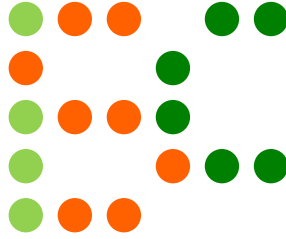


इयवठेकय mahabharat



Episode – 5
12th – 14th December

Outside Variations
by
Rishi Puri

Sudoku Mahabharat rounds will also serve as qualifiers for Indian Sudoku Championship for year 2016. Please check <http://logicmastersindia.com/SM/2015-16.asp> for details.

Important Links

Submission Page : <http://logicmastersindia.com/SM/201512/>

Discussion Thread : <http://logicmastersindia.com/SM/201512/discuss.asp>

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 five variants based on clues outside the grid, namely 2-3-4 Outside Sudoku, Skyscraper Sudoku, Descriptive Pairs Sudoku, Next to 9 Sudoku, X Sums 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 during the given weekend, 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 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 6X6	1, 1, 2, 1
Standard 8X8	4
Standard 9X9	7, 5, 6
2-3-4 Outside 6X6, 9X9	3, 11
Skyscrapers 6X6, 9X9	4, 13
Descriptive Pairs 6X6, 9X9	3, 11
Next To 9 Sudoku 6X6, 9X9	4, 10
X Sums 6X6, 9X9	2, 12

Bonus

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

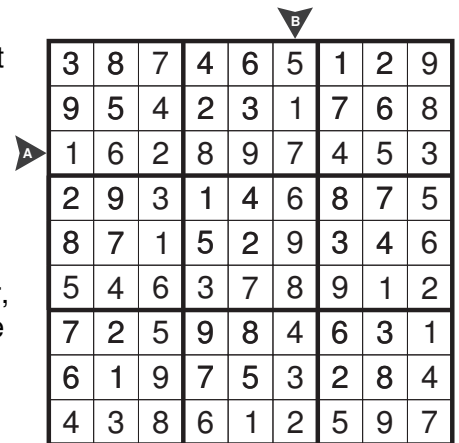
General Rules

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.

You need to ignore the outside clues while entering the answer keys.



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 exactly like next 8 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.

Also, we strongly advise you to save the pdf file on your computer, open the pdf (with the password) using Adobe Acrobat Reader and then print. If you print directly from the browser (for example Google Chrome), unintentional printing problems may arise (see this post for details <http://logicmastersindia.com/t/?tid=1189>).

Acknowledgement

We would like to thank Tiit Vunk for testing the set and providing constructive feedback

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	

2 points

C

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

1 point

D

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

Standard Sudoku

4 points

Place a digit from 1 to 8 in each empty cell so that each digit appears exactly once in each row, column and 2X4 box.

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

Standard Sudoku

7 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.

	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

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	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	

Standard Sudoku

6 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	

2-3 Outside Sudoku

3 points

Apply standard Sudoku rules.

The digits outside the grid must appear in the 2nd or 3rd cell of the grid from the corresponding direction.

	3 6	2 4	▼ A		1 4	3 5	
							2 3
1 3							
	2 4	3 6			3 5	6 1	

2-3-4 Outside Sudoku

11 points

Apply standard Sudoku rules.

The digits outside the grid must appear in the 2nd or 3rd or 4th cell of the grid from the corresponding direction.

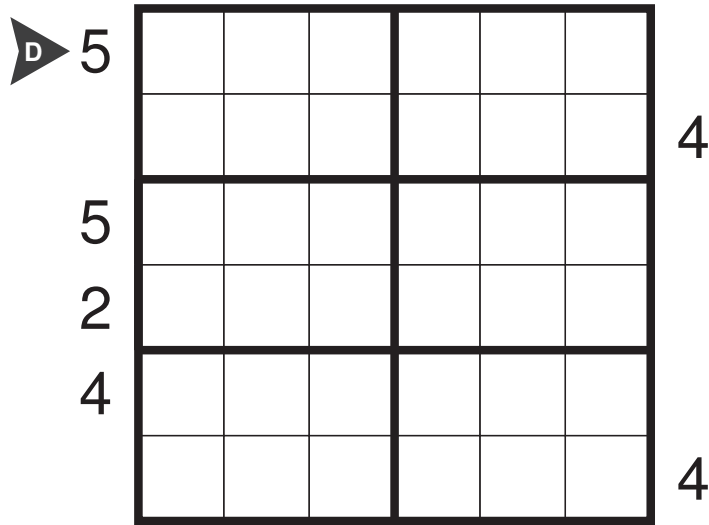
	2 7 9	1 7 8	3 6 4			4 5 6	2 5 9	3 1 8	
1 2 6									7 8 9
									5 6 9
3 4 8									2 7 5
4 5 7									1 2 3
									2 4 8
3 9 6									9 1 8
3 5 2									
	1 3 8	3 4 9	7 8 9			2 1 8	4 3 6	2 6 5	

Skyscrapers Sudoku

4 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).

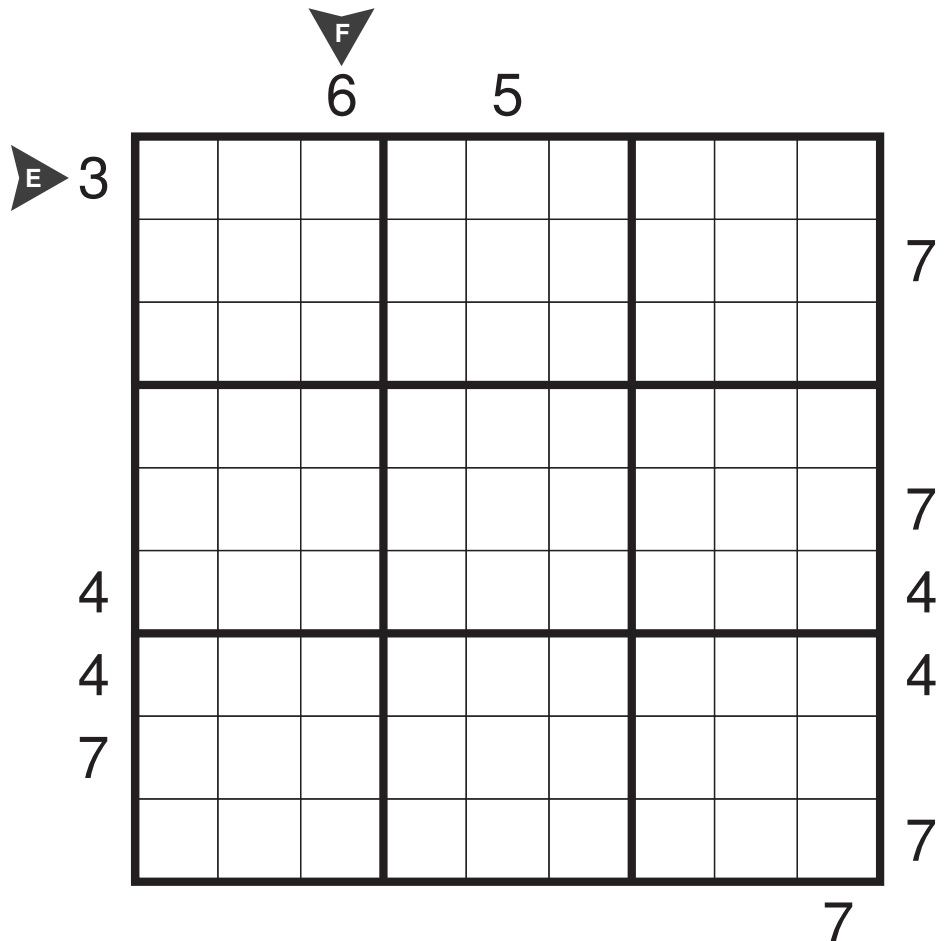


Skyscrapers Sudoku

13 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).



Descriptive Pair Sudoku

3 points

Apply standard
Sudoku rules.

For every pair of
outside clues X and
Y, at least one of
these cases is true:
(a) X is in the Yth
position in that
direction.
(b) Y is in the Xth
position in that
direction.

3
5
2
5
4
6
1
6

G
3 5
5 6
2 2
2 6
2 6
1 3

Descriptive Pair Sudoku

11 points

Apply standard
Sudoku rules.

For every pair of
outside clues X and
Y, at least one of
these cases is true:
(a) X is in the Yth
position in that
direction.
(b) Y is in the Xth
position in that
direction.

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

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

2 1
2 1
4 1
3 5
2 3
5 1
3 7
5 4
3 2

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

Next to 6 Sudoku

4 points

Apply standard
Sudoku rules.

Additionally the
clues outside the
grid indicate the
numbers to be
placed in the cells
before and after the
cell containing 6 (in
any order) in the
corresponding
direction.

	1	1	3	1	
	5	4	4	4	4

5						
1 5						
▶ 4 5						
2 4						
3 4						
4						

Next to 9 Sudoku

10 points

Apply standard
Sudoku rules.

Additionally the
clues outside the
grid indicate the
numbers to be
placed in the cells
before and after the
cell containing 9 (in
any order) in the
corresponding
direction.

			▶ K					
	5	5	2	5	4	3	2	3
	8	3	7	7	7	3	8	1

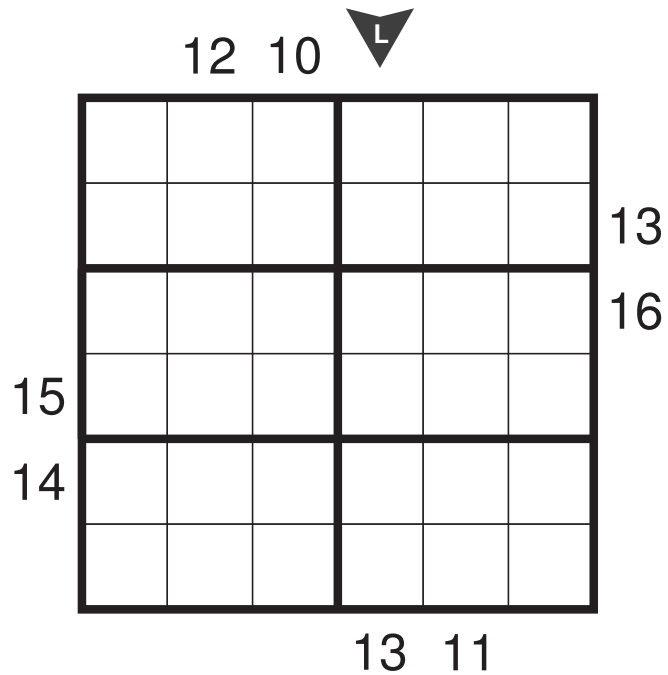
3								
1 4								
▶ J 2 5		6						
3 8								
3 5				5				
2 3								
2 5						6		
5 6								
5								

X Sums Sudoku

2 points

Apply standard 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.

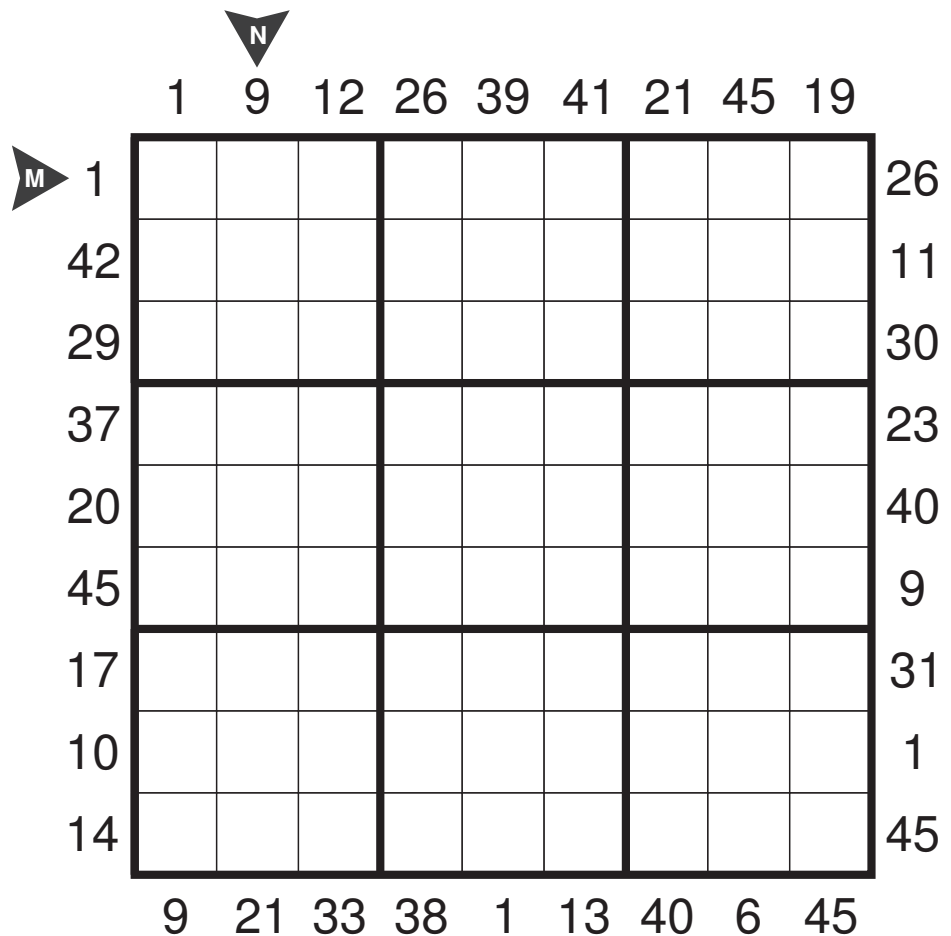


X Sums Sudoku

12 points

Apply standard 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.



2-3 Outside

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

Skyscrapers

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

2-3-4 Outside

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

Skyscrapers

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

Descriptive Pair

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

Next To 6

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

Descriptive Pair

▼

	3	2	3	2	9	1	3	6	1	
	7	9	3	4	5	9	4	7	4	
26	4	6	5	2	8	9	3	1	7	21
29	1	9	8	4	7	3	5	6	2	21
H 17	7	2	3	6	5	1	4	9	8	41
39	6	7	9	5	3	4	8	2	1	35
23	8	5	2	1	9	7	6	3	4	23
52	3	1	4	8	2	6	9	7	5	51
63	5	8	6	3	1	2	7	4	9	37
23	2	3	7	9	4	8	1	5	6	54
24	9	4	1	7	6	5	2	8	3	32
	3	5	2	1	2	3	6	1	7	
	4	5	7	5	4	2	8	8	9	

Next To 9

▼

	5	5	2	5	4	3	2	3		
	8	3	7	7	7	3	3	8	1	
3	9	3	7	5	8	2	1	4	6	
14	5	2	4	9	1	6	7	3	8	
J 25	8	1	6	7	3	4	2	9	5	
38	6	4	5	1	2	3	9	8	7	
35	7	8	1	4	5	9	3	6	2	
23	3	9	2	8	6	7	5	1	4	
25	1	5	9	2	4	8	6	7	3	
56	4	7	3	6	9	5	8	2	1	
5	2	6	8	3	7	1	4	5	9	

X Sums

▼

	12	10					
	6	4	3	2	1	5	
	2	5	1	6	4	3	13
	3	2	6	1	5	4	16
15	5	1	4	3	2	6	
14	4	3	2	5	6	1	
	1	6	5	4	3	2	
				13	11		

X Sums

▼

	1	9	12	26	39	41	21	45	19	
M 1	1	2	3	6	7	8	5	9	4	26
42	8	7	4	1	9	5	2	6	3	11
29	6	9	5	2	4	3	1	8	7	30
37	7	6	1	8	2	9	4	3	5	23
20	5	3	2	4	6	7	9	1	8	40
45	9	4	8	5	3	1	6	7	2	9
17	4	1	9	3	8	2	7	5	6	31
10	2	8	7	9	5	6	3	4	1	1
14	3	5	6	7	1	4	8	2	9	45
	9	21	33	38	1	13	40	6	45	