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WPF  
**SUDOKU GRAND PRIX**  
2013

WPF Sudoku Grand Prix,  
Turkish Round,  
June 22 - 24

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120 minutes

Puzzles by Salih Alan  
and  
Serkan Yürekli

Tested by Gülce Özkütük Yürekli  
and  
Mehmet Murat Sevim



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## General Answer Format

Each Sudoku has two marked row, column. You need to submit all digits in corresponding directions, from left to right or top to bottom.

nO:7 Top Heavy Sudoku: Use 0 (zero) for empty cells.

nO:12 Snail Sudoku: Use 0 (zero) for empty cells.

nO:13 Just Two Cells Sudoku: Coordinate of the cell, followed by the digit in the cell. Answer for the example would be, EN7, IR4.

nO:14 Halved Square Sudoku: Use 0 (zero) for empty triangles.

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## Submission Page

This instruction booklet lists all the Sudoku types that will appear in the competition. If you have any questions, please ask the organizers at LMI forum.

Submission page: <http://logicmastersindia.com/2013/06S/>

## n0:1-4 Classic Sudoku

Rules: Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and outlined 3x3 region.

Example:

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

Solution

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

## n0:5 One Digit Unique Solution

Rules: Apply Classic Sudoku rules. Additionally, place a digit into the grey cells so that Sudoku has a unique solution.

Example:

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

Solution

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

# n0:6 Logidoku

Rules: Apply Classic Sudoku rules. Additionally, some cells are marked with letters and the digits in those cells are subject to some constraints as given. Satisfy all the constraints and solve the puzzle.

Example:

	A				B
		C			
D			E		
		F			G
			H		
I				J	

- \*  $(A+H) < E$
- \* A and E is not odd number
- \*  $A < F < B$
- \* I is not prime number
- \* J is not biggest or smallest number
- \*  $D = (A \times J)$
- \* G is even number
- \*  $C = (I + B)$
- \*  $H = (D + G) / 2$
- \*  $B \times C > D \times E$

Odd Number: 1,3,5,7,9

Even Number: 2,4,6,8

Prime Number: 2,3,5,7

Biggest Number: 9

Smallest Number: 1

Solution

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

# n0:7 Top Heavy Sudoku

Rules: Fill the grid with digits 1-6, such that each digit appears exactly once in each row, column and marked 3x3 box. There will be 3 blanks in each row, column and 3x3 box. Wherever two vertically adjacent cells are occupied by digits, the top digit must always be greater than the bottom one.

Example:

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

Solution

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

## n0:8 A or B

Format: There are two rules specified along with the grid. It is part of solving to figure out the correct rule for the grid.

Rules A: Apply Classic Sudoku rules. Additionally, shaded cells contain odd digits; 1,3,5,7,9

Rules B: Apply Classic Sudoku rules. Additionally, shaded cells contain distinct digits; i.e. no digit can repeat across shaded cells.

Example:

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

Solution

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

## n0:9 Tripod Sudoku

Rules: Fill the grid with digits 1-9 (1-6 for the example) and divide the grid into some regions, so that each digit appears exactly once in every row, column and region. All points where three lines meet are given. There are no points where four lines meet.

Example:

	1			5				
							3	
		6				2		
	6							
				4				
6	2							4

Solution

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

## n0:10 Sudoku Clock

Rules: Apply Classic Sudoku rules. Additionally, some digital clocks are shown. When the puzzle is completed, all clocks should display a valid time in 24-hour format; i.e. a clock cannot display 43:65.

Example:

	4	2	:		
					5
		:			4
2					
4		:			
			1	4	

Solution

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

## n0:11 Sudoku Islands

Rules: Place a digit from 1 to n in each empty cell so that each digit appears exactly once in each row, column. Each island should include twice set of numbers.

Example:

		4			
			2		
1					4
					2
3					
1					
		3			

Solution

2	3	4	1		
4		3	2		1
1				3	2
				1	4
				3	2
3	2	1	4		
	4	2	3		1
1				4	2
				2	3
				4	1

## n0:12 Snail Sudoku

Rules: Fill the grid with digits 1-4, so that each digit appears exactly once in every row, column and spiral. Digits should be placed orderly in the spirals, from the entrance to the center. Digits cannot be placed in “-” marked cells.

Example:

			-			
		3				-
		-				
			-			
				-		
	-			2		
			-			

Solution

1				-	4	3	2	
2			3			4	-	1
	3	4	2	1				
	1	2	-	4	3			
	4	3		-		1		2
			1	2	-		4	3
	2		4	3			1	
3	-	1			2			4
4				-	1	2	3	

## n0:13 Just Two Cells Sudoku

Rules: Apply Classic Sudoku rules. This puzzle has multiple solutions for the entire grid, but there are at least two empty cells that will contain the same digit for all solutions. You are to locate and clearly identify just two digits that can be placed into the grid with absolute certainty.

Example:

1				5				
2							4	6
								9
			1		2			
9								8
			4		3			
	8							
	7	5						4
				6				3
R	Q	P	O	N	M	L	K	J

Solution

1				5				
2							4	6
								9
			1		2			
9				7				8
			4		3			
	8							
	7	5						4
4				6				3
R	Q	P	O	N	M	L	K	J

# n0:14 Halved Square Sudoku

Rules: Fill the grid with digits 1-9 (1-5 for the example), so that each digit appears exactly once in every row, column and outlined region. Where a cell is divided into two triangles, exactly one of these triangles should contain a digit and the other one should be empty.

Example:

2				5
	4			
		1		
			2	
3				4

Solution

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

# n0:15 Odd Lab

Rules: Apply Classic Sudoku rules. Additionally, there must be at least one path from the top left cell to the bottom right cell which passes through only odd digits. Diagonal movement is not allowed.

Example:

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

Solution

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



# n0:16 Searchdoku

Rules: Find the listed words in the grid, going in any of the eight directions. Some words may be found in, or going through, the blank inner grid. After several letters are filled in, the empty inner grid becomes a Classic Sudoku that uses different letters.

Example:

BLADE	H	E	L	I	C	O	N	B	L	A	B	P																																				
ELECTRIC	D	E	M	E	R	G	E	N	C	Y	L	I																																				
EMERGENCY	E	T	R	H	I	N	R	S	P	A	A	L																																				
FLY	E	A	E	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>																																										P	D	O
HELICOPTER	P	L	I							I	E	L																																				
HELIPAD	S	P	S							L	P	D																																				
MAST	S	H	R							H	I	A																																				
PILOT	B	S	S							H	D	P																																				
ROTOR	L	A	D							A	E	I																																				
SPEED	M	W	F	L	Y	R	W	A	L	L	M	L																																				
SPIN	B	S	S	B	I	S	A	M	E	B	E	E																																				
SWASH PLATE	Y	T	I	C	O	L	E	V	H	S	P	H																																				
VELOCITY																																																

Solution

H	E	L	I	C	O	N	B	L	A	B	P
D	E	M	E	R	G	E	N	C	Y	L	I
E	T	R	H	I	N	R	S	P	A	A	L
E	A	E	I	O	P	T	C	P	D	O	
P	L	I	P	T	C	I	E	O	I	E	L
S	P	S	O	E	R	C	I	T	L	P	D
S	H	R	T	C	I	O	P	E	H	I	A
B	S	S	I	O	T	E	C	P	H	D	P
L	A	D	C	P	E	T	O	I	A	E	I
M	W	F	L	Y	R	W	A	L	L	M	L
B	S	S	B	I	S	A	M	E	B	E	E
Y	T	I	C	O	L	E	V	H	S	P	H

# n0:17 Snapshot Sudoku

Rules: Apply Classic Sudoku rules. Additionally, you are given some snapshots from the solution of the puzzle. Solve the Sudoku so that all snapshots can be seen in the solution.

Example:

1	8	2
6	7	5

2	1	7
7	9	1
6	3	4

8	3
6	9


4	7	3
9	6	4
3	1	2

Solution

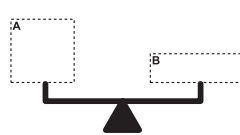
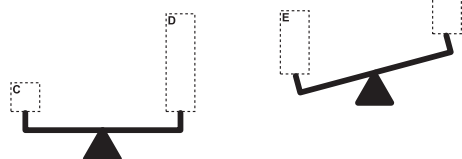
8	3	4	6	7	1	9	5	2
6	9	2	8	5	4	7	3	1
7	1	5	2	3	9	6	4	8
4	8	6	5	9	3	1	2	7
3	2	1	7	8	6	4	9	5
5	7	9	1	4	2	3	8	6
1	6	3	4	2	5	8	7	9
9	5	7	3	1	8	2	6	4
2	4	8	9	6	7	5	1	3

## n0:18 Scale Sudoku

Rules: Apply Classic Sudoku rules. Additionally, some marked regions are scaled and the measures are given next to the grid. The weight of the frames and the pans are ignored.

Example:

	F	2			D
E			A	1	
		5			
		3			
2	C		B		

1	F	4	2	5	6	D	3
E	5	3	6	A	1	4	2
6	2	5	4	3	1		
3	1	4	6	2	5		
4	5	3	2	1	6		
2	C	6	1	B	3	5	1

## n0:19 Psycho Killer

Rules: Apply Classic Sudoku rules. Additionally, the puzzle is a Killer Sudoku puzzle with missing regions. Determine the regions and solve the puzzle. Each region contains its sum in the cell which is the first left cell of the topmost cells. There is no region that contains only one digit. No digit can be repeated within a sum.

Example:

11		7		12	
13			14		5
	6				
	5		10	12	
5	12				5
		9			

Solution

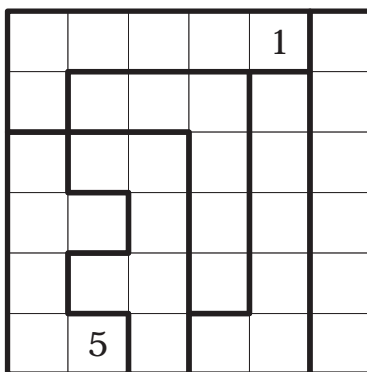
3	6	1	2	4	5
6	2	4	5	3	1
2	1	5	3	6	4
5	3	2	4	1	6
1	4	3	6	5	2
4	5	6	1	2	3

# n0:20 Irregular Sudoku Bands

Rules: 6 bands each consisting of 8 cells will be provided. Eliminate two cells in each band and place all the bands into the grid to form an Irregular Sudoku, so that each digit from 1 to 6 appears exactly once in every row, column and outlined area. If a digit in a placed band overlaps a given clue in the grid, they should be identical.

Example:

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



Solution

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

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

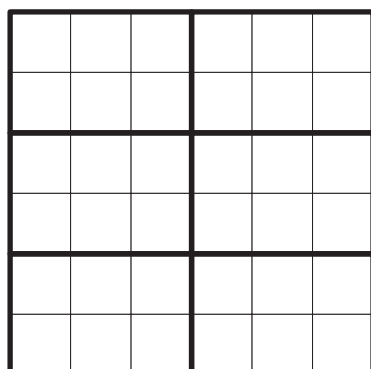
# n0:21 Sudoku Blocks

Rules: Put the given blocks over the left grid's 3x3 boxes (2x3 for the example) without any rotations or overlappings. The black cells will cover some of the digits. Then rewrite visible digits into the next grid and fill remaining cells with digits 1-9 such that each number appears exactly once in every row, column and 3x3 region.



Example:

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



Solution

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

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

# Credits

nO:5	One Digit Unique Solution	Serkan Yurekli
nO:6	Logidoku	Serkan Yurekli, 2010, BILSEM 1st Sudoku Competition amongst Primary Schools in Istanbul
nO:7	Top Heavy Sudoku	Vladimir Portugalov
nO:8	A or B	Deb Mohanty, 2011, Sudoku A or B, LMI
nO:9	Tripod Sudoku	Serkan Yurekli, 2009, TLSCBWSC
nO:10	Sudoku Clock	2010, Japan Number Place Championship
nO:11	Sudoku Islands	Mehmet Murat Sevim, 2010, Turkish Sudoku Championship
nO:12	Snail Sudoku	Serkan Yurekli, 2009, OAPC 2
nO:13	Just Two Cells Sudoku	Wei-Hwa Huang and Thomas Snyder, 2010, 5th World Sudoku Championship
nO:14	Halved Square Sudoku	Zoltan Horvath, 2011, 6th World Sudoku Championship
nO:15	Odd Lab	2009, Japan Number Place Championship
nO:16	Searchdoku	Tawan Sunathvanichkul, 2011, Puzzle Fusion, LMI
nO:17	Snapshot Sudoku	2010, Japan Number Place Championship
nO:18	Scale Sudoku	Serkan Yurekli, 2009, OAPC 3
nO:19	Psycho Killer	Mehmet Murat Sevim, 2009, OAPC 5
nO:20	Irregular Sudoku Bands	Serkan Yurekli, 2011, BILSEM 2nd Sudoku Competition amongst Primary Schools in Istanbul
nO:21	Sudoku Blocks	Nikola Zivanovic, 2010, Sudoku Cup 4