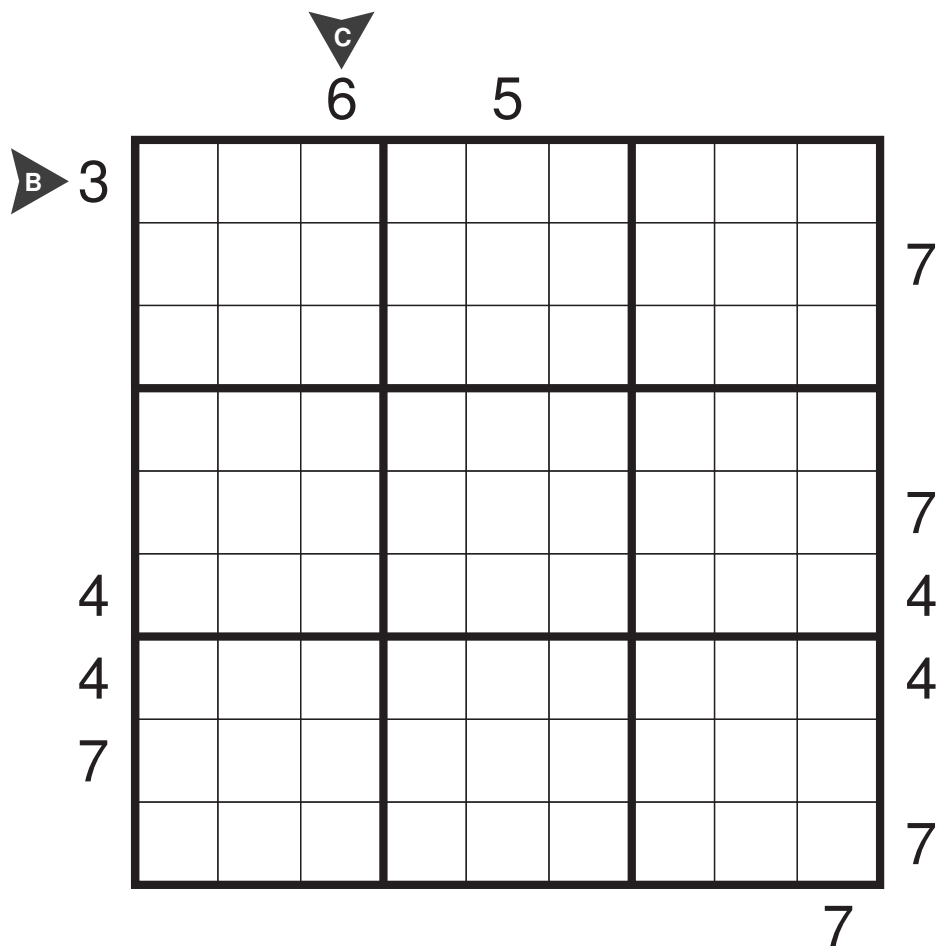


Skyscraper Sudoku

11 points

Apply standard Sudoku rules.

Consider each number to be the height of a building. The numbers outside the grid indicate how many buildings can be seen when looking in that direction (taller buildings conceal smaller buildings behind them).



Outside Exclusion Sudoku

2 points

Apply standard Sudoku rules.

The numbers outside the grid must not appear in the first box (till the next bold line) in the corresponding direction.

5 3 5 1

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

5 4 1 6

Outside Exclusion Sudoku

10 points

Apply standard Sudoku rules.

The numbers outside the grid must not appear in the first box (till the next bold line) in the corresponding direction.

F

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

Outside Consecutive Sudoku

4 points

Apply standard Sudoku rules.

Clues outside the grid indicate the number of consecutive pairs in the corresponding row/column. A consecutive pair means two consecutive numbers located next to each other in the corresponding row/column.

	3	0	1	2	3	2
G 2		4				
2	5			3		
1			4			2
2		1			3	
1				6		
0			2			

Outside Consecutive Sudoku

11 points

Apply standard Sudoku rules.

Clues outside the grid indicate the number of consecutive pairs in the corresponding row/column. A consecutive pair means two consecutive numbers located next to each other in the corresponding row/column.

	2	3	I 2	2	3	1	1	2	3
H 2	4				3				6
2				2		6			
2			6		1		3		
3		3		8		1		6	
2	1		9		2		8		3
2		8		3		4		7	
0			1		6		7		
2				9		5			
0	8				7				5

Killer Sudoku

2 points

Apply standard Sudoku rules.

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.

Killer Sudoku

15 points

Apply standard Sudoku rules.

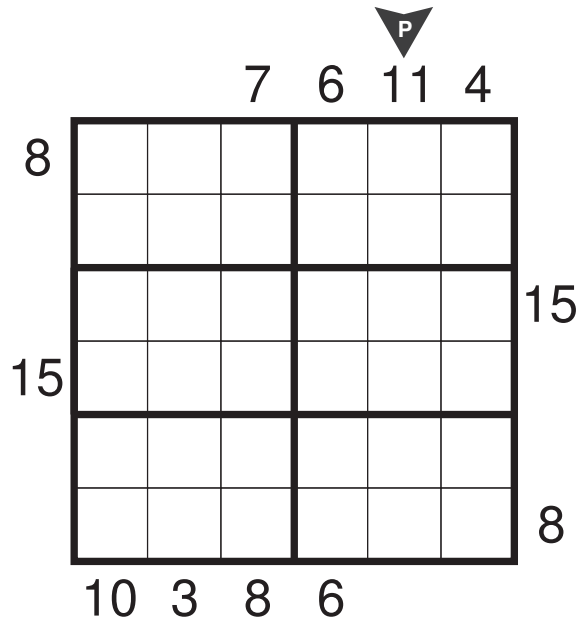
The sum of digits in cells inside every cage must equal the total given for the cage at the upper left cell. Digits do not repeat inside a cage.

Sum Frame Sudoku

2 points

Apply standard Sudoku rules.

Numbers outside the grid equal the sum of the digits appearing in the first box (till the next bold line) seen from that edge of the grid.

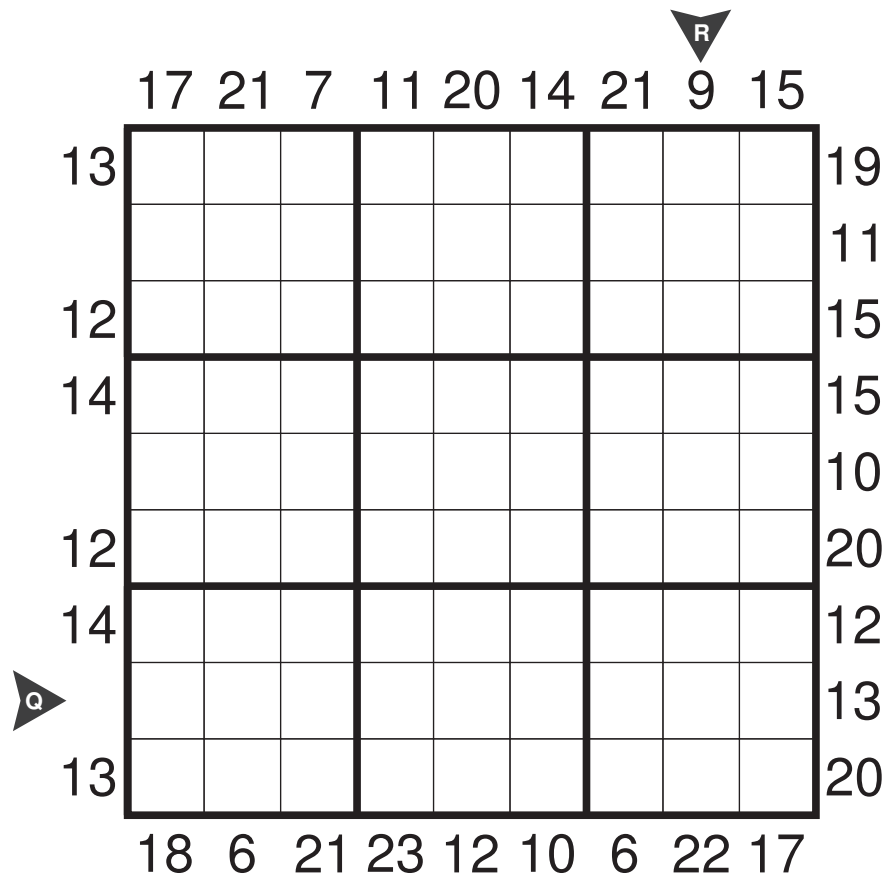


Sum Frame Sudoku

6 points

Apply standard Sudoku rules.

Numbers outside the grid equal the sum of the digits appearing in the first box (till the next bold line) seen from that edge of the grid.



Standard

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



Standard

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



Standard

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



Standard

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



Standard

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



Standard

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



Skyscraper

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

Outside Exclusion

		5	3	5	1		
	3	3	1	4	2	6	5
3		2	6	5	1	4	3
25	6	4	3	5	1	2	34
46	1	5	2	6	3	4	12
2	5	3	6	4	2	1	3
	4	2	1	3	5	6	
		5	4	1	6		

Skyscraper

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

Outside Exclusion

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

Outside Consecutive

		3	0	1	2	3	2
2	6	4	3	2	5	1	
2	5	2	1	3	4	6	
1	3	5	4	1	6	2	
2	2	1	6	4	3	5	
1	1	3	5	6	2	4	
0	4	6	2	5	1	3	

Arrow

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

Outside Consecutive

	2	3	2	2	3	1	1	2	3	
H	2	4	7	8	5	3	9	2	1	6
2	3	1	5	2	4	6	9	8	7	
2	9	2	6	7	1	8	3	5	4	
3	7	3	4	8	9	1	5	6	2	
2	1	5	9	6	2	7	8	4	3	
2	6	8	2	3	5	4	1	7	9	
0	5	9	1	4	6	3	7	2	8	
2	2	4	7	9	8	5	6	3	1	
0	8	6	3	1	7	2	4	9	5	

Arrow

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

Killer

	8	8	1	4	3	8	2	6
	3	9	6	2	1	10	9	4
	9	14	11	6	5	1	3	
M	1	5	9	3	6	4	2	
	6	2	12	5	4	3	6	1
	4	3	9	1	2	6	5	

Sum Frame

		7	6	11	4			
8	2	5	1	4	6	3		
	3	4	6	2	5	1		
	1	3	2	6	4	5	15	
15	5	6	4	3	1	2		
	4	1	3	5	2	6		
	6	2	5	1	3	4	8	
		10	3	8	6			

Killer

	12	3	11	14	15	4	12	5	17
	9	2	5	6	3	7	7	1	8
	3	1	6	8	2	7	5	4	9
	17	4	20	5	1	9	16	2	3
	13	4	5	7	3	9	1	2	8
	1	9	6	3	2	8	11	5	4
N	8	19	2	12	4	7	6	8	1
	14	2	3	9	1	32	5	8	4
	11	15	5	4	7	6	5	2	3
	6	7	1	9	4	3	8	5	2

Sum Frame

		17	21	7	11	20	14	21	9
13	5	6	2	4	8	1	9	3	7
	9	7	4	5	3	6	8	1	2
12	3	8	1	2	9	7	4	5	6
14	2	9	3	7	5	4	6	8	1
	7	4	8	1	6	9	5	2	3
12	1	5	6	3	2	8	7	4	9
14	8	1	5	9	7	3	2	6	4
O	6	3	9	8	4	2	1	7	5
13	4	2	7	6	1	5	3	9	8
		18	6	21	23	12	10	6	22