

Round 4 – Part 2: Variant Categories

Duration: 60 Minutes

Dates: 22nd to 25th November

This round will contain 2 9x9 Classics, and then some variants which are based on different categories of variations. Few of these are repeats from previous rounds, but most will be new. They are similar to concepts used in previous rounds though. The points distribution for the actual round is given below. Other than that, this is just a sample booklet to give an idea of the variants and give some practice to newcomers. The points given along with the Sudokus are just to give an idea of things, and not final in any way.

Sudoku	Points
Classic 9x9 1, 2	21,14
Pencil Marks Sudoku (6x6 & 9x9)	8,22
Diagonal Sudoku (6x6 & 9x9)	4,19
Thermo Sudoku (6x6 & 9x9)	5,15
Odd Sum Pair Sudoku (6x6 & 9x9)	6,25
Arrow Sudoku (6x6 & 9x9)	3,13
No Knight Step Sudoku (6x6 & 9x9)	7,15
Outside Sudoku (6x6 & 9x9)	5,18
Total	200

The test can be started any time between 15:01 PM on 22nd November and 11:59 PM on 25th November.

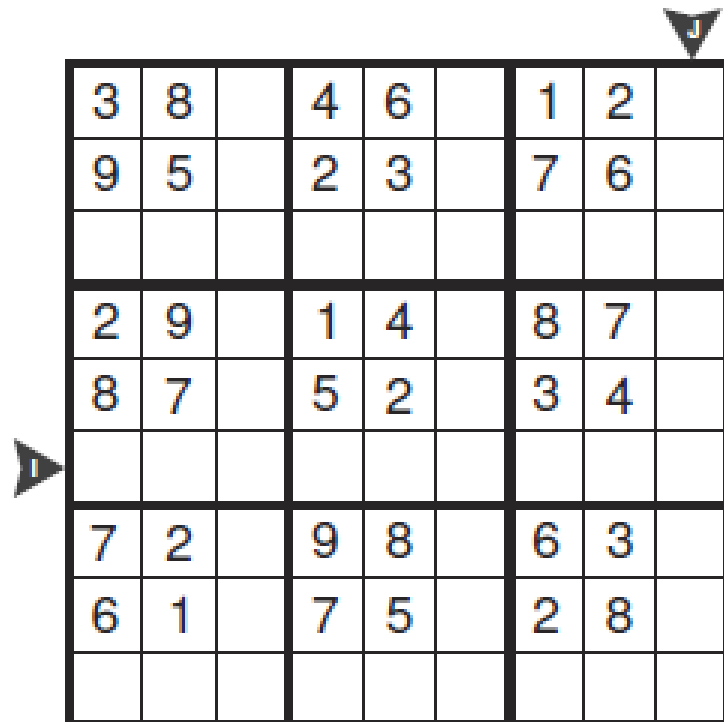
There will be instant grading, i.e., when you submit the answers, you will know if they are right or wrong. You can resubmit solutions for incorrect submissions. However, note that, for 1 incorrect submission 90% points will be awarded for the subsequent correction, and similarly 70% for 2 incorrect, 40% for 3 incorrect and 0% for 4 incorrect submissions respectively.

The Sudokus can be solved in any sequence, and you can attempt in paper or online mode. It is not necessary to enter answers in both modes. You can even enter some in paper mode and some in online mode. It is enough to enter the marked rows/columns correctly in both modes. For any other queries, please mail before taking the contest.

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.



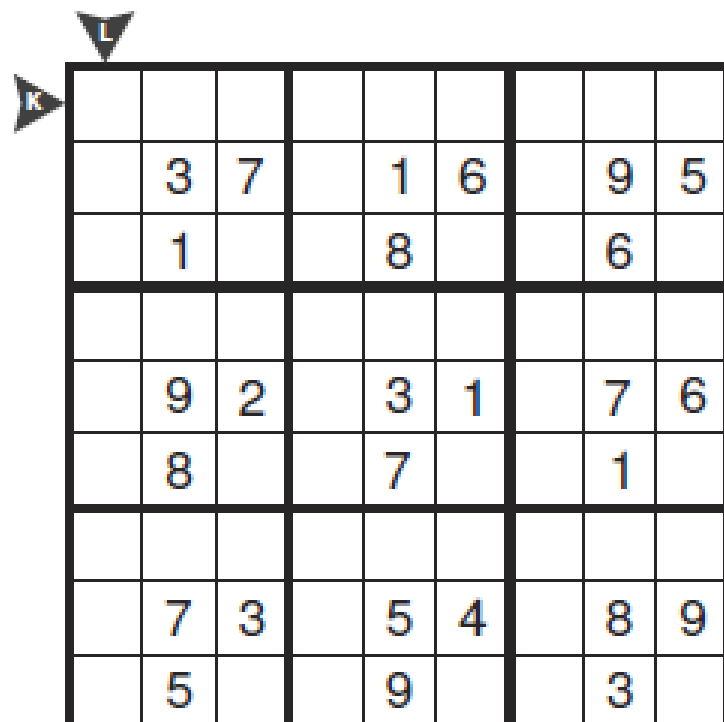
A 9x9 Sudoku grid with 3x3 subgrids. The grid is partially filled with numbers. The numbers are: Row 1: (1,1)=3, (1,2)=8, (1,4)=4, (1,5)=6, (1,7)=1, (1,8)=2; Row 2: (2,1)=9, (2,2)=5, (2,4)=2, (2,5)=3, (2,7)=7, (2,8)=6; Row 4: (4,1)=2, (4,2)=9, (4,4)=1, (4,5)=4, (4,7)=8, (4,8)=7; Row 5: (5,1)=8, (5,2)=7, (5,4)=5, (5,5)=2, (5,7)=3, (5,8)=4; Row 6: (6,1)=7, (6,2)=2, (6,4)=9, (6,5)=8, (6,7)=6, (6,8)=3; Row 7: (7,1)=6, (7,2)=1, (7,4)=7, (7,5)=5, (7,7)=2, (7,8)=8. All other cells are empty. A grey arrow labeled 'J' points to the top-right corner of the grid.

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

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.



A 9x9 Sudoku grid with 3x3 subgrids. The grid is partially filled with numbers. The numbers are: Row 2: (2,2)=3, (2,3)=7, (2,5)=1, (2,6)=6, (2,8)=9, (2,9)=5; Row 3: (3,2)=1, (3,5)=8, (3,8)=6; Row 5: (5,2)=9, (5,3)=2, (5,5)=3, (5,6)=1, (5,8)=7, (5,9)=6; Row 6: (6,2)=8, (6,5)=7, (6,8)=1; Row 8: (8,2)=7, (8,3)=3, (8,5)=5, (8,6)=4, (8,8)=8, (8,9)=9; Row 9: (9,2)=5, (9,5)=9, (9,8)=3. All other cells are empty. Grey arrows labeled 'K' and 'L' point to the top-left and top-right corners of the grid respectively.

	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	

Category: Substitution

Pencil Mark
Sudoku

6 points

Apply standard
Sudoku rules.In some cells you
find all allowed
candidates for the
specific cell.

58					58
		12	12		
	12			12	
18					28
	34			34	
13		45	45		13

Pencil Mark
Sudoku

12 points

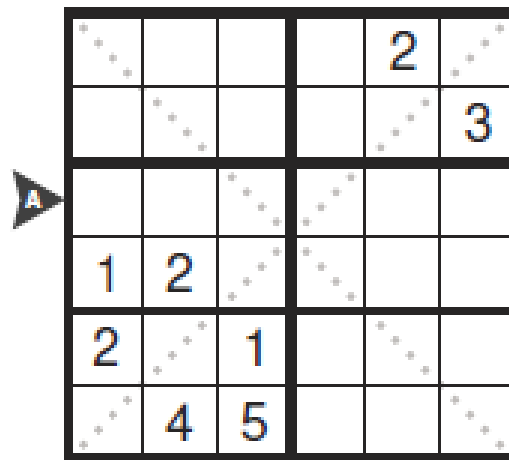
Apply standard
Sudoku rules.In some cells you
find all allowed
candidates for the
specific cell.

	147	589	12	145	89	13	13	
457	234	234	178	589	889	178	388	378
356	127	349	378	248	234	257	467	289
246	145	12	149	378	279	39	348	238
369	348	289	346	24	579	127	238	128
27	87	389	139	187	348	28	588	148
17	258	47	588	389	23	48	47	34
39	235	17	189	458	248	145	49	458
	359	238	137	247	138	149	239	

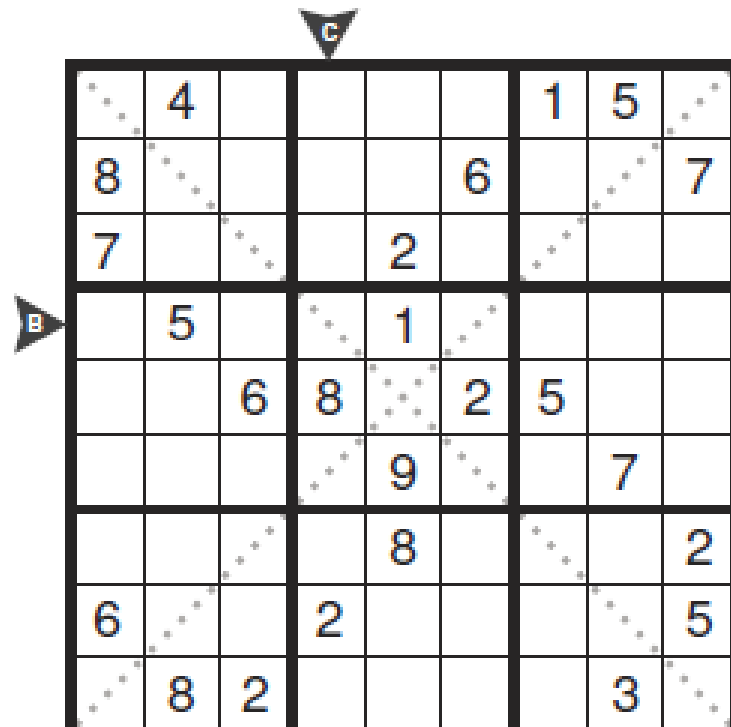
Category: Standard

Diagonal
Sudoku

6 points

Apply standard
Sudoku rules.Additionally, each
extra main diagonal
(marked by a line)
must contain digits
from 1-6.Diagonal
Sudoku

12 points

Apply standard
Sudoku rules.Additionally, each
extra main diagonal
(marked by a line)
must contain digits
from 1-9.

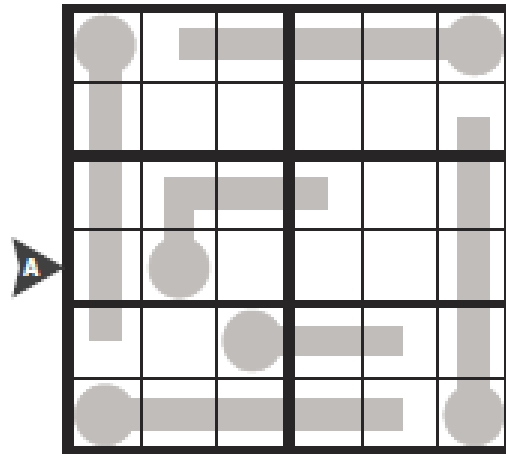
Category: Neighbours

Thermo
Sudoku

2 points

Apply standard
Sudoku rules.

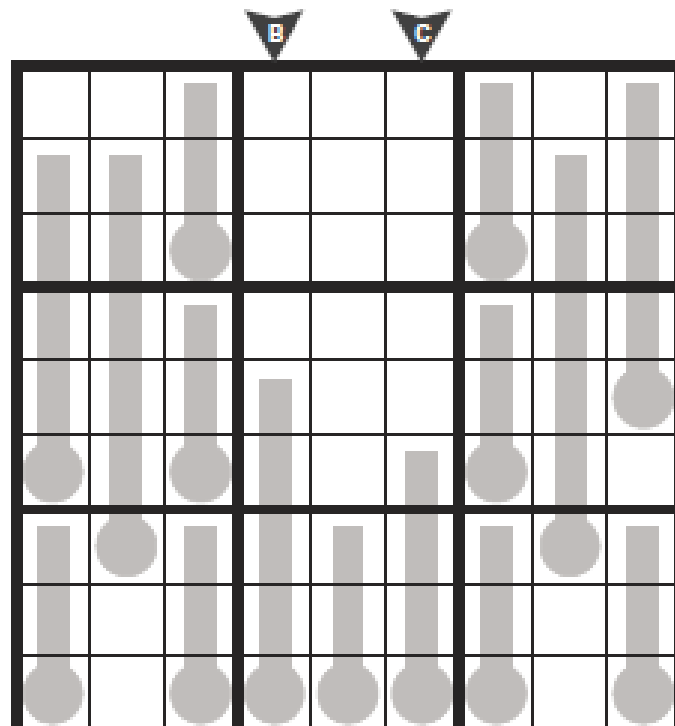
Additionally, the
digits in each
"thermometer"
shaped region must
be strictly
increasing from the
circular "bulb" to
the other end(s).

Thermo
Sudoku

9 points

Apply standard
Sudoku rules.

Additionally, the
digits in each
"thermometer"
shaped region must
be strictly
increasing from the
circular "bulb" to
the other end(s).



Category: Odd Even

Odd Sum Pair
Sudoku

2 points

Apply standard
Sudoku rules.A dot between two
cells implies the
sum of digits in
those 2 cells is odd.

D

		•			6
	1	•			
		2	•		
			•	3	
		•		•	4
2				•	1

Odd Sum Pair
Sudoku

13 points

Apply standard
Sudoku rules.A dot between two
cells implies the
sum of digits in
those 2 cells is odd.

E

F

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

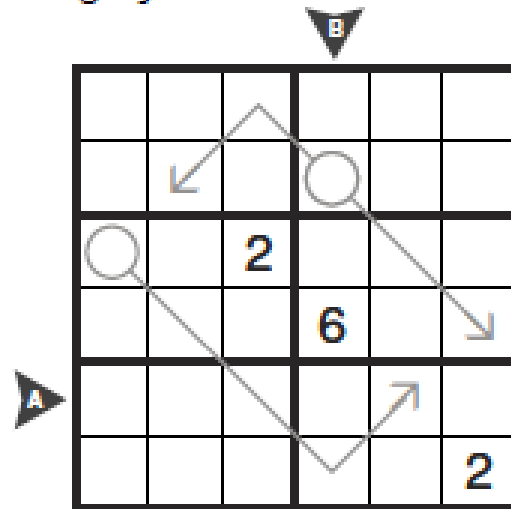
Category: Math

Arrow
Sudoku

7 points

Apply standard
Sudoku rules.

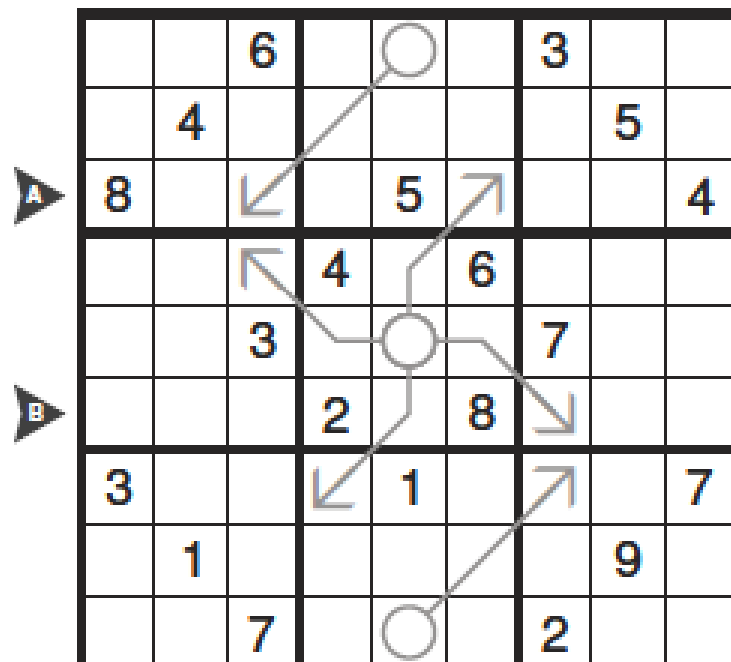
The sum of the
digits along the path
of each arrow must
equal the digit in the
circled cell. Digits
can repeat within an
arrow shape.

Arrow
Sudoku

11 points

Apply standard
Sudoku rules.

The sum of the
digits along the path
of each arrow must
equal the digit in the
circled cell. Digits
can repeat within an
arrow shape.



Category: Converse

No Knight Step
Sudoku

2 points

Apply standard Sudoku
rules.

No cell that is a knight-
step away can contain
the same digit. In chess, a
knight moves two
squares forward followed
by one sideways.

	X		X	
X				X
		•		
X				X
	X		X	

B

1	2			3	4
5	6			4	1

A

No Knight Step
Sudoku

11 points

Apply standard Sudoku
rules.

No cell that is a knight-
step away can contain
the same digit. In chess, a
knight moves two
squares forward followed
by one sideways.

	X		X	
X				X
		•		
X				X
	X		X	

B

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

A

Category: Outside Clues

Outside Sudoku

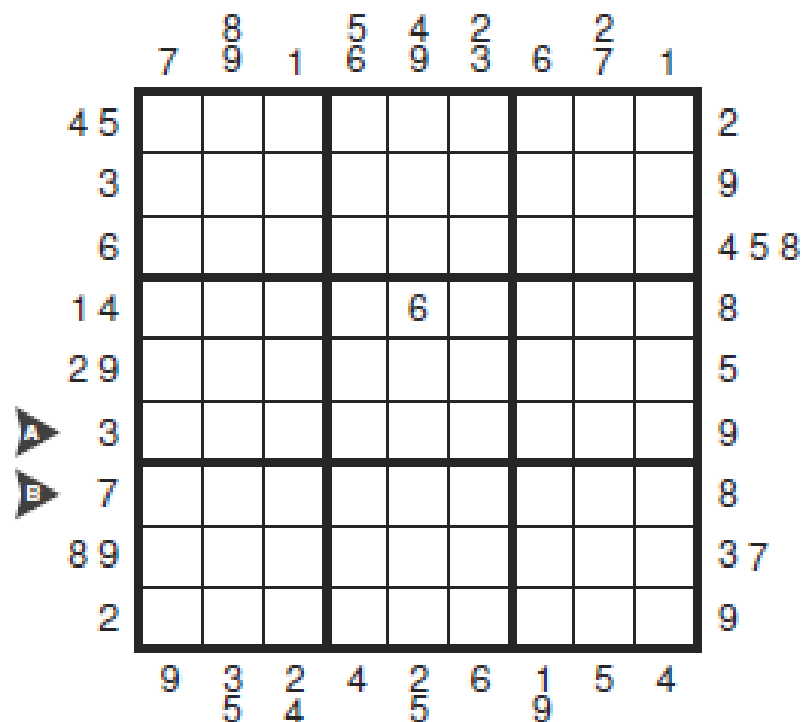
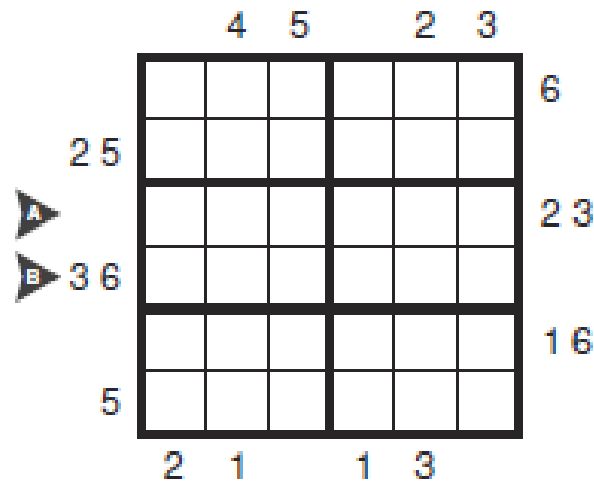
3 points

16 points


Apply standard Sudoku rules to each of the grids.

The digits outside the grid must appear in one of the cells in the first box (till the next bold line) seen from that edge of the grid.

Note: Sudokus taken from Sudoku Mahabharat 'Outside' Round by Rakesh Rai in Dec, 2014.




Pencil Marks




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

Diagonal




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

Pencil Marks




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

Diagonal




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

Thermo




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

Thermo





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

Odd Sum Pair





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

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

Odd Sum Pair



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

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
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

No Knight Step

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

No Knight Step

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

Outside Sudoku

			4	5		2	3			
			1	4	3	6	2	5	6	
2	5		6	2	5	4	1	3		
A			4	5	1	3	6	2	2	3
B	3	6								
			2	3	4	1	5	6	1	6
5			5	1	6	2	3	4		
			2	1		1	3			

Outside Sudoku

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