



# SUDOKU1 Challenge 2013

## TWINS MADNESS

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The First Sudoku1 Challenge is based on Variants type from [various SUDOKU Championships](#). The most difficult ones are Relays and Masked Variants that I appreciate a lot. In relays, a group of cells in first grid is identified, and group of cells in second grid will include the same values (WoW!).

All this grids have been generated thanks to [SUDOKU1 software @NKH](#) that you can find free on the Net [sudoku1en.free.fr](#). It greatly helps to optimize grids to an extreme difficulty.

Hints and solutions are available in a [separate file](#).

Takes good time solving those puzzles.

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### 1 Twin MasterMind

Fill in the 2 grids with digits from 1 to 9 so that each row, column and 3x3-box has exactly one of each digit. Relation between group of cells that have same values are indicated with color circle.

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

The black and white markers to the right of the grid correspond to the marked cells in that row and the code given below the grid. Black markers indicate correct numbers in the right position in the digits and the code, while the white ones mark correct numbers in the code in the wrong place among the digits.

**MasterMind**  
Code1=8172

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

**MasterMind**  
Code2=9 1 \_ 7 2 \_

With  
 $Code2=(Code1+a)*b+c$   
And a,b,c digits given in mixed increasing order in the following sequence: **111238**

## 2 Twin Multiplication Table – Odd Pair

Fill in the 2 grids with digits from 1 to 9 so that each row, column and 3x3-box has exactly one of each digit. Relation between group of cells that have same values are indicated with color circle.

	○							
	*			2	1			
	○		4	*				
					○		9	
5	3						○	
	9			6			2	
3			*			9	*	
			○					
	○			9	8			

### Multiplication Table

The 4 cells a,b,c,d, included in blue square with a '\*', respect following relation :  $a * b = cd$

○ <sup>X</sup>		○ <sup>7</sup>	○	2	○		E	
3	○ <sup>2</sup>		E		E		X	
○			○			○		E
	○	○	E	E <sup>5</sup>	8	○ <sup>1</sup>		
X	6	X		○	○			E
○			X	X	1	○ <sup>6</sup>		5
○ <sup>8</sup>		X	○		E		○	
	○		X <sup>3</sup>			X	X	
○	1	○	○	E			E <sup>3</sup>	

### Odd Pair

Sum of cells in group, with E or O, must be Even or Odd. If X indicated, all group cells must be Odd or Even.

### 3 Twin Numeral - Arrow

Fill in the 2 grids with digits from 1 to 9 so that each row, column and 3x3-box has exactly one of each digit. Relation between group of cells that have same values are indicated with color circle.

T			N	H			T	
	F	G		5				
O	○	E	6				W	
F			E	N			○	
			O		○	O	R	○
	8	1				E		
	O	○			○			V
			I	U		1	X	
		7	O	I				

#### NUMERAL

Cells with a letter contain a digit for which the corresponding numeral contains the given letter :

- 1-ONE 2-TWO 3-THREE 4-FOUR 5-FIVE
- 6-SIX 7-SEVEN 8-EIGHT 9-NINE

		6			○	8		
	○	9					○	
	○		○					
	○					9		
		○	○					○
								5
	○			○				
4				○	○	○	○	2

#### ARROW

Digits in the circled cells are the sum of the digits in the cells on the arrow leading out from it. Digits may repeat on these arrows.

# Sudoku1 Challenge 2013

## 4 Twin Battle Ship - Tiled

Place a number from 1 through 9 in each of the empty cells so that each number appears exactly once in each row, column and described the nine 3x3 regions.

	1-1	4-4	0-0	5-5	1-1	3-3	2-2	1-1	3-3
2-2	8	3		1					
2-2				○		6	8		4
1-1			5		○		3		7
4-4		6				7	2		
2-2			1	2	○		○	5	
2-2		○			3				
2-2				4					
0-0		5			1		4		2
5-5						2	○		

8	3	1
---	---	---

3
---

6	8	2	1
---	---	---	---

8	8	7
---	---	---

9
---

8	9	6
---	---	---

4	8	6
---	---	---

8	1
---	---

### BattleShip

Locate the position of the fleet of 10 boats in the grid. The boats do not touch. The numbers outside the grid indicate how many boats are in the row or column. The figures in the boats will help you to solve the sudoku.

●				○					●
				6					
	6				○				
									○
○									
								○	
		○			7				
				6					
●				2					●

1		6
7	5	
		4

8		

5	8	7
2		1

	7	9
		8
6		

9		
5		

9	4	2
5	3	1
6	7	8

	6	
2	8	
5		

	1	
		3
		5

3	2	9
1		6
	5	8


### Tiled

Place tiles and solve resulting Classic Sudoku. You are provided an envelope containing 9 tiles. Four of these tiles can be distinguished as corner tiles by a dot at one of their corners. Tiles can be rotated or mirrored. But the resulting numbers in the configuration must be up-right.

**5a TWINS Zone Part 1**

Fill in the 2 grids so that every row, every column and every 3x3 box contains the digits 1 through 9. The same colored zones have same data.

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

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



**5c TWINS Zone Part 3**

Fill in the 4 grids so that every row, every column and every 3x3 box contains the digits 1 through 9. The same colored zones have same data.

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

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

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

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



# Sudoku1 Challenge 2013

## 6a TWINS Relation Part 1

Fill in the 2 grids so that every row, every column and every 3x3 box contains the digits 1 through 9. The same colored cells have same data.

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

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

### 6b TWINS Relation Multiple – Wheels – Multiplication table

Fill in the 2 grids so that every row, every column and every 3x3 box contains the digits 1 through 9. Relation between group of cells that have same values are indicated with color circle. The wheels in the grid contain each 4 values. These values will go in the cells the numbers are in. Doing this, the wheels must be rotated to the right position (not mirrored or changed the order of the digits). In each of 4-cells blue boxes, the bottom two-digit number is the product of the 2 one-digit numbers above.

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

7						5	
		1					
6							
	3						
8							

### 6c TWINS Relation Multiple – Outside – Last Number

Fill in the 2 grids so that every row, every column and every 3x3 box contains the digits 1 through 9. Relation between group of cells that have same values are indicated with color circle. Outside digits must be inserted in the first 3 cells of the corresponding row or column. A cyan arrow means that the digits are going up till they hit this number and for a red arrow they go down till they hit this particular number.

		4			28			
							3	12
5		3					9	
			9					
					1			
	4							
							67	5
1							78	

	3		9	1			2	
1							4	
					3			
79	6			4				
	8						9	1
4		3			1			
			4					

# Sudoku1 Challenge 2013

## 7 Twins Different 2 by 2

Fill in the 6 grids so that every row, every column and every 3x2 box contains the digits 1 through 6.

The 6 Grids are different 2 per 2. Note that a '≠' is indicated between Grids that are different.

			4		
					5
3					
1				2	
		3			
		4			1

≠

			6		
3					
	1	3			
					6
		1			
		5		4	

≠

		4			
	5				
			3		4
		2			
			6		1
	4				2

≠

≠

		4	2		
5					
	4	5		3	
				2	
			5		6

≠

5	3				2
6					
		6			
	2		6		
					6

≠

	6				
4		5		2	
				5	
	5				
			3		
				4	

**8 TWINS Total**

The 3 Grids are classical. Fill in the 3 grids so that every row, every column and every 3x3 box contains the digits 1 through 9.

The three grids are interconnected through the last one: each number of the last grid is the sum of the numbers in the corresponding cells in the three grids.

			3					
						3		
		8	9	2				
	5					9		
	7							
1					2			

								2
		9						
						9		
		6				3		
					7		1	
	9							
1	8							

								9
7	8							2
			3					
			8					
					4	1		
						2		

12	19	8	12	15	24	11	19	15
19	11	14	17	14	12	15	18	15
16	14	22	15	16	10	22	12	8
7	17	8	17	13	14	22	16	21
23	10	17	20	9	18	5	20	13
18	22	13	15	10	19	8	14	16
15	14	17	16	16	14	16	10	17
9	13	19	13	20	15	20	10	16
16	15	17	10	22	9	16	16	14

9a TWINS Relay Multiple (Part 1)

The 4 Grids are variants with relation between group of cells. Fill in the 4 grids so that every row, every column and every 3x3 box contains the digits 1 through 9. Relation between group of cells that have same values are indicated with color circle.

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

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

Diagonal grid : Additionally, the digits 1-9 appear in each of the marked main diagonals.

Give me 5: Pairs (horizontally or vertically pair) of digits which sum or difference could not be 5.

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

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

Non Consecutive Sudoku: In horizontally or vertically neighboring cells cannot occur consecutive digits (two digits differ by 1).

Pirate: The 5's represent treasure chests and are completely surrounded by (horizontally and vertically only) pirates (1, 2, 3 and 4). The commoners (6, 7, 8 and 9) cannot be found next to a treasure chest (5).

### 9b TWINS Relay Multiple (Part 2)

The 4 Grids are variants with relation between group of cells. Fill in the 4 grids so that every row, every column and every 3x3 box contains the digits 1 through 9. Relation between group of cells that have same values are indicated with color circle.

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

Classic: Standard grid.

	M1	M2	M3	M1	M1	M3	M3	M2	M2	
M1		1						3		M1
M2										M1
M3				○						M1
M2	○				1	4				M2
M2		4	2							M3
M1							○			M2
M2					3					M3
M3	○								○	M2
M1		○								M2
	M1	M3	M2	M1	M3	M1	M2	M2	M3	

Frame Max: Numbers outside the grid gives the position of the maximum of the first 3 digits starting from that direction.

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

Don't Touch : The same figures cannot touch, not even diagonally.

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

No 3 Odd or Even in Line: In any vertical or horizontal sequence of 3 cells cannot occur neither 3 odd nor 3 even digits.

# Sudoku1 Challenge 2013

## 10a TWINS Variants Masked

Fill in the 4 grids so that every row, every column and every 3x3 box contains the digits 1 through 9. The 4 Grids are variants.

Relation between group of cells that have same values are indicated with color circle.

You have to identify which variant is applicable to each grid, knowing that only one variant per grid:

- ✓ Diagonal grid : Additionally, the digits 1-9 appear in each of the marked main diagonals.
- ✓ Don't Touch : The same figures cannot touch, not even diagonally.
- ✓ Not Average: For each group of 3 vertical or horizontal cells, the centered value can not be equal to average of the 2 extreme values.
- ✓ Give me 5: Pairs (horizontally or vertically pair) of digits which sum or difference could not be 5.

Delete Variants in this table when you find that it can not be applied

Grid 1		Grid 2	
Diagonal	Don't touch	Diagonal	Don't touch
Not Average	Give Me 5	Not Average	Give Me 5

  

Grid 3		Grid 4	
Diagonal	Don't touch	Diagonal	Don't touch
Not Average	Give Me 5	Not Average	Give Me 5



Grid 1

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

Grid 2

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

Grid 3

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

Grid 4

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

# Sudoku1 Challenge 2013

## 10b TWINS Variants Masked

Fill in the 6 grids so that every row, every column and every 3x3 box contains the digits 1 through 9. The 6 Grids are variants with relation between group of cells.

Relation between group of cells that have same values are indicated with color circle.

You have to identify which variant is applicable to each grid, knowing that only one variant per grid.

- ✓ Diagonal grid : the digits 1-9 appear in each of the marked main diagonals.
- ✓ Non Consecutive Sudoku: In horizontally or vertically neighboring cells cannot occur consecutive digits (two digits differ by 1).
- ✓ Pirate: The 5's represent treasure chests and are completely surrounded by (horizontally and vertically only) pirates (1, 2, 3 and 4). The commoners (6, 7, 8 and 9) cannot be found next to a treasure chest (5).
- ✓ No knight step: 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.
- ✓ Touchy : Each digit in the grid must have its cell share a common edge with at least one cell containing a consecutive digit.
- ✓ Give me 5: Additionally, Pairs (horizontally or vertically pair) of digits which sum or difference could not be 5.

Delete Variants in this table when you find that it can not be applied

Grid 1			Grid 2		
Diagonal	Non Consecutive	Pirate	Diagonal	Non Consecutive	Pirate
No Knight Step	Touchy	Give Me 5	No Knight Step	Touchy	Give Me 5

Grid 3			Grid 4		
Diagonal	Non Consecutive	Pirate	Diagonal	Non Consecutive	Pirate
No Knight Step	Touchy	Give Me 5	No Knight Step	Touchy	Give Me 5

Grid 5			Grid 6		
Diagonal	Non Consecutive	Pirate	Diagonal	Non Consecutive	Pirate
No Knight Step	Touchy	Give Me 5	No Knight Step	Touchy	Give Me 5

Grid 1

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

Grid 2

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

Grid 3

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

Grid 4

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

Grid 5

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

Grid 6

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