©

Dear Mrs/Mr,

If you're interested in publishing Sudokus, but you are willing to offer your readers something more special than a common Sudoku puzzle, please have a look at the tremendous number of options Sudoku Plaza has to offer you.

First a little introduction: I have a technical background and am specialized in the development of mathematical software in the field of civil engineering. As a great Sudoku fan, two years ago I started creating a software application able to generate and solve Sudoku puzzles. Since then, I have continuously been developing and expanding the software with new Sudoku formats, concepts and ideas. The result is a powerful application that can generate customized puzzles far beyond the scope of regular Sudoku generators that can be found on the internet.

Sudoku Plaza provides customized Sudokus in all sorts of variations, shapes and difficulty levels.

You can think of a Sudoku in the shape of a company brand or symbol, a Sudoku with words, or such a challenging Sudoku that even real Sudoku specialists will meet a new challenge. The puzzles can be delivered in any format for easy publication in books, magazines, newspapers or websites. In the attached document the possibilities are explained in more detail.

If you are interested in using my expertise in the field of Sudoku puzzles you can contact me at the contact information below.

Application possibilities:

- Publication puzzles in books, magazines, newspapers or even the internet. Even Sudoku specialists will meet a new challenge. A lot of experience and perseverance is needed to solve the puzzles made by this software.
- The puzzles can vary in difficulty, so less difficult Sudokus can be generated as well.
- Puzzle contests, many of the variants can not be solved using the regular Sudoku software the internet offers.
- Publication on the internet.

I have a technical Civil background and am specialized in the development of software in the field of civil engineering calculations but also the integration and automation of various industrial processes (administrative, financial, CAD/CAE, calculation etc.).

If you are interested in using my expertise in the field of Sudoku puzzles you can contact me at the following numbers and address:

Sincerely,

Cor Smit

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Address: Beulekampersteeg 55, 3882 LJ Putten, The Netherlands

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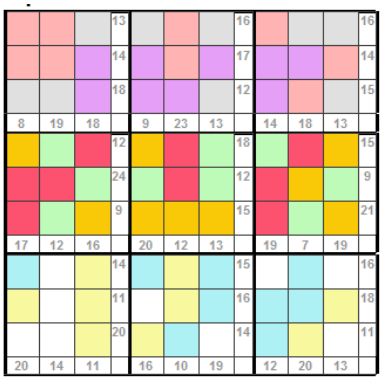
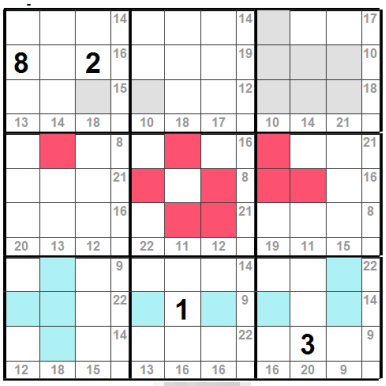
Table of Contents:

1 Overview of Possible Sudokus

In this paragraph an overview is given of the Sudokus variants that can be made with the software. Standard Sudokus can be generated based on the rule that numbers can appear only one time on each row, column and block. Consequently you will find Sudokus where these rules also apply to a pattern. This pattern is shown in colours and explained in other chapters of this document.

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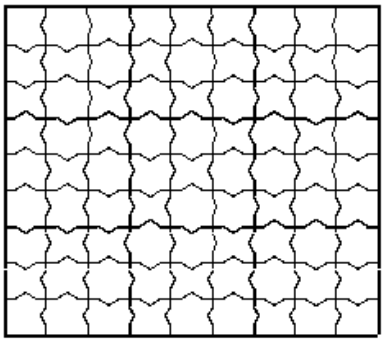

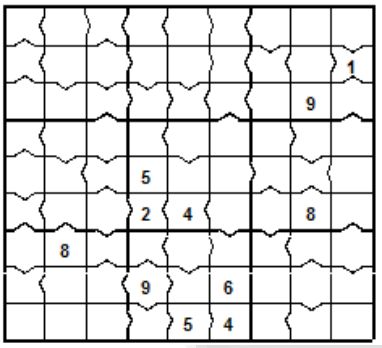
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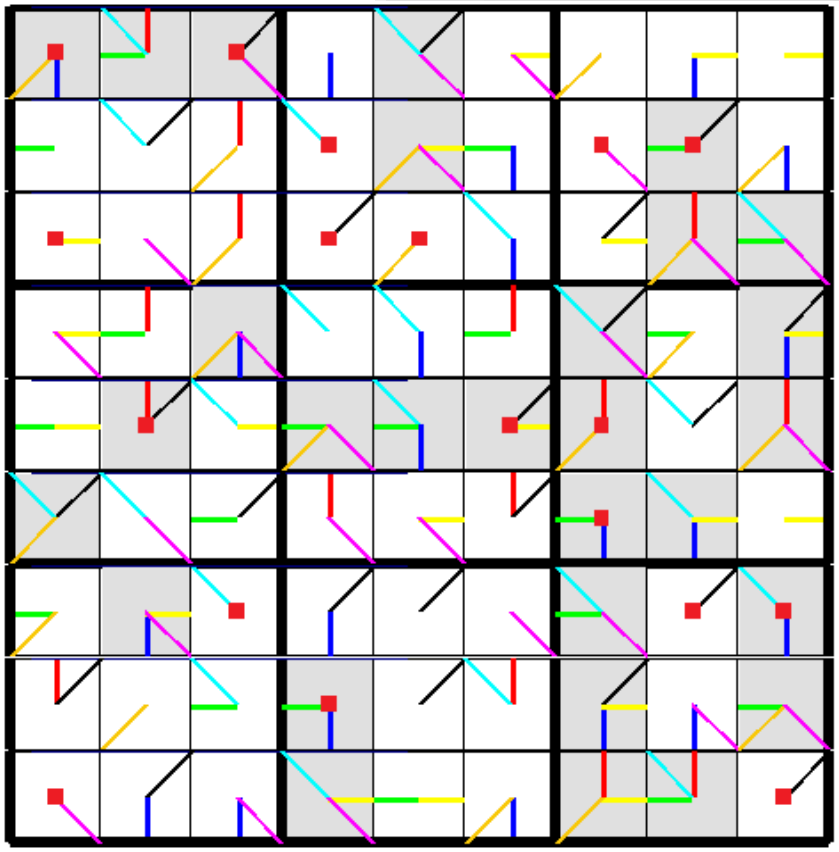

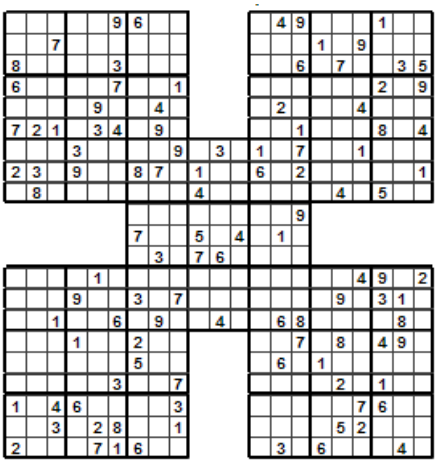

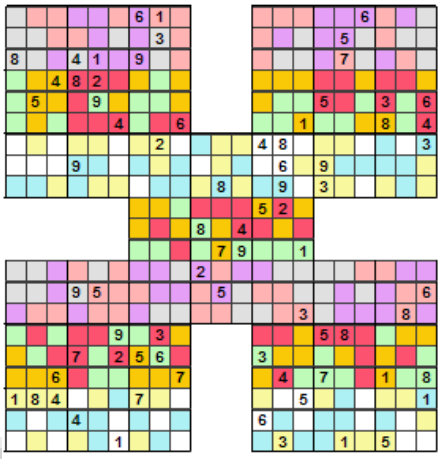

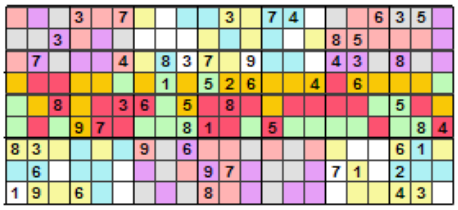

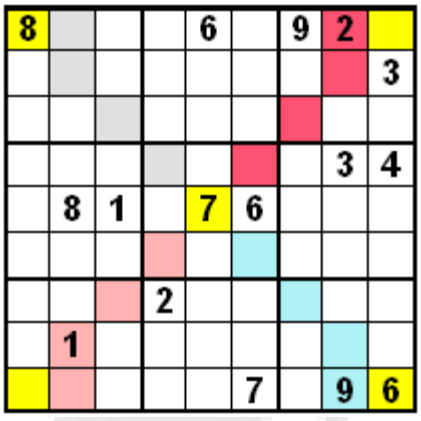

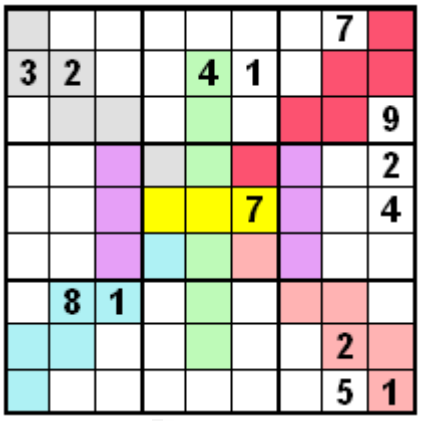

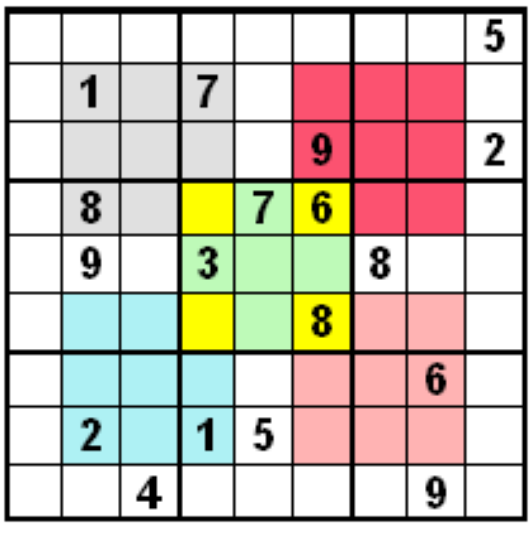

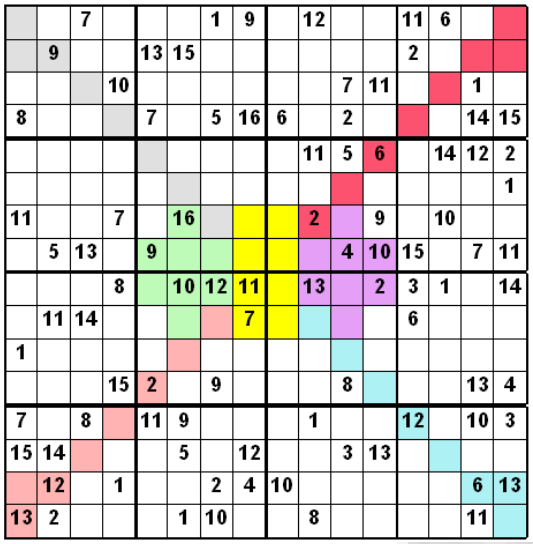

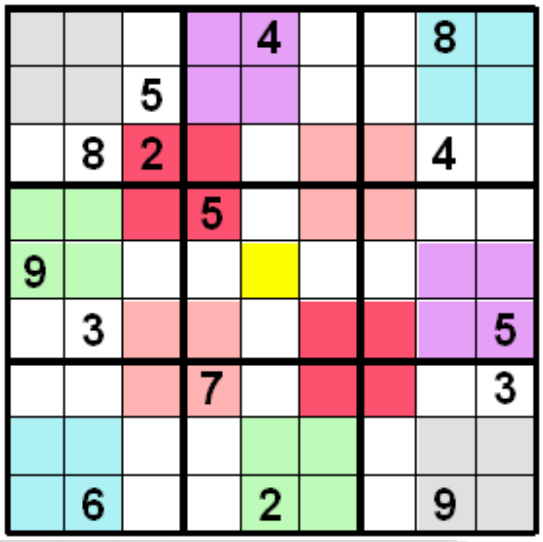

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I	U	H	E	T	O	A	D	R
E	A	R	U	H	I	D	O	T
U	D	T	O	E	A	R	H	I
O	H	I	R	D	T	E	A	U
R	O	A	T	U	E	H	I	D
H	E	U	I	O	D	T	R	A
T	I	D	A	R	H	U	E	O

Available letters: A D E H I O R T U

Available Words:

ADD	AHA	AID	AIR	ARE	ART	DIE	DOT	DUE	EAR
EAT	ERA	ERR	HAT	HER	HIT	HOE	HUE	HUT	IRE
OAR	ODD	OUT	RAT	RED	RID	ROD	ROE	ROT	RUE
TAR	TEA	THE	TIE	TIT	TOE	TOO			

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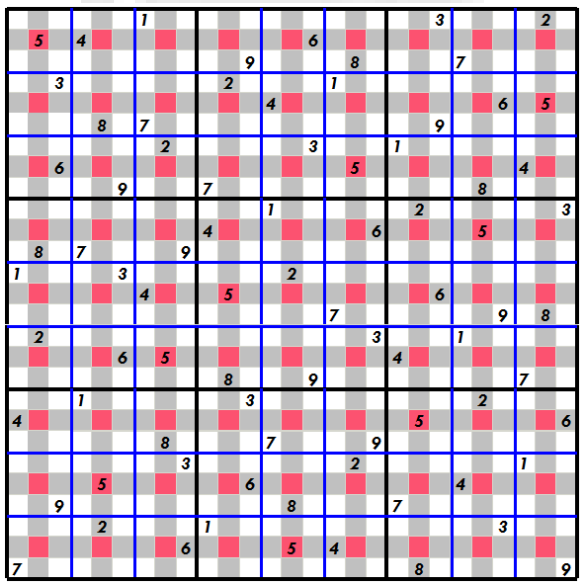

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10	6	15	3	16	9	2	14	7	4	11	13	8	1	12	5

```
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 1- 3- 5   2- 4- 6   3- 4- 5   4- 5- 6   5- 4- 3   6- 5- 4
 1- 4- 7   2- 5- 8   3- 5- 7   4- 6- 8   5- 6- 7   6- 7- 8
 1- 5- 9   2- 6-10   3- 6- 9   4- 7-10   5- 7- 9   6- 8-10
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 7- 4- 1   8- 5- 2   9- 5- 1  10- 6- 2  11- 6- 1  12- 7- 2
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 7- 6- 5   8- 7- 6   9- 7- 5  10- 8- 6  11- 8- 5  12- 9- 6
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13-14-15  14-15-16  15-14-13  16-15-14

Sorted on middle number:
 -- 2 --  1- 2- 3
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 -- 4 --  1- 4- 7  2- 4- 6  3- 4- 5
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 -- 7 --  1- 7-13  2- 7-12  3- 7-11  4- 7-10  5- 7- 9
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 --10 --  4-10-16  5-10-15  6-10-14  7-10-13  8-10-12
          9-10-11
 --11 --  6-11-16  7-11-15  8-11-14  9-11-13 10-11-12
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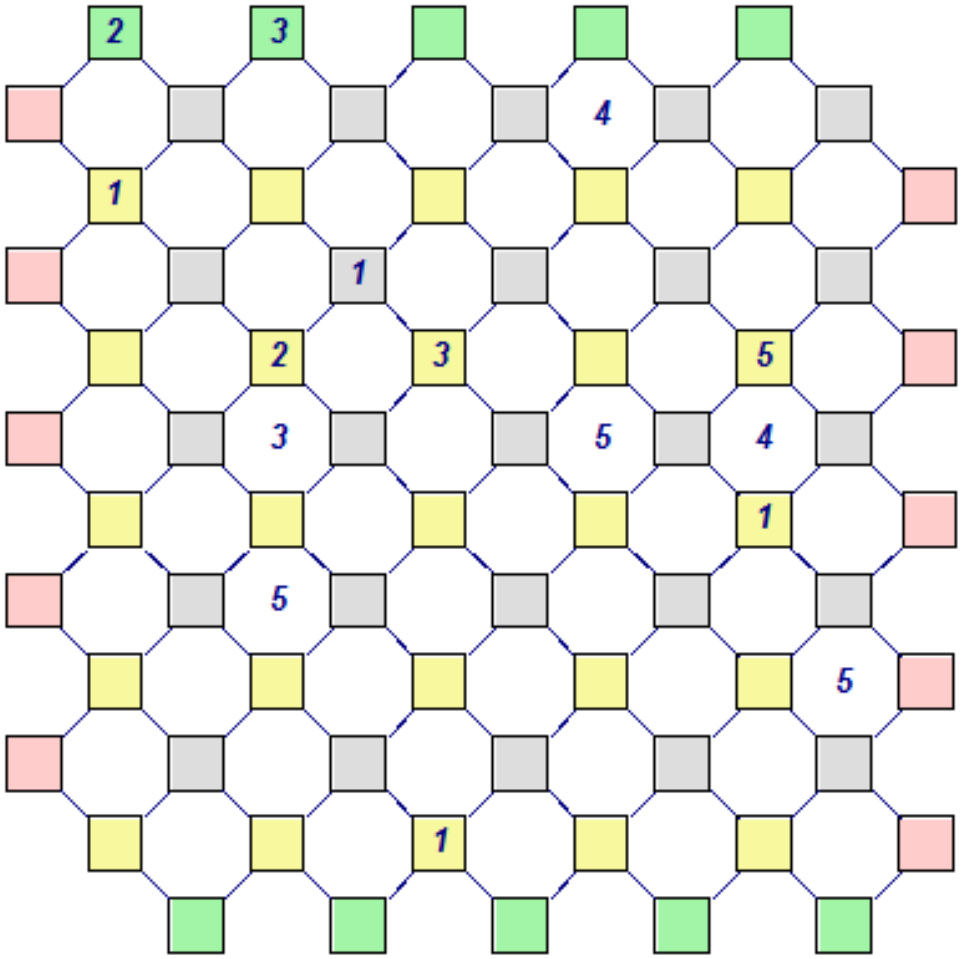

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166	60	30	58	181	178	165	26	119	

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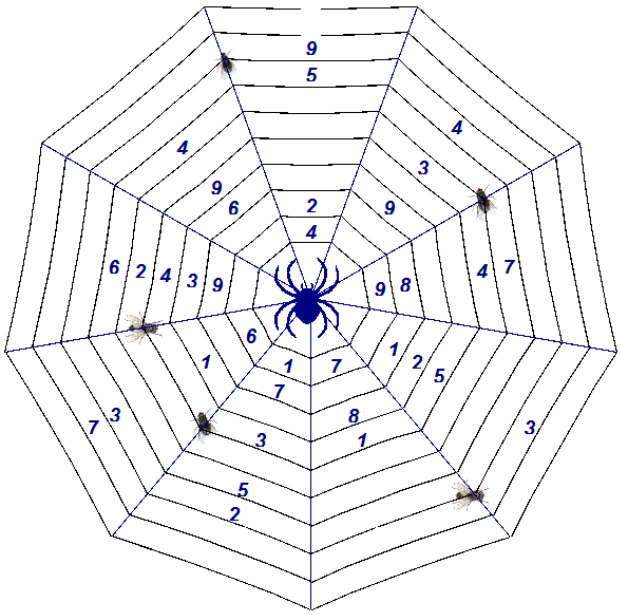

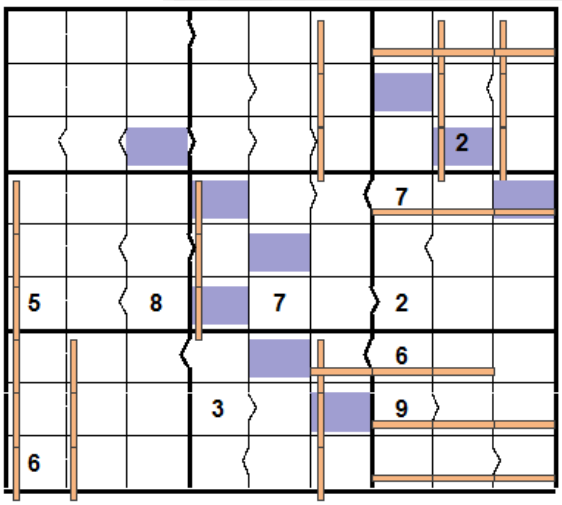

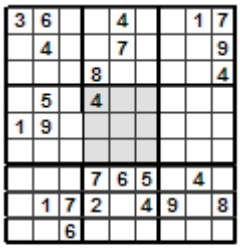

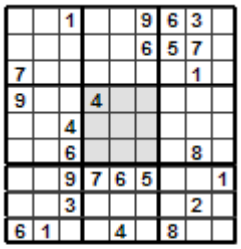

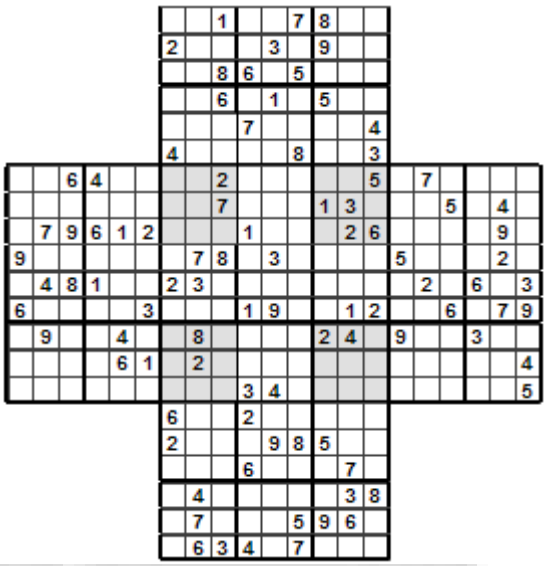

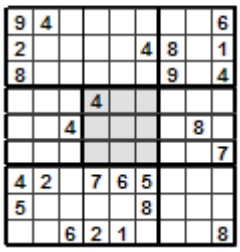

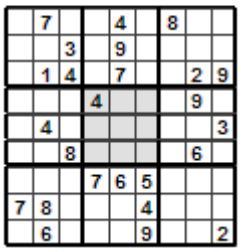

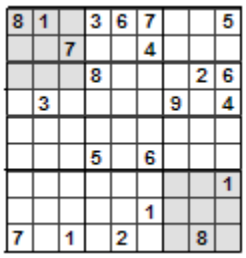

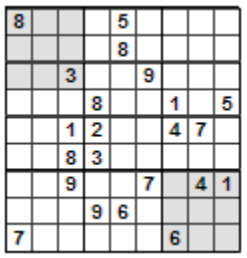

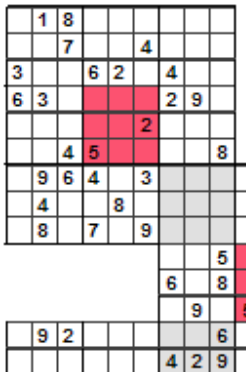

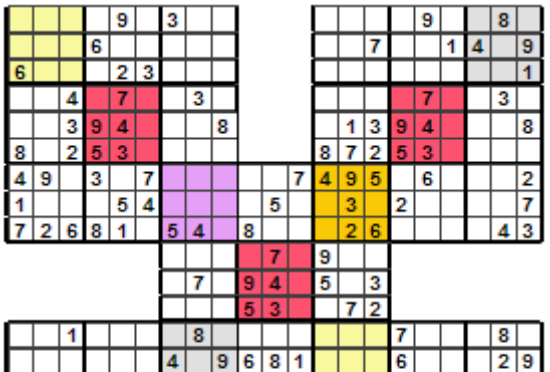

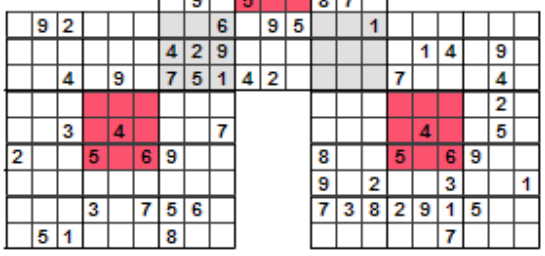

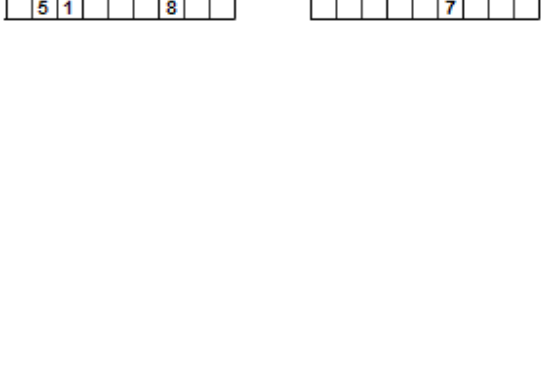

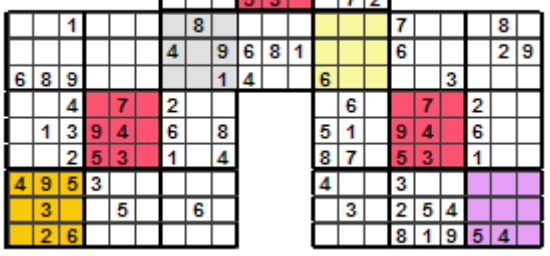

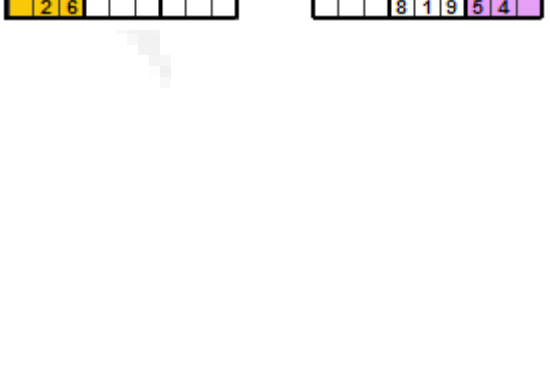

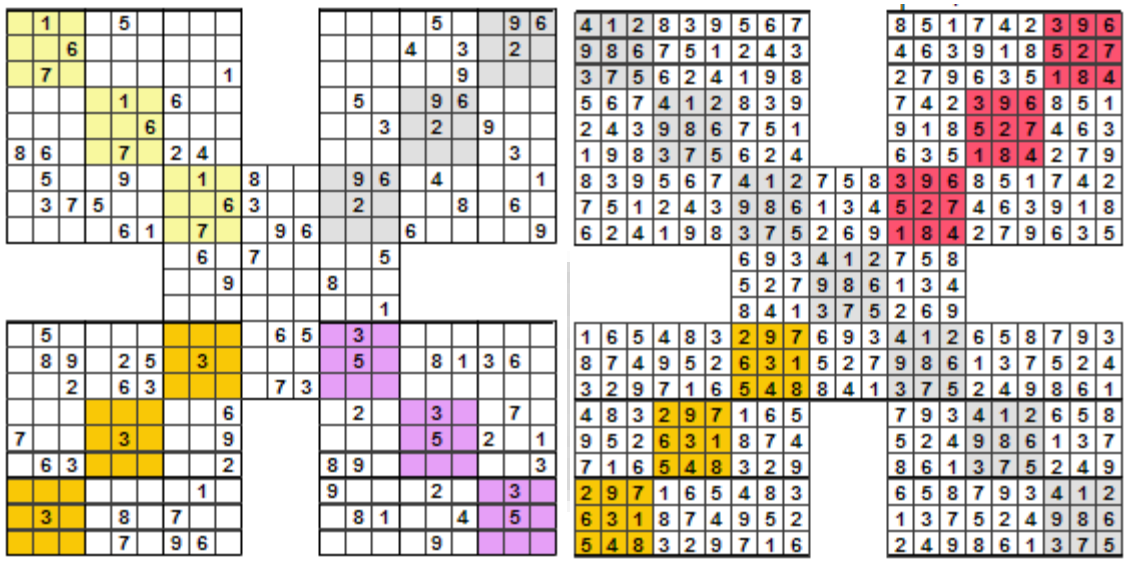

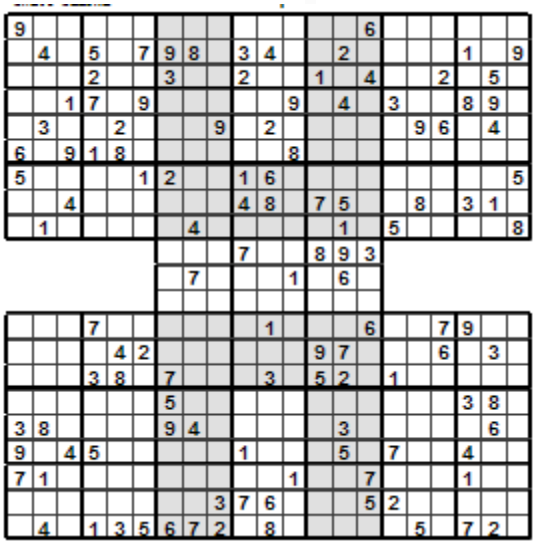

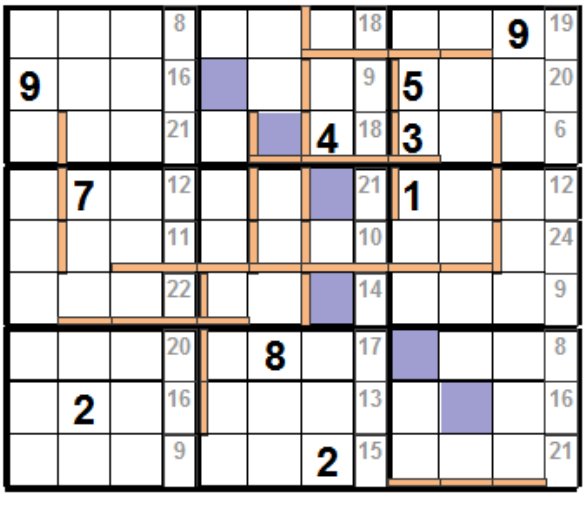

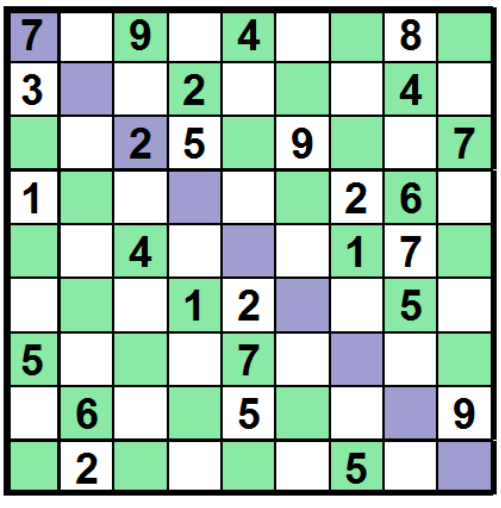

©

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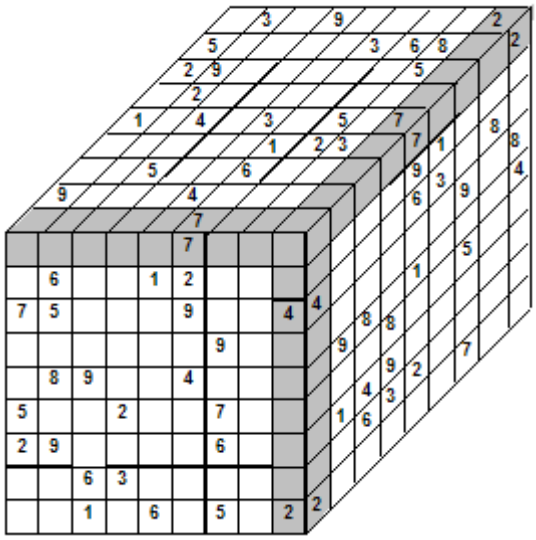
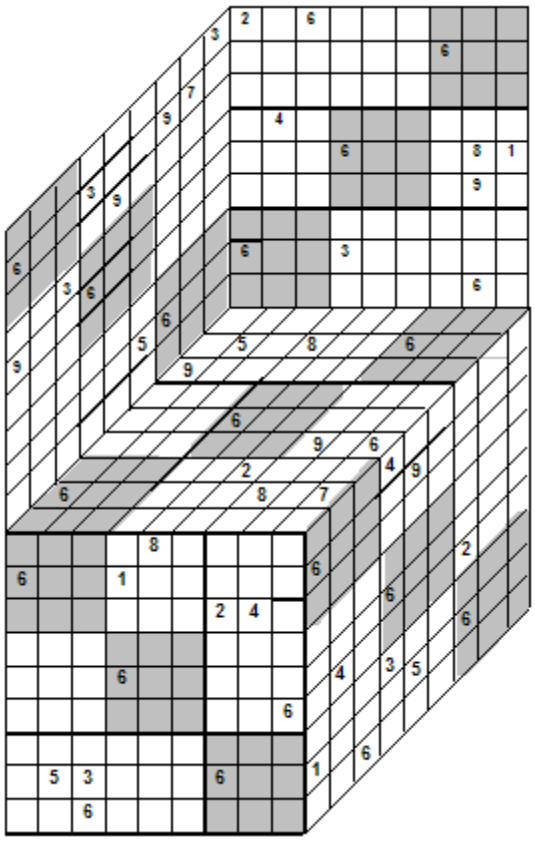
			10		12	7		6	4			11	13		
16			3	15	1		6		2		13			9	10
15	14		13		11						16		2		6
7	4					1		15			14			3	
	16	2			10	11	3				8		9		7
						15	9	4					10	1	
10									3			6	5	4	16
	7					6					10	13			
2	3						5		6					8	
		15	16							8				7	
	6					2	10	16	15	7	1			14	3
	5	4		10		3		1				16		2	
		13	1		9		8	12			5				4
8	12				13	4				16			1		
				1			11	10	14						

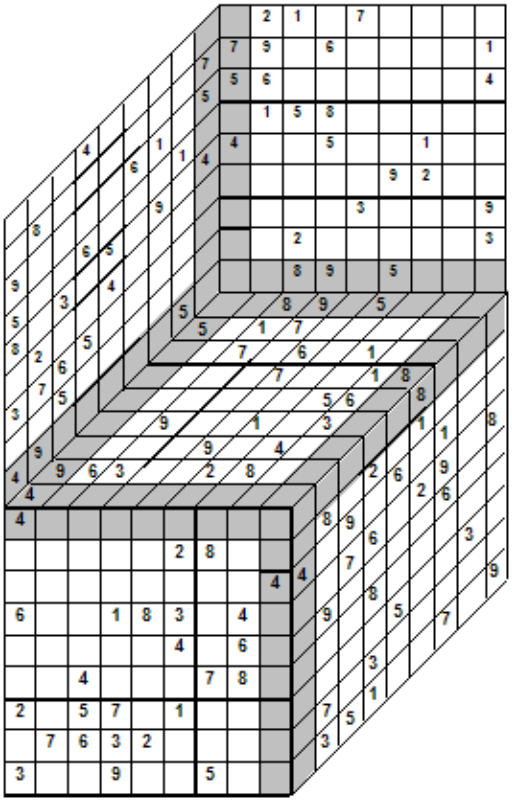
X	P	C	D	O	H	I	Y	S	A	N	V	R	G	E	T
H	R	O	V	P	N	A	C	G	T	E	I	Y	X	S	D
I	G	N	T	S	X	E	D	R	Y	H	P	C	O	V	A
S	Y	E	A	R	G	T	V	C	O	D	X	N	I	H	P
E	N	Y	G	A	P	S	H	X	V	I	O	D	R	T	C
T	D	H	X	I	Y	C	G	N	S	P	R	A	E	O	V
P	I	R	S	D	O	V	E	A	H	C	T	G	N	Y	X
C	A	V	O	T	R	X	N	Y	E	G	D	H	S	P	I
R	X	P	C	N	S	D	A	E	G	V	Y	O	T	I	H
V	T	G	E	C	I	H	O	P	R	A	S	X	Y	D	N
A	O	D	N	Y	V	G	T	I	C	X	H	S	P	R	E
Y	S	I	H	X	E	R	P	O	D	T	N	V	C	A	G
O	E	A	R	H	T	N	I	V	X	Y	C	P	D	G	S
N	H	S	I	E	A	O	X	D	P	R	G	T	V	C	Y
G	C	X	Y	V	D	P	S	T	I	O	A	E	H	N	R
D	V	T	P	G	C	Y	R	H	N	S	E	I	A	X	O

Available Words:

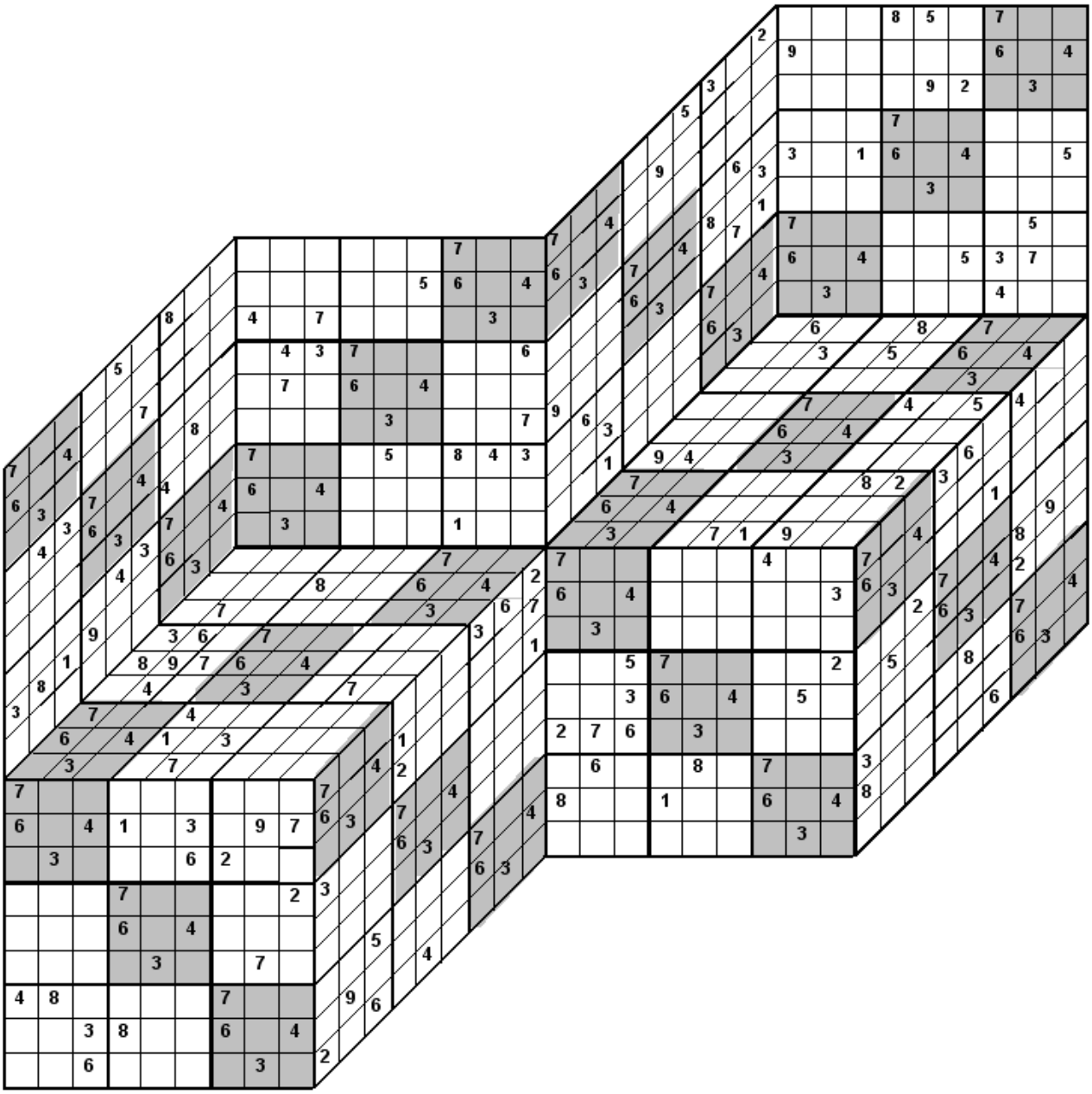
ACT	ADD	AGE	AHA	AID	AIR	AND	ANT	ANY	APE
APT	ARC	ARE	ART	ASH	ASS	AXE	AYE	CAN	CAP
CAR	CAT	COD	COG	CON	COO	COP	CRY	DAY	DEN
DIE	DIG	DIP	DOG	DOT	DRY	DYE	EAR	EAT	EGG
END	ERA	ERR	EYE	GAG	GAP	GAS	GAY	GET	GOD
HAT	HAY	HEN	HER	HIP	HIS	HIT	HOE	HOG	HOP
ICE	INN	IRE	ITS	IVY	NAY	NIP	NOD	NOT	OAR
ODD	ONE	OPT	PAD	PAY	PEG	PER	PET	PIE	PIG
PIN	PIP	PIT	POT	RAG	RAT	RAY	RED	RID	RIP
ROD	ROE	ROT	RYE	SAD	SAP	SAY	SEA	SEE	SET
SEX	SHE	SHY	SIN	SIP	SIR	SIT	SIX	SON	SPY
STY	TAP	TAR	TAX	TEA	TEN	THE	THY	TIE	TIN
TIP	TIT	TOE	TOO	TOP	TRY	VAN	VAT	VEX	VIE
YEA	YEN	YEP	YES	YET	YON				

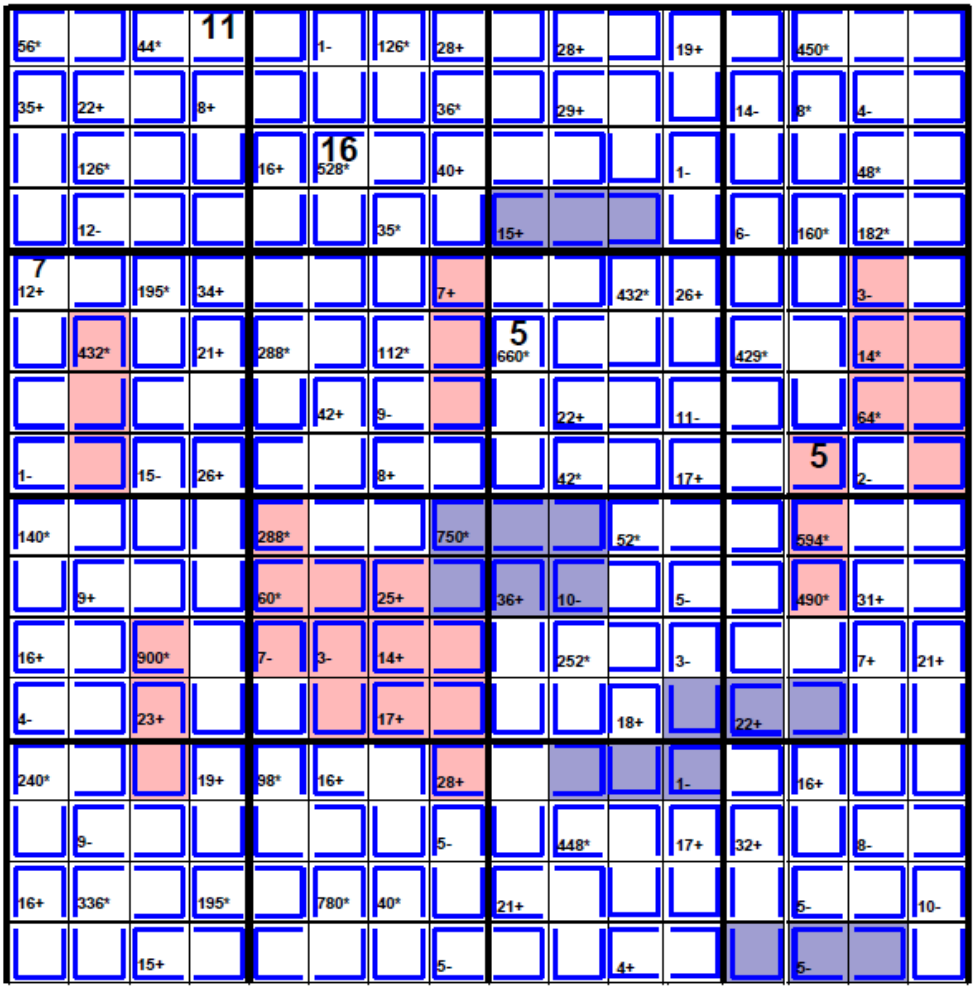






15+		4 216*			4-	8+	1-	
2 12*	14+		13+				2-	
	3-			35*	64*		567*	
	3 5-	8				2*		14+
252*		4-	19+					
	6*		42*	15+		4-		17+
					13+	30*		
13+		8+	12+			13+	4	
5-				21+			2-	

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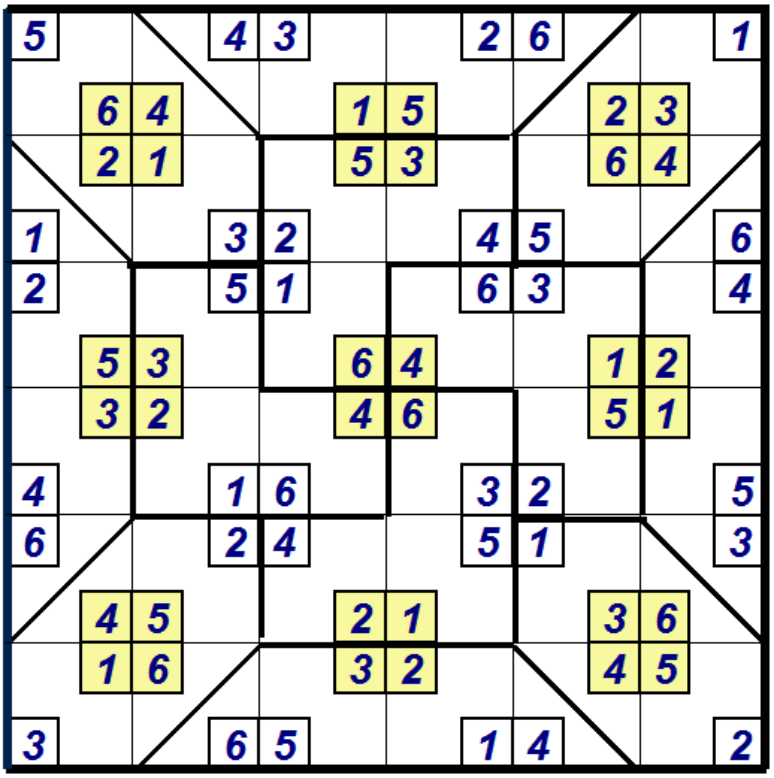
35+ 22+ 8+ 36* 29+ 14- 8* 4-
126* 16 16+ 528* 40+ 1- 48*
12- 35* 15+ 6- 160* 182*
7 12+ 195* 34+ 7+ 432* 26+ 3-
432* 21+ 288* 112* 5 660* 429* 14*
42+ 9- 22+ 11- 64*
1- 15- 26+ 8+ 42* 17+ 5 2-
140* 288* 750* 52* 594*
9+ 60* 25+ 36+ 10- 5- 490* 31+
16+ 300* 7- 3- 14+ 252* 3- 7+ 21+
4- 23+ 17+ 18+ 22+
240* 19+ 98* 16+ 28+ 1- 16+
9- 5- 448* 17+ 32+ 8-
16+ 336* 195* 780* 40* 21+ 5- 10-
15+ 5- 4+ 5-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2 1 5 3 6 4
1 3 2 4 5 6
2 5 1 6 3 4
5 3 6 4 1 2
3 2 4 6 5 1
4 1 6 3 2 5
6 2 4 5 1 3
4 5 2 1 3 6
1 6 3 2 4 5
3 6 5 1 4 2

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

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

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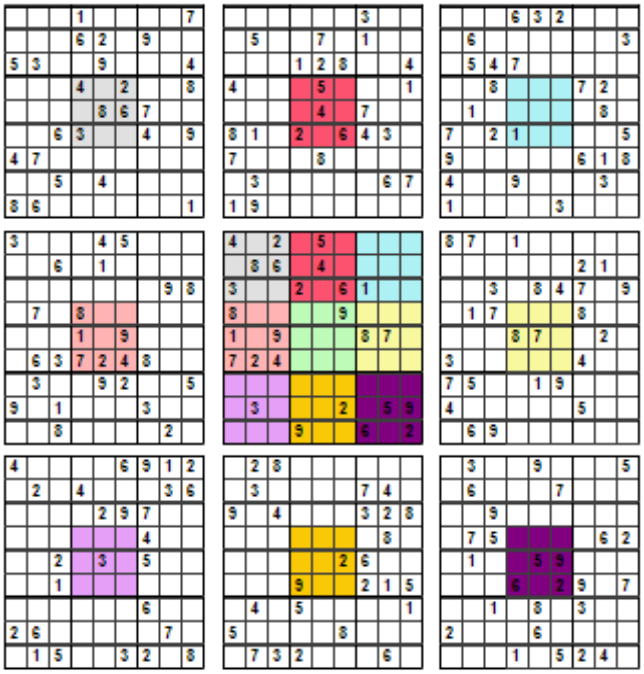
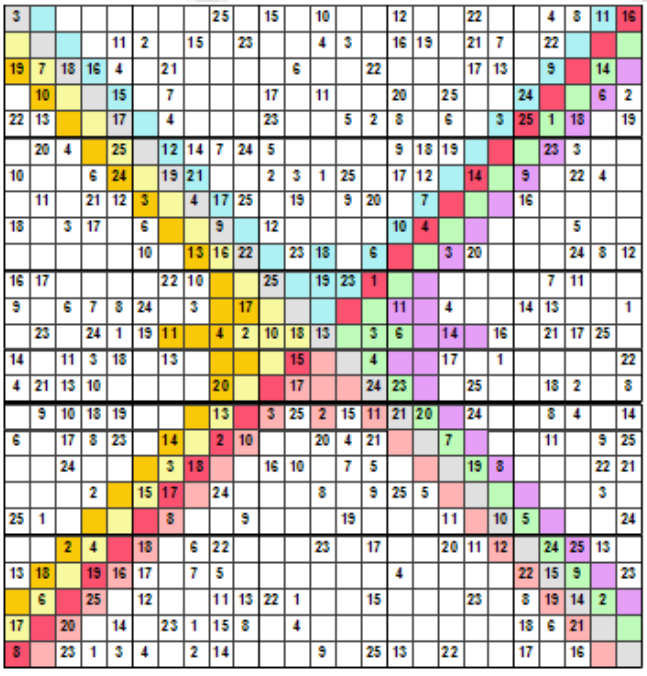
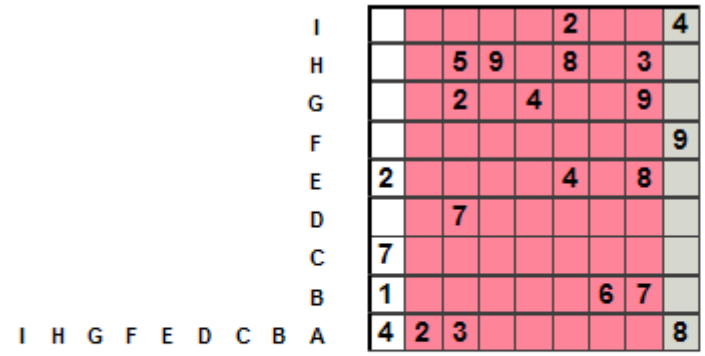
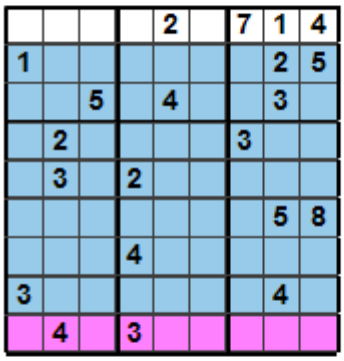
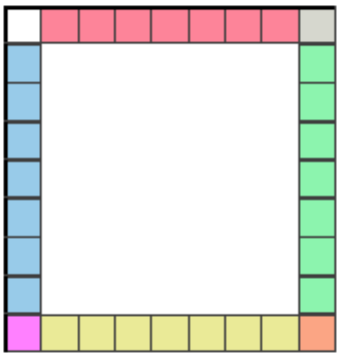
1 2	2 4	4	4 3	2 3	2		

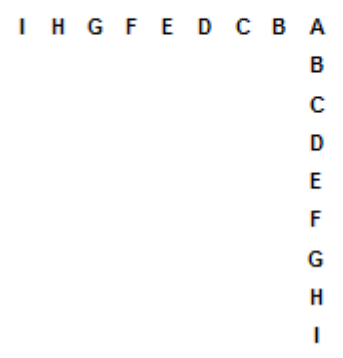


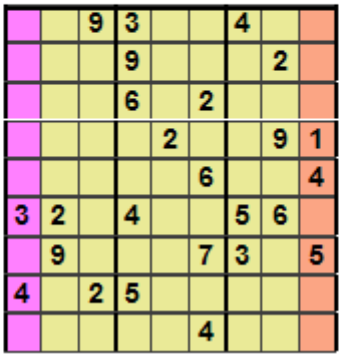


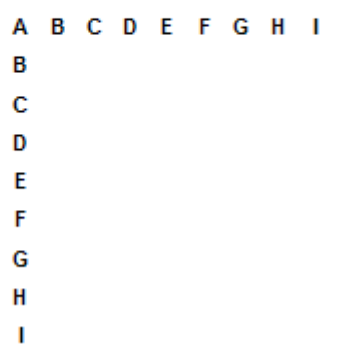


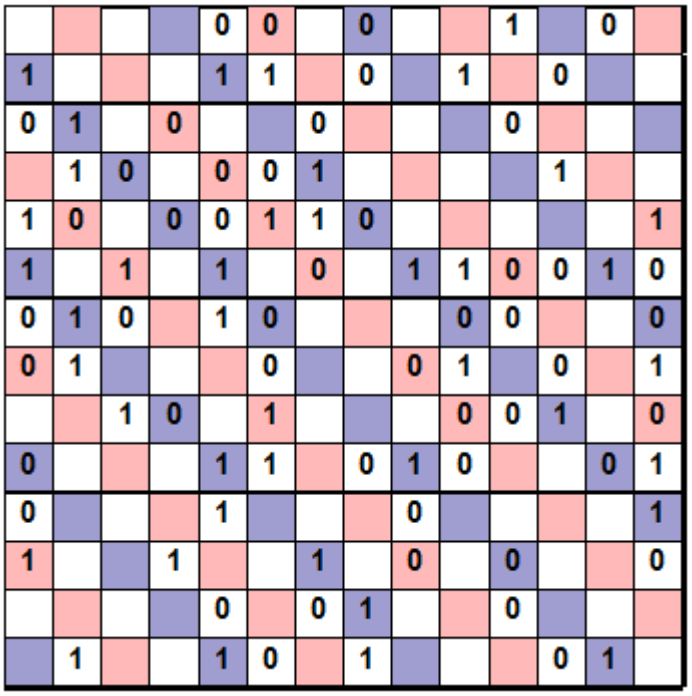












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		8		4		2		
				8		5		
2								
						3		
4								
			6		3			
	5			9				
					8			5

1	0	1	1	0	1	0	0	1	0	1	0	1	0
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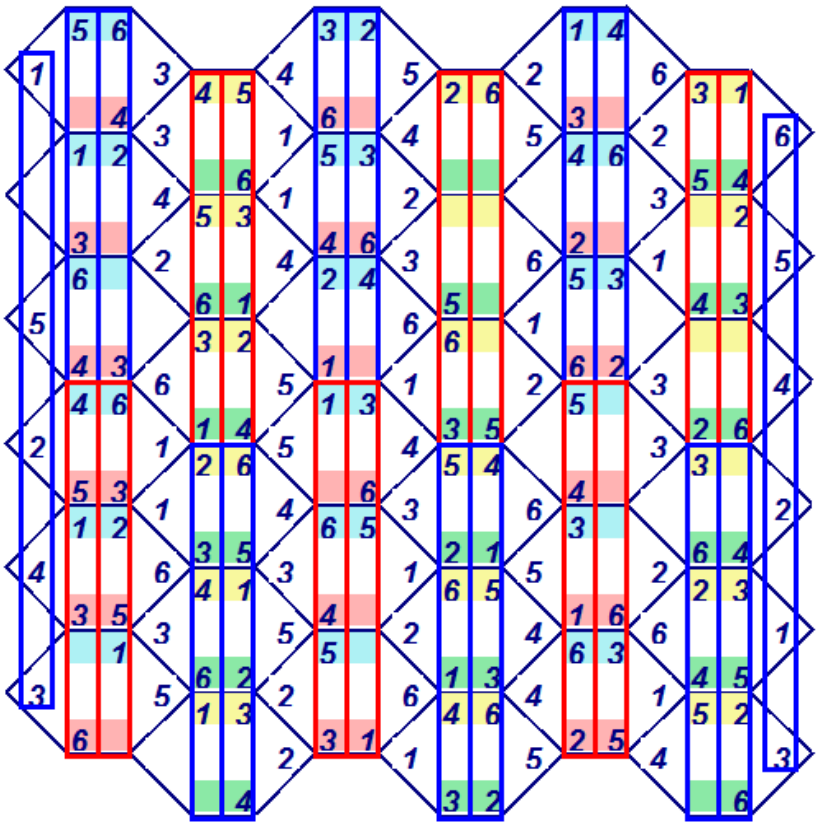
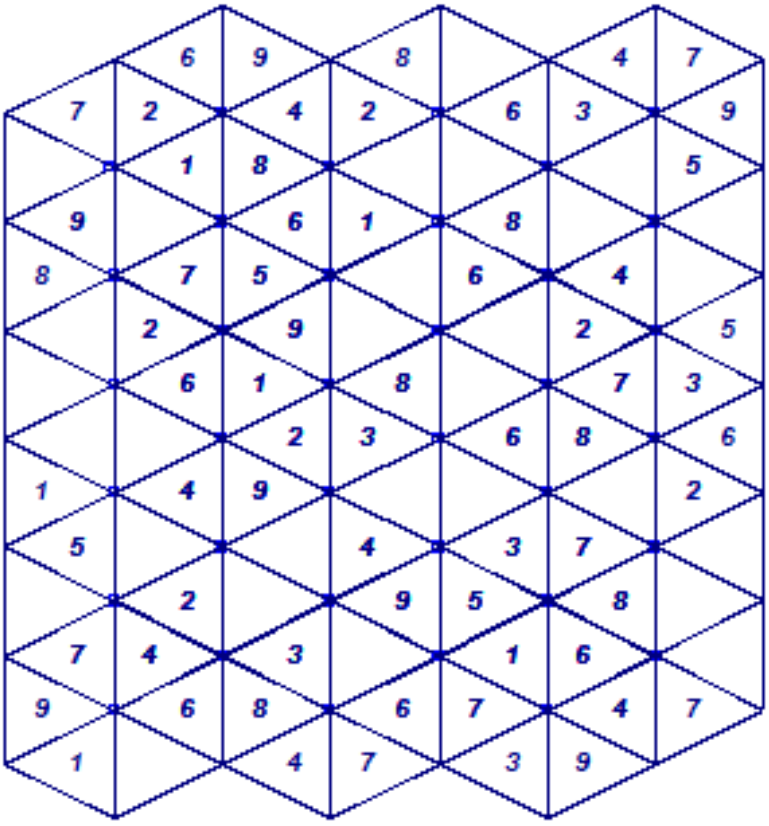
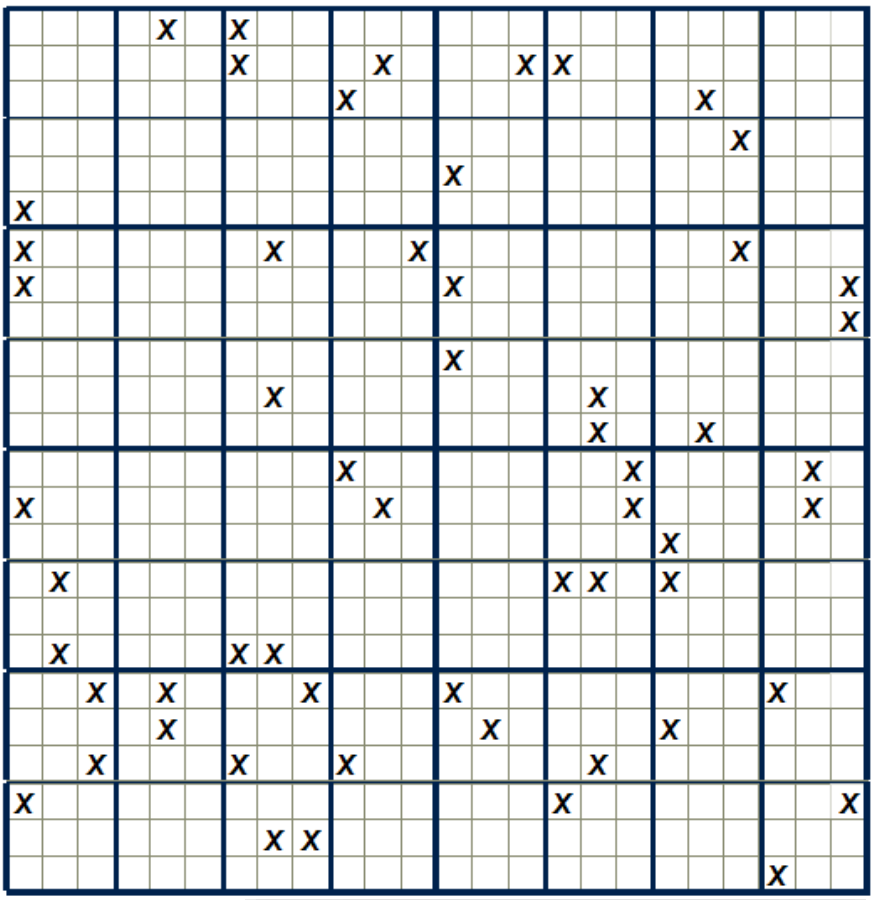
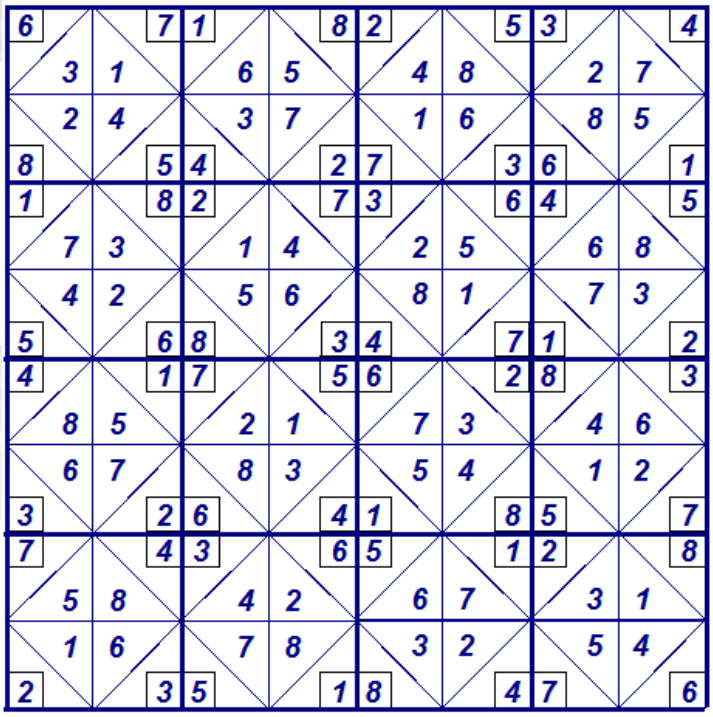






	6	3				2		
				4			7	
			6	9	1			
3						5		7
							2	4
6		8						
	1		5		6	7		
7	5	2					4	
			2					1



2 Traditional Sudoku

In general the difficulty of a Sudoku depends on the number of shown numbers. If many numbers are shown special solution methods are not used. In Sudokus with only a few shown numbers, these methods are only used when more simple solution methods give no result.

The following, advanced solution methods, are included in the software:
- Twins
- Triples
- Xwings
- Swordfish
- Unique rectangles

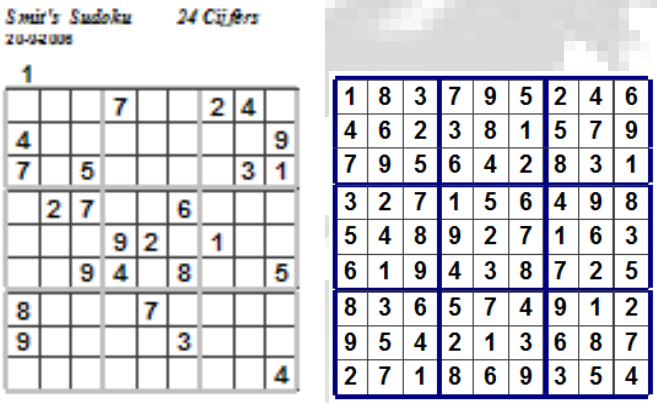


Figure: Traditional Sudoku and associated solution.

The difficulty of a Sudoku may vary, partly depends on the number of shown positions (in this example 24).

The numbers as well as the positions of the numbers within the Sudoku are randomly chosen, so each Sudoku is unique. If many numbers are shown only simple solution methods are used. Creating difficult Sudokus (less numbers shown) the solution requires more complex solution methods. These are only applied if the simple solution methods do not lead to a result.

2.1 Explanation of the solution steps:

This chapter describes the solution methods used by the software.

Vlg	Nr	Ry	Kol	Opl	Cd
1	1	2	3	2	>B
	2	4	7	4	>H
	3	4	8	9	>H
	4	4	9	8	>H
	5	5	6	7	>V
	6	5	8	6	1M
	7	5	9	3	1M
	8	6	7	7	1M
	9	6	8	2	1M
	10	8	9	7	>V
	11	9	1	2	>V
	12	9	2	7	>H
	13	2	8	7	#H
	14	8	4	2	#H
	15	7	9	2	#V
	16	1	9	6	#V
	17	3	6	2	#B

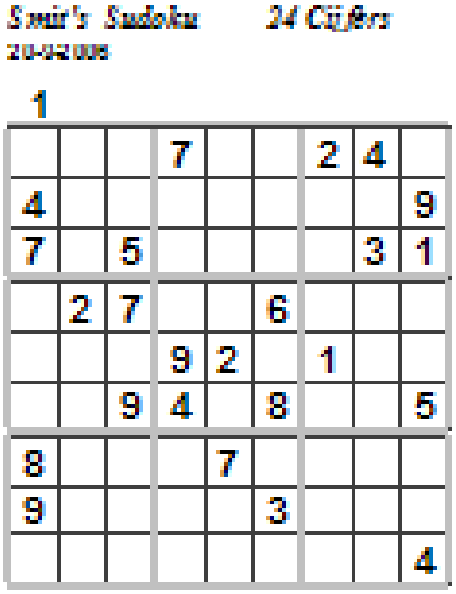


Figure: The solution steps and associated Sudoku

Apart from the solution the solution steps can be printed as well (see figure above).

Step 1
Row/Column 2/3 one solution: 2, methodology ("> B") In that block, the 2 can only be placed at this position.
Step 2
Row/Column 4/7 solution: 4, methodology ("> H") In that row (horizontal), the 4 only can be placed at this position.
Step 3
Row/Column 4/8 solution: 9, methodology ("> H") In that row (horizontal), the 9 can only appear at this position.
And so on.

If there is no solution within one iteration step but some numbers at certain positions can be eliminated, it will be printed in the following layout:

13	5	6	2	1M
14	9	4	6	>V
326 TH-336 TH-396 TH-399 TH-176 TB				
15	1	1	6	>H
16	4	9	9	>P

After step 14 at position Row/Column 3/2 the 6 is eliminated, applied method is: Triple horizontally (TH). Then at Row/Column 3/3 the 6 is eliminated, applied method is: Triple horizontally (TH). And so on.

2.2 Sudoku in predefines shapes

This means that the shape of the visible numbers is predefined.

For example:

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

Figure: Sudoku, with defined pattern (M and N)

This example concerns the letters M and N as an abbreviation of Mobile Netherlands.

Another example:

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

Figure: Sudoku, with predefined pattern.

3 Sudoku with random patterns

In the traditional Sudoku each number (1 to 9) can be placed once at each: row, column and block. This rule is also used in the Sudokus with random patterns. In addition, there are so-called patterns, Contains each number only once. These patterns are indicated by a background colour, grey, blue, red etc. The more patterns within a Sudoku, the less visible numbers are needed to make the Sudoku solvable.

A great number of variations can be made, these are explained in next chapters:

3.1 Horizontal random patterns

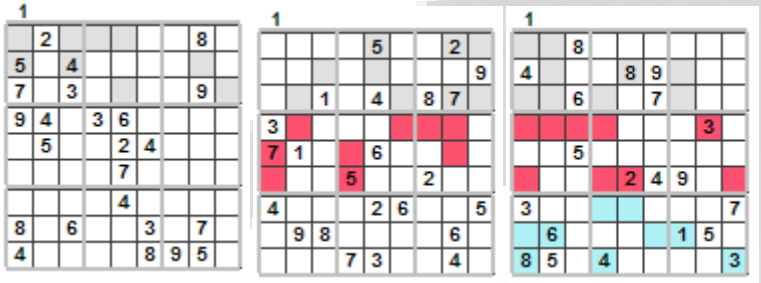


Figure: horizontal random patterns (1, 2 and 3 rows)

1 to 9 rows can be filled with a pattern. The example above shown Sudokus with 1, 2 and 3 rows.

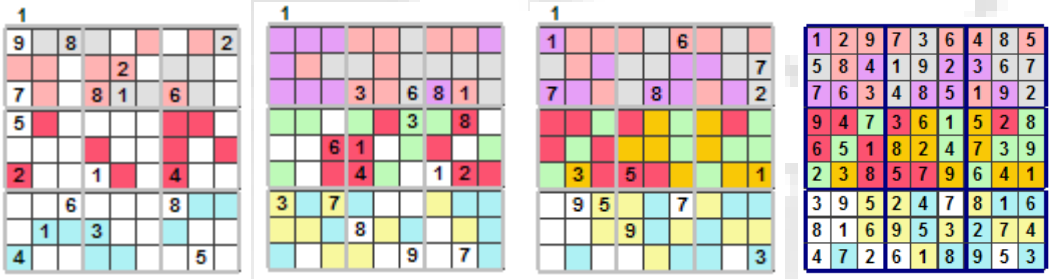
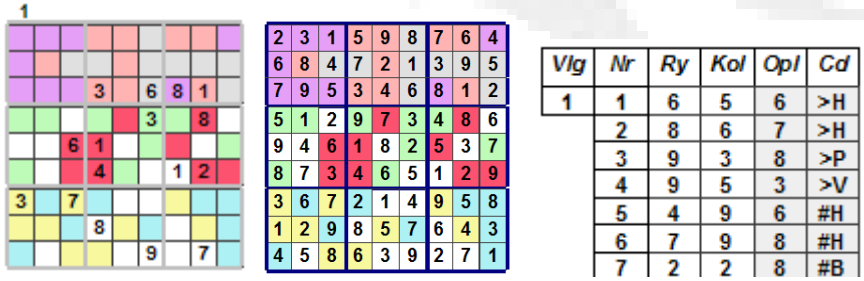


Figure: horizontal random patterns (4, 7 and 9 rows). At last the solution of a Sudoku with 9 patterns is shown.



Vlg	Nr	Ry	Kol	Opl	Cd
1	1	6	5	6	>H
	2	8	6	7	>H
	3	9	3	8	>P
	4	9	5	3	>V
	5	4	9	6	#H
	6	7	9	8	#H
	7	2	2	8	#B

Figure: horizontal random patterns (7 rows) including solution and the solution steps.

Statement by the solution steps:

Step 1 Row/Column 6/5 solution: 6, methodology ("> H"). In the row (horizontal), the 6 is only possible at this position.
On position 6/9, the 6 can not be placed because within the red pattern a 6 is already present.

Step 2 Row/Column 8/6 solution: 7, methodology ("> H"). In the row (horizontal), the 7 is only possible at this position.
On position 8/5, the 7 can not be placed because in the yellow pattern there is already a 7 present.

Step 3 Row/Column 9/3 one solution: 8, methodology ("> P"). In that pattern (yellow), the 8 can only be placed at this position.
In the positions 8/1, 8/2, 8/4, 8/7 and 9/4 of the yellow pattern the 8 cannot be placed. Etc.

These puzzles can be generated with a very small number of visible positions; solving these puzzles require several hours of intensive puzzle effort

3.2 Vertical random patterns

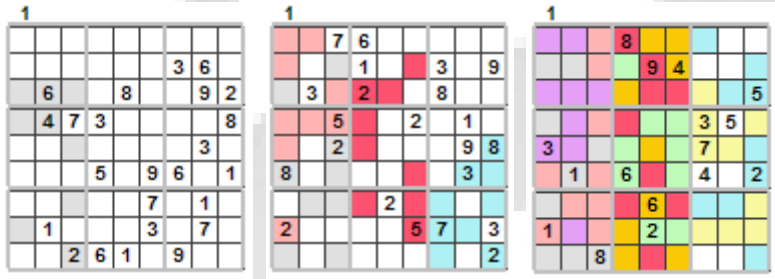


Figure: random vertical patterns (1, 4 and 7 columns)

The vertical random patterns are more or less identical to the horizontal random patterns.

3.3 Random patterns

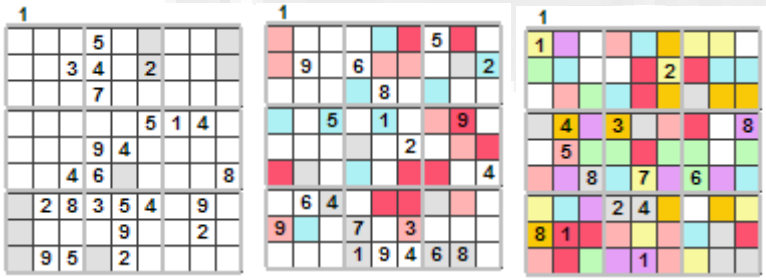


Figure: random patterns (1, 4 and 9)

This method places the patterns randomly all over the puzzle.

4 Sudoku with fixed patterns

In this kind of Sudoku, the shape of the patterns is predefined. The software is designed to generate any thinkable shape of patterns.

Examples:

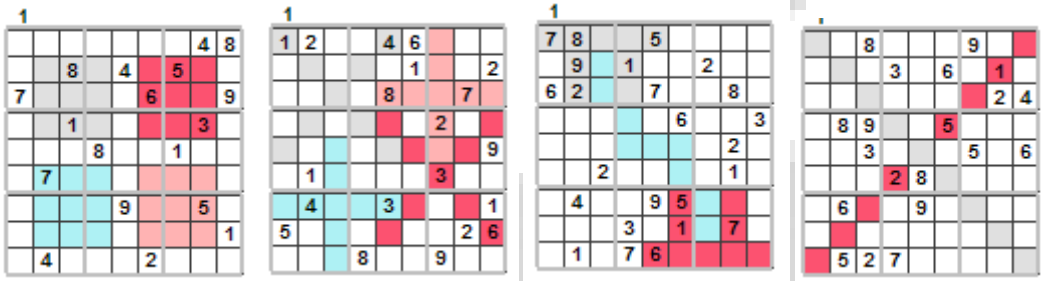


Figure: Four squares, twice X and +, Two ∏, one diagonal and two diagonals.

Another possibility is to use the shape of characters. Can be the abbreviation of a company name, magazine and so on.

For example:

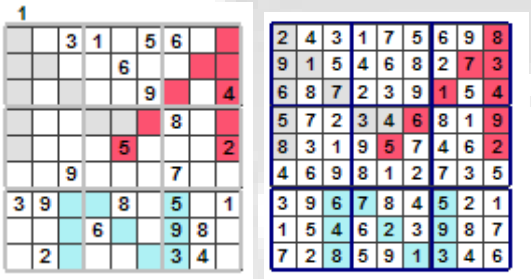
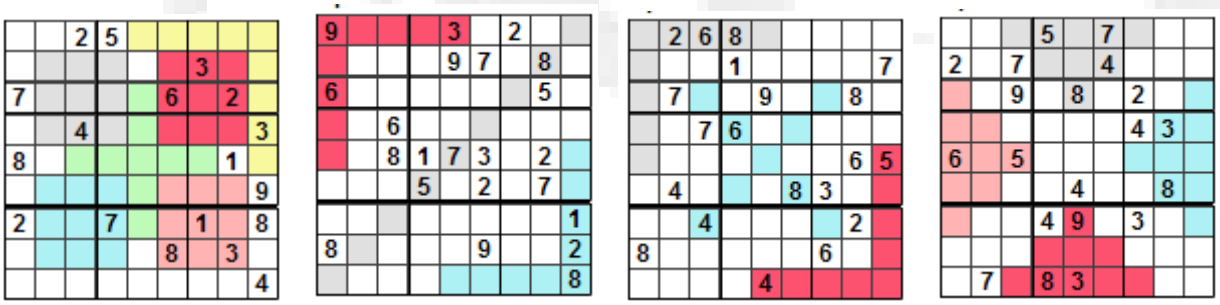


Figure with M and N shape pattern.

Other variations:



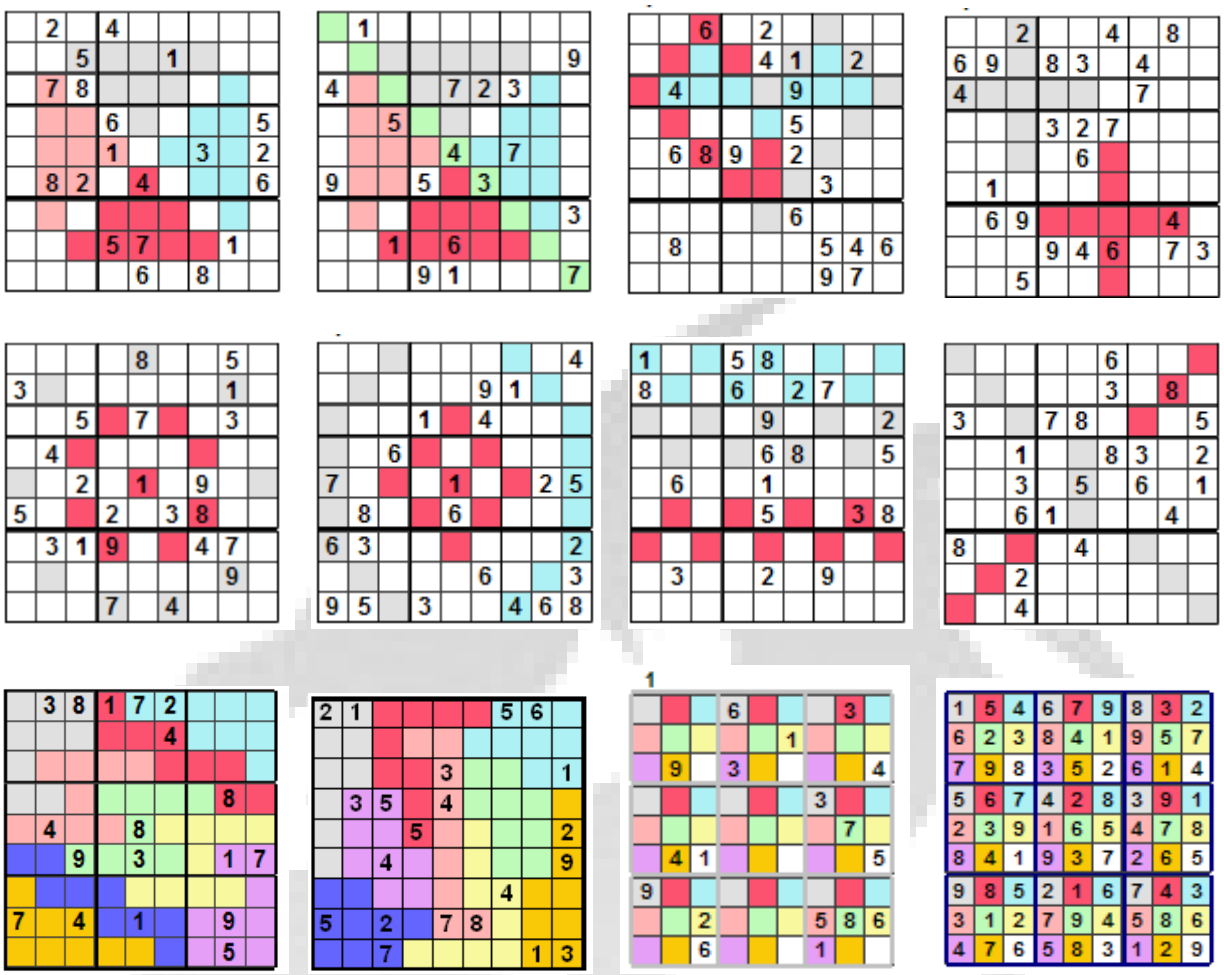
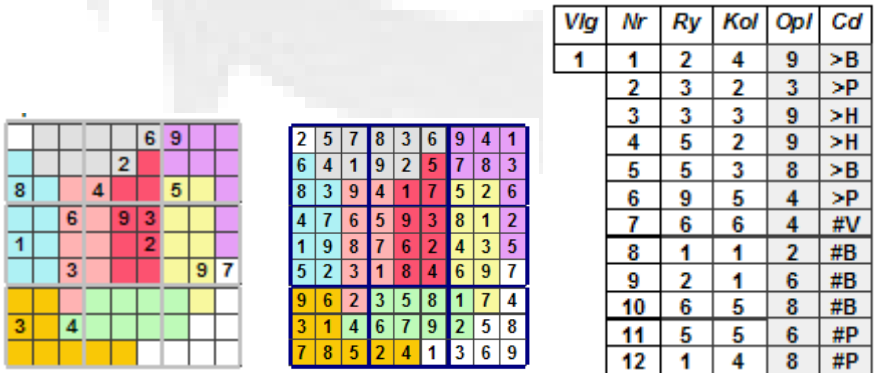


Figure Sudoku completely filled with patterns, position within a block defines the pattern.

In this example is the first pattern (grey) always placed on position Row/Column 1/1 of a block. The second pattern (red) on Row/Column 1/2 of a block. And so on.

An other example:



Vlg	Nr	Ry	Kol	Opl	Cd
1	1	2	4	9	>B
	2	3	2	3	>P
	3	3	3	9	>H
	4	5	2	9	>H
	5	5	3	8	>B
	6	9	5	4	>P
	7	6	6	4	#V
	8	1	1	2	#B
	9	2	1	6	#B
	10	6	5	8	#B
	11	5	5	6	#P
	12	1	4	8	#P

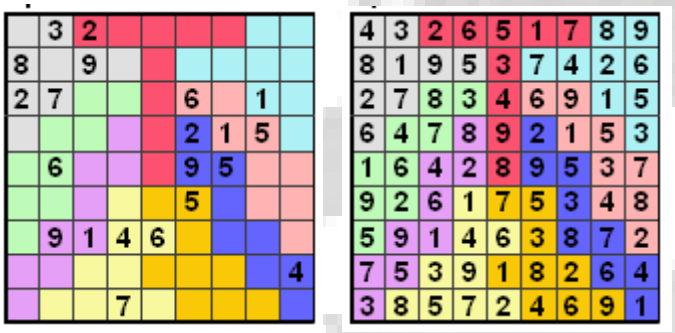
Figure Sudoku completely filled with patterns.

Step 1
Row/Column 2/4 solution: 9, methodology ("> B"). In that block, the 9 can not be placed in the red pattern on top, it contains already a 9. The top row contains a 9; remains for placing the 9 Row/Column 2/4.

Step 2
Row/Column 3/2 solution: 3, methodology ("> P"). only position in the light blue pattern the 3 can be placed.

Step 3
Row/Column 3/3 solution: 9, methodology ("> H". In the row (horizontal), the 9 is only possible at this position. In row 3 the 9 in the red, yellow and purple pattern is already filled.
And so on.

An other variant is without the Block rule, so de numbers 1 up to 9 appear only once per Row, Column and Pattern and not per Block. See example below:



4.1 Fixed Patterns with common parts

In this kind of Sudoku the patterns has common parts (shown in yellow)

Sudoku:

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

Solution:

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

See example above, The Blue pattern (6 positions) combined with the yellow positions (3) is filled with 1 to 9.

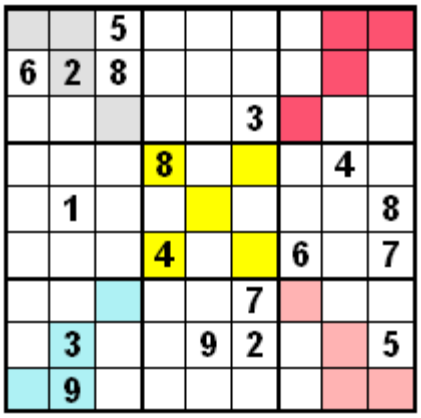
3	9	1
2	8	5
7	4	6
9	6	3
5	2	7

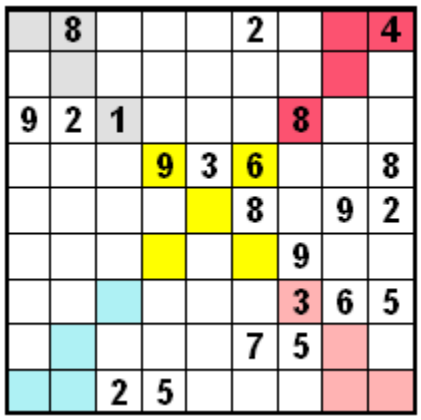
Same rule counts for the other three patterns combined with the yellow pattern.

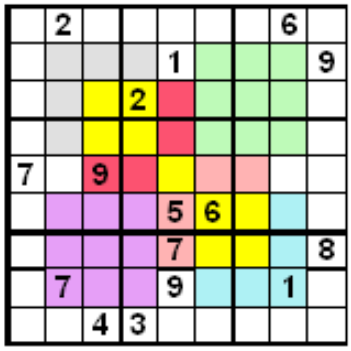
Other variants:

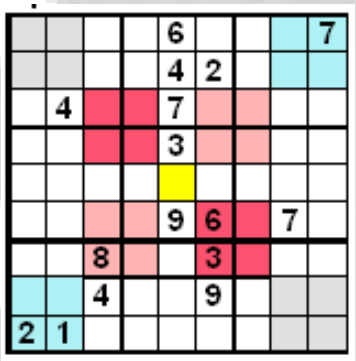
8				6		9	2	
								3
							3	4
	8	1		7	6			
			2					
	1							
					7		9	6

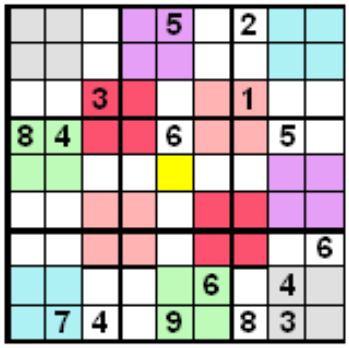
				5				
		3	7	2				
		7				9		
4			8					
	8							
2					6			
5			2					
3					1			2
6						3		





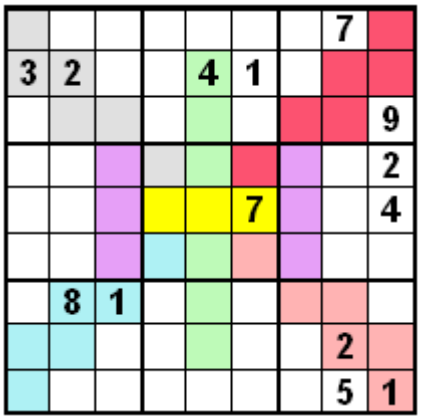




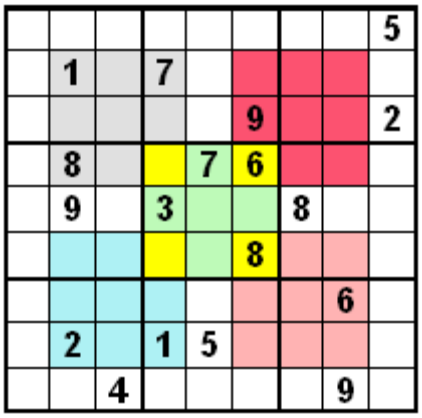


All variants can be made without the 1 to 9 rule in a block.

With six patterns.



With five inner blocks, four yellow positions are overlapping part between the patterns.



5 Sum Sudokus

5.1 Horizontal Sum

In this type of Sudoku, the sum of each row within a block is shown.

			12				16		8		17
			17	1			12				16
7			16	4			17		9		12
			20		6		10				15
	5		12				14	7			19
2			13			9	21			1	11
			17	2			13	8			15
			15		5		17				13
			13				15		5		17

Vlg	Nr	Ry	Kol	Opl	Cd
1	1	3	5	8	1M
	2	3	6	5	SH
	3	3	9	2	1M
	4	3	7	1	SH
	5	4	4	3	1M
	6	4	6	1	SH
	7	5	4	8	1M
	8	5	9	9	>H
	9	5	8	3	SH
	10	6	4	5	>H
	11	6	5	7	SH
	12	9	5	1	>V
	13	4	9	8	#V
	14	4	7	5	#B
	15	4	8	2	SH

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

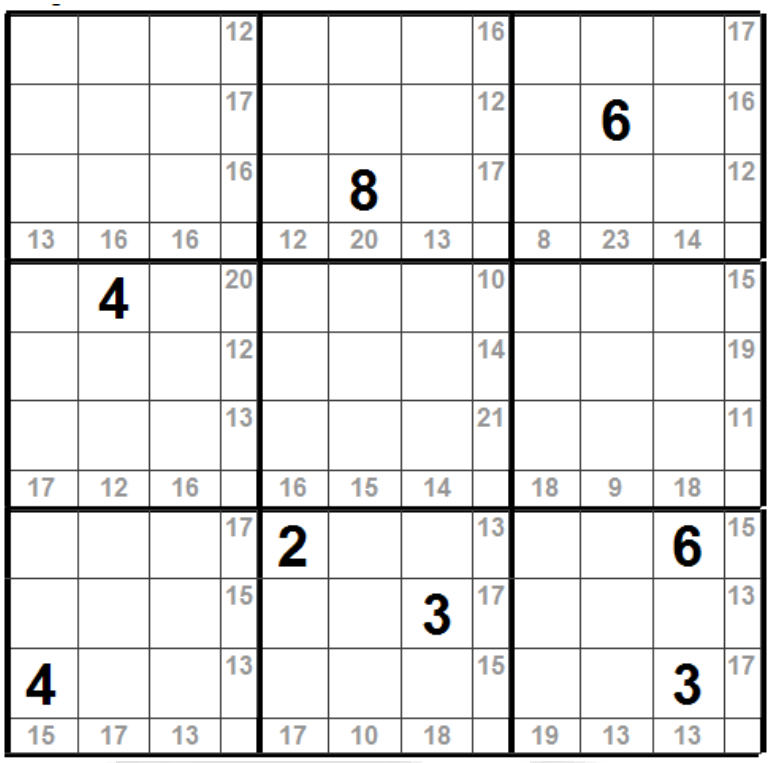
Figure Sum Sudoku with horizontal totals.

Step 1
The sum of Row/Column 3/4, 3/5 and 3/6 = 17, that means that for 3/5 and 3/6 13 (17-4) remains. The following possible combinations are available: 4 +9, 5 +8 or 6 +7. In position 3/5, the numbers 4, 5, 6 7 and 9 are not possible, Remains the: 8.
Step 2
Row/Column 3/6 is now 17-4-8 = 5 ("SH" Sum Horizontal)
Step 3
The sum of Row/Column 3/7, 3/8 and 3/9 = 12, 3/8 is already filled with a 9, remains for 3/7 and 3/9 an 1 or 2. The number 1 is already present in column 9 so 3/9 must be a 2 and 3/7 an 1.

5.2 Horizontal and vertical Sum

In this kind of Sudoku the sum within a block, per row and column, is know.

Example:



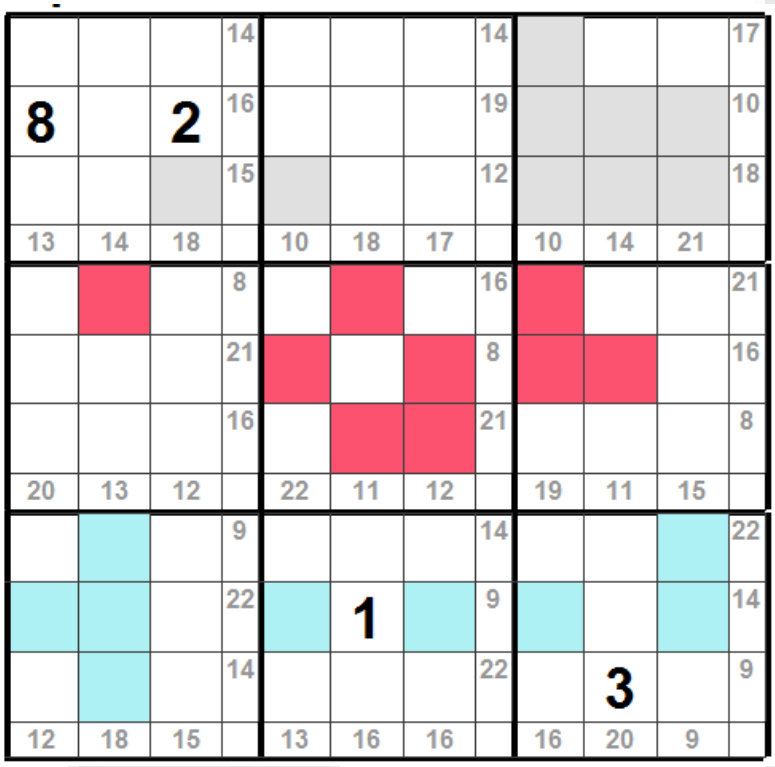
Vlg	Nr	Ry	Kol	Opl	Cd
1	1	3	8	9	1M
	2	1	8	8	SV
	3	7	5	4	>B
	4	7	6	7	SH
	5	8	5	5	1M
	6	8	4	9	SH
	7	9	5	1	SV
	8	8	8	7	>V
	9	9	7	9	>H
	10	9	8	5	SH
	11	7	7	8	#B
	12	7	8	1	SH
	13	8	7	2	SV
	14	3	7	1	1M

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

Figure Sum Sudoku with horizontal and vertical totals.

5.3 Horizontal and vertical Sum, including random Pattern

In this kind of Sudoku the sum within a block, per row and column, is know.
In addition, there are patterns. All described in earlier chapters of this document



Vlg	Nr	Ry	Kol	Opl	Cd
1	1	5	4	5	1M
	2	5	5	2	1M
	3	5	6	1	SH
	4	7	9	6	1M
	5	8	3	6	>H
	6	8	7	4	>H
	7	8	8	8	>H
	8	8	9	2	SH
	9	7	8	9	SV
	10	9	1	2	>H
	11	9	3	4	>H
	12	9	2	8	SH
	13	7	3	5	SV
	14	9	7	5	1M

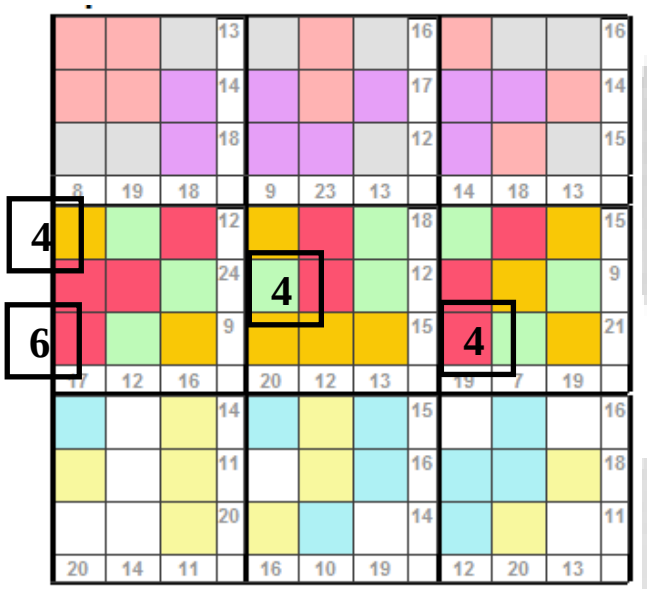
4	3	7	1	5	8	6	2	9
8	6	2	7	9	3	1	5	4
1	5	9	2	4	6	3	7	8
5	2	1	9	3	4	8	6	7
6	7	8	5	2	1	9	4	3
9	4	3	8	6	7	2	1	5
3	1	5	4	8	2	7	9	6
7	9	6	3	1	5	4	8	2
2	8	4	6	7	9	5	3	1

Figure Sum Sudoku with horizontal and vertical totals and patterns.

Step 1
The sum of Row/Column 5/4, 5/5 and 5/6 = 8; possible in these positions are: 1, 2, 3, 4 and 5.
The sum of Row/Column 4/4, 5/4 and 6/4 = 22; possible numbers in these positions are: 5, 6, 7, 8 and 9 (6 +7 +9 = 22 and 5 +8 +9 = 22). At position 5/4 the only possible number is 5.
Step 2
The sum of Row/Column 5/5 + 5/6 = 8 - 5 = 3, so only the 1 and 2 are possible in these positions. The 1 is already present in row 5 so 5/5 is a 2 and 5/6 an 1.
And so on.

5.4 Horizontal and vertical Sum, including patterns, with no visible numbers

In this kind of Sudoku the sum within a block, per row and column, is known.
In addition, there are patterns.
This is the most extreme example where all positions are covered by patterns, this makes the Sudoku solvable without visible numbers.



Vlg	Nr	Ry	Kol	Opl	Cd
1	1	6	8	4	1M
	2	5	5	4	#H
	3	4	1	4	#B
	4	6	1	6	1M
	5	5	1	7	SV
	651 TH-652 TH-661 TH-662 TH-181 TV-182 TV-281 TV-282 TV-381 TV-382 TV-472 TB-492 TB				
	6	5	7	3	TB
	7	4	2	3	>B
	8	4	3	5	SH
	9	4	9	6	>B

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

Figure Sum Sudoku with horizontal and vertical totals and patterns.

Step 1
The sum of row/column 4/8, 5/8 and 6/8 = 7. The numbers: 1, 2 and 4 are possible. The sum of 6/7, 6/8 and 6/9 = 21; possible combinations: 4 +8 +9 = 21, 5 +7 +9 = 21 and 6 +7 +8 = 21 so numbers: 4, 5, 6, 8 and 9. This implicates that at position 6/8, only a 4 can be placed.
Step 2
In row 5, the 4 can not be placed in columns 1, 2 or 3, the sum is 24 so only 7, 8 and 9 are possible. The most right block already includes a 4. In the columns 4 and 6, the 4 is not possible in the green pattern, which already contains a 4. So the solution for 5/5 is a 4.
Step 3
In row 4, the 4 can only be placed at position 4/1. In the most left block the green and red pattern are already equipped with a 4.
Step 4

The sum of 6/1 +6/2 +6/3 = 9, The numbers 1. 2. 3. 4 and 6 are possible. The sum of 5/1 +6/1 = (17-4) = 13, The numbers 4 to 9 as possible. Remains at position 6/1 only the 6.

Step 5

position 5/1 = 17-4-6 = 7.

At positions 6/2 and 6/3, only 1 and 2 arepossible, som = 9 at 6/1 a 6 is already placed, (twin) so at the other positions of the row, the 1 and 2 are elimina ted ("651 TH - 652 TH 661 TH 662 TH) (T = twin, H = horizontal)

The positions 4/8 and 5/8 can also only be filled with 1 or 2. So these numbers can be eliminated in positions: 1/8, 2/8 and 3/8. In the block, the 2 does not appear on the positions 4/7 and 4/9. The elimination of numbers due to the horizontal and vertical sum is disregarded.

And so on.

5.5 Operator Sudoku:

An Operator Sudoku is a Sudoku in which a number of positions are clustered, for that positions the multiplication, the sum or the difference is known.

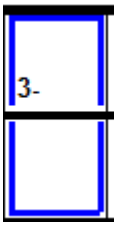
Explanation:

The **sum (+)** of the three positions marked with the blue line, is: 19.

Solution:


8 + 5 + 6 = 19

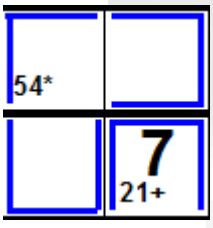
The **difference (-)** of the two positions marked with the blue line, is: 3.

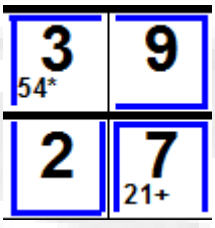


Solution:


The difference is always positive, so 1 – 4 as well as 4 – 1 gives: 3.

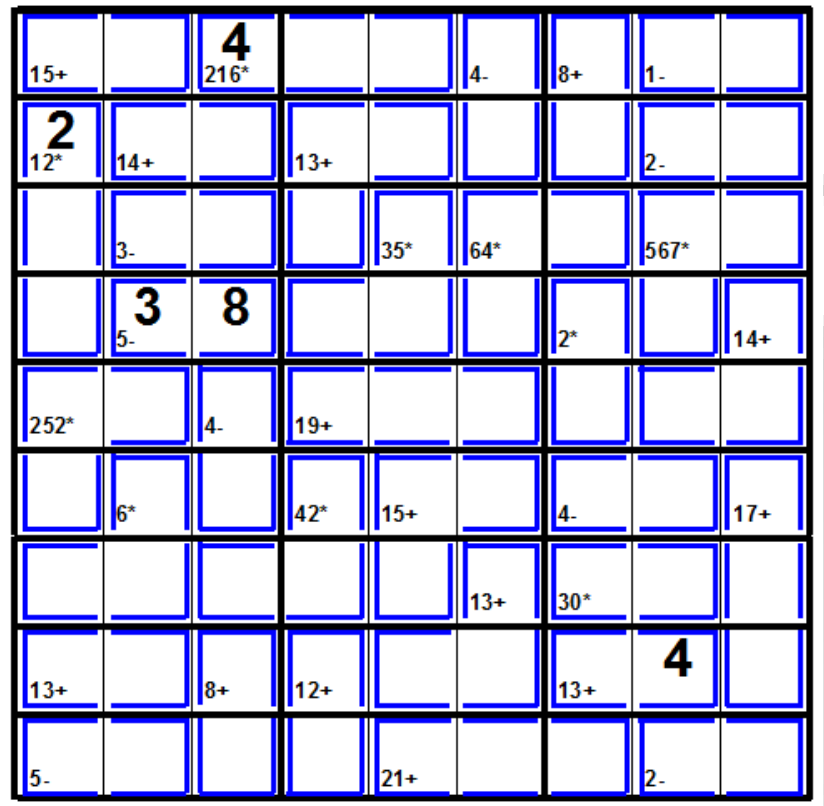
The **multiplication (*)** of the three positions marked with the blue line, is: 54.



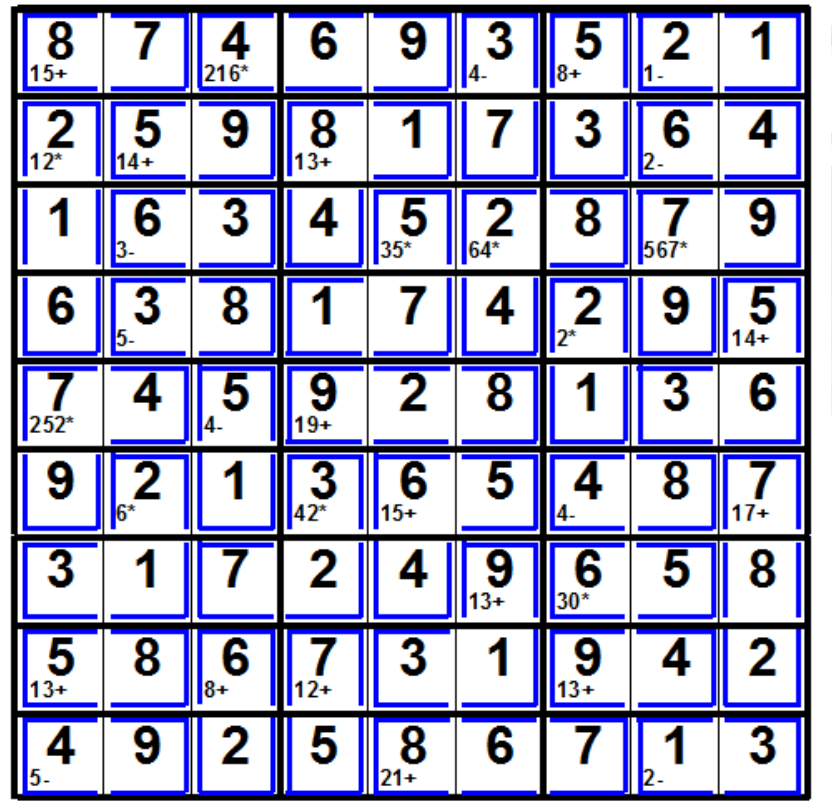
Solution:


3 * 9 * 2 = 54

Example:

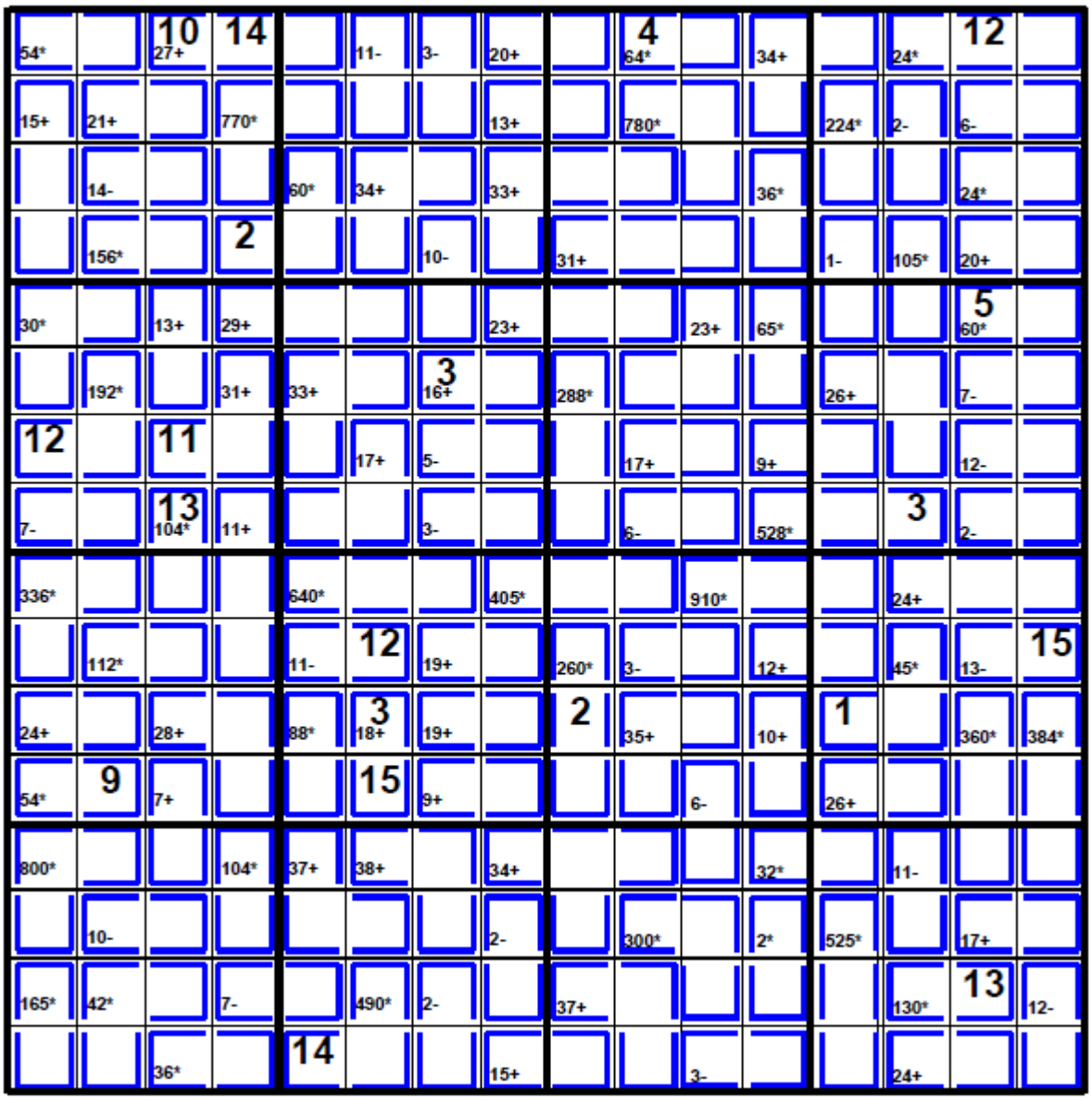


Solution:



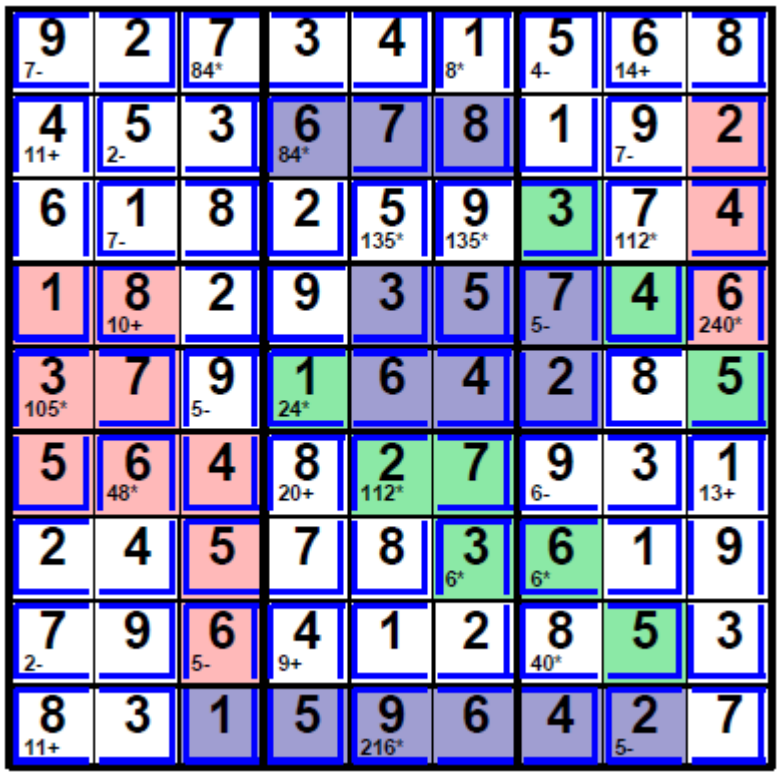
5.5.1 Operator Sudoku 16 by 16

Example:



5.5.2 Operator Sudoku combined with series

Explanation:



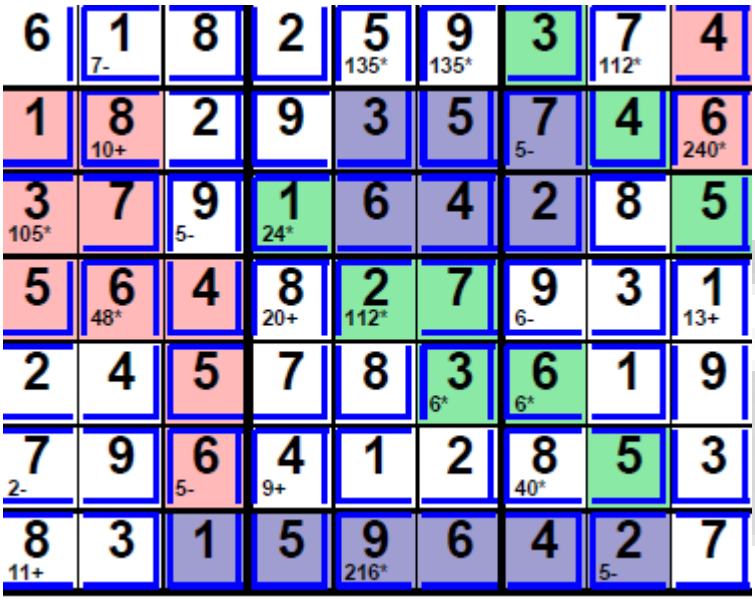
This Sudoku variant contains series that are formed out of three numbers and where the difference between the first and the second number is equal to the difference between the second and the third number.

For example:

1 2 3 difference = 1
1 5 9 difference = 4
5 3 1 difference = -2

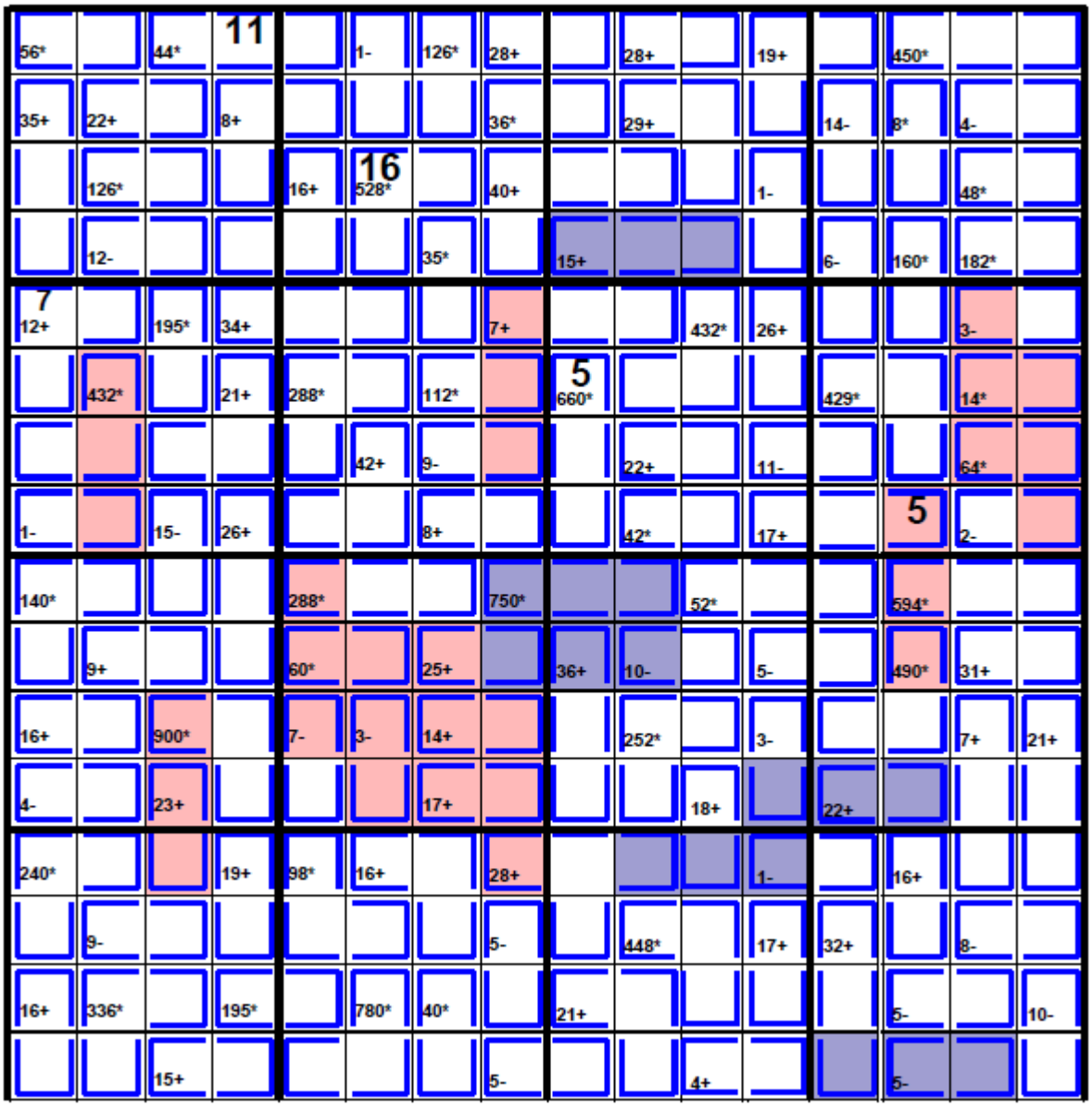
Series can appear horizontal (background grey) as well as vertical (background red) and diagonal (background green) .

For example:



Horizontal series: 357 - 642 - 159 - 642
Vertical series: 135 – 876 - 456
Diagonal series: 123 – 765 – 345

Can also been made in 16 by 16 format:



5.6 Sum Sudoku witch the Sum as part of the Sudoku.

Explanation:

This Sudoku variant has the same rules as a traditional Sudoku.
Each number can be found once in a row, column or block.

Additional on some places, horizontal and vertical, the Sum of a number of positions is given in a connecting position in the puzzle.
In the traditional Sum Sudokus this Sum is an additional value. In this Sudoku the Sum is part of the Sudoku with gives additional solution methods. In the beginning of the puzzle most of the Sums are not jet known and will be found when you are solving the puzzle.

The solution of the puzzle looks like:

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

Horizontal the background color grew is used, explanation of the convention:

2	1	3

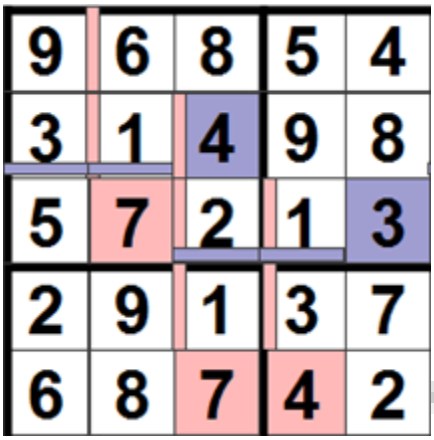
2 + 1 = 3. At 2 and 1 you will find a grew stroke at the lower part of the position. The Sum (3) is given with a grew background color at the position of the Sum.

Vertical the background color rose is used.

8
1
7

1 + 7 = 8. At 1 and 7 there is a stroke at the left part of the position, The Sum (8) is given with a rose background color at the position of the Sum.

Horizontal and vertical Sums can cross each other:

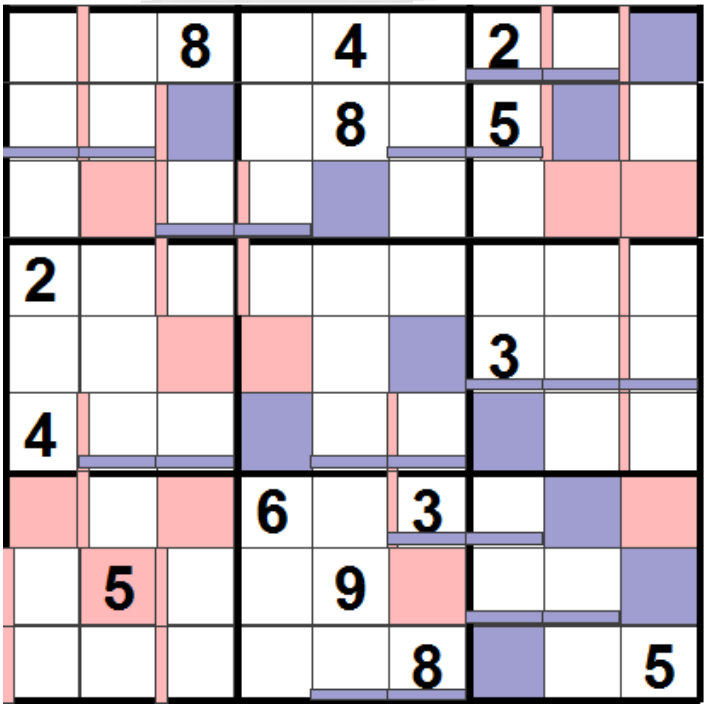


Explanation:

Horizontal:
3+1=4
2+1=3

Vertical:
6+1=7
4+2+1=7
1+3=4

The puzzle looks like:

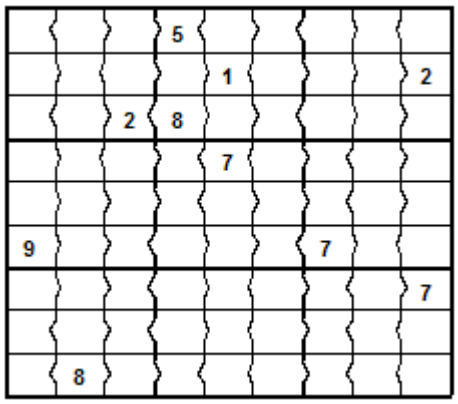


6 Relation Sudokus

6.1 Horizontal relations

In this type of Sudoku, the horizontal relationships between the positions in the puzzle are marked using "<" (smaller) or ">" (greater).

For example:



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

Vlg	Nr	Ry	Kol	Opl	Cd
1	1	1	6	2	>H
	2	2	3	9	>V
	3	1	3	6	RH
	4	3	7	9	>H
	5	4	2	1	>V
	6	4	3	8	>V
	7	4	6	9	1M

Figure Horizontal Relationship Sudoku.

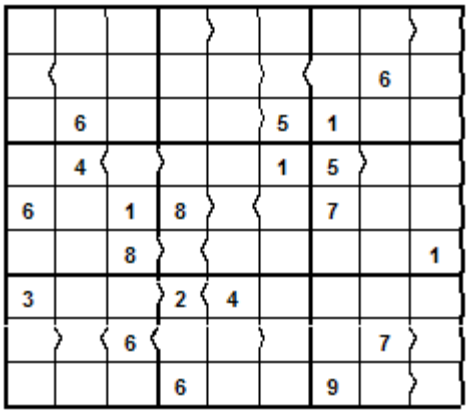
Explanation:

Row 1 the number in column 1 smaller than in column 2. The number in column 2 is larger than in column 3, and so on.

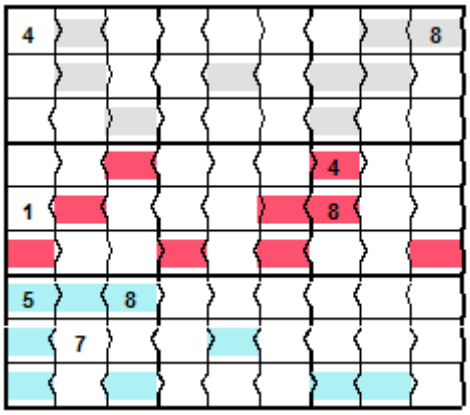
Statement by the solution:

Step 1
In row 1, the 2 can only be placed in column 5 or 6. Column 5 exceeds column 4 and there is a 5. In other words, the 2 can only be placed in column 6.
Step 2
In column 3, the 9 can only be placed in row 2 or 4. The nine must have a “>” (greater) at the left and right side, because this number is the highest available number. The block where column 4 is located, however, already contains a nine so at position Row/Column 2/3 a nine can be filled in.
Step 3
At position 1/3 possible numbers are 6, 7, 8 and 9; are greater than 5. At 2/3 is already a nine so 6, 7 and 8 remains. At position 1/2 (> 1/3), 7, 8 or 9 are availeble. The 8 is already present in Row 2 and the 9 in the appropriate block. The solution at position 1/2 is a 7. 1/3 is a 6.
And so on.

Moreover, it is possible to show not all horizontal relationships but only a certain percentage of the total, in the example below 30%.

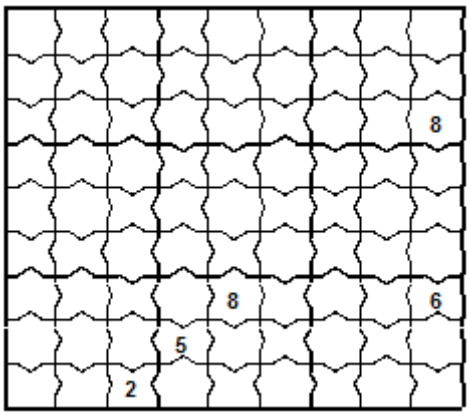


Relationships can be combined with all the patterns described in previous chapters, for example:

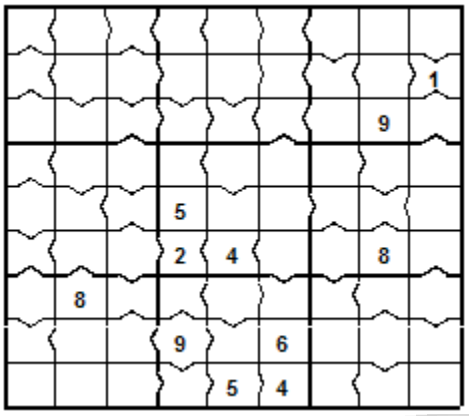


6.2 Horizontal and Vertical relations

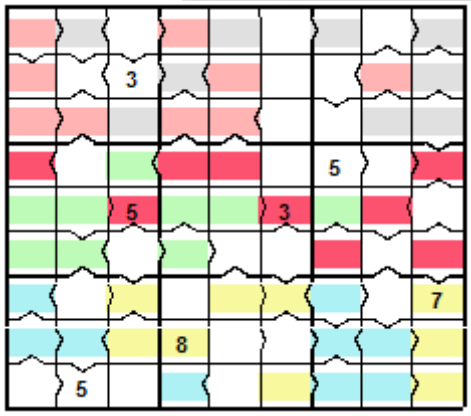
In this type of Sudoku not only the horizontal relationships but as well the vertical relationships are known; example:



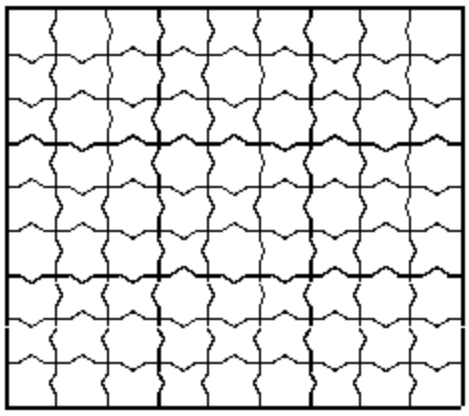
Moreover, it is possible to show not all relationships but only a certain percentage, in the example below, 50%.



Relationship Sudokus can be combined with all the patterns described in previous chapters, for example:



In the most extreme form, the Sudoku can be produced with 0 visible numbers, eg:



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

Vlg	*Nr*	*Ry*	*Kol*	*Opl*	*Cd*
1	1	1	5	1	>H
	2	2	5	9	>H
	3	2	7	1	>H
	4	3	3	1	>V
	5	4	4	9	>B
	6	5	7	9	>B
	7	6	1	9	>H
	8	6	4	1	>H

Figure relationship Sudoku without visible numbers.

Statement by the solution:

Step 1
In row 1, the 1 can only be placed in column 5. This is the only position that contains the '<' (smaller) sign in all directions.
Step 2
In row 2, the 9 can only appear in column 5. This is the only position that contains the '>' (greater) sign in all directions.

This type Sudoku, the first solvable positions are the positions where the 1 or 9 can be placed, followed by 2 and 8. The numbers 4, 5 and 6 will be places at the end of the solution.

7 Corner Sudokus

The grey highlighted blocks are identical

.

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

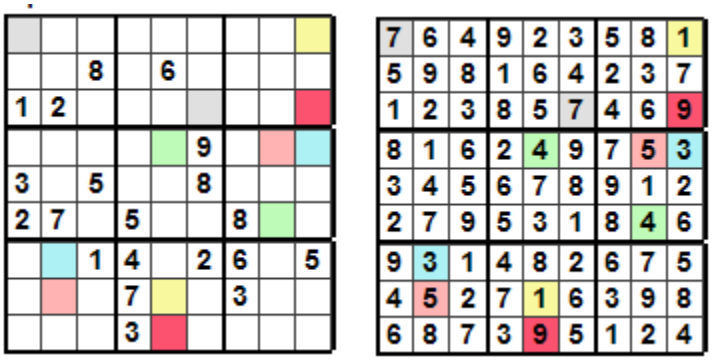
4	1	2	9	6	5	8	3	7
9	8	6	7	3	4	2	5	1
3	7	5	2	1	8	6	9	4
8	3	7	1	4	2	5	6	9
2	5	1	6	8	9	7	4	3
6	9	4	3	5	7	1	2	8
5	6	9	8	7	3	4	1	2
7	4	3	5	2	1	9	8	6
1	2	8	4	9	6	3	7	5

Ditto with three blocks

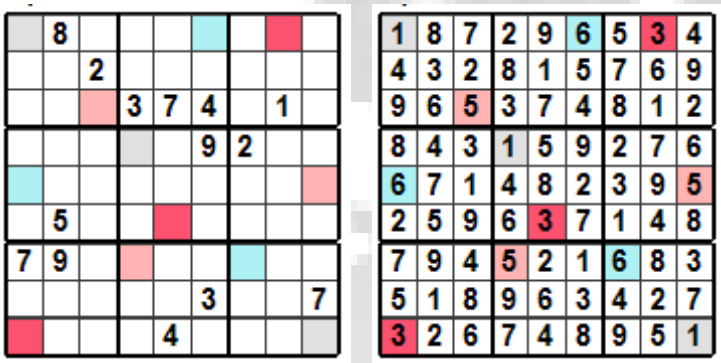
			5	3	9		6	
9						2		
			6		8	1		4
	5		9					
		4						
		9	8					
					3	9		
		8						

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

8 Relations within Sudokus



In this Sudoku are six times two positions (colours: grey, yellow, red, green, pink, blue) with identical numbers.



This Sudoku consists of four times three positions (colours: grey, red, blue, rose) with the same numbers. This Sudoku can be solved with only 14 visible numbers.

9 Multiple Sudokus

Multiple Sudokus with common parts.

For example,

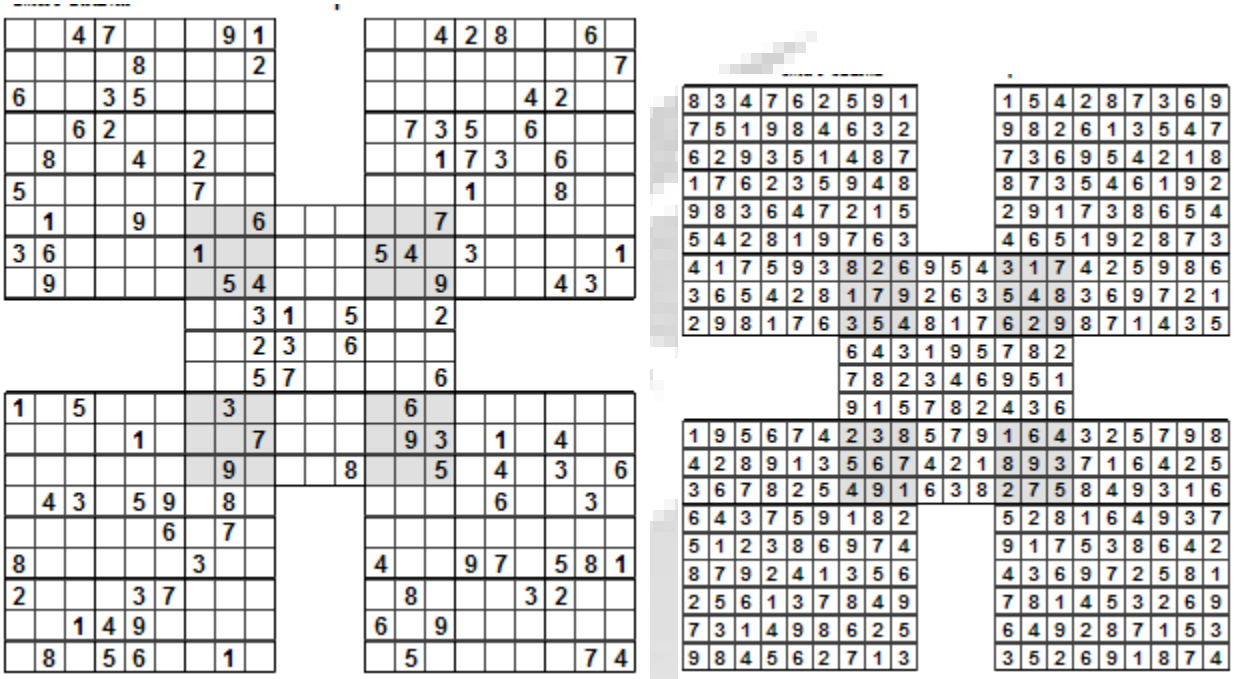
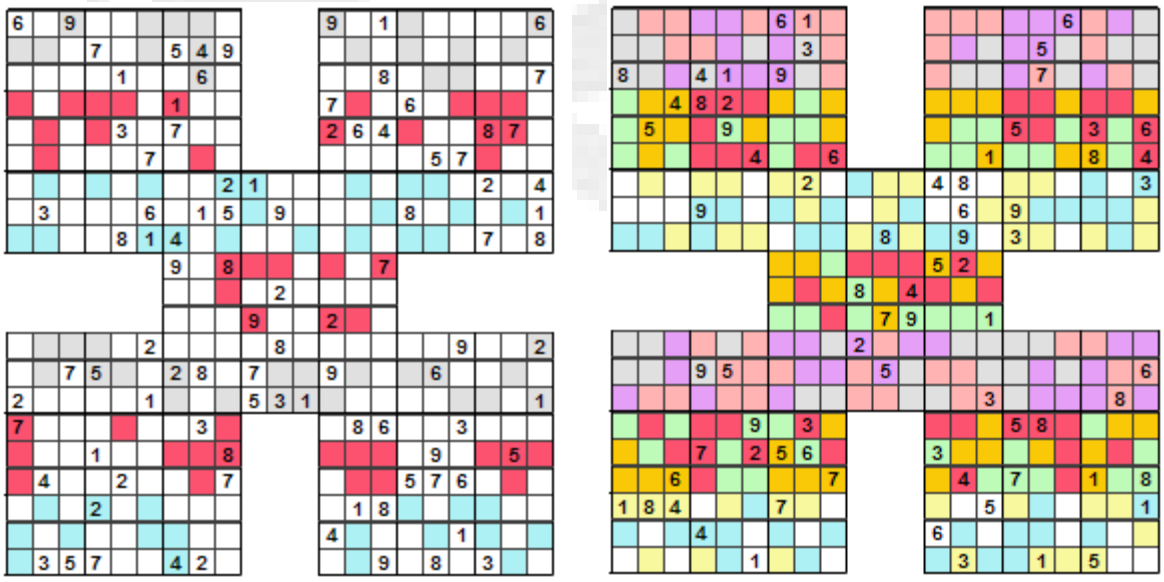


Figure: Five Sudokus with four common blocks.

The solving procedure is similar to a single Sudoku.

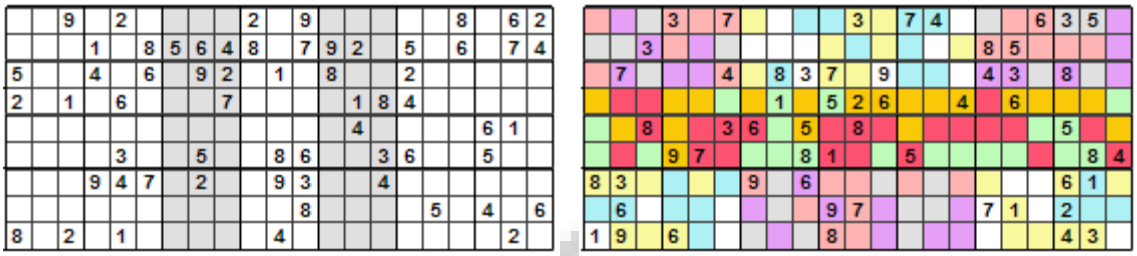
9.1 Multiple Sudokus With random patterns

A Multiple Sudoku can contain random patterns; see examples.

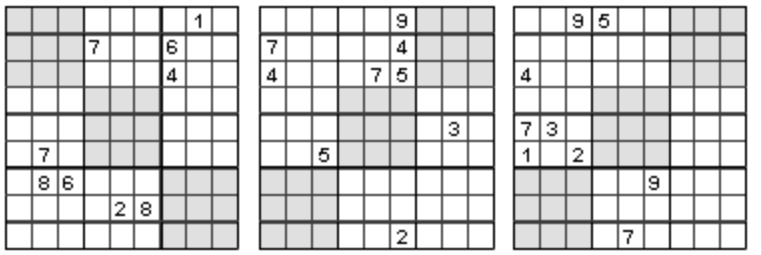


9.2 Variants of the Multiple Sudoku

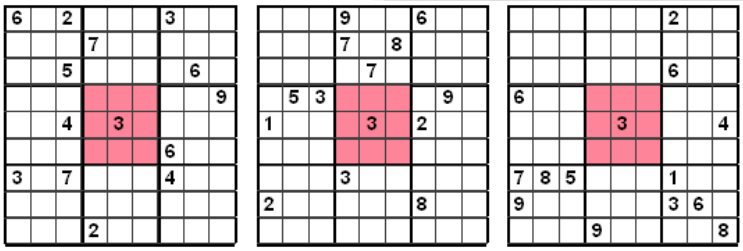
9.2.1 Three Sudokus, partly overlapping, side by side



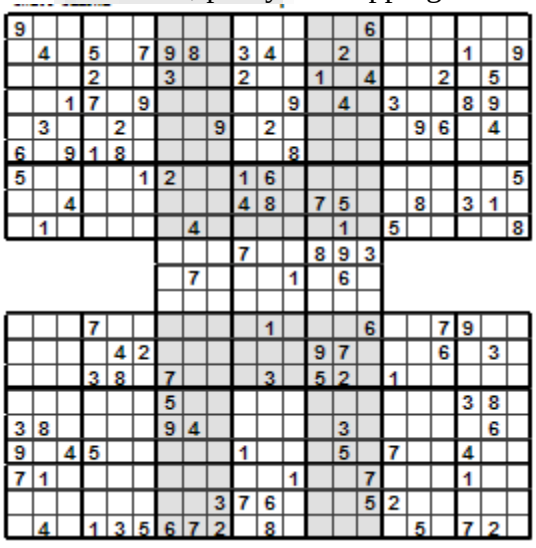
All grey blocks (nine) are equal.



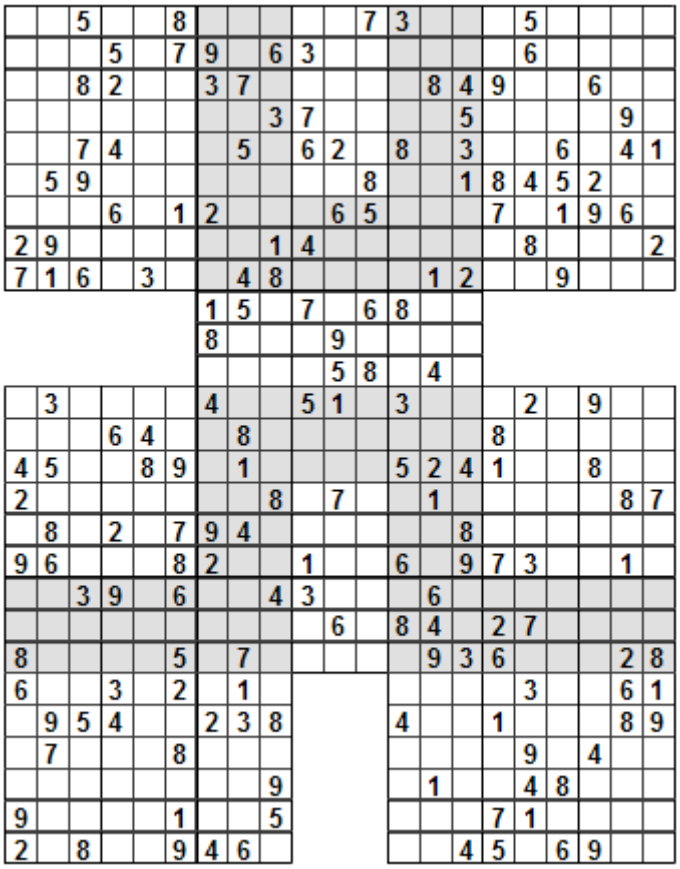
All red blocks (three) are equal.



Seven Sudokus, partly overlapping

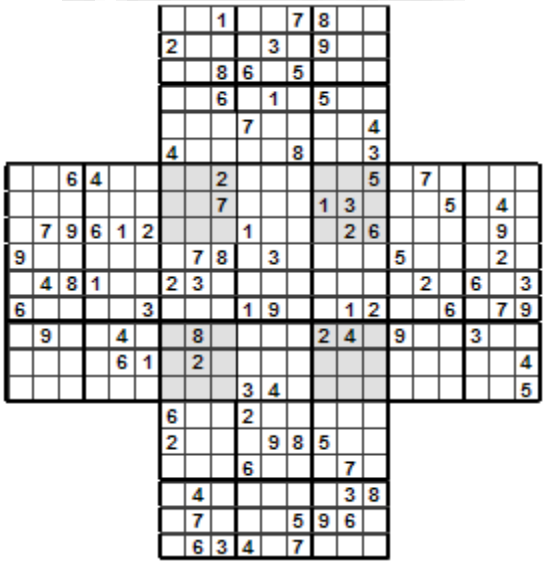


9.2.2 Nine Sudokus, partly overlapping

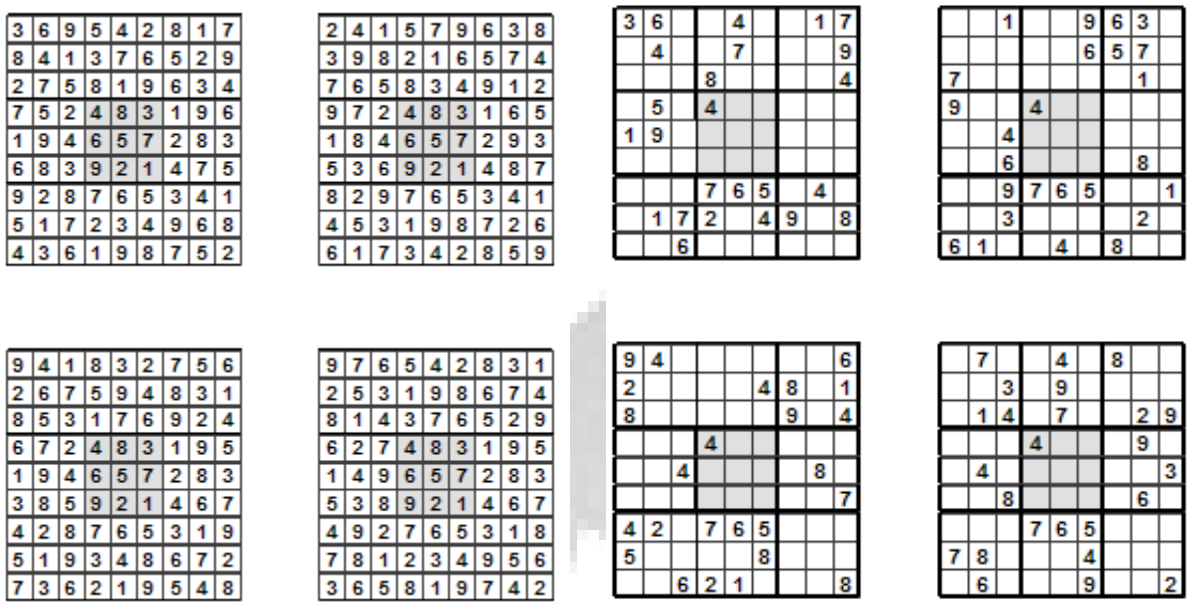


Five

9.2.3 Five Sudokus, in a '+' shape

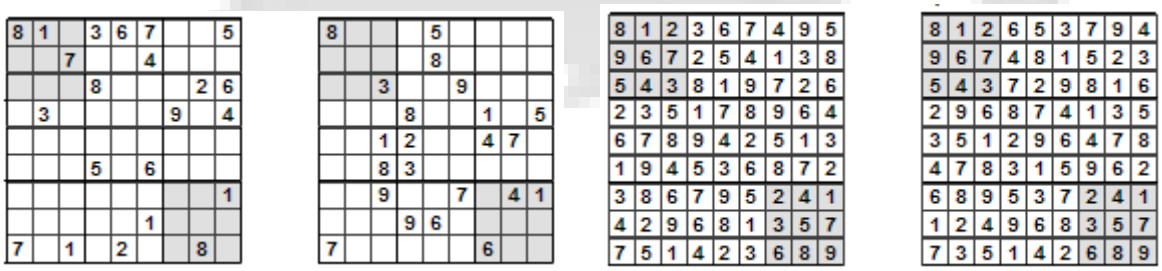


9.2.4 Four Sudokus, with a common middle block

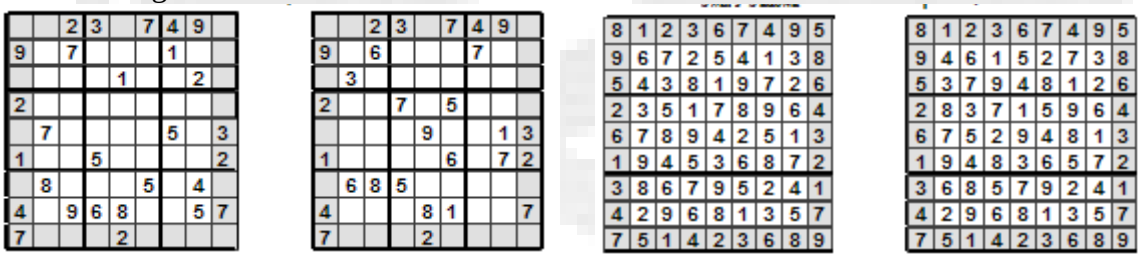


9.2.5 Two Sudokus, with common blocks or edges

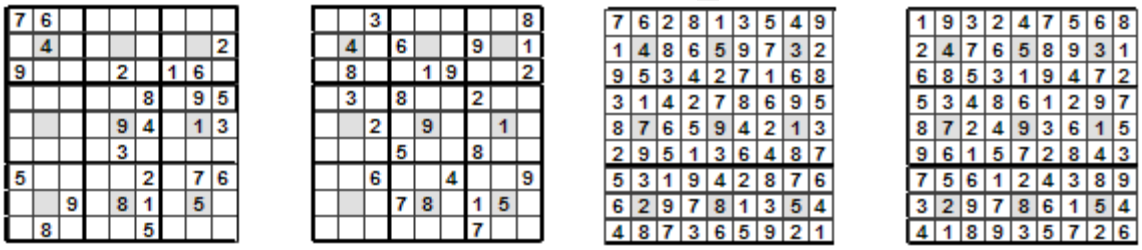
Common blocks



Common edges

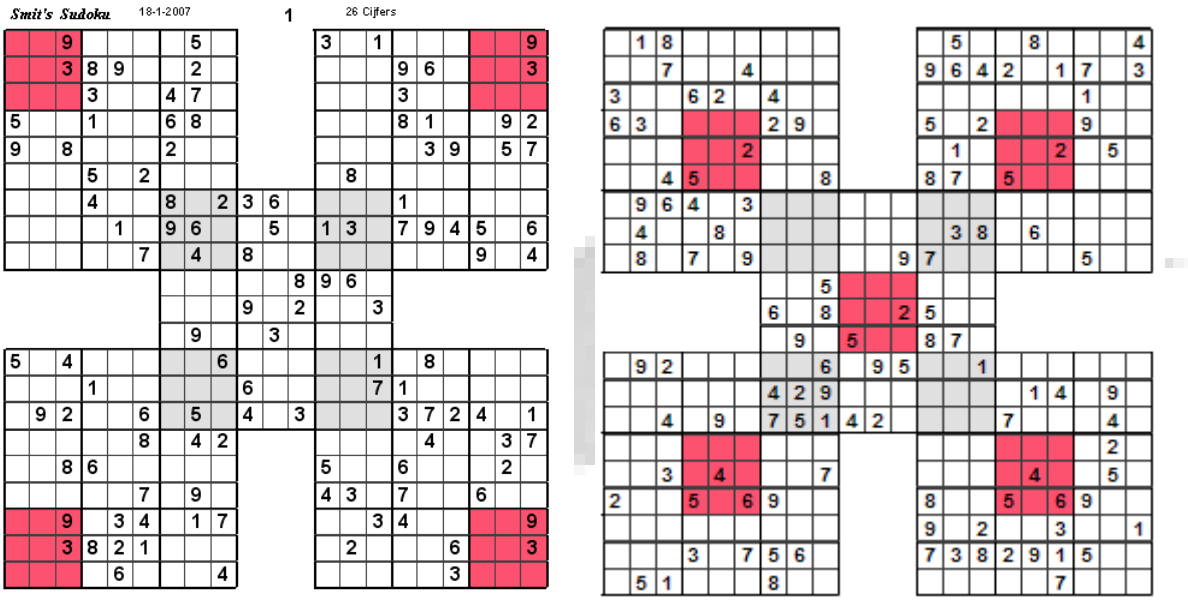


Blocks with common middle parts



9.2.6 Five Sudokus, with two common blocks

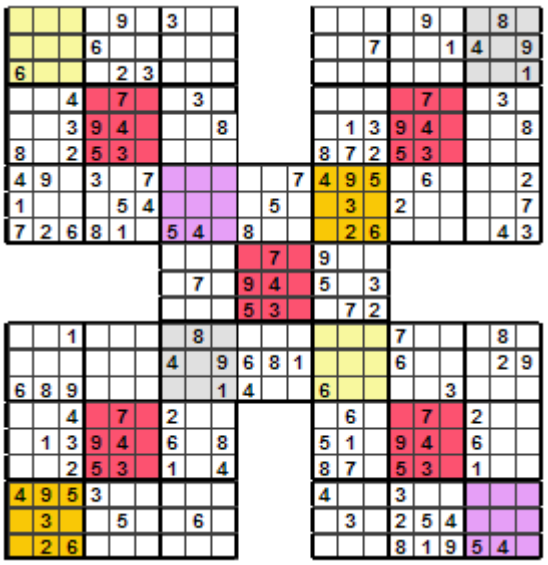
There are two variants available, see below.



9.2.7 Five Sudokus, with common blocks at the diagonal

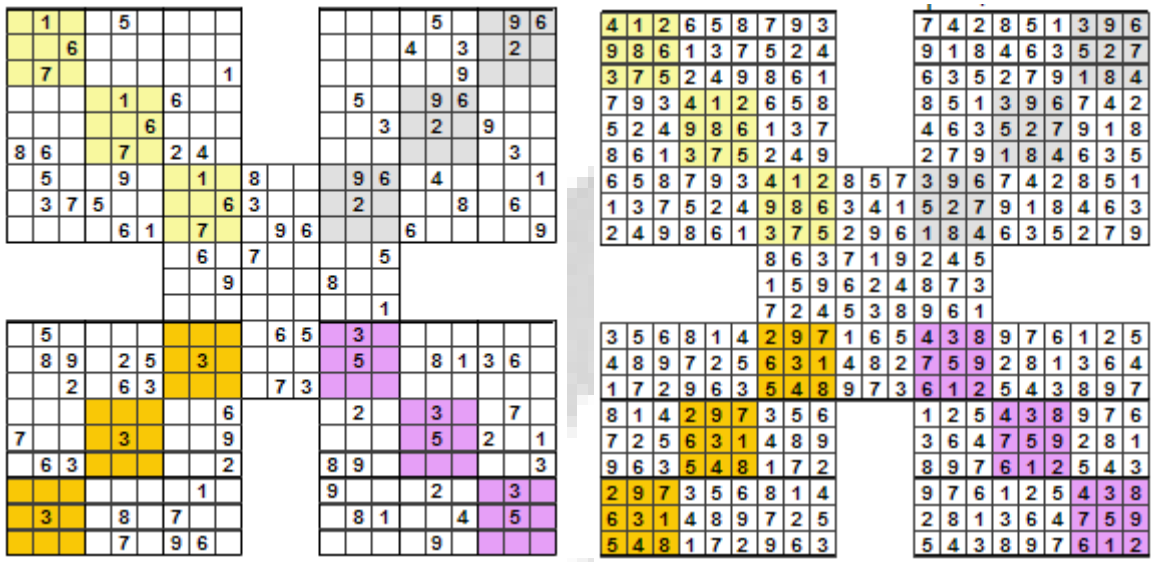
The blocks are identical per colour

First variation:



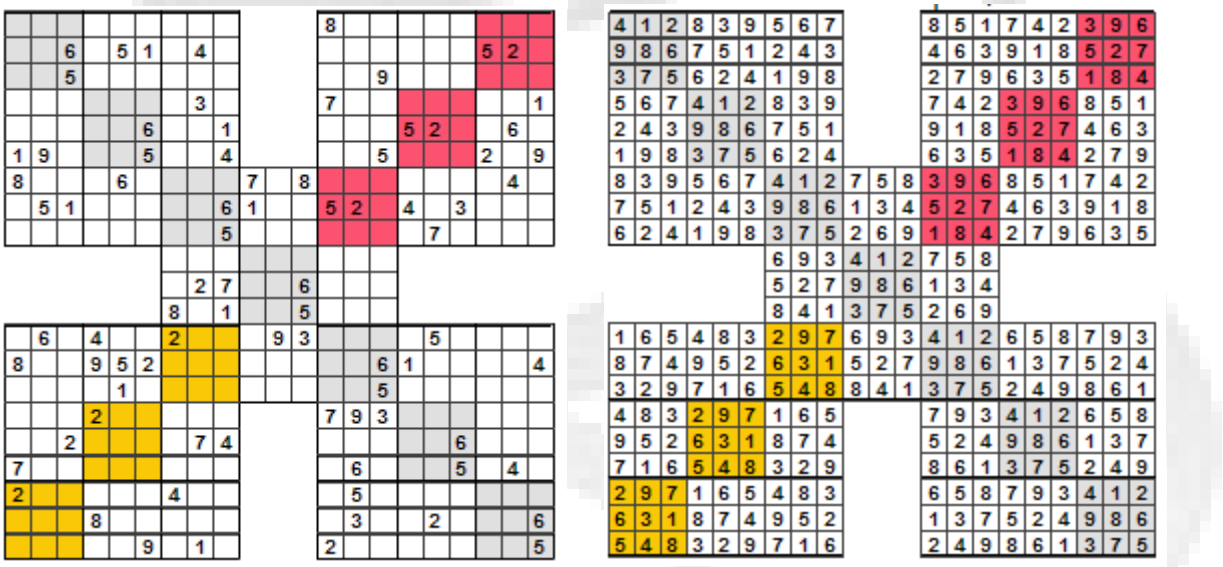
Second variation:

The blocks are identical per colour



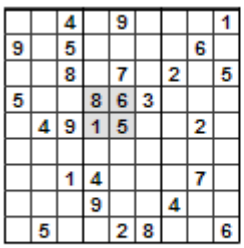
Third variation:

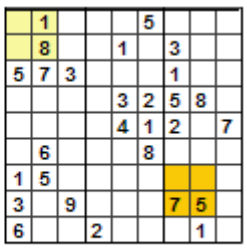
All blocks On one diagonal are identical, the other diagonal has two times six common blocks.

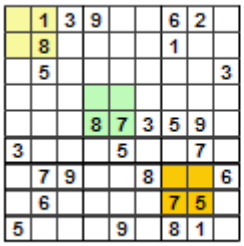


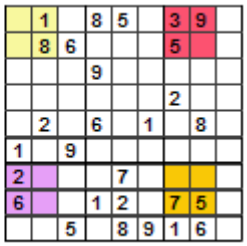
9.2.8 Six Sudokus, like the 6 sides of a dice

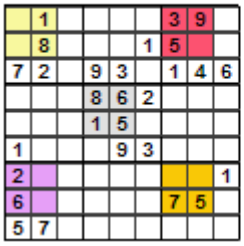
This Sudoku is based on the six faces of a dice. Parts of the Sudokus with common colours are identical.

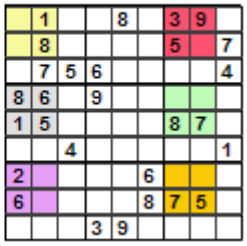






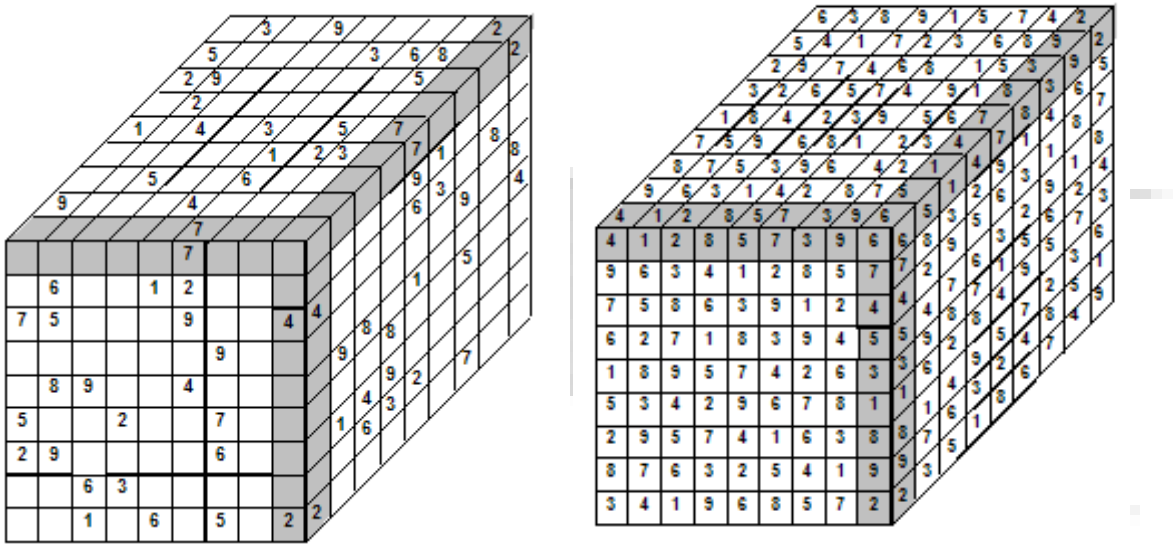




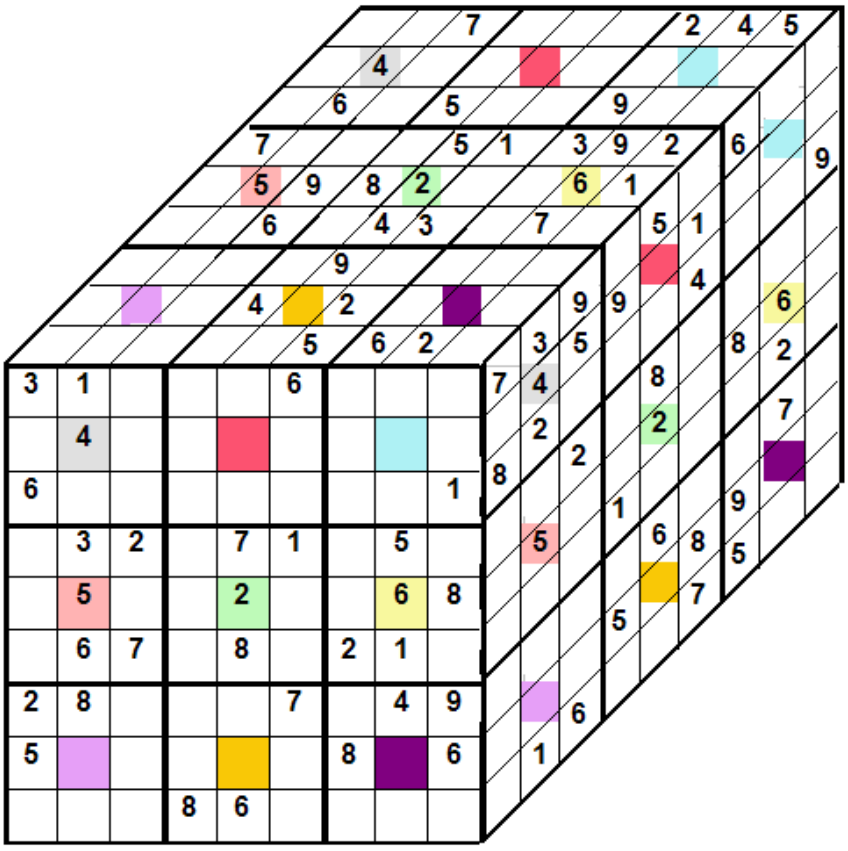


10 3D Sudokus

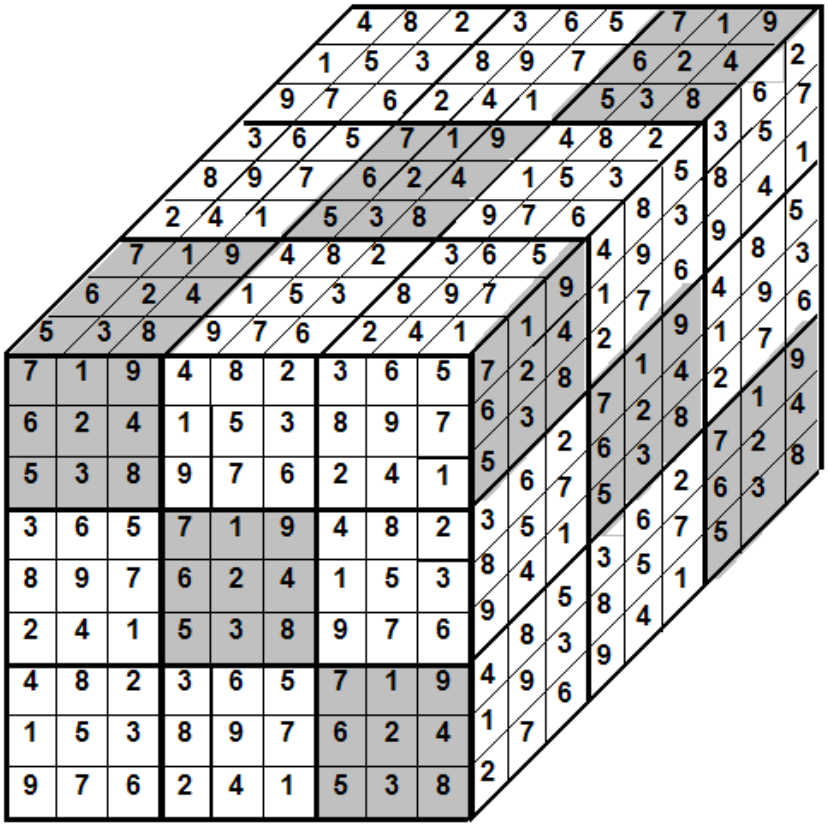
This puzzles consist of three Sudokus which defined relationships. Relationships can be edges, or blocks.

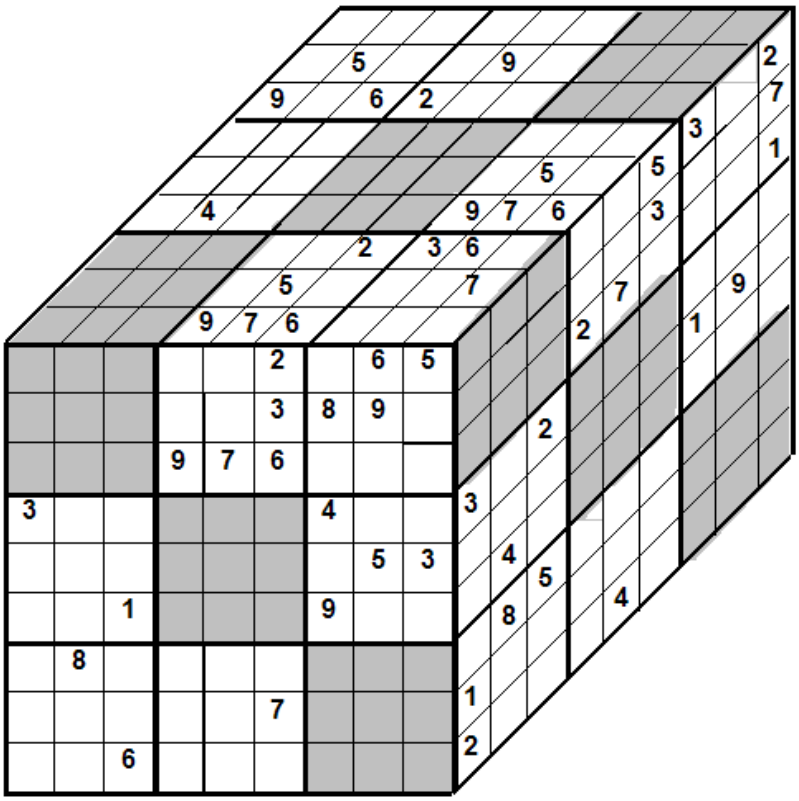


The neighbouring edges of the 3 Sudokus (grey areas) are identical.



The middle parts of the blocks (conform the Colours) are identical.



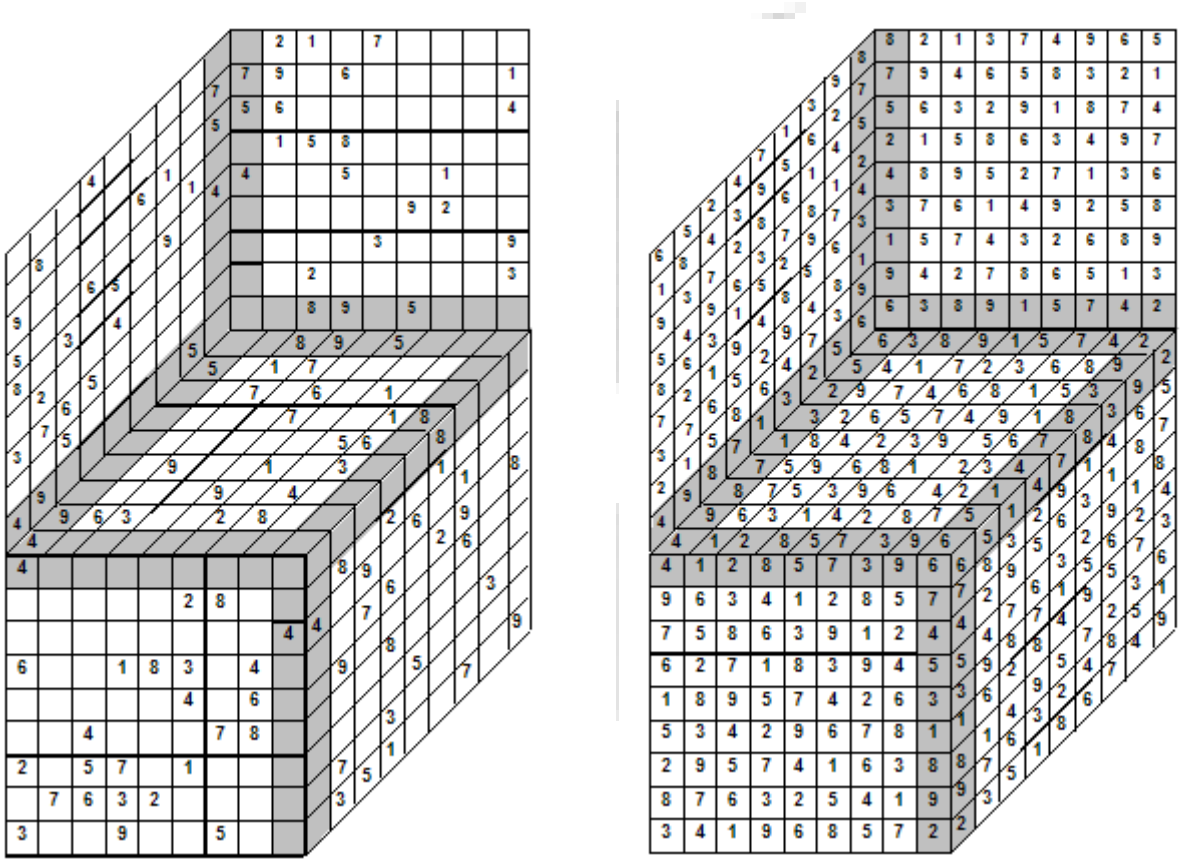


All grey blocks of the 3 Sudokus are identical.

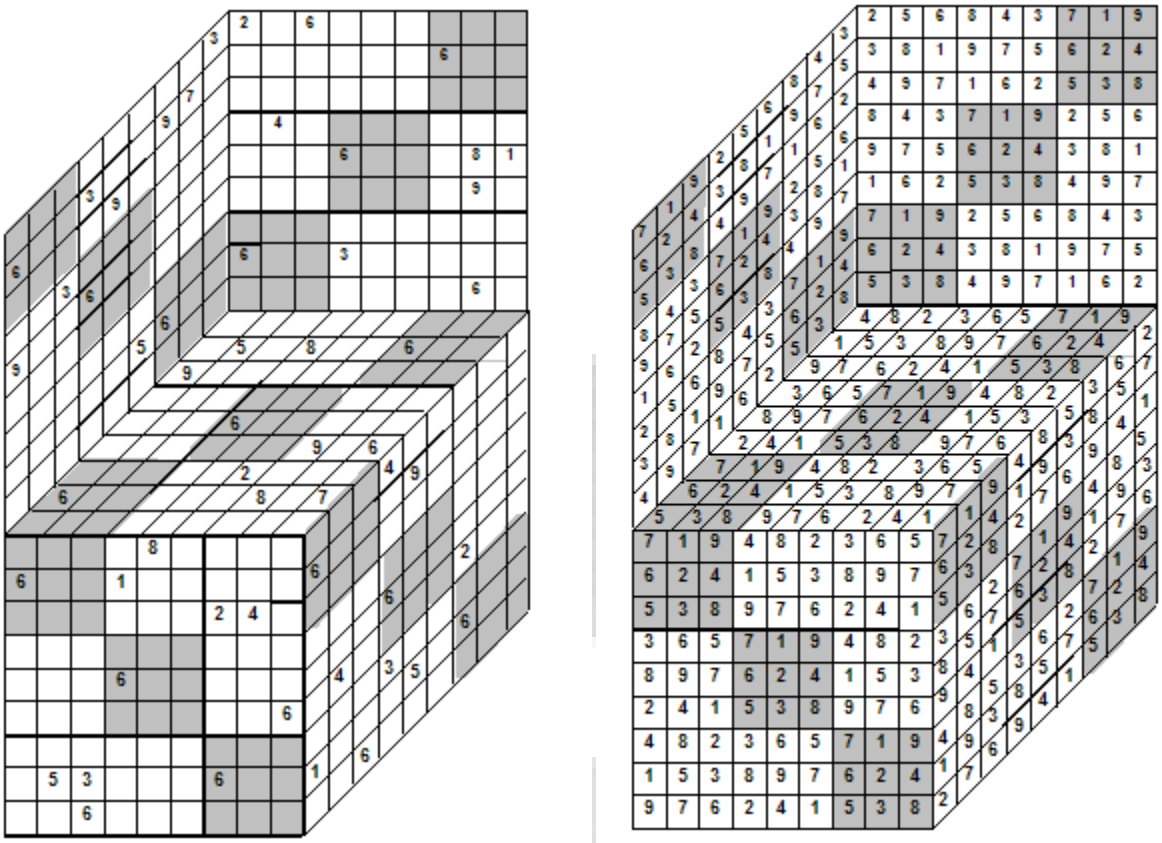
11 Escher Sudokus

This puzzles has five Sudokus which common parts. Common parts can be neighbouring edges or blocks.

Inspirited by the Dutch artist Escher.



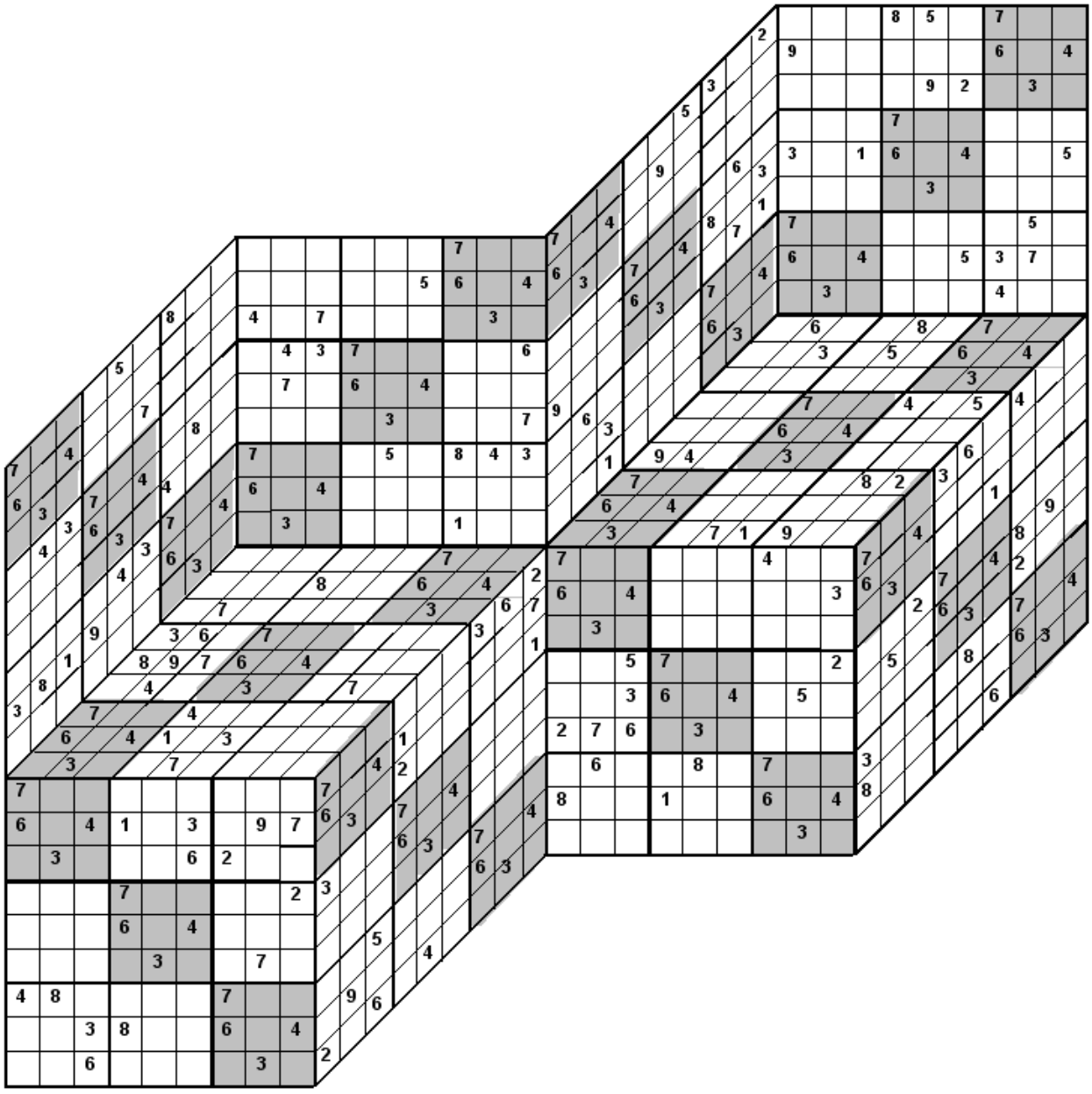
Example, total of 5 Sudokus with common neighbouring edges, shown in grey.



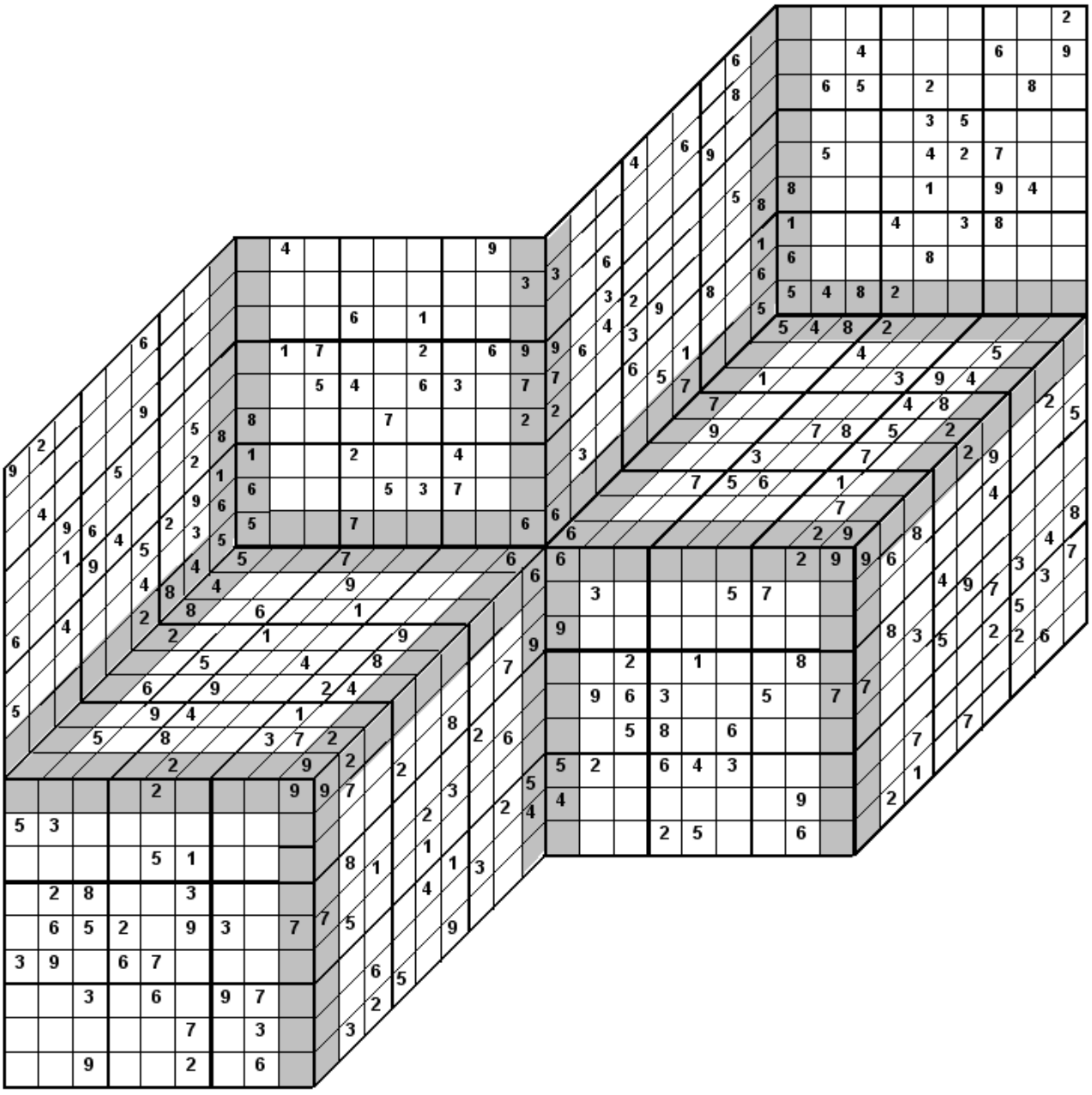
All 15 grey blocks are identical; this puzzle can be solved with very few shown numbers.

12 Double Esher Sudokus

This puzzle have ten Sudokus which common parts. Common parts can be neighbouring edges or blocks.



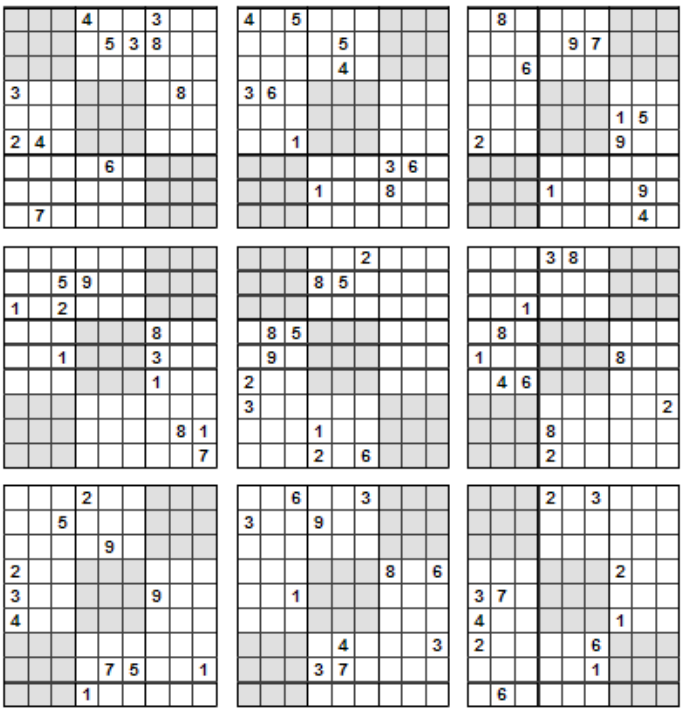
All 30 grey blocks are identical.



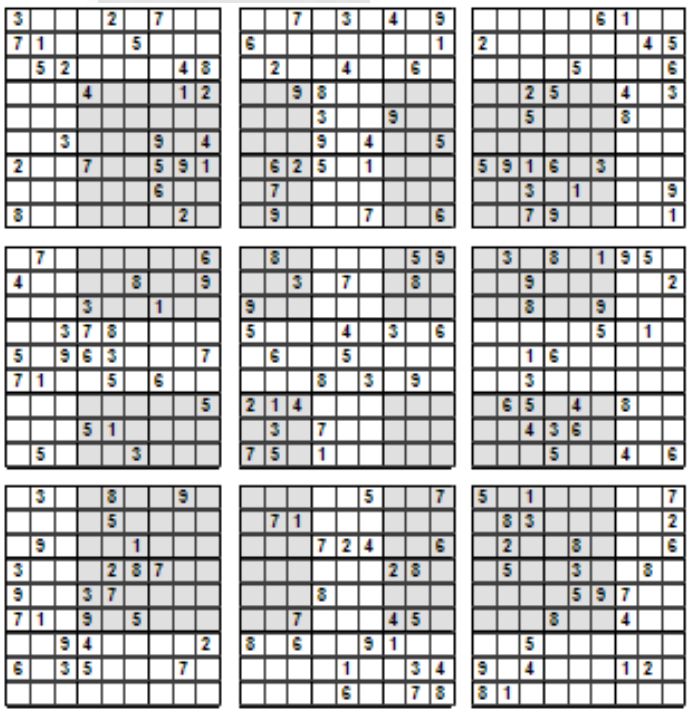
Example, total of 10 Sudokus with common neighbouring edges, shown in grey.

13 Nine (3 by 3) Sudokus

These nine Sudokus are defined which Multiple common parts.

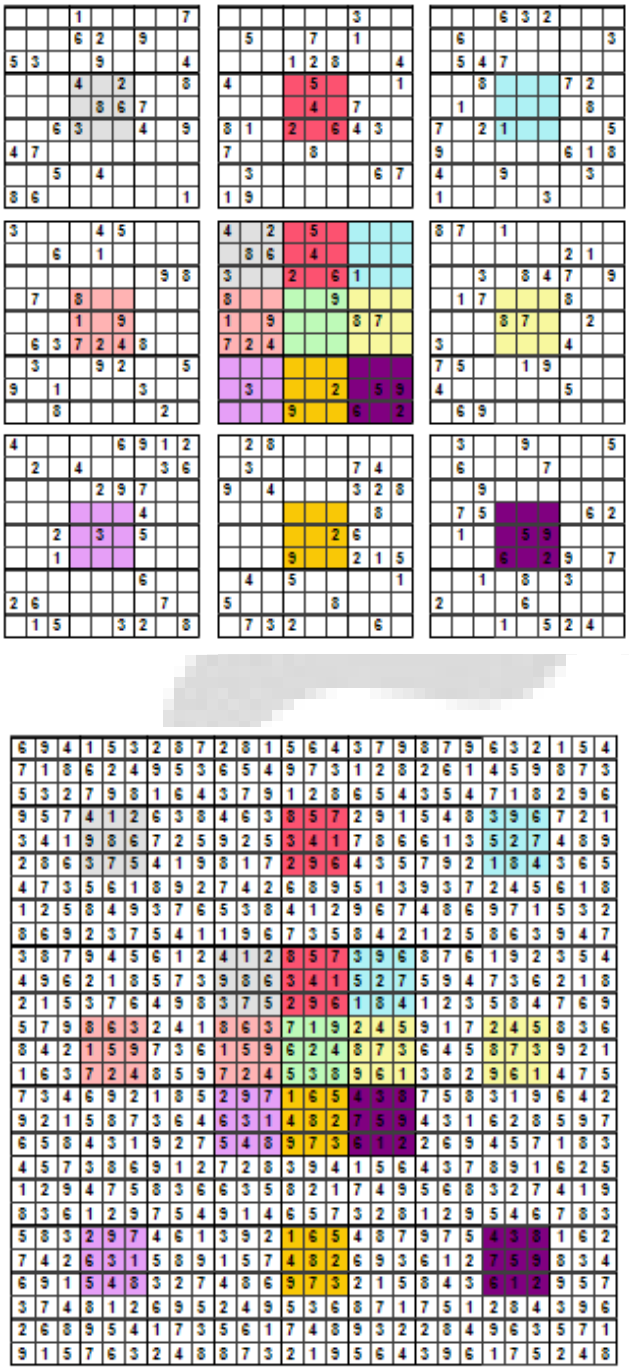


All twenty-seven grey blocks are identical.

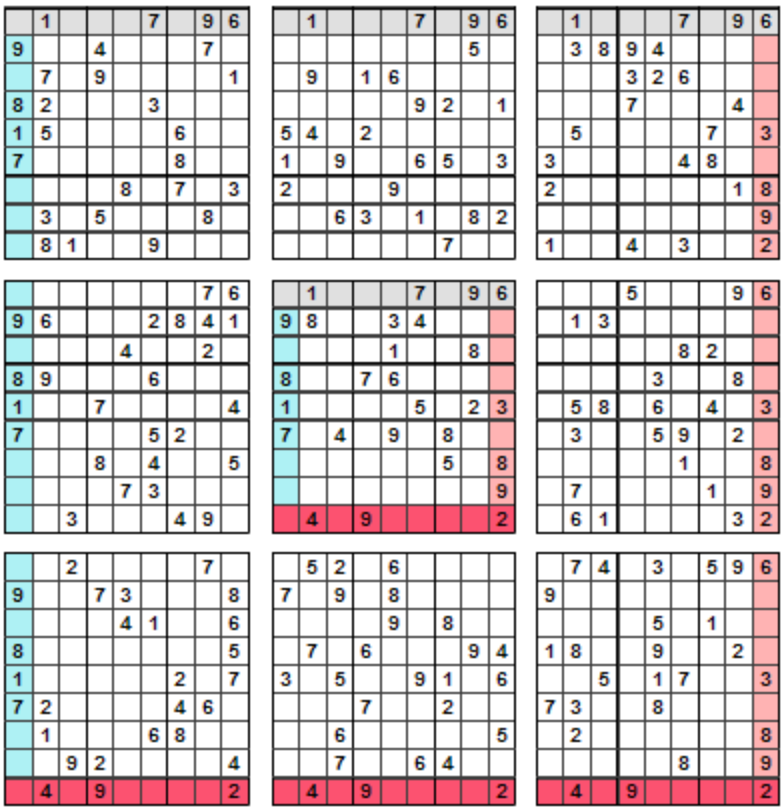


Nine Sudokus with four inner Sudokus (grey coloured), total 13 puzzles.

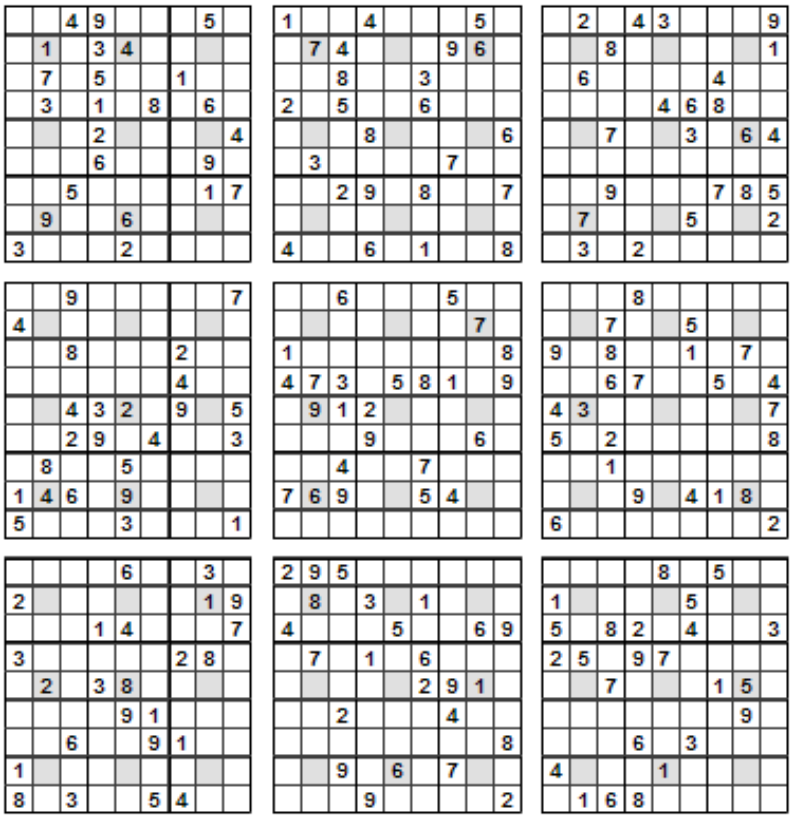
©



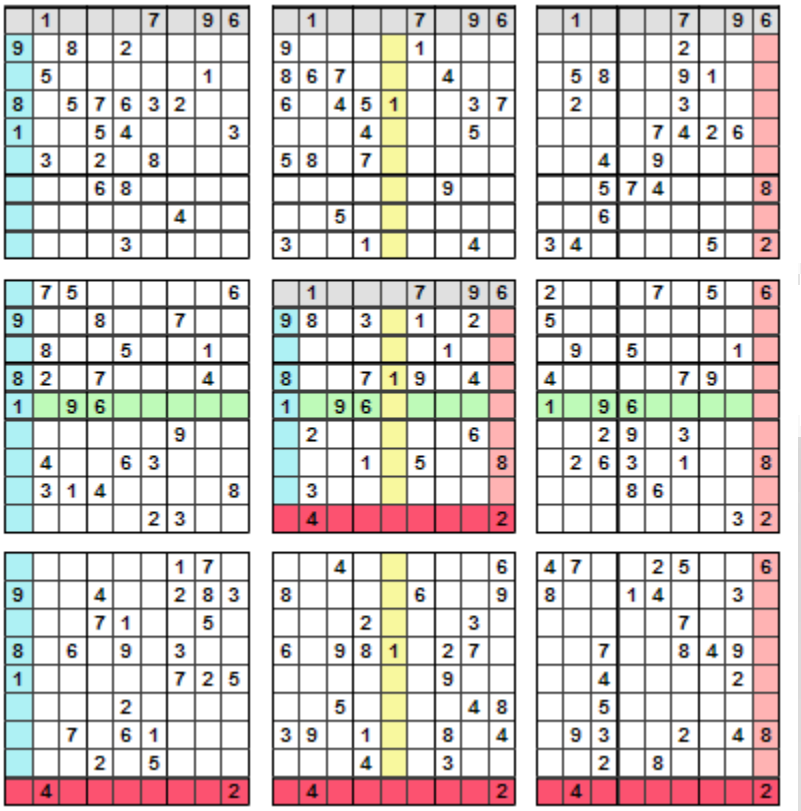
The middle Sudoku ‘controls’ the other Sudokus. The parts are identical, depending on the colour.



Middle Sudoku ‘controls’ the surrounding. The parts with the same colour are identical. In this case the edges.



The grey coloured middles of the 81 blocks are a Sudoku as well.



The middle Sudoku 'controls' the surrounding. The parts with the same colours are identical. In this Sudoku the edges and the middle row and column of the Sudoku in the middle.

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14 Magic Square

Beschikbare cijfers: 3 8 11 16 19 25 26 30 32 33 34 35 40 42 46 49 52 63 64 65 68 71 73 78

23	53					72	7		214
		67	38	28	6			77	153
	61	69	10	20	48		44		117
79	60	1	66			5	36	37	85
9		2	41	58	22		76	80	81
4	55	50		24	70	17	39		110
14	18	21	43			59	81	29	104
74		54	57	31			47	12	94
	62	75	56	27	45	51	13	15	25
166	60	30	58	181	178	165	26	119	

Solution

23	53	30	16	65	71	72	7	32
78	3	67	38	28	6	46	26	77
63	61	69	10	20	48	35	44	19
79	60	1	66	52	33	5	36	37
9	8	2	41	58	22	73	76	80
4	55	50	42	24	70	17	39	68
14	18	21	43	64	40	59	81	29
74	49	54	57	31	34	11	47	12
25	62	75	56	27	45	51	13	15

The puzzle consists the numbers 1 to 81. By Row and Column the sum of the nine positions is equal.
The sum is always: (1 + 81)/2 * 9 = 369.
(1 + 81)/2 = 41 is the average value of a position in the puzzle.
In the grey boxes, at each row and column, the sum of the empty positions is printed. For instance in row 1 the sum of the five empty positions is: 214.
On top the available numbers: 3 8 11 .. 78 are shown.

15 Cube

This cube consists of a total of 13 Sudokus. The four vertical sides of the Cube are the first four Sudokus. On this page, these four sides are turned upwards. You loop at the top of the cube. The back is red, the front is yellow, and so on. The vertical four Sudokus have common edges, two by two, are identical. Shown in: white, grey, purple and orange. Inside, the cube is divided into nine layers, named A to I. These layers are Sudokus as well. The figure in the middle with coloured edges indicates how the colours of these nine Sudokus correspond with the colours of the four Sudokus at the four vertical sides of the cube.

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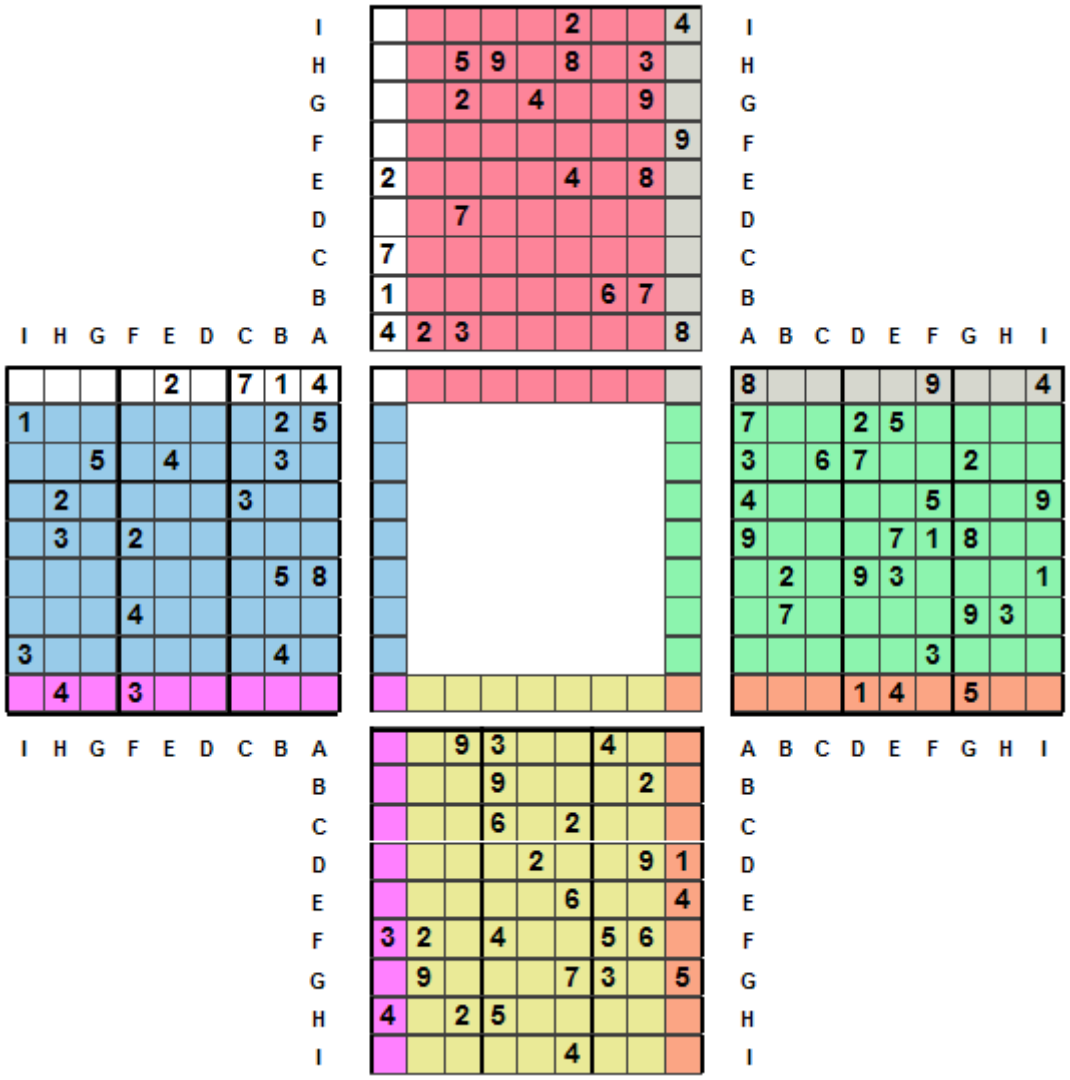

Figure 13.1 The four vertical sides of the cube.

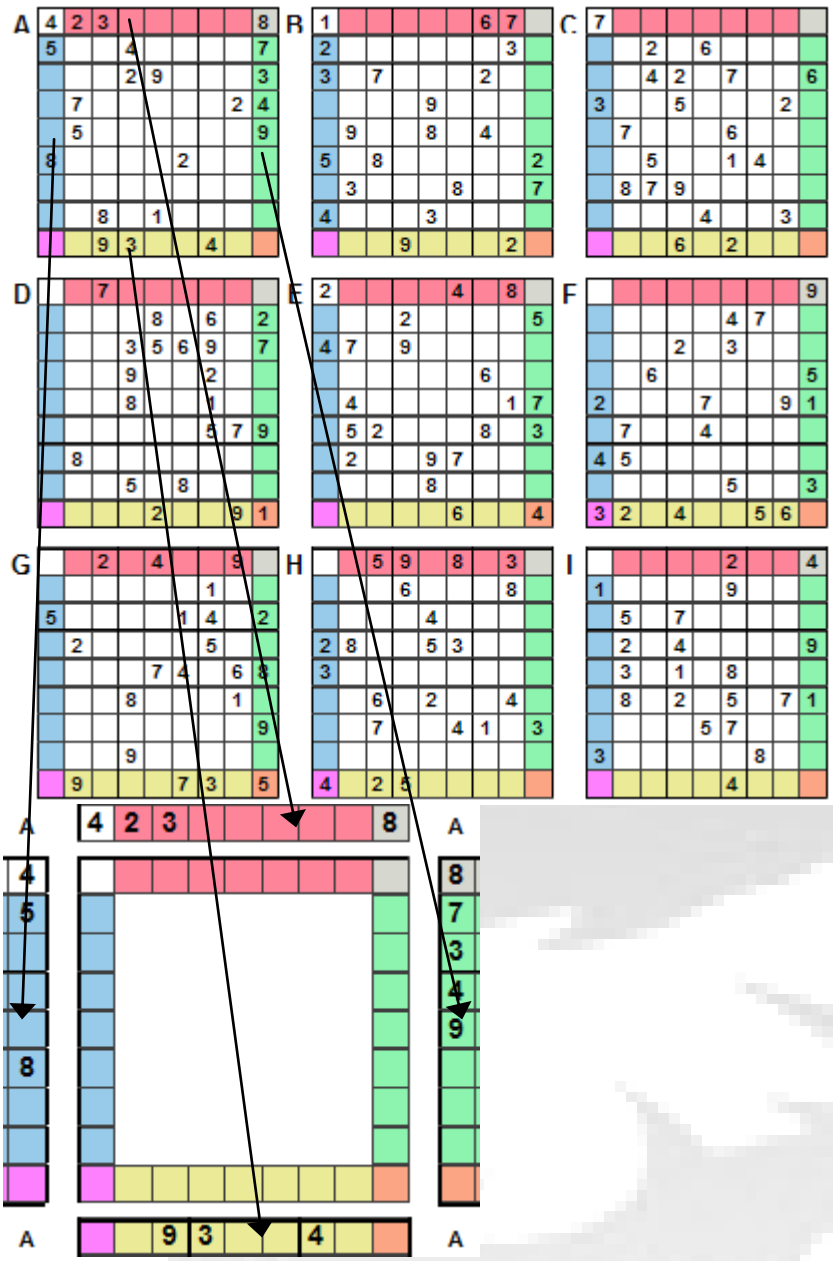

Figure 13.2 The nine internal Sudokus (Layers: A to I).

The arrows indicate the relations with the four Sudokus at the vertical sides of the cube. The other layers are in the same way linked to these four puzzles

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16 Sixteen by sixteen Sudokus

5	14		11		9		6	4	15	8	10	16	12		1
			1	11		15				9	12				
6	9	8	12		10	16			3	7		13			
4	15	3			5			6		1		11			7
	2	11					12		8	6		15			14
8	5			10	11	9	4				14	6			2
	13					1	16	3			5			10	8
			3	15	13				11			1		12	5
	7		13		2	11	9	5		14					
16	4	15	14	13	8				7			9	2		
	11	12	8		14				2			5			10
				7			15	8			1				
14	8		2	9	16				10	5	15		7		
11							10			3				8	13
15	10	6	7					11	1		8	2			9
	1	4		2				13	14		7				

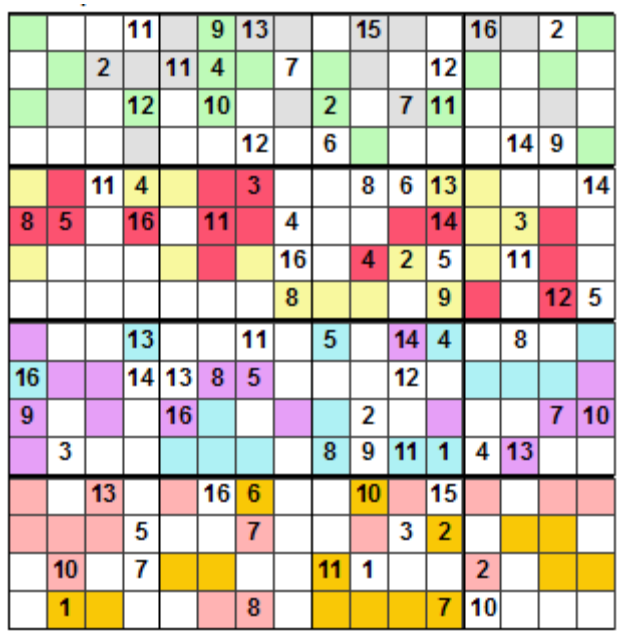
5	14	7	11	3	9	13	6	4	15	8	10	16	12	2	1
13	16	2	1	11	4	15	7	14	5	9	12	8	10	3	6
6	9	8	12	1	10	16	14	2	3	7	11	13	5	4	15
4	15	3	10	8	5	12	2	6	13	1	16	11	14	9	7
10	2	11	4	5	7	3	12	1	8	6	13	15	9	16	14
8	5	1	16	10	11	9	4	7	12	15	14	6	3	13	2
12	13	9	15	14	6	1	16	3	4	2	5	7	11	10	8
7	6	14	3	15	13	2	8	16	11	10	9	1	4	12	5
1	7	10	13	6	2	11	9	5	16	14	4	12	8	15	3
16	4	15	14	13	8	5	1	10	7	12	3	9	2	6	11
9	11	12	8	16	14	4	3	15	2	13	6	5	1	7	10
2	3	5	6	7	12	10	15	8	9	11	1	4	13	14	16
14	8	13	2	9	16	6	11	12	10	5	15	3	7	1	4
11	12	16	5	4	1	7	10	9	6	3	2	14	15	8	13
15	10	6	7	12	3	14	13	11	1	4	8	2	16	5	9
3	1	4	9	2	15	8	5	13	14	16	7	10	6	11	12

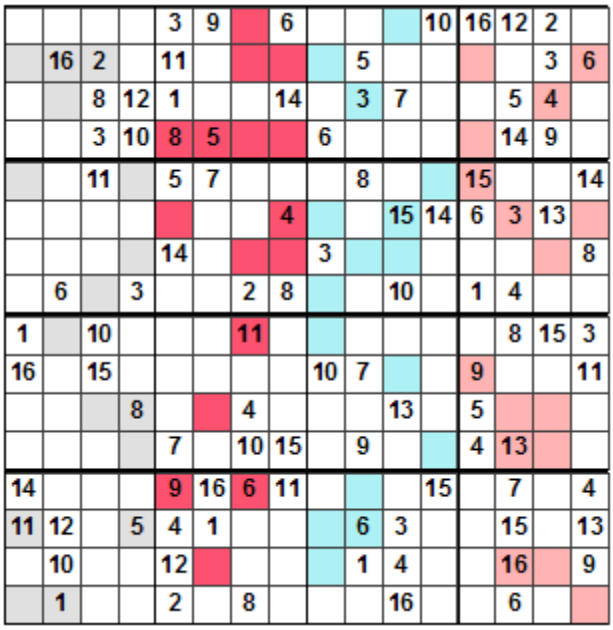
Identical to the traditional (9 by 9) Sudoku but with 16 instead of 9 numbers.

16.1 Sixteen to sixteen Sudoku random patterns

Identical as described before. By Pattern numbers 1 to 16 are only once present per pattern)

Examples:





Most extreme variant where all positions are within a pattern

.

16.2 Sixteen by sixteen Sudoku with fixed patterns

				3	2	5	13				15				12
			10		12	7		6	4			11	13		
16			3	15	1		6		2		13			9	10
15	14		13		11						16		2		6
7	4					1		15			14			3	
	16	2			10	11	3				8		9		7
						15	9	4					10	1	
10									3			6	5	4	16
	7					6					10	13			
2	3						5		6					8	
		15	16							8				7	
	6					2	10	16	15	7	1			14	3
	5	4		10		3		1				16		2	
		13	1		9		8	12			5				4
8	12				13	4				16			1		
				1			11	10	14						

1	9	6	4	3	2	5	13	7	10	11	15	8	14	16	12
5	2	8	10	9	12	7	16	6	4	14	3	11	13	15	1
16	11	12	3	15	1	14	6	8	2	5	13	4	7	9	10
15	14	7	13	8	11	10	4	9	12	1	16	3	2	5	6
7	4	9	5	6	16	1	2	15	13	10	14	12	11	3	8
12	16	2	14	4	10	11	3	5	1	6	8	15	9	13	7
3	8	11	6	13	5	15	9	4	16	12	7	2	10	1	14
10	13	1	15	12	14	8	7	11	3	2	9	6	5	4	16
11	7	14	8	16	4	6	1	3	5	9	10	13	15	12	2
2	3	10	9	7	15	13	5	14	6	4	12	1	16	8	11
4	1	15	16	14	3	9	12	13	11	8	2	10	6	7	5
13	6	5	12	11	8	2	10	16	15	7	1	9	4	14	3
14	5	4	7	10	6	3	15	1	8	13	11	16	12	2	9
6	10	13	1	2	9	16	8	12	7	15	5	14	3	11	4
8	12	3	11	5	13	4	14	2	9	16	6	7	1	10	15
9	15	16	2	1	7	12	11	10	14	3	4	5	8	6	13

	14				5			11						12	
13				11	10			7		1	8				
	10					12			3	5		6	4		
5			3	7			9					13	8		
16		11		15			6	5			3			7	
4	8		10	5		1	14					9			
	1	2		10	8	16		4	11			5	6	13	
				2		9	3			8	14			16	
							5			13	2		7		9
10	3		8					6				4			
	13		2			4				3	5	11		8	10
12						11	1		14				13	3	6
			12	16	1			3							
				4	13			2	9			8		5	
1		4				6	8	12				10			
14				12	3	2		10					1		13

2	14	9	4	1	5	8	16	11	10	6	13	3	15	12	7
13	6	12	15	11	10	3	4	7	16	1	8	14	2	9	5
7	10	8	16	14	2	12	13	9	3	5	15	6	4	11	1
5	11	1	3	7	6	15	9	14	4	2	12	13	8	10	16
16	12	11	9	15	4	13	6	5	2	10	3	1	14	7	8
4	8	13	10	5	12	1	14	15	6	16	7	9	11	2	3
3	1	2	14	10	8	16	7	4	11	12	9	5	6	13	15
15	5	7	6	2	11	9	3	13	1	8	14	12	10	16	4
11	4	6	1	3	16	10	5	8	12	13	2	15	7	14	9
10	3	16	8	13	7	14	2	6	15	9	11	4	5	1	12
9	13	14	2	6	15	4	12	1	7	3	5	11	16	8	10
12	15	5	7	8	9	11	1	16	14	4	10	2	13	3	6
8	2	10	12	16	1	5	15	3	13	14	6	7	9	4	11
6	16	3	11	4	13	7	10	2	9	15	1	8	12	5	14
1	7	4	13	9	14	6	8	12	5	11	16	10	3	15	2
14	9	15	5	12	3	2	11	10	8	7	4	16	1	6	13

3			14		7	8			5			10	1	13	2
	2			15			3		1	6	13				8
			9		10	1						5			
5	1	8			14	2	12			15	11	6			3
			10			16	5						11		
9	13	3		7		6			16		5		4		12
1	5	15	6				8		9	3		14	16		13
16				10			9	11					3		
15	3					9					14	16		2	7
11			16	3	6	10	2		4	5	7	15	8	9	14
	7			11		14		15	13					1	
14		4			12	15	7		8	2		11	5	3	
13				2		12		5		4		7	6		
6	10							3	2		9	13	15		
7	14				11			12			6	3	2		
12									15	16		9		14	

				12	15					7	1	6		4	
	4				7				9					11	
	13	14													
	15		2					10	11	6		12	14	7	13
9	2		16			13		1	7	5					4
12	6			10					8		11		13	9	3
			4				2	6		3	9		10		16
3		1	15	9					16				7		6
14	9			5		16			10	1	7	15	2		
5			12	15	3	2	9			4	6	10			
2	7	6		14	11	10		8			16		9		1
				1	12		7	13	2					3	14
	11							9					4	6	
	5			3				16		14		1		8	
6	12		14					5					3		
1			13		8		15			11	10	2		14	5

2		9			16		10	12	5	15	8				
6			13				14	9		16		1			8
11	16	3		13		9	1		2			15		14	10
4						6		1	11		13				
	13		3	6		8	15		14		10			4	
14	2			4		1			8		15			3	5
15	7	12			2	14	3		9				6	11	
1		16		12	10	13	5				6		14		
	9	6	15					8	16	5					
10	11			8	4									9	
				14	3	5	12				11			16	7
			7	2				10		1	12			8	
5		13	9		14	10	4	15	1				8	7	12
12		15	2		6	16		13			5		3	10	
	3	11		9	15		8				2	5			
	10	4	16			2				3				1	

16.3 Chessboard

This Sudoku type gives the odd numbers with a grey background colour and the even numbers with a white background colour. So on every position are only eight possible numbers available.

	9	2	11	16	15					14	3		1		
5		13			10										14
4	15		7		13	6	1		9		5			8	11
	16	1		11	14		4			15	8	13		5	
	13	12				2		4	7			14	5		
15		5	4	1		13				3	10	11	2	7	
14	3				5		7	2		6	11	16	15	12	
				9	6				14		12	1	10		
2	1	4	5	12		8			15	16			7	10	3
	8	15	12			1	6		10	7		5	14	11	
10	11					16	15	12				8		2	
	14	7		3						1		15			
					1	10		8	3	12		2	11		
1			2		16			5		9		7	8	13	
12		8	15		3			10		2	1			16	5
	10		14	5	8	7	2	15				3		1	

This type of Sudoku can also be combined with patterns, see example below:
The four coloured patterns contain numbers from one to sixteen. De dark coloured positions are filled with odd and the light coloured ones with even numbers.

		8	7	4		16				14	13		3		5
1		13			12	3		7		15	16		2		
			3	10		2		8	5	6		4		16	15
11					6		14	3					8		10
8					1		15			2			13	10	
3	6					13		1	16	5	10	15	14	9	12
12		14		16	3	10		6	9		7				
7		1		11		9		15							
16	1	2	11	8	7		3	14		10	15	12		6	
13	12				14	5	10		6	11	2		16	3	
		10							7		1				
9		7	8	13	16	15			12	3		11	10	1	2
	7	6				14	13				5	2			11
5	10			3	4					7	6	13			16
	11			6				4		12			1	14	3
15		3	12	9	10				2	1	14	5	6		

16.4 Fixed Patterns with common parts

In this kind of Sudoku the patterns has common parts (shown in yellow).

See example below, The red pattern (8 positions) combined with the yellow positions (8) is filled with 1 to 16.

9	16	12	15	4	11	6	3	10
10	14	5	1	8	2	7	16	12
2	13	9	7	11	5	4	1	8
16	6	10	2	3	9	13	14	15
3	8	11	5	6	13	14	12	2
5	7	14	13	15	8	16	9	1
14	3	2	12	9	4	10	5	6
8	1	16	4	10	15	3	7	11
11	5	13	6	2	3	1	15	14
7	15	4	9	1	6	12	8	5

Same rule counts for the other five patterns combined with the yellow pattern.

		7				1	9		12			11	6		
	9			13	15							2			
			10							7	11			1	
8				7		5	16	6		2				14	15
									11	5	6		14	12	2
															1
11			7		16				2		9		10		
	5	13		9						4	10	15		7	11
			8		10	12	11		13		2	3	1		14
	11	14					7					6			
1															
			15	2		9				8				13	4
7		8		11	9				1			12		10	3
15	14				5		12			3	13				
	12		1			2	4	10						6	13
13	2				1	10			8					11	

17 Twenty five by Twenty five Sudokus

14			5						19	6	2	23		3	10	12		25	20		17	1	22	15
			25	3	23	4			1	11		5				13	19		16			9	2	8
	16	7		12	25	10			15	13	24			22	8		2		23			6		5
		6		1			14		12	10	8	18			4		7	15	5	23		24		
13			17		11	2		5		9	15	20		25			18		24		16	12		14
12	22	15	7		18			16	6		19	25			21	20			10	17			11	
24				17	14	5		10		21				4		1		8			22	15		23
		13								12			24	16			3			20	14			
1	9		14	19	20		11	8					2	23			5	16		12			25	24
3			16	5			2	9	24		14		8	20	19	17	23	6			18			
	18	16			24	21		11	20			6	22						19			23		2
17	7					9	22		18	25			3			16	13		14		15	19	10	1
19		1	23		8	17		2	13	5			15	7	18	25		10						16
2	14				3			15	10	16		8	17		11		1	4			13		24	25
		21	24	25		7	5	14		4	9	2	13	19	23			22		3				
		25	8				16		9		13		23	11	3		22	20	4		1	18		7
		20	13	18	15		1	12		17							9	11	2			3	16	
7			15				10		25		5	3		9		19			1	13		11		21
21				24			13		8			16	12	2	15	14	6	17			4	25		10
9	17			11	6	18	7	19	3			21				23	16	5				14	15	
6		14	2	22	10			17	5	8		1		12		24	21	13	9	15	19	20		11
8		17	11						4		22	19	5			2	10	1			3	16	12	6
							8			18	25	14	11		22	5			3		2			
		19		10		6			2					15	14		25	23		22			7	4
	24	3	20						11	2	16		10					12				5	23	

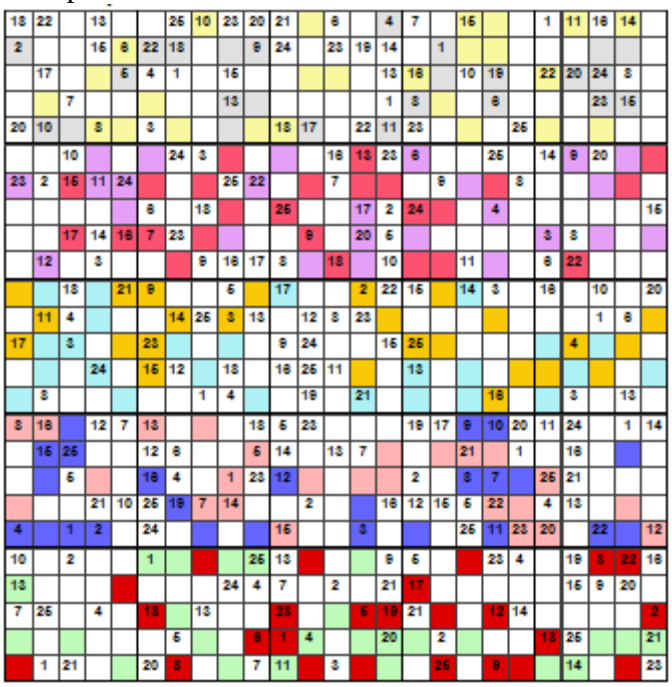
Solution:

14	4	18	5	9	13	8	24	7	19	6	2	23	18	3	10	12	11	25	20	21	17	1	22	15
22	15	24	25	3	23	4	20	6	1	11	12	5	7	14	17	13	19	21	18	18	10	9	2	8
20	18	7	21	12	25	10	17	18	15	13	24	4	1	22	8	9	2	14	23	19	11	6	3	5
11	2	6	19	1	9	18	14	3	12	10	8	18	21	17	4	22	7	15	5	23	25	24	13	20
13	10	8	17	23	11	2	21	5	22	9	15	20	19	25	1	6	18	3	24	7	18	12	4	14
12	22	15	7	2	18	13	23	18	6	1	19	25	9	5	21	20	14	24	10	17	3	4	11	3
24	20	11	6	17	14	5	19	10	7	21	3	13	18	4	2	1	12	8	25	18	22	15	9	23
23	3	13	18	21	22	1	15	25	17	12	6	10	24	16	9	4	3	7	11	20	14	2	5	19
1	9	4	14	19	20	3	11	8	21	7	17	22	2	23	13	18	5	16	15	12	6	10	25	24
3	25	10	16	5	4	12	2	9	24	15	14	11	8	20	19	17	23	6	22	1	18	7	21	13
15	18	16	12	13	24	21	25	11	20	14	1	6	22	10	5	3	17	9	19	4	7	23	8	2
17	7	5	4	8	12	9	22	23	18	25	11	24	3	21	20	16	13	2	14	6	15	19	10	1
19	3	1	23	6	8	17	4	2	13	5	20	12	15	7	18	25	24	10	21	11	9	22	14	16
2	14	9	22	20	3	19	8	15	10	16	23	8	17	18	11	7	1	4	12	5	13	21	24	25
10	11	21	24	25	1	7	5	14	16	4	9	2	13	19	23	8	15	22	6	3	12	17	20	18
5	12	25	8	14	17	24	16	21	9	19	13	15	23	11	3	10	22	20	4	2	1	18	6	7
4	19	20	13	18	15	23	1	12	14	17	10	7	6	8	25	21	9	11	2	24	5	3	16	22
7	6	22	15	16	2	20	10	4	25	24	5	3	14	9	12	19	8	18	1	13	23	11	17	21
21	1	23	3	24	5	11	13	22	8	20	18	16	12	2	15	14	6	17	7	9	4	25	19	10
9	17	2	10	11	6	18	7	19	3	22	4	21	25	1	24	23	16	5	13	8	20	14	15	12
8	23	14	2	22	10	25	3	17	5	8	7	1	4	12	16	24	21	13	9	15	19	20	18	11
3	13	17	11	15	21	14	9	20	4	23	22	19	5	24	7	2	10	1	18	25	3	16	12	6
16	21	12	6	4	7	15	8	24	23	18	25	14	11	6	22	5	20	19	3	10	2	13	1	17
18	5	19	1	10	16	6	12	13	2	3	21	9	20	15	14	11	25	23	17	22	24	8	7	4
25	24	3	20	7	19	22	18	1	11	2	16	17	10	13	6	15	4	12	8	14	21	5	23	9

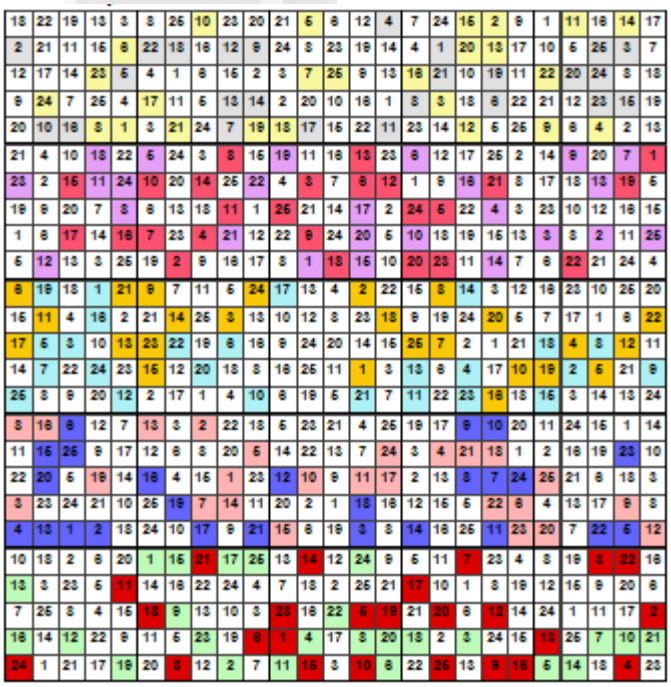
17.1 Twenty five Twenty five Sudokus with variable patterns

Identical as described before. By Pattern (numbers 1 to 25 are only once present per pattern)

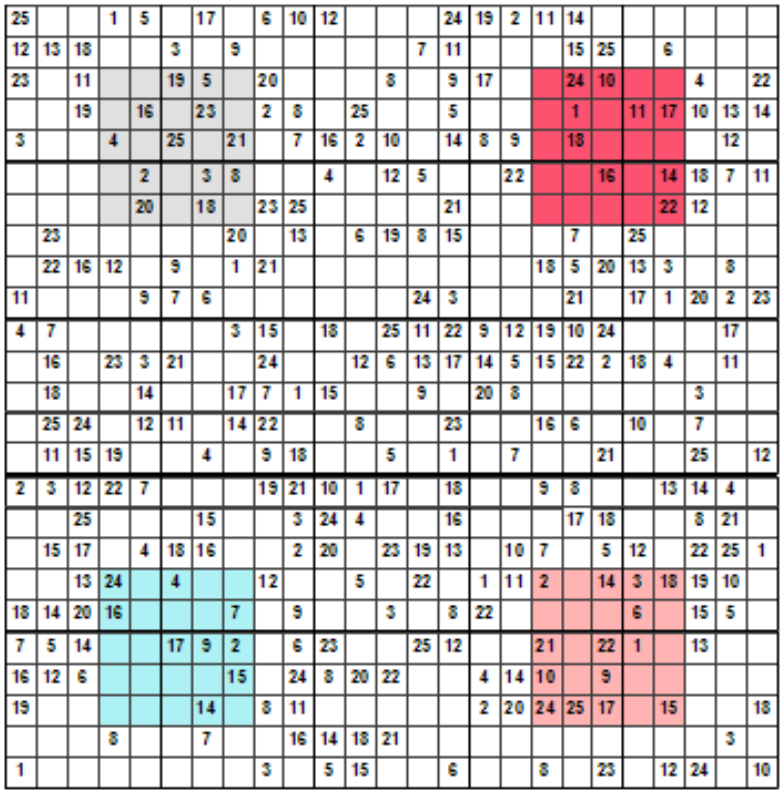
Examples:



Solution:

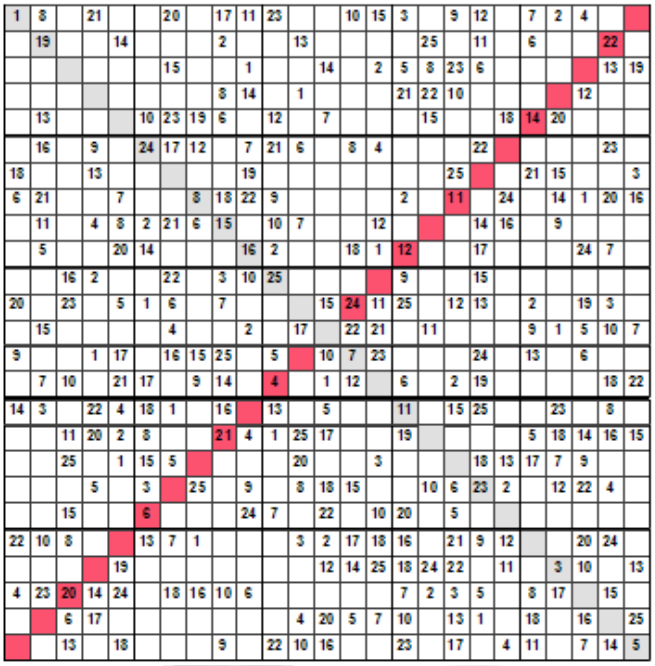


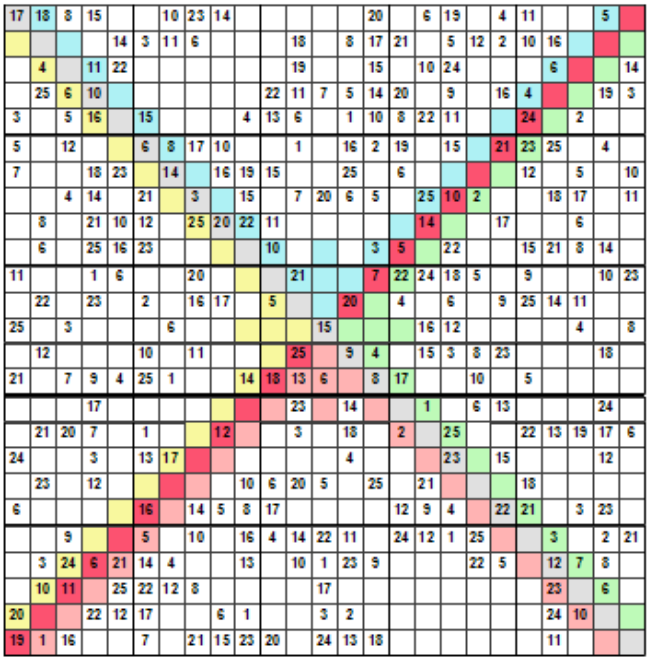
17.2 Twenty five Twenty five to Sudoku with fixed patterns

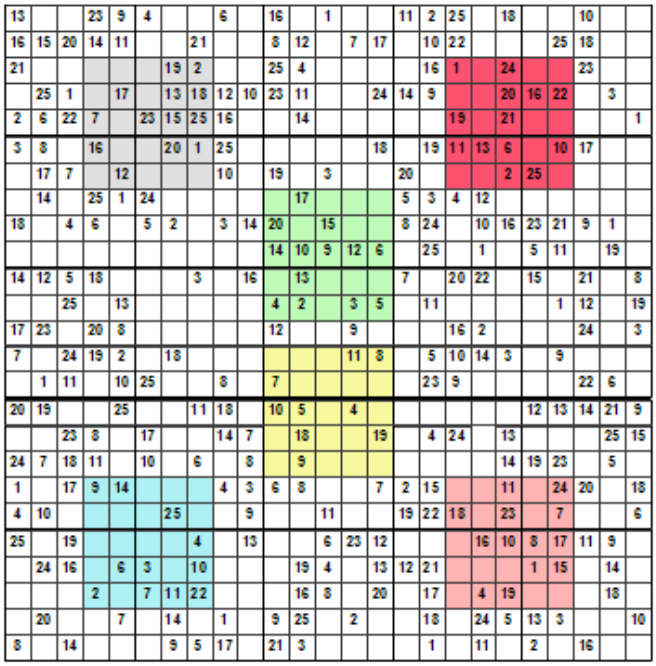


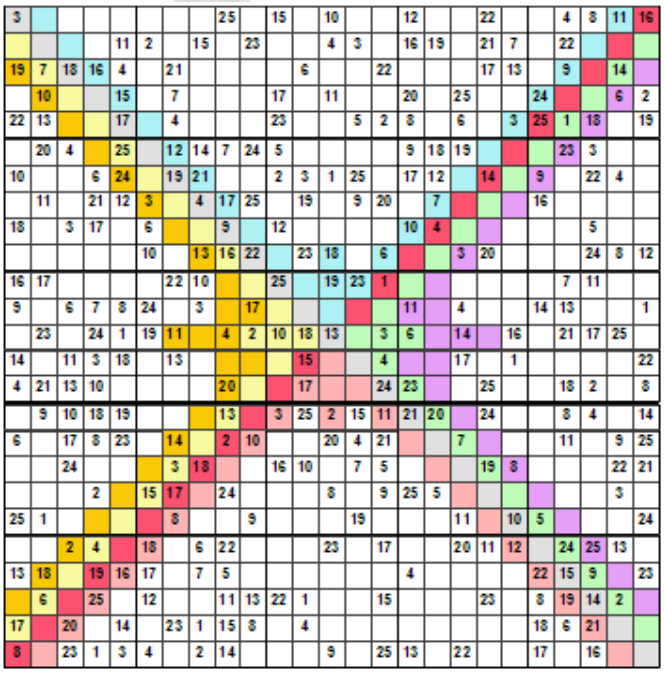
Solution:

Other variants









Several days are needed to solve the above shown Sudokus.

24					13		16	12			2	6		21			9	3	11	18		25		15
			15	25		21		9	20		1				6	7			16	4			23	12
		23	10			7					15	9	24		13			1	12				6	
			13	18		2		15		10	23		19	12	4			22	14	8			17	7
20	6		8		11	1	17		25		7		5			19		15	21	9		13		2
6	10	19		4	15			1		25						9	3	24					2	16
			14	21		20			4	16		8	11	9	5	10		6			18	17	19	
9		16	2					5	10	14			3	17	19	18	21				23		20	
11	1		5		24		19		22	7	4				14			16		21	6	3	13	
18	24		20		25	16		3		19	21			10		1				7	9	11	5	
17	12	18	11		2		9	10	14		25		7		21	22	19				20	4	3	6
		13		9			15		12		19	22		18		14	7	23	6					
14			6	10	22		3		21	8				20		15	16	18		19	25		9	23
				19		5	25		1	21			12	3	10	24	2		20	11	7			13
			21		8	23			18	15		2			11			12		16		5		
		5		6	20		22	14	13		8		21			4			17	1				
22	21	11			12	17	18	2	16					15	24	5	13	14	19	3	4	6		25
12	17	24		2		11	1		7	5			14	22	15	6	23	20				19		21
		10	1			3			5			7		24			22	2		17				20
7		3	18	14	19		10			13	17		2		12		11	9	1			22		
2		17						21		6				5		13	1	25					4	19
1			12	16		22			8			18			3			21			5	9		17
	9			13			11	24	3	23	14		1		2	12		17	5		22	10		
10	7		24	3	1				15		20		22		9	23	6				2	8	25	11
	18	6		20		19		25			12				22	11	14		24		15	1	21	

18 Blocks with series

This kind of puzzle is filled with series of numbers and can be solved by eliminating numbers that are not a part of the used series. Series are made by four numbers. In each block the four rows and columns contain a series. So each block is filled with eight series. The complete puzzle contains 8 * 16 = 128 series.

Explanation of used Series:

```
29  [6]  35   [7]   42
[8]  50
```

Intervals between the numbers are: [6] [7] and [8]. The first interval varies, in this example [6]. The second is the first +1 [7]. Then next is the first +2 [8].
Same type.

```
10  [12]  22  [11]   33
[10] 43
```

Same type in reverse order.

```
43  [12]  31  [11]   20
[10] 10
```

Same type in reverse order.

```
43  [12]  31  [13]   18
[14] 4
```

```
41  [2]  43   [4]    47
[6]  53
```

Intervals between the numbers are: [2] [4] and [6]. The first interval varies, in this example [2]. The second is the first times 2 [4]. Then next is the first times 3 [6].
Can appear in reverse order as well.

Example:

Solution

47	48	50	53	34	40	47	55	18	17	15	12	34	24	15	7
35	40	44	47	22	28	35	43	12	14	18	24	25	17	10	4
24	31	37	42	11	17	24	32	7	12	22	37	17	11	6	2
14	21	29	38	1	7	14	22	3	11	27	51	10	6	3	1
48	33	23	18	22	32	41	49	53	50	48	47	45	37	30	24
32	25	19	14	20	26	33	41	50	47	45	44	39	31	24	18
17	16	14	11	17	21	26	32	48	45	43	42	32	24	17	11
3	6	8	9	13	17	20	22	47	44	42	41	24	16	9	3
40	33	25	16	5	11	16	20	18	21	23	24	38	25	13	2
34	32	29	25	9	13	18	24	26	29	31	32	33	23	14	6
27	30	32	33	12	16	21	27	35	38	40	41	23	19	16	14
19	27	34	40	14	20	25	29	45	48	50	51	8	13	19	26
2	3	5	8	8	5	3	2	49	33	18	4	11	8	6	5
8	9	11	14	21	15	10	6	45	35	26	18	16	14	11	7
20	21	23	26	33	24	16	9	42	38	35	33	20	18	15	11
38	39	41	44	44	32	21	11	40	42	45	49	23	20	18	17

Puzzle

47										15		34		15	
			47		28					18	24		17		
		37		11		24	32								
14										27			6		
48	33	23			32						47	45		30	
									47					24	18
			11	17											
	6					20	22								3
	33	25		5		16		18		23					
34							24								
27							27			40	41				14
		34							48			8		19	
												11	8		
			14			10				26	18				
20			26	33		16							18	15	
38								40				23			

The number of used numbers can vary, in the example above the numbers 1 to 55 are used.

The more numbers are used the more difficult the puzzle will be, below an example with 99 used numbers:
In this case the number of possible series exceeds the number off 8600.

Solution

58	34	18	10	81	87	92	96	22	38	53	67	90	93	95	96
66	48	36	30	56	61	65	68	38	51	63	74	88	91	93	94
73	61	53	49	32	36	39	41	55	65	74	82	84	87	89	90
79	73	69	67	9	12	14	15	73	80	86	91	78	81	83	84
2	12	23	35	39	55	70	84	70	58	45	31	42	45	49	54
8	22	35	47	55	65	74	82	75	66	56	45	56	59	63	68
15	31	46	60	70	74	77	79	81	75	68	60	71	74	78	83
23	39	56	74	84	82	79	75	88	85	81	76	87	90	94	99
79	56	32	7	4	13	23	34	91	62	34	7	79	60	40	19
55	39	22	4	26	33	39	44	85	59	32	4	66	53	39	24
32	23	13	2	49	52	54	55	80	55	29	2	40	39	37	34
10	8	5	1	73	70	68	67	76	50	25	1	1	18	34	49
67	72	76	79	93	88	84	81	9	12	16	21	23	33	44	56
47	54	60	65	78	72	65	57	6	14	23	33	56	48	41	35
28	35	43	52	64	55	45	34	4	17	31	46	78	58	39	21
10	15	25	40	51	37	24	12	3	21	40	60	89	63	38	14

Puzzle

58	34			81	87			22	38		67	90			
66			30			65	68	38	51			88	91		
73			49		36		41				82	84			90
	73		67	9				73				78		83	84
2				39		70		70		45	31			49	54
		35		55	65	74				56		56		63	
	31		60	70					75	68	60			78	83
23	39						75	88				87			99
	56	32		4	13		34	91	62		7			40	
55		22	4		33				59			66			24
32		13		49	52		55	80	55			40			34
10							67		50	25		1	18	34	
	72		79	93			81			16	21		33	44	56
47	54			78						23			48	41	
	35	43		64	55				17				58	39	
10	15				37		12	3	21	40	60				

The used series can vary and be made more difficult, see the example below.

Explanation of used Series:

Start value is: S
Difference (step) between First and second Number is: d (can be positive or negative)
Formulas:

	First	Second	Third	Fourth
1	S	S+d	S+2d+1 (or -1)	S+3d+3 (or -3)
2	S	S+d	S+2d+2 (or -2)	S+3d+6 (or -6)
3	S	S+d	S+2d+3 (or -3)	S+3d+9 (or -9)
4	S	S+d	S+2d+4 (or -4)	S+3d+12 (or -12)

Examples	First	Second	Third	Fourth (S = 29, d=6)
1 (Step each time +1)	29 [+d]	35 [+d+1]	42 [+d+2]	50
2 (Step each time +2)	29 [+d]	35 [+d+2]	43 [+d+4]	53
3 (Step each time +3)	29 [+d]	35 [+d+3]	44 [+d+6]	56
4 (Step each time +4)	29 [+d]	35 [+d+4]	45 [+d+8]	59

All series can appear in reverse order as well.

©

Solution

53	54	56	59	26	36	42	44	60	57	55	54	22	20	17	13
35	36	38	41	34	38	43	49	43	45	49	55	30	28	24	18
18	20	23	27	40	41	45	52	30	36	45	57	41	37	32	26
2	6	11	17	44	45	48	53	21	30	43	60	55	47	41	37
48	49	53	60	17	23	27	29	55	42	27	10	29	30	35	44
39	46	52	57	22	28	32	34	34	28	19	7	26	28	31	35
31	40	48	55	31	34	36	37	20	17	12	5	19	23	26	28
24	31	41	54	44	41	39	38	13	9	6	4	8	15	20	23
21	19	13	3	27	28	32	39	56	47	36	23	33	30	26	21
34	26	19	13	30	36	41	45	49	42	34	25	32	25	19	14
45	35	28	24	34	42	47	49	35	32	30	29	30	21	14	9
54	46	40	36	39	46	50	51	14	17	24	35	27	18	11	6
40	23	10	1	4	7	9	10	39	41	46	54	57	54	52	51
23	14	7	2	20	23	25	26	35	38	44	53	52	46	42	40
10	7	5	4	32	37	40	41	27	33	40	48	44	36	30	26
1	2	4	7	40	49	54	55	15	26	34	39	33	24	16	9

27	18	11	6

S=27, d=-9 18 = 27-9 11= 27-9*2+2 6= 27-9*3+6

Puzzle

53	54	56				42	44	60	57	55				17	13
		38		34									28		
	20	23		40	41	45		30	36	45	57			32	26
2			17			48						55	47		37
		53	60	17					42		10		30	35	44
39	46		57	22	28		34		28		7			31	35
31	40					36	37	20				19	23		
	31				41		38			6	4				23
21			3	27		32	39				23		30		21
	26			30	36			49	42					19	
45	35	28		34					32	30			21		9
		40	36			50	51	14	17		35	27			6
			1	4		9			41	46		57			51
23	14		2						38		53				40
10		5	4	32		40	41	27	33				36		
		4		40	49		55	15		34		33	24	16	9

This Sudoku variant is available with 25 by 25 Blocks as well.

Puzzle

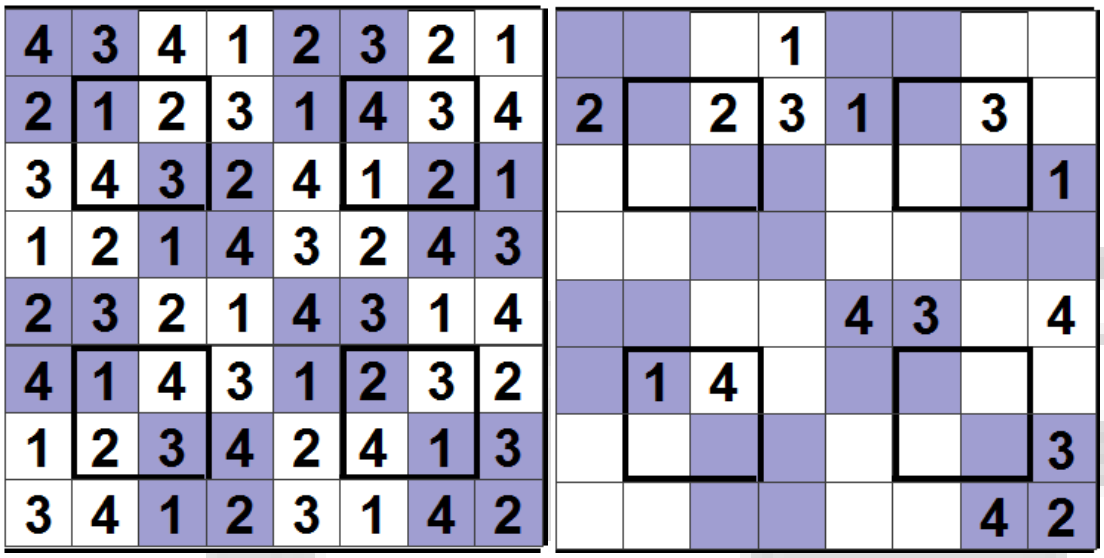
		48		61		13		3	1			7	4			86			71	4	7			
51	47				38					11				21		66		71	75			31		
		41			56							22												29
			27	16	75	55					17				30	41	53				70		43	
				11										84				65				61		
10	11			20		44			80				65		81	86		93		62	69		86	
		27			38			74						53				84		49				
			49	57	45		68	78		71	67	62			46				84		42	48		
			67	77						62				44	30				80			35		48
56	65				56				90		50	47					48				19	23		
89	73		38					51	46		17		22			48		27						90
	59		30				47		38		24	29							38			44		
56	46					41		32		23				57	39	41		48	53					69
41			17		33	28						46			33			54				67	64	
27							11		8			53							68	92	88	80		
	77	63	48				82	76		16				50			44		3	31		50		
				31							21					49	33	18			43		50	55
79	68	56			72	66				9	17				44	33			6	52	47			
					61		52			7	14	20			23			11					31	
		45	34	22		47	44	42	41					24						77		40		
38	50			92	48				22	2							46		85			53	75	
		60	65	71	59			41	37	3			15							31			76	
67										5		14			34	47				51	59		78	
	65		38			79			70		12	20	32		44									
					98	94						27			53	62			95		90	87	85	

Solution

39	43	48	54	61	21	13	7	3	1	16	11	7	4	2	93	86	80	75	71	4	7	11	16	22
51	47	44	42	41	38	26	17	11	8	11	12	14	17	21	65	66	68	71	75	40	35	31	28	26
60	50	41	33	26	56	40	28	20	16	7	14	22	31	41	44	51	59	68	78	67	56	46	37	29
66	52	39	27	16	75	55	40	30	25	4	17	31	46	62	30	41	53	66	80	85	70	56	43	31
69	53	38	24	11	95	71	53	41	35	2	21	41	62	84	23	36	50	65	81	94	77	61	46	32
10	11	13	16	20	30	44	57	69	80	86	80	73	65	56	81	86	90	93	95	62	69	77	86	96
20	23	27	32	38	38	51	63	74	84	79	74	68	61	53	63	71	78	84	89	49	55	62	70	79
31	36	42	49	57	45	57	68	78	87	71	67	62	56	49	46	57	67	76	84	37	42	48	55	63
43	50	58	67	77	51	62	72	81	89	62	59	55	50	44	30	44	57	69	80	26	30	35	41	48
56	65	75	86	98	56	66	75	83	90	52	50	47	43	38	15	32	48	63	77	16	19	23	28	34
89	73	56	38	19	72	64	57	51	46	16	17	19	22	26	60	48	37	27	18	10	18	34	58	90
72	59	45	30	14	60	53	47	42	38	20	24	29	35	42	48	44	41	39	38	29	34	44	59	79
56	46	35	23	10	47	41	36	32	29	23	30	38	47	57	39	41	44	48	53	49	51	55	61	69
41	34	26	17	7	33	28	24	21	19	25	35	46	58	71	33	39	46	54	63	70	69	67	64	60
27	23	18	12	5	18	14	11	9	8	26	39	53	68	84	30	38	47	57	68	92	88	80	68	52
90	77	63	48	32	97	89	82	76	71	16	26	35	43	50	89	66	44	23	3	31	40	50	61	73
85	73	60	46	31	84	77	71	66	62	12	21	29	36	42	66	49	33	18	4	41	43	46	50	55
79	68	56	43	29	72	66	61	57	54	9	17	24	30	35	44	33	23	14	6	52	47	43	40	38
72	62	51	39	26	61	56	52	49	47	7	14	20	25	29	23	18	14	11	9	64	52	41	31	22
64	55	45	34	22	51	47	44	42	41	6	12	17	21	24	3	4	6	9	13	77	58	40	23	7
38	50	63	77	92	48	40	33	27	22	2	3	5	8	12	11	28	46	65	85	12	32	53	75	98
53	56	60	65	71	59	52	46	41	37	3	5	9	15	23	23	38	54	71	89	31	45	60	76	93
67	61	56	52	49	71	65	60	56	53	5	8	14	23	35	34	47	61	76	92	51	59	68	78	89
80	65	51	38	26	84	79	75	72	70	8	12	20	32	48	44	55	67	80	94	72	74	77	81	86
92	68	45	23	2	98	94	91	89	88	12	17	27	42	62	53	62	72	83	95	94	90	87	85	84

19 4 by 4 Sudokus (Quadoku)

Explanation Sudokus with four numbers (1,2,3 and 4).

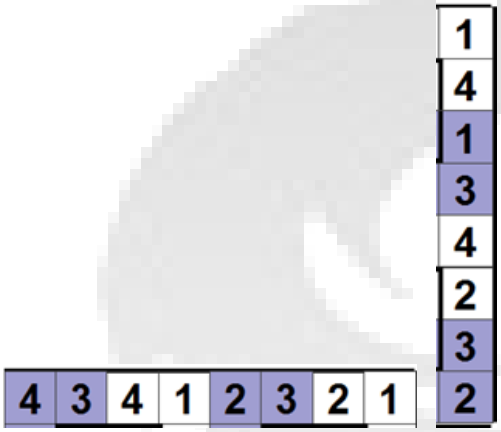


4	3	4	1	2	3	2	1
2	1	2	3	1	4	3	4
3	4	3	2	4	1	2	1
1	2	1	4	3	2	4	3
2	3	2	1	4	3	1	4
4	1	4	3	1	2	3	2
1	2	3	4	2	4	1	3
3	4	1	2	3	1	4	2

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

At this Sudoku variant only the numbers 1, 2, 3 and 4 are used.

In each row and column the numbers one to four are found twice

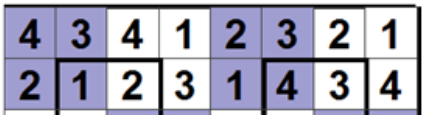


4	3	4	1	2	3	2	1	2

1
4
1
3
4
2
3

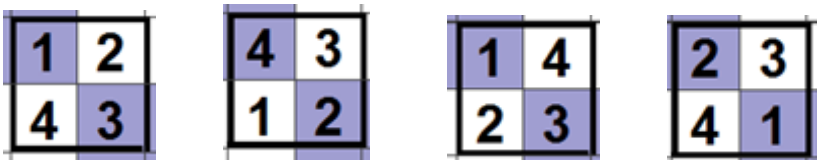
In then 12 by 12 variant the numbers are fount three times in each row and column. The 16 by 16 variant gives four equal numbers at each row and column.

In de zestien grijze en witte blokken komen de cijfers 1 t/m 4 één maal voor.
In the sixteen grey and white blocks the numbers 1 to 4 appears once.



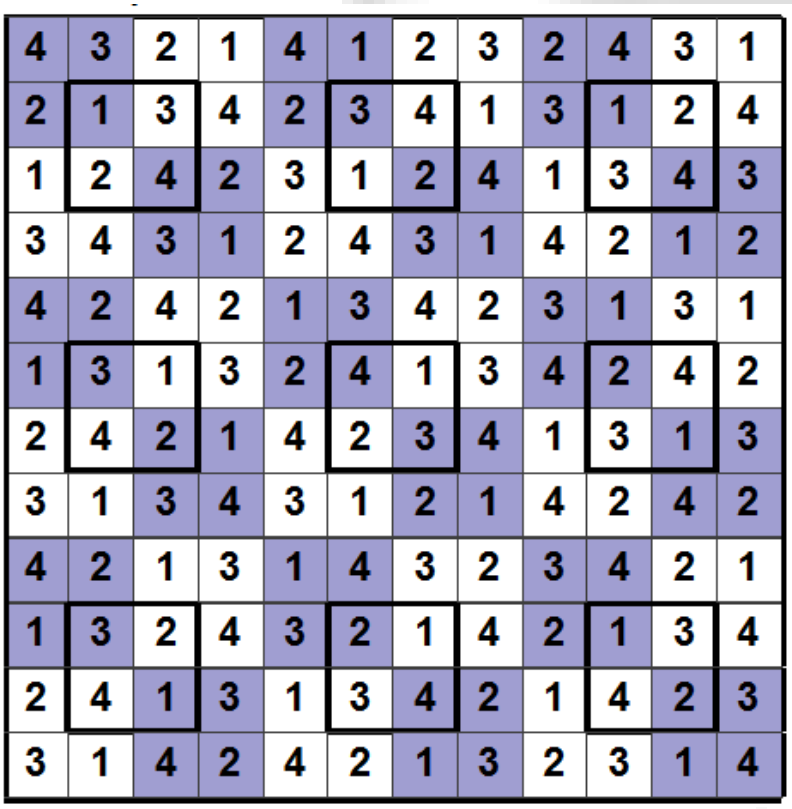
4	3	4	1	2	3	2	1
2	1	2	3	1	4	3	4

The Blocks with the black borders have the same rule.

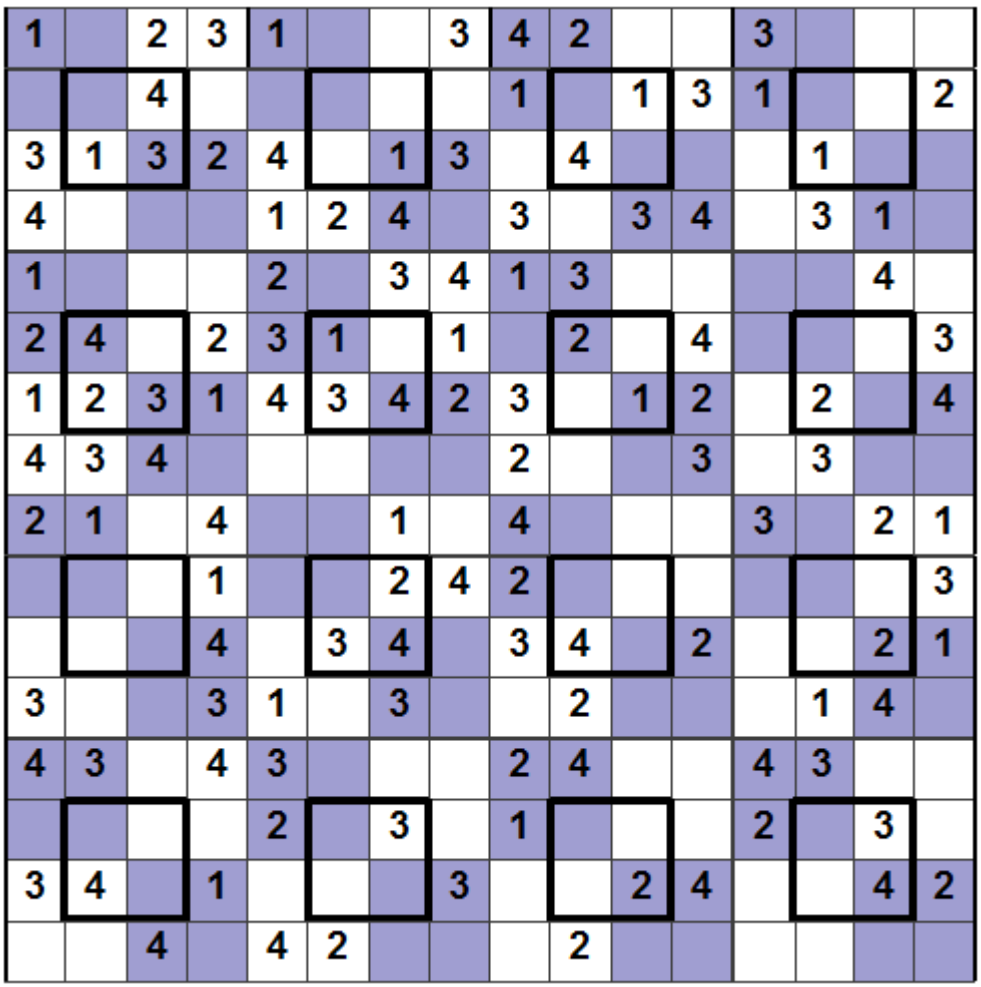


Equal number cannot be place beside or under an above each other.

Example of the 12 by 12 variant:



Example of the 16 by 16 variant:



20 4 by 4 Sudokus with two numbers at each position

Explanation:

Solution:

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

At this Sudoku variant only the numbers 1, 2, 3 and 4 are used..

At each position (total 8 * 8 = 64) two (different) numbers are present.

At each Block of four positions the numbers are present twice,

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

Etcetera.

At each row four equal numbers are present.

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

At each column four equal numbers are present.

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

Puzzle:

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

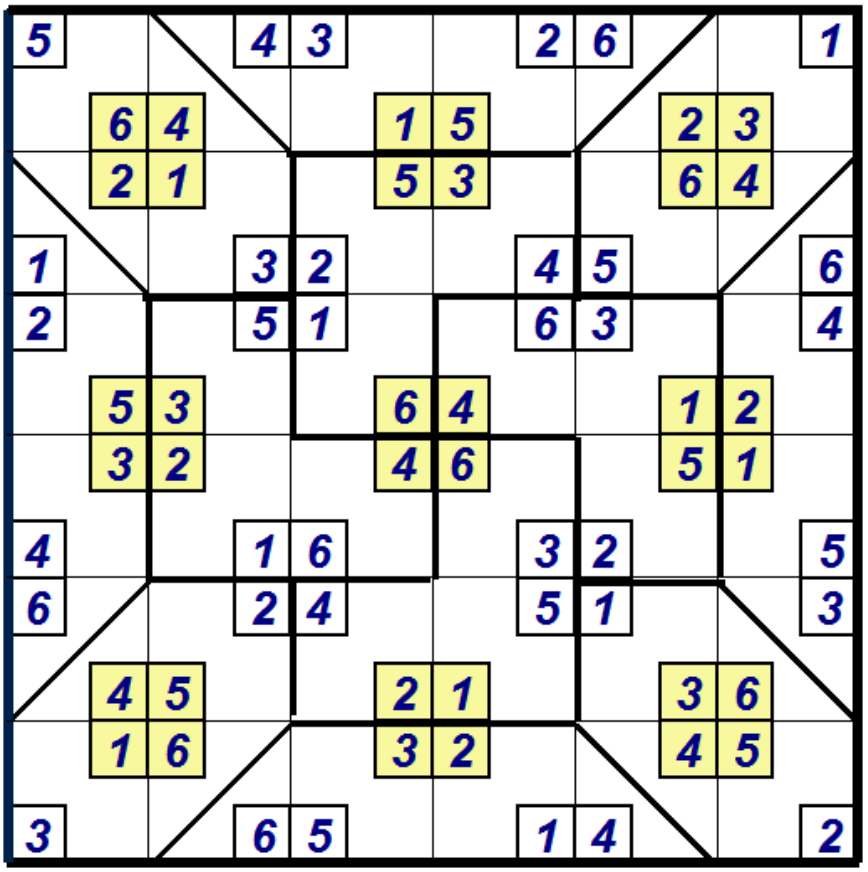
21 6 by 6 Sudokus

21.1 Double 6 by 6 Sudokus

Explanation:

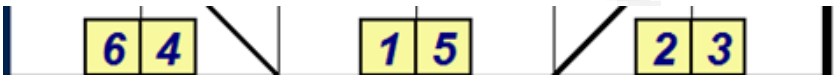
This Sudoku variant has 12 rows and columns each with six positions.
In each row and column the number 1 to 6 may appear only once.
Moreover this rule is used in the 12 blocks marked with a border line.

The solution looks like:

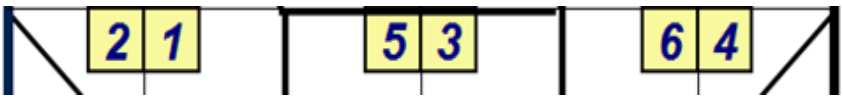


Row 1:

Row 2:

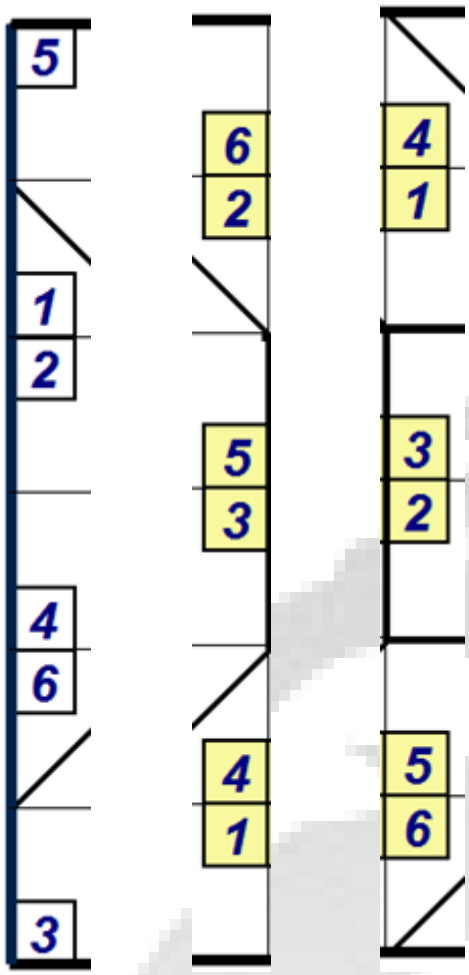


Row 3:

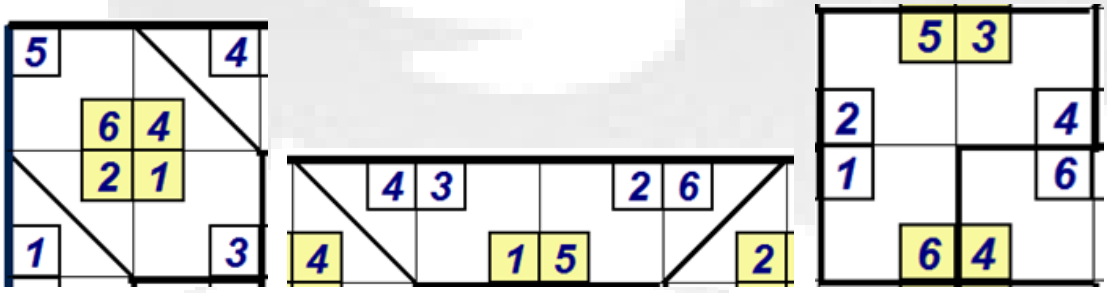


Etc.

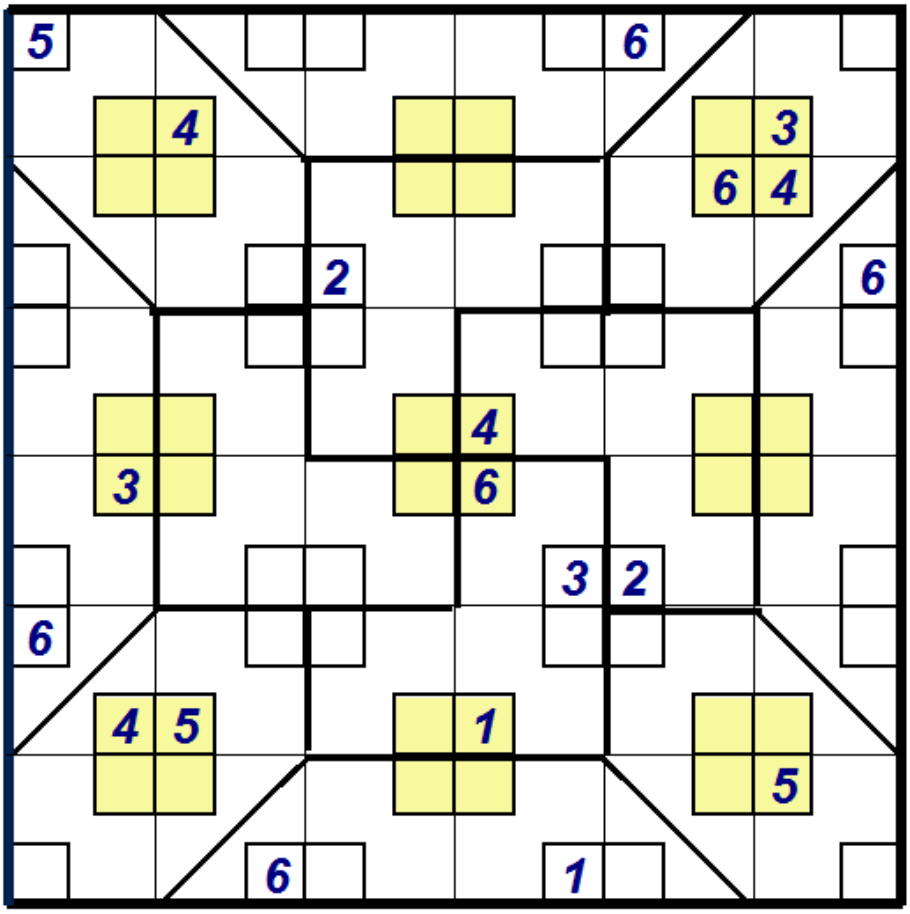
Column: 1 Column: 2 Column: 3 etc.



Blocks:



The puzzle looks like:

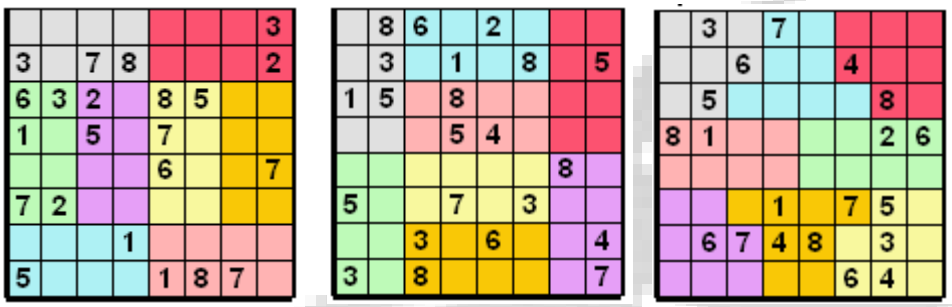


23 8 by 8 Sudokus

23.1 8 by 8 Sudokus with patterns

By this Sudoku type there are eight numbers available.

Some variants as shown below:



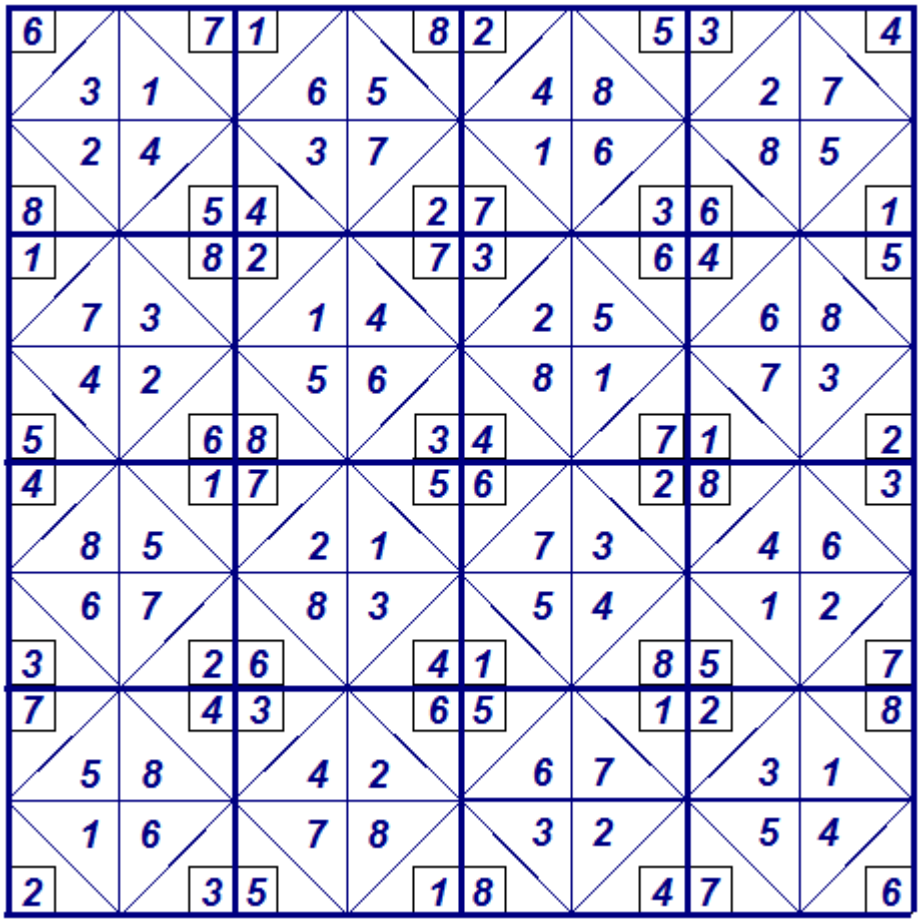
By this type of Sudoku there are no blocks but only rows, columns and patterns.

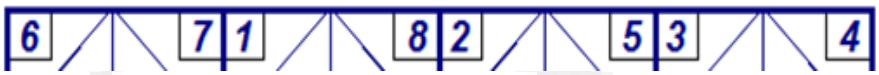
23.2 Double 8 by 8 Sudokus

Explanation:

This Sudoku variant has 16 rows and columns each with eight positions.
In each row and column the number 1 to 8 may appear only once.
Moreover this rule is used in the 16 blocks marked with a border line.

The solution looks like:



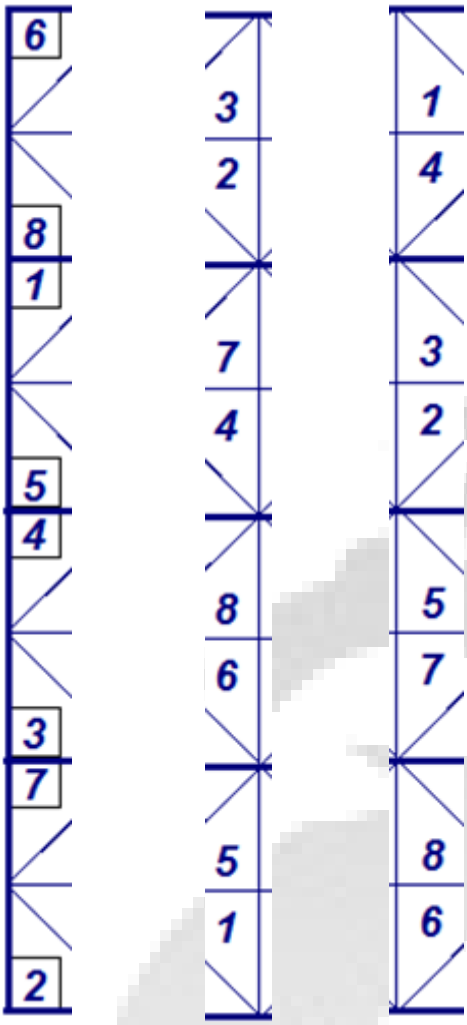
Row 1: 

Row 2: 

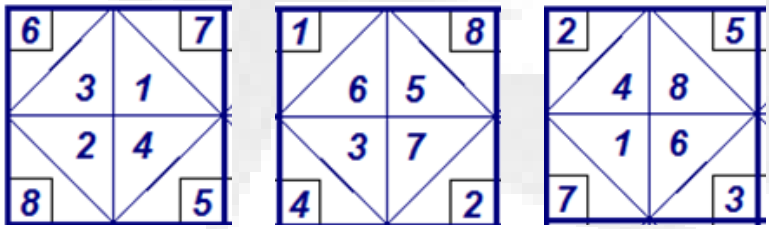
Row 3: 

Etc.

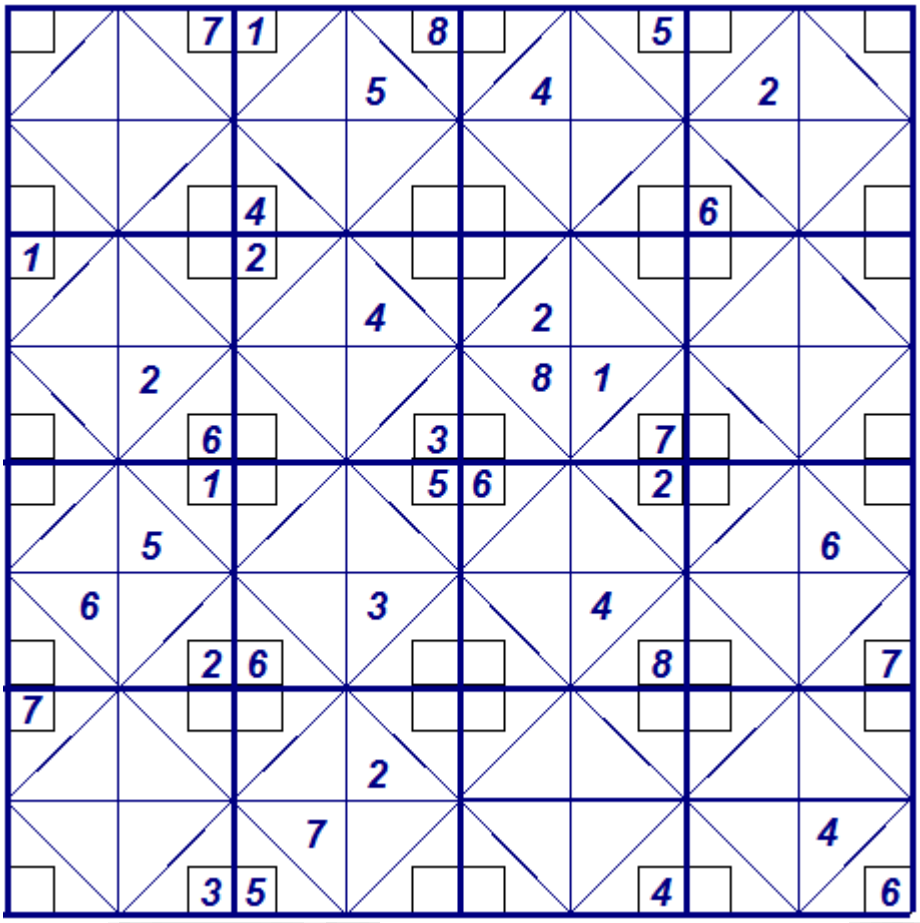
Column 1: Column 2: Column 3: enzovoort.



Blocks:



The puzzle looks like:

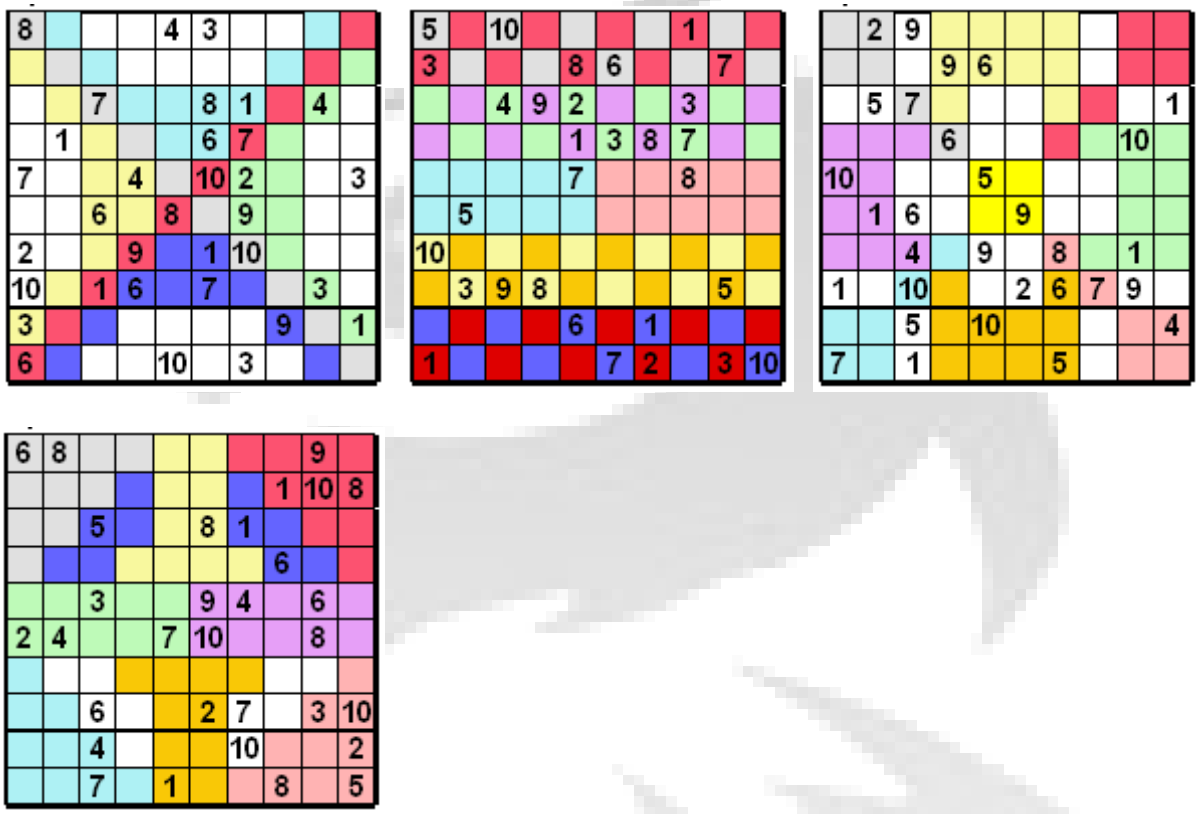


24 10 by 10 and 12 by 12 Sudokus

24.1 10 by 10 Sudokus

By this type of Sudoku there are ten numbers available.

Some variants as shown below:



By this type of Sudoku there are no blocks but only rows, columns and patterns.

24.2 12 by 12 Sudokus

By this type of Sudoku there are twelve numbers available.

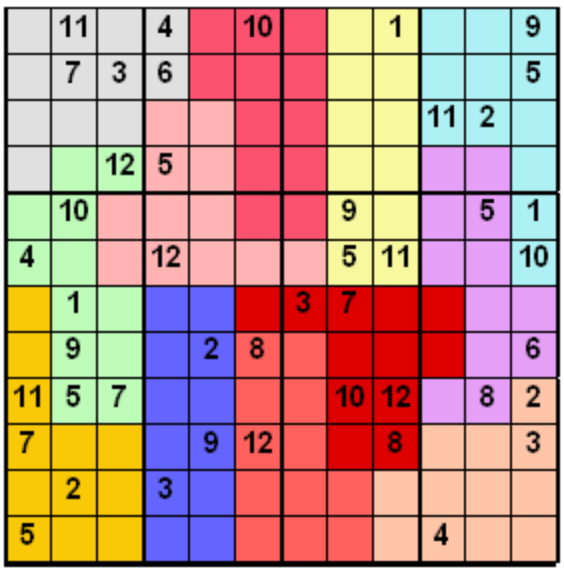
Some variants as shown below:

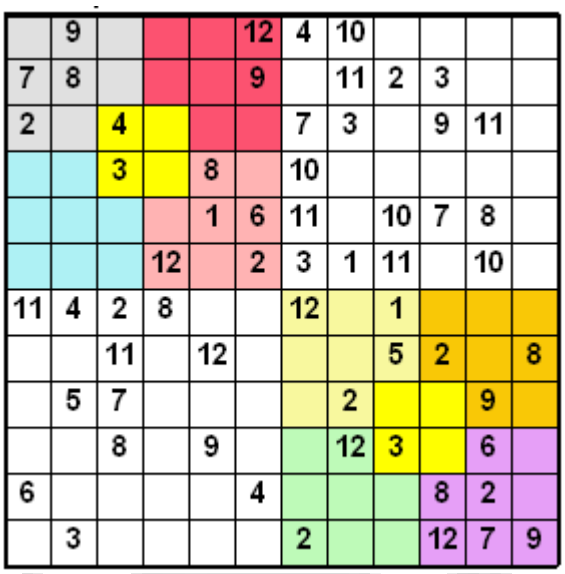
7		12	3	2		5	1		9		
2		10	6		7	12	3		8	1	
			1			9					
5				10	8	11	6	7		3	
6			11				8			7	
1	5				10			11	2		3
	2			7	1		5		6	9	
12		11		6						5	8
	6		8				12				
	12		7		2					8	
11	3		5	9		8				10	
9		8		1	6		2	5			4

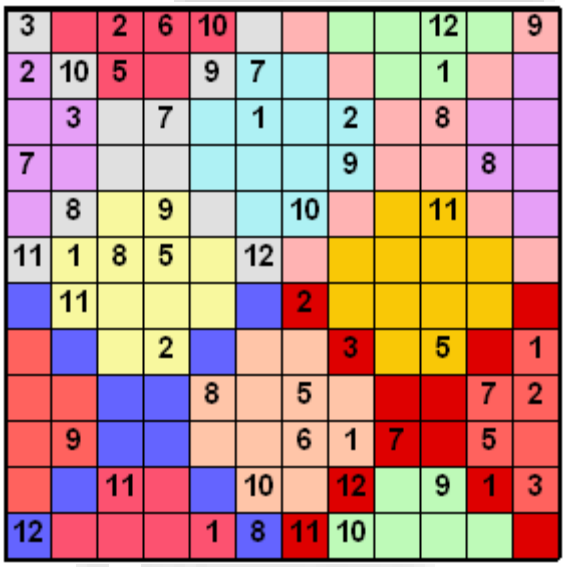
12	9	4		10					5		7
3	10	5					6	9		11	
				8				12	1	10	
	8	11			2	3					12
4	3		7	2	5	12	1		9	8	
9			12		10		8		2	7	
					11				3	12	1
				1		9					
	11	12			1			10	7	2	
	2	3				11		5	12		8
10	1	6			7	8	9	2			
		9			8				6	3	

This Sudoku type gives the odd numbers with a grey background colour and the even numbers with a white background colour. So on every position are only six possible numbers available.

Other variants







25 Serie Sudokus

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

This Sudoku variant contains series that are formed out of three numbers and where the difference between the first and the second number is equal to the difference between the second and the third number.

For example:

1 2 3 difference = 1
1 5 9 difference = 4
5 3 1 difference = -2

A serie can appear horizontal (horizontal brown bar) as well as vertical (vertical brown bar).

For example:

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

Horizontal series: 789 - 321 - 246 - 951
Vertical series: 864 - 456 - 135 - 234

Variant with extra diagonal series:

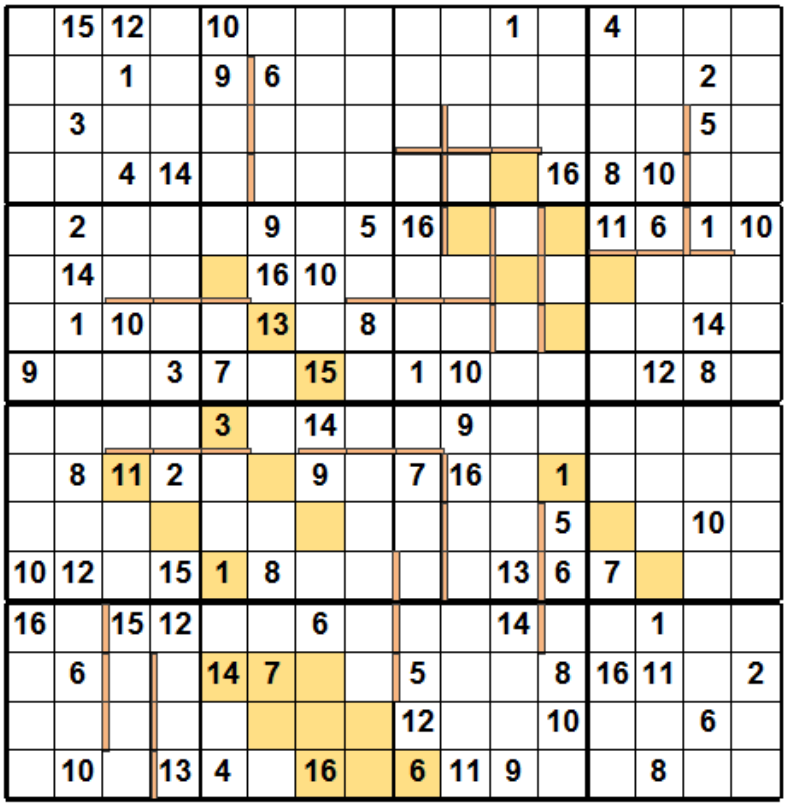
3	5	6	4	9	2	8	7	1
4	8	1	7	5	3	2	6	9
2	9	7	8	6	1	3	4	5
5	1	3	9	7	8	4	2	6
7	4	8	5	2	6	9	1	3
6	2	9	1	3	4	5	8	7
8	7	5	6	4	9	1	3	2
1	6	2	3	8	5	7	9	4
9	3	4	2	1	7	6	5	8

This variant contains also diagonal series (grey background).

In this example:

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

This Sudoku variant can also be made in 16 by 16 format:



	15	12		10						1		4			
		1		9	6									2	
	3													5	
		4	14								16	8	10		
	2				9		5	16				11	6	1	10
	14				16	10									
	1	10			13		8							14	
9			3	7		15		1	10				12	8	
				3		14			9						
	8	11	2			9		7	16		1				
											5			10	
10	12		15	1	8					13	6	7			
16		15	12			6				14			1		
	6			14	7			5			8	16	11		2
								12			10			6	
	10		13	4		16		6	11	9			8		

```
Beschikbare reeksen:
 1- 2- 3   2- 3- 4   3- 2- 1   4- 3- 2   5- 3- 1   6- 4- 2
 1- 3- 5   2- 4- 6   3- 4- 5   4- 5- 6   5- 4- 3   6- 5- 4
 1- 4- 7   2- 5- 8   3- 5- 7   4- 6- 8   5- 6- 7   6- 7- 8
 1- 5- 9   2- 6-10   3- 6- 9   4- 7-10   5- 7- 9   6- 8-10
 1- 6-11   2- 7-12   3- 7-11   4- 8-12   5- 8-11   6- 9-12
 1- 7-13   2- 8-14   3- 8-13   4- 9-14   5- 9-13   6-10-14
 1- 8-15   2- 9-16   3- 9-15   4-10-16   5-10-15   6-11-16

 7- 4- 1   8- 5- 2   9- 5- 1  10- 6- 2  11- 6- 1  12- 7- 2
 7- 5- 3   8- 6- 4   9- 6- 3  10- 7- 4  11- 7- 3  12- 8- 4
 7- 6- 5   8- 7- 6   9- 7- 5  10- 8- 6  11- 8- 5  12- 9- 6
 7- 8- 9   8- 9-10   9- 8- 7  10- 9- 8  11- 9- 7  12-10- 8
 7- 9-11   8-10-12   9-10-11  10-11-12  11-10- 9  12-11-10
 7-10-13   8-11-14   9-11-13  10-12-14  11-12-13  12-13-14
 7-11-15   8-12-16   9-12-15  10-13-16  11-13-15  12-14-16

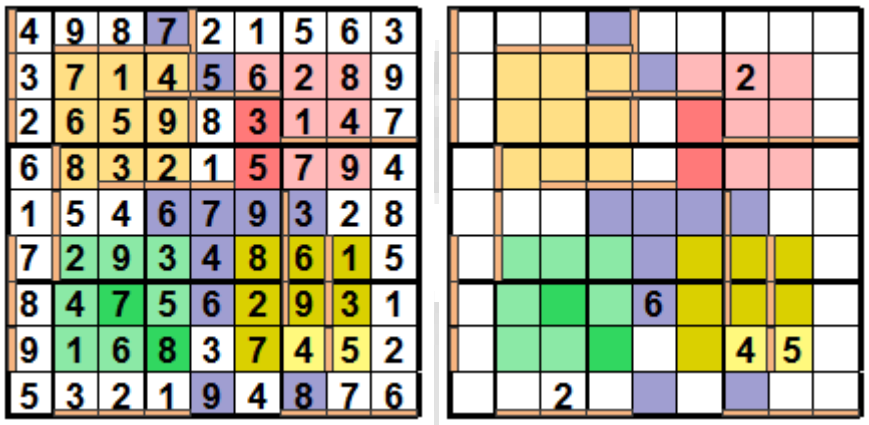
13- 7- 1  14- 8- 2  15- 8- 1  16- 9- 2
13- 8- 3  14- 9- 4  15- 9- 3  16-10- 4
13- 9- 5  14-10- 6  15-10- 5  16-11- 6
13-10- 7  14-11- 8  15-11- 7  16-12- 8
13-11- 9  14-12-10  15-12- 9  16-13-10
13-12-11  14-13-12  15-13-11  16-14-12
13-14-15  14-15-16  15-14-13  16-15-14

Gesorteerd op middelste cijfer:
 -- 2 --  1- 2- 3
 -- 3 --  1- 3- 5  2- 3- 4
 -- 4 --  1- 4- 7  2- 4- 6  3- 4- 5
 -- 5 --  1- 5- 9  2- 5- 8  3- 5- 7  4- 5- 6
 -- 6 --  1- 6-11  2- 6-10  3- 6- 9  4- 6- 8  5- 6- 7
 -- 7 --  1- 7-13  2- 7-12  3- 7-11  4- 7-10  5- 7- 9
          6- 7- 8
 -- 8 --  1- 8-15  2- 8-14  3- 8-13  4- 8-12  5- 8-11
          6- 8-10  7- 8- 9
 -- 9 --  2- 9-16  3- 9-15  4- 9-14  5- 9-13  6- 9-12
          7- 9-11  8- 9-10
 --10 --  4-10-16  5-10-15  6-10-14  7-10-13  8-10-12
          9-10-11
 --11 --  6-11-16  7-11-15  8-11-14  9-11-13 10-11-12
 --12 --  8-12-16  9-12-15 10-12-14 11-12-13
 --13 -- 10-13-16 11-13-15 12-13-14
 --14 -- 12-14-16 13-14-15
 --15 -- 14-15-16
```

25.1 Series Sudokus with Patterns

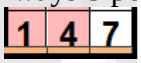
Explanation Series Sudoku combined with patterns.

This Sudoku variant has a number of series, with three numbers each.
At these series the difference between the first and the Second and the Second is and the third number is always identical.
For example:
1 2 3 differences = 1
1 5 9 differences = 4
5 3 1 differences = -2



Moreover all normal Sudoku rules apply also to these Sudoku variant.

Horizontal series, always 3 positions long, are indicated with a horizontal beam (under the series):

 filled: 

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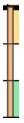
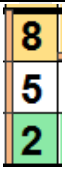
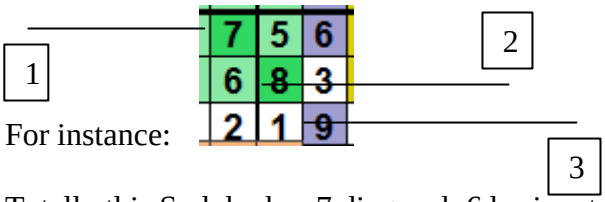
Vertical series, always 3 positions long, are indicated with a vertical beam (left of the series): 

filled: 

.

The diagonal series (always starting left above and ending Right under and always 3 positions long) are outside the patterns marked in grey:  .

Within these patterns the diagonal series are marked in a colour a little bit more dark as the colour of the series itself.

For instance: 

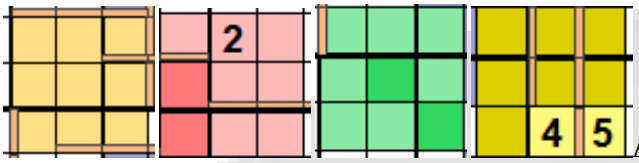
1, 2 and 3 is the diagonal series (7-8-9).

Totally this Sudoku has 7 diagonal, 6 horizontal and 6 vertical series.

The possible series are:

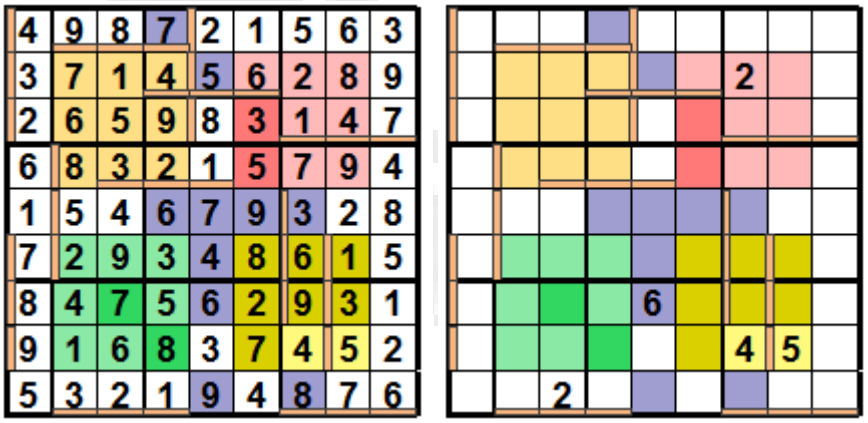
1-2-3 1-3-5 1-4-7 1-5-9
2-3-4 2-4-6 2-5-8
3-2-1 3-4-5 3-5-7 3-6-9
4-3-2 4-5-6 4-6-8
5-3-1 5-4-3 5-6-7 5-7-9
6-4-2 6-5-4 6-7-8
7-4-1 7-5-3 7-6-5 7-8-9
8-5-2 8-6-4 8-7-6
9-5-1 9-6-3 9-7-5 9-8-7

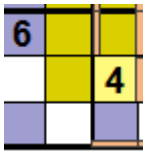
There are four Patterns, each 3 by 3 positions::



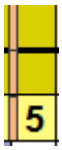
All patterns contain the numbers 1 t/m 9 once.

Solution:



The diagonal series 

6-?-? Possible series are: 6-4-2, 6-5-4 or 6-7-8.
6-4-2 and 6-5-4 are impossible because row 8 already has the numbers 4 and 5.
So the solution is: 6-7-8.



The vertical series possible series are: 1-3-5, 2-4-5, 7-6-5 or 9-7-5.
7-6-5 is impossible because row 7 has already a number 7.
2-4-5 is impossible because the Pattern right below already has a number 4. .
9-7- is impossible because the Pattern right below already has a number 7, filled in the first solution. So the solution is: 1-3-5.

Etcetera. .....

The first numbers are mostly found from the series, later on in the solution the numbers are found using the Sudoku rules and the patterns.

This Sudoku variant can also be made in 16 by 16 format:

16	12	10	15	2	1	6	3	14	13	7	11	9	4	5	8
6	3	7	13	5	14	9	8	4	2	1	16	15	12	11	10
4	14	5	2	15	11	12	16	3	8	10	9	1	7	13	6
9	11	8	1	7	4	13	10	6	5	12	15	14	16	3	2
14	7	13	10	12	3	8	4	1	16	5	6	2	11	9	15
12	5	9	6	14	16	15	2	11	7	8	3	4	13	10	1
8	4	3	11	9	5	1	7	2	15	13	10	12	6	16	14
1	15	2	16	11	6	10	13	12	9	14	4	5	3	8	7
3	10	4	8	6	12	14	9	15	11	2	7	16	5	1	13
5	1	12	14	13	7	4	15	16	3	6	8	10	9	2	11
11	13	6	9	8	2	16	5	10	1	4	12	7	14	15	3
15	2	16	7	1	10	3	11	13	14	9	5	6	8	4	12
7	8	14	12	4	13	5	1	9	10	3	2	11	15	6	16
2	9	11	5	3	15	7	6	8	12	16	1	13	10	14	4
13	16	1	4	10	8	11	12	5	6	15	14	3	2	7	9
10	6	15	3	16	9	2	14	7	4	11	13	8	1	12	5

```
Available series:
 1- 2- 3   2- 3- 4   3- 2- 1   4- 3- 2   5- 3- 1   6- 4- 2
 1- 3- 5   2- 4- 6   3- 4- 5   4- 5- 6   5- 4- 3   6- 5- 4
 1- 4- 7   2- 5- 8   3- 5- 7   4- 6- 8   5- 6- 7   6- 7- 8
 1- 5- 9   2- 6-10   3- 6- 9   4- 7-10   5- 7- 9   6- 8-10
 1- 6-11   2- 7-12   3- 7-11   4- 8-12   5- 8-11   6- 9-12
 1- 7-13   2- 8-14   3- 8-13   4- 9-14   5- 9-13   6-10-14
 1- 8-15   2- 9-16   3- 9-15   4-10-16   5-10-15   6-11-16

 7- 4- 1   8- 5- 2   9- 5- 1  10- 6- 2  11- 6- 1  12- 7- 2
 7- 5- 3   8- 6- 4   9- 6- 3  10- 7- 4  11- 7- 3  12- 8- 4
 7- 6- 5   8- 7- 6   9- 7- 5  10- 8- 6  11- 8- 5  12- 9- 6
 7- 8- 9   8- 9-10   9- 8- 7  10- 9- 8  11- 9- 7  12-10- 8
 7- 9-11   8-10-12   9-10-11  10-11-12  11-10- 9  12-11-10
 7-10-13   8-11-14   9-11-13  10-12-14  11-12-13  12-13-14
 7-11-15   8-12-16   9-12-15  10-13-16  11-13-15  12-14-16

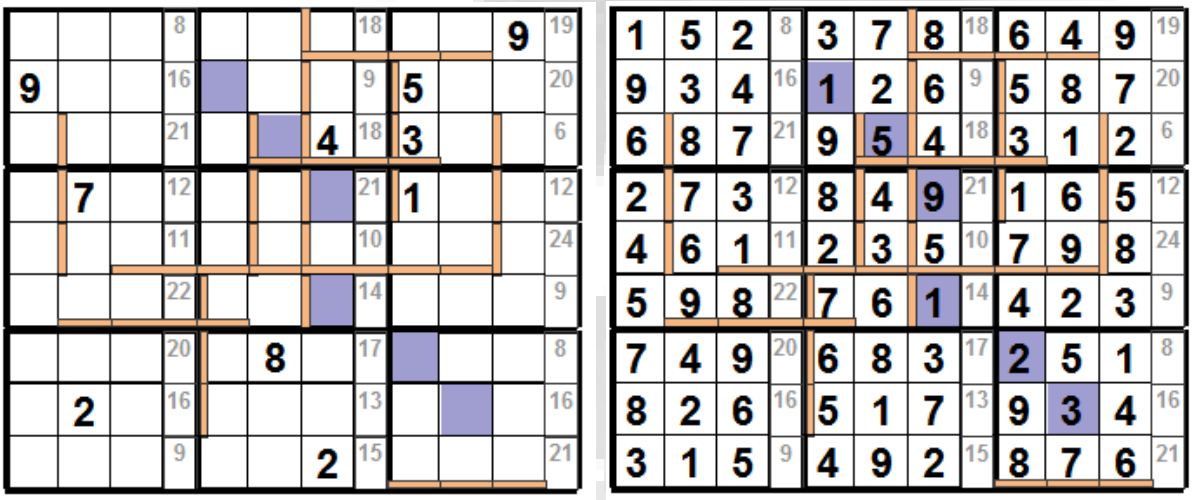
13- 7- 1  14- 8- 2  15- 8- 1  16- 9- 2
13- 8- 3  14- 9- 4  15- 9- 3  16-10- 4
13- 9- 5  14-10- 6  15-10- 5  16-11- 6
13-10- 7  14-11- 8  15-11- 7  16-12- 8
13-11- 9  14-12-10  15-12- 9  16-13-10
13-12-11  14-13-12  15-13-11  16-14-12
13-14-15  14-15-16  15-14-13  16-15-14

Sorted on middle number:
 -- 2 --  1- 2- 3
 -- 3 --  1- 3- 5  2- 3- 4
 -- 4 --  1- 4- 7  2- 4- 6  3- 4- 5
 -- 5 --  1- 5- 9  2- 5- 8  3- 5- 7  4- 5- 6
 -- 6 --  1- 6-11  2- 6-10  3- 6- 9  4- 6- 8  5- 6- 7
 -- 7 --  1- 7-13  2- 7-12  3- 7-11  4- 7-10  5- 7- 9
           6- 7- 8
 -- 8 --  1- 8-15  2- 8-14  3- 8-13  4- 8-12  5- 8-11
           6- 8-10  7- 8- 9
 -- 9 --  2- 9-16  3- 9-15  4- 9-14  5- 9-13  6- 9-12
           7- 9-11  8- 9-10
--10 --  4-10-16  5-10-15  6-10-14  7-10-13  8-10-12
           9-10-11
--11 --  6-11-16  7-11-15  8-11-14  9-11-13 10-11-12
--12 --  8-12-16  9-12-15 10-12-14 11-12-13
--13 -- 10-13-16 11-13-15 12-13-14
--14 -- 12-14-16 13-14-15
--15 -- 14-15-16
```

25.2 Series Sudokus with Summation

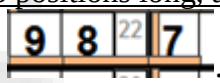
Explanation Series Sudoku with known Summations of 3 horizontal positions.

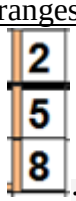
This Sudoku variant contains a number of series, always at three positions in the Sudoku.
At these series the difference between the first and the Second and the Second and the third number is identical.
For example:
1 2 3 difference = 1
1 5 9 difference = 4
5 3 1 difference = -2



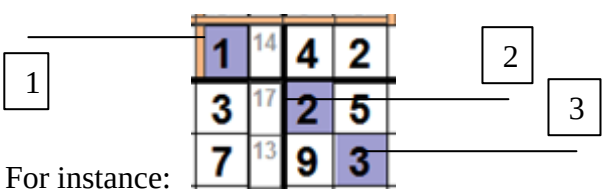
Moreover all normal Sudoku rules apply to these Sudoku variant.

Horizontal ranges, always 3 positions long, are indicated with a horizontal beam (under the series):

 filled in gives:  .

Vertical ranges, always 3 positions long, are indicated with a horizontal beam (left of the series):  filled in gives:  .

The diagonal ranges (always from left above to Right under and always 3 positions long) are indicated with a grey background color:  .



For instance: 1, 2 and 3 is the series (1-2-3).

Totally these Sudoku contains 2 diagonal, 6 horizontal and 7 vertical series.

The possible series are:

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

Summations:

Except series there are also, horizontal, Summations present.

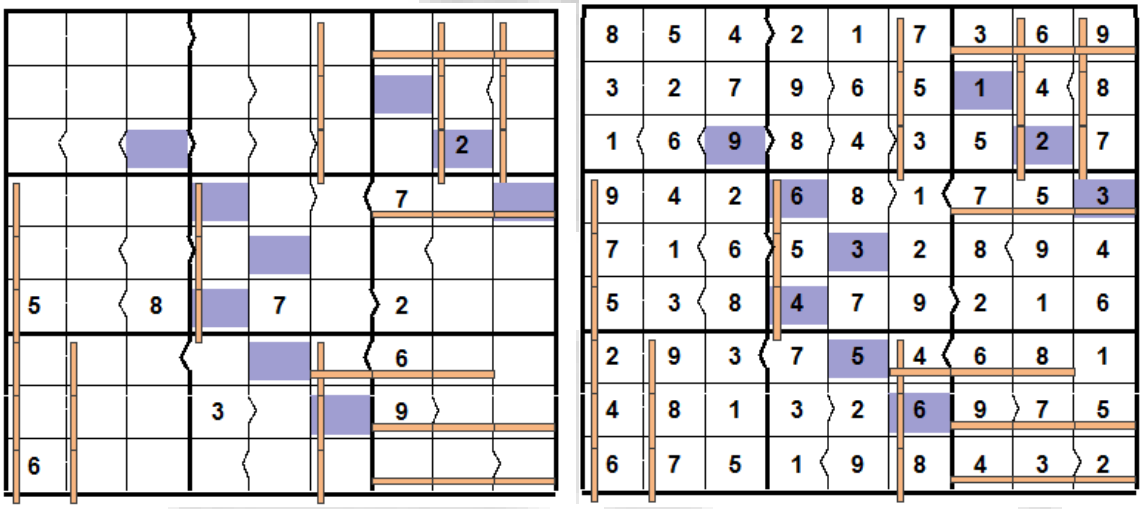
1+5+2 = 8
3+7+8=18
6+4+9=19

Good luck, these puzzles are not simple!!

25.3 Series Sudokus with Relations

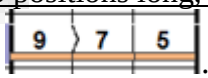
Explanation Series Sudoku with relations.

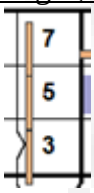
This Sudoku variant contains a number of series, always at three positions in the Sudoku.
At these series the difference between the first and the Second and the Second and the third number is identical.
For example:
1 2 3 difference = 1
1 5 9 difference = 4
5 3 1 difference = -2



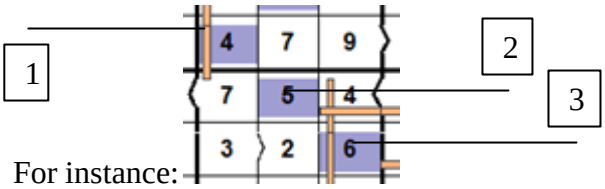
Moreover all normal Sudoku rules apply to these Sudoku variant.

Horizontal ranges, always 3 positions long, are indicated with a horizontal beam (under the series):

 filled in gives:  .

Vertical ranges, always 3 positions long, are indicated with a horizontal beam (left of the series):  filled in gives:  .

The diagonal ranges (always from left above to Right under and always 3 positions long) are indicated with a grey background color:  .



For instance: 1, 2 and 3 is the series (4-5-6).

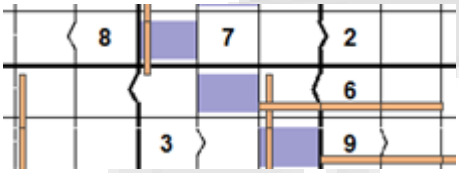
Totally these Sudoku contains 3 diagonal, 5 horizontal and 8 vertical series

The possible series are:

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

Relations:

Except series the Sudoku contains so called relations between the different horizontal positions in the Sudoku, for example:

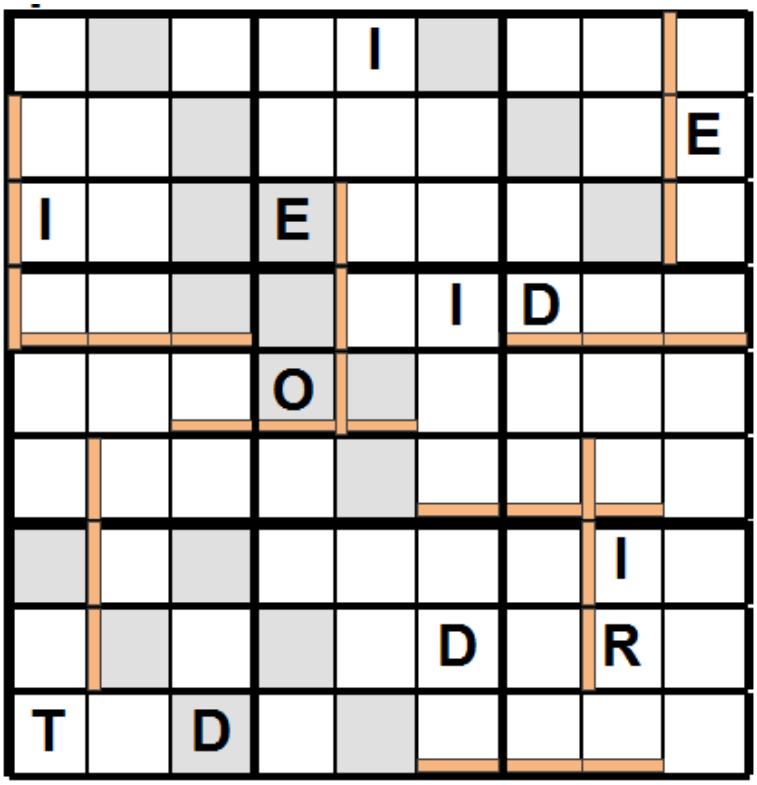


The position left of the 8 is smaller than 8 … < **8**
The position right of the 3 is smaller than 3 3 > **….**
The position right of the 9 is smaller than 9 9 >…
The position left of the 2is greater than 2 … > **2**
Etcetera.

Good luck, these puzzles are not simple!!

Word Sudokus

Sudoku:



Available letters: A D E H I O R T U

Available Words:

ADD	AHA	AID	AIR	ARE	ART	DIE	DOT	DUE	EAR
EAT	ERA	ERR	HAT	HER	HIT	HOE	HUE	HUT	IRE
OAR	ODD	OUT	RAT	RED	RID	ROD	ROE	ROT	RUE
TAR	TEA	THE	TIE	TIT	TOE	TOO			

Solution:

A	T	E	D	I	R	O	U	H
D	R	O	H	A	U	I	T	E
I	U	H	E	T	O	A	D	R
E	A	R	U	H	I	D	O	T
U	D	T	O	E	A	R	H	I
O	H	I	R	D	T	E	A	U
R	O	A	T	U	E	H	I	D
H	E	U	I	O	D	T	R	A
T	I	D	A	R	H	U	E	O

Available letters: A D E H I O R T U

Available Words:

ADD	AHA	AID	AIR	ARE	ART	DIE	DOT	DUE	EAR
EAT	ERA	ERR	HAT	HER	HIT	HOE	HUE	HUT	IRE
OAR	ODD	OUT	RAT	RED	RID	ROD	ROE	ROT	RUE
TAR	TEA	THE	TIE	TIT	TOE	TOO			

In this Sudoku variant numbers are replaced by letters. Each letter is available once at each row, column and block. Moreover, the Sudoku contents some words, all composed with three letters. At the footer of the Sudoku, the available letters (nine) as well as all possible words can occur in this Sudoku are printed. A word can be present several times in the Sudoku.
Words can occur horizontal (horizontal, brown, bar) and vertical (vertical, brown, bar).
An other variant gives also diagonal words (grey background)

Solution (upper part):

A	T	E	D	I
D	R	O	H	A
I	U	H	E	T
E	A	R	U	H
U	D	T	O	E
O	H	I	R	D

The vertical words are Die and The (brown bar).
The horizontal words are Ear end Toe (brown bar.
The diagonal words are: Rod, Hue and Toe (Grey background).

This Sudoku variant can also be made in 16 by 16 format:

X	P	C	D	O	H	I	Y	S	A	N	V	R	G	E	T
H	R	O	V	P	N	A	C	G	T	E	I	Y	X	S	D
I	G	N	T	S	X	E	D	R	Y	H	P	C	O	V	A
S	Y	E	A	R	G	T	V	C	O	D	X	N	I	H	P
E	N	Y	G	A	P	S	H	X	V	I	O	D	R	T	C
T	D	H	X	I	Y	C	G	N	S	P	R	A	E	O	V
P	I	R	S	D	O	V	E	A	H	C	T	G	N	Y	X
C	A	V	O	T	R	X	N	Y	E	G	D	H	S	P	I
R	X	P	C	N	S	D	A	E	G	V	Y	O	T	I	H
V	T	G	E	C	I	H	O	P	R	A	S	X	Y	D	N
A	O	D	N	Y	V	G	T	I	C	X	H	S	P	R	E
Y	S	I	H	X	E	R	P	O	D	T	N	V	C	A	G
O	E	A	R	H	T	N	I	V	X	Y	C	P	D	G	S
N	H	S	I	E	A	O	X	D	P	R	G	T	V	C	Y
G	C	X	Y	V	D	P	S	T	I	O	A	E	H	N	R
D	V	T	P	G	C	Y	R	H	N	S	E	I	A	X	O

Available Words:

ACT	ADD	AGE	AHA	AID	AIR	AND	ANT	ANY	APE
APT	ARC	ARE	ART	ASH	ASS	AXE	AYE	CAN	CAP
CAR	CAT	COD	COG	CON	COO	COP	CRY	DAY	DEN
DIE	DIG	DIP	DOG	DOT	DRY	DYE	EAR	EAT	EGG
END	ERA	ERR	EYE	GAG	GAP	GAS	GAY	GET	GOD
HAT	HAY	HEN	HER	HIP	HIS	HIT	HOE	HOG	HOP
ICE	INN	IRE	ITS	IVY	NAY	NIP	NOD	NOT	OAR
ODD	ONE	OPT	PAD	PAY	PEG	PER	PET	PIE	PIG
PIN	PIP	PIT	POT	RAG	RAT	RAY	RED	RID	RIP
ROD	ROE	ROT	RYE	SAD	SAP	SAY	SEA	SEE	SET
SEX	SHE	SHY	SIN	SIP	SIR	SIT	SIX	SON	SPY
STY	TAP	TAR	TAX	TEA	TEN	THE	THY	TIE	TIN
TIP	TIT	TOE	TOO	TOP	TRY	VAN	VAT	VEX	VIE
YEA	YEN	YEP	YES	YET	YON				

26 Combination Sudokus

Explanation:

This Sudoku type is a traditional Sudoku (in various degree of difficulty) combined with 81 letters. Out of these letters the challenge is to find the eight corresponding words, each with a length of nine letters.

The Sudoku:

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

|EEO|CNP|HDT|

|BAA|CEO|SPW|

|ALA|RDP|GAC|

|SOO|REA|ENU|

|TAU|TAL|RNE|

|PCD|UZE|RLI|

|ICD|HFT|EOO|

|SEI|RTN|SAS|

|COR|LIH|LSA|

First solve the Sudoku:

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

EEO	CNP	HD**T**
BAA	C**E**O	SPW
A**L**A	RDP	GAC
SOO	RE**A**	ENU
TAU	TAL	**R**NE
PC**D**	UZE	RLI
ICD	**H**FT	EOO
SEI	RTN	S**A**S
COR	LIH	LSA

The letters making the first word can be found out of the position of the 1 in the Sudoku: See above. The letters are: TELARDHAC, the positions of the 2 in the Sudoku make the second word, etcetera.

After that out of these letters words must be formed. The first word is: CATHEDRAL.

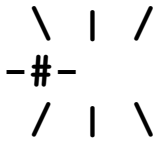
The total solution is:

7	4	6	2	9	3	8	5	1	CATHEDRAL
9	3	5	4	1	8	6	2	7	SPECTACLE
8	1	2	7	5	6	9	4	3	APPLIANCE
2	6	7	9	4	1	5	3	8	STREETCAR
4	8	9	5	3	7	1	6	2	CANDIDATE
3	5	1	6	8	2	4	7	9	POISONOUS
5	2	8	1	7	4	3	9	6	FOLLOWERS
6	9	3	8	2	5	7	1	4	HAZARDOUS
1	7	4	3	6	9	2	8	5	NEIGHBOUR

27 Symbol Sudokus

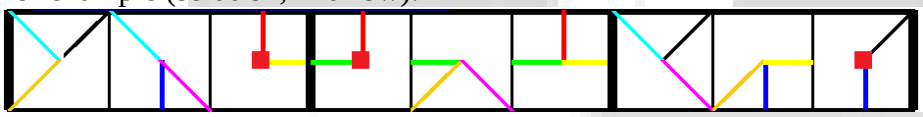
Explanation Sudoku with symbols:

Totally there are nine different symbols, namely:

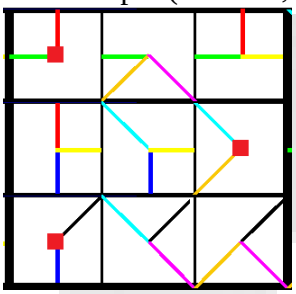


Four diagonals, a vertical line upwards, a vertical line downwards, a horizontal line to the left, a horizontal line to the right and a little block. in the middle. All these nine symbols are printed in a different color. In each row, column and block these symbols are find three times, totaly 27 symbols. In fact the Sudoku consist of three combined Sudokus

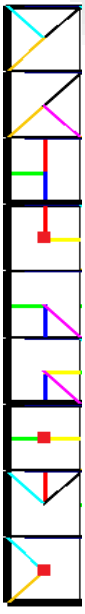
For example (solution, in a row):



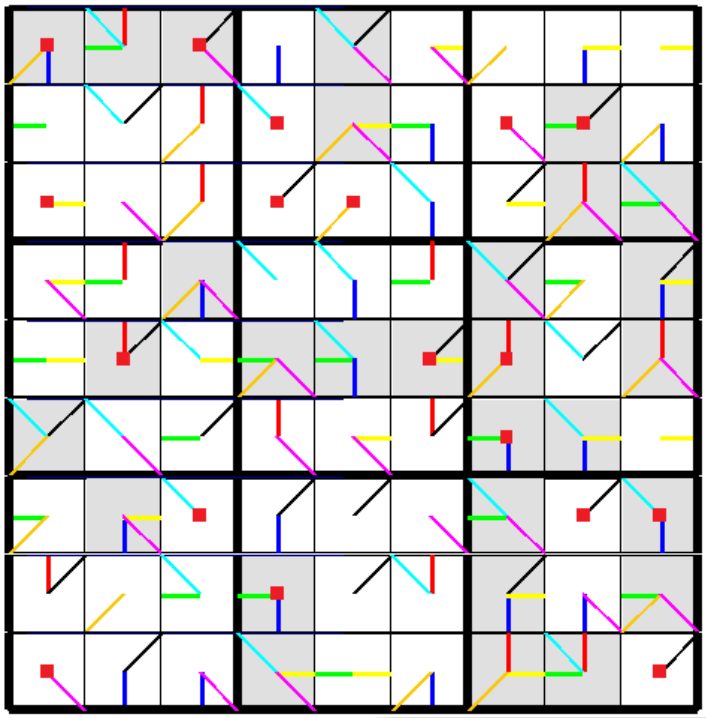
For example (solution, in a block):



For example (solution, in a column):

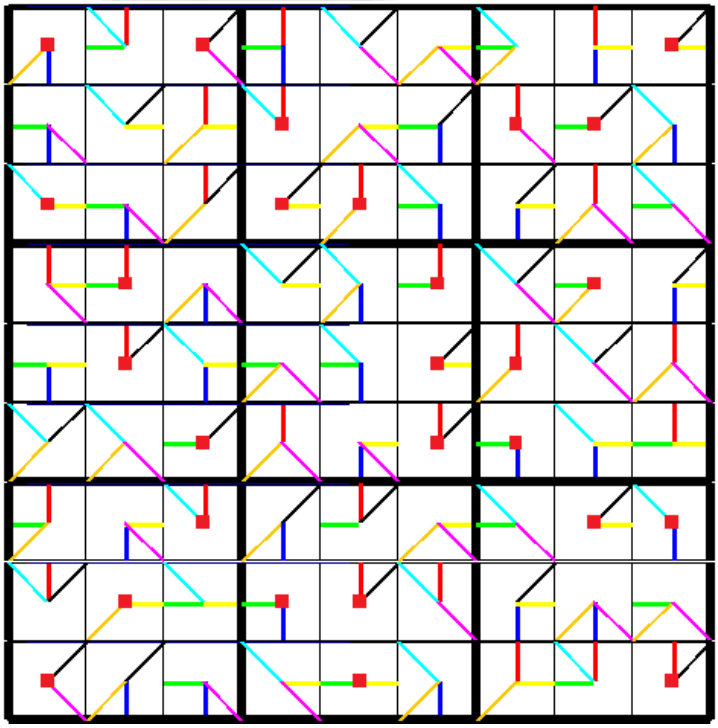


The total Puzzle looks like:



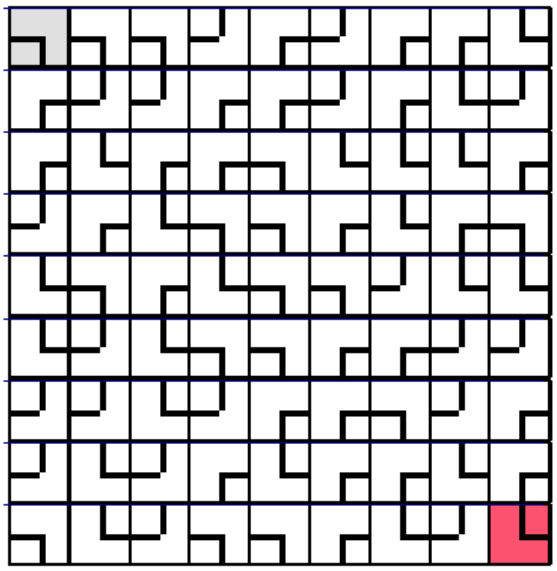
The positions with a grey background consist already three symbols, so are already solved.

The solution looks like:



28 Labyrinth

Explanation Labyrinth:



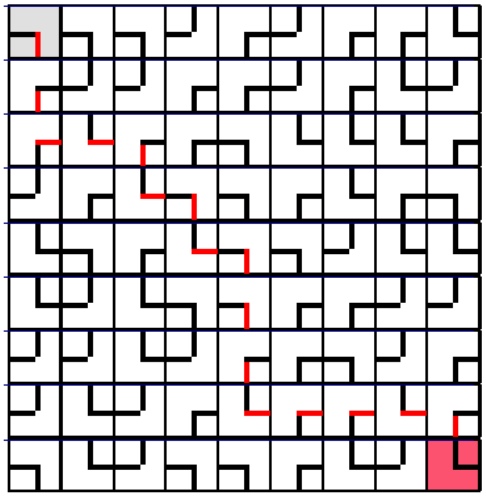
The starting point is the gray block at the left top, the finish is situated right under (in red).
At any position is a horizontal (left or right) and vertical (top or bottom) direction printed.

For example:  means a way to the right and upwards.

 in this case there is a way to the left and downwards.

The solution (in red, with a total of 16 steps) looks like this:

1 Doolhof Oplossing (16 Stap)

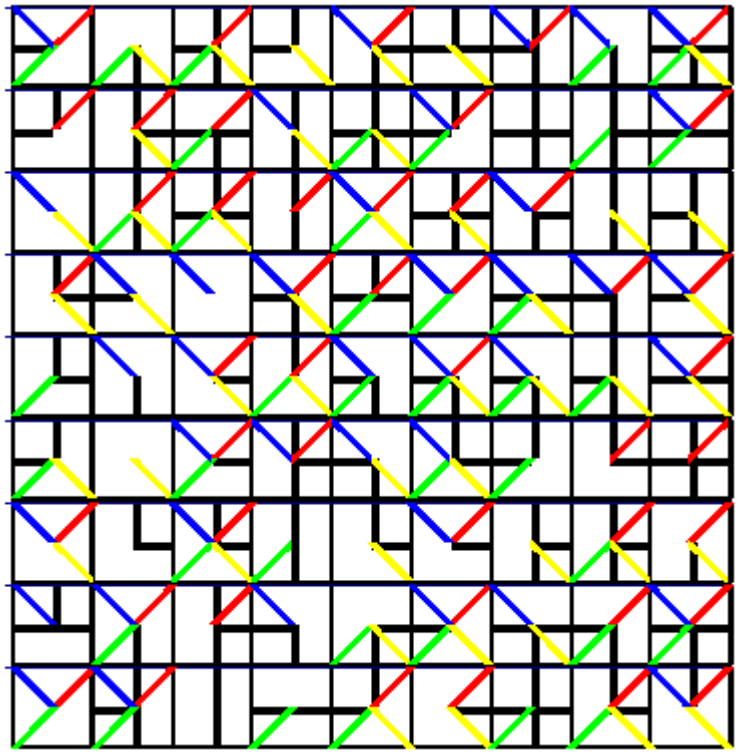


This kind of puzzle can be made in different formats up to 25 by 25.

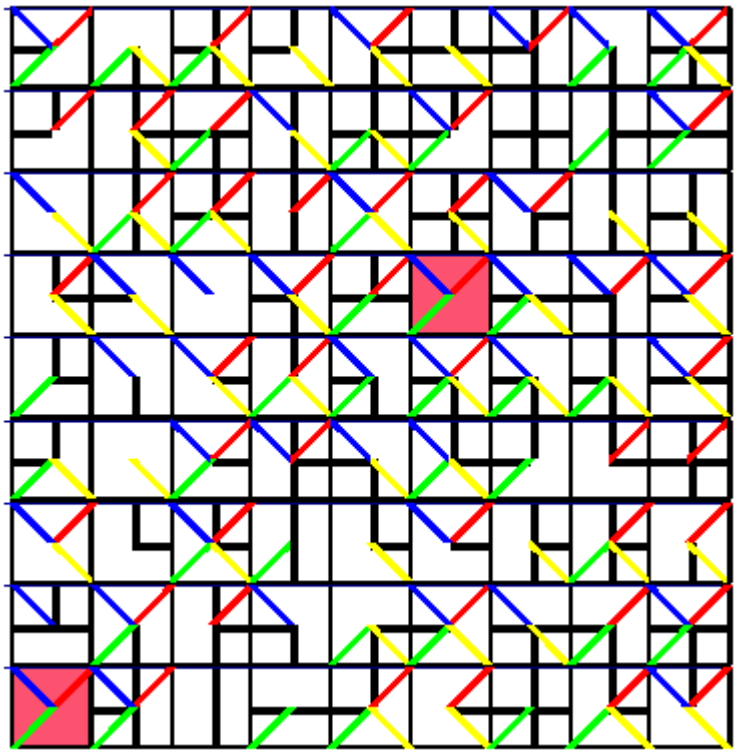
29 Equal symbols

Explanation:

Find the two positions that are completely equal:



Solution: see the two positions with a red back color:



30 Binairy Sudokus

This Sudoku variant contains the numbers 0 and 1. Only two equal numbers can be placed next to each other (horizontal en vertical). In each row and column the numbers of fields filled with 0 are equal with the ones filled with 1.

Example:

1	1	0	1	1	0	0	1	0	0
0	1	1	0	0	1	1	0	0	1
1	0	0	1	0	0	1	0	1	1
0	0	1	0	1	1	0	1	1	0
0	1	1	0	0	1	1	0	0	1
1	0	0	1	1	0	1	0	1	0
0	1	0	1	0	1	0	1	0	1
1	0	1	0	1	0	1	0	1	0
0	1	0	1	1	0	0	1	0	1
1	0	1	0	0	1	0	1	1	0

Solutions:

	1	1		

There are two fields filled with a 1 next to each other, so left and right the solution is: 0.

0	1	1	0	

	1		1	

Only a 0 can be placed between the two fields filled with 1.

	1	0	1	

	1		1	1	0	1	0		1

The five numbers 1 are already filled so all the empty fields must be: 0.

0	1	0	1	1	0	1	0	0	1

1	A	0	1	B	C	1	0	0	1

This row the number 0 must be filled once and the number 0 twice. Two numbers 1 cannot both be filled at position B and C so the solution at position A is 1.

1	1	0	1			1	0	0	1

A	B	0	1	1	C	D	E	1	F

This row must be completed with two times 1 and four times 0.
At the fields A and B at least one 1 is needed, two zeros are not possible. The fields C, D and E must be filled with at least one number 1 as well. At position F only a 0 can be placed.

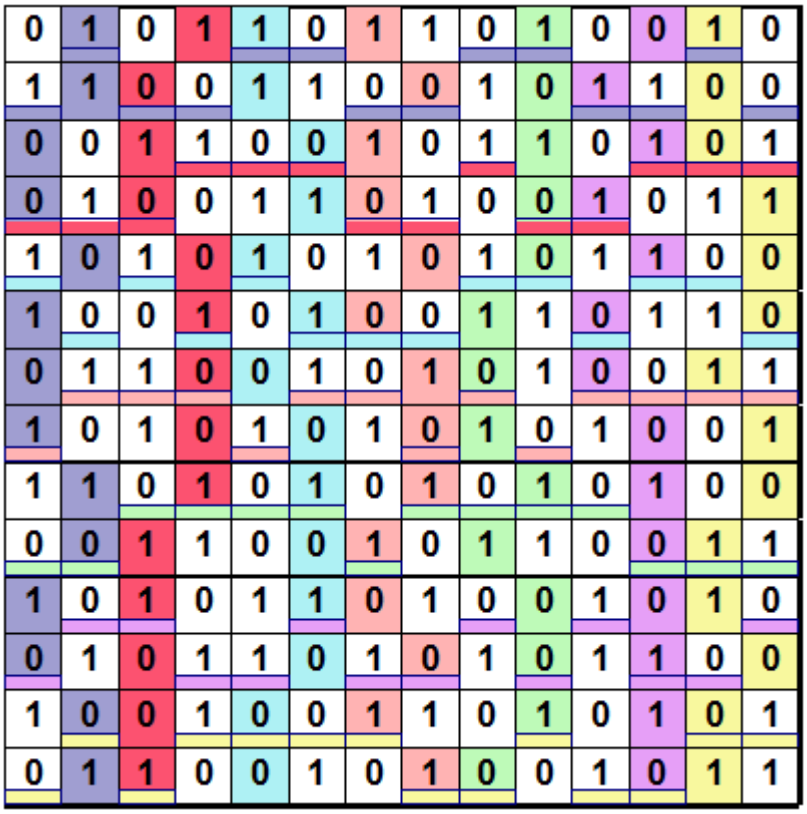
		0	1	1				1	0

30.1 Binary Sudoku with vertical patterns:

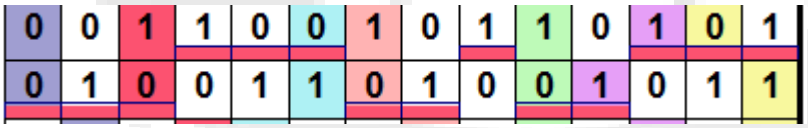
1	0	1	1	0	1	0	0	1	0	1	0	1	0
0	1	0	0	1	0	1	1	0	1	1	0	0	1
1	0	1	0	1	0	0	1	0	1	0	1	1	0
0	1	0	1	0	1	1	0	1	0	0	1	0	1
1	0	1	0	1	0	0	1	1	0	1	0	0	1
0	1	0	0	1	1	0	1	0	1	0	1	1	0
0	0	1	1	0	1	1	0	0	1	0	0	1	1
1	0	1	0	1	0	0	1	1	0	1	1	0	0
1	1	0	1	0	1	0	0	1	0	1	1	0	0
0	1	0	1	0	0	1	1	0	1	0	0	1	1
0	0	1	0	1	0	1	0	1	0	1	0	1	1
1	1	0	1	0	1	0	1	0	1	0	1	0	0
0	0	1	0	1	0	1	0	0	1	1	0	1	1
1	1	0	1	0	1	1	0	1	0	0	1	0	0

This Sudoku variant has an extra rule, at the colored fields with equal color the numbers of fields filled with 0 must be equal with the ones filled with 1. So the blue fields in column one and two contain seven times a 1 and seven times a 0. The same applies to the white fields in column one and two.

30.2 Binary Sudoku with vertical and horizontal patterns:



This variant has one extra rule, the horizontal fields marked with a color at the bottom the numbers of 1 are equal to that with 0.

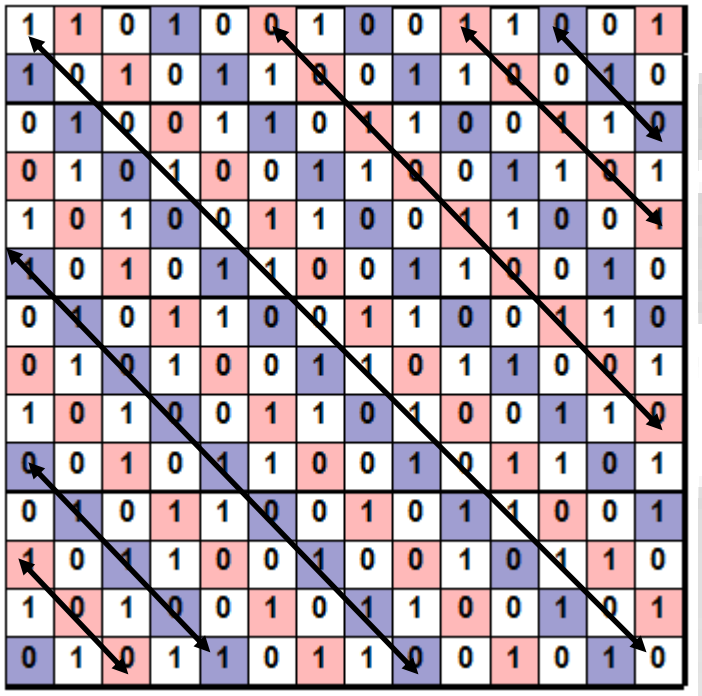


At row one and two the fields are filed with:  .

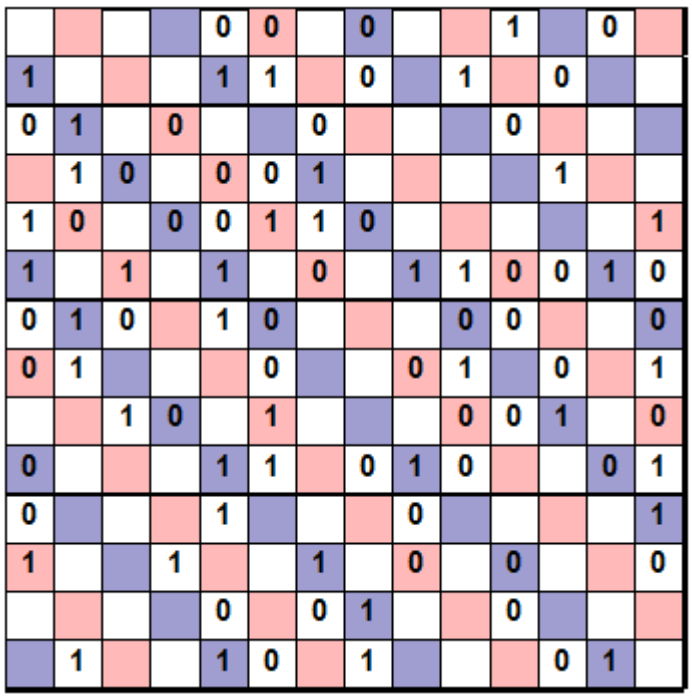
30.3 Dinary Sudoku:

A Dinary Sudoku is a Binary Sudoku, containing all the rules of a Binary Sudoku, with the addition that in the diagonals the numbers 0 and 1 can only appear with two equal numbers side by side.

Diagonals start at top left to bottom right.



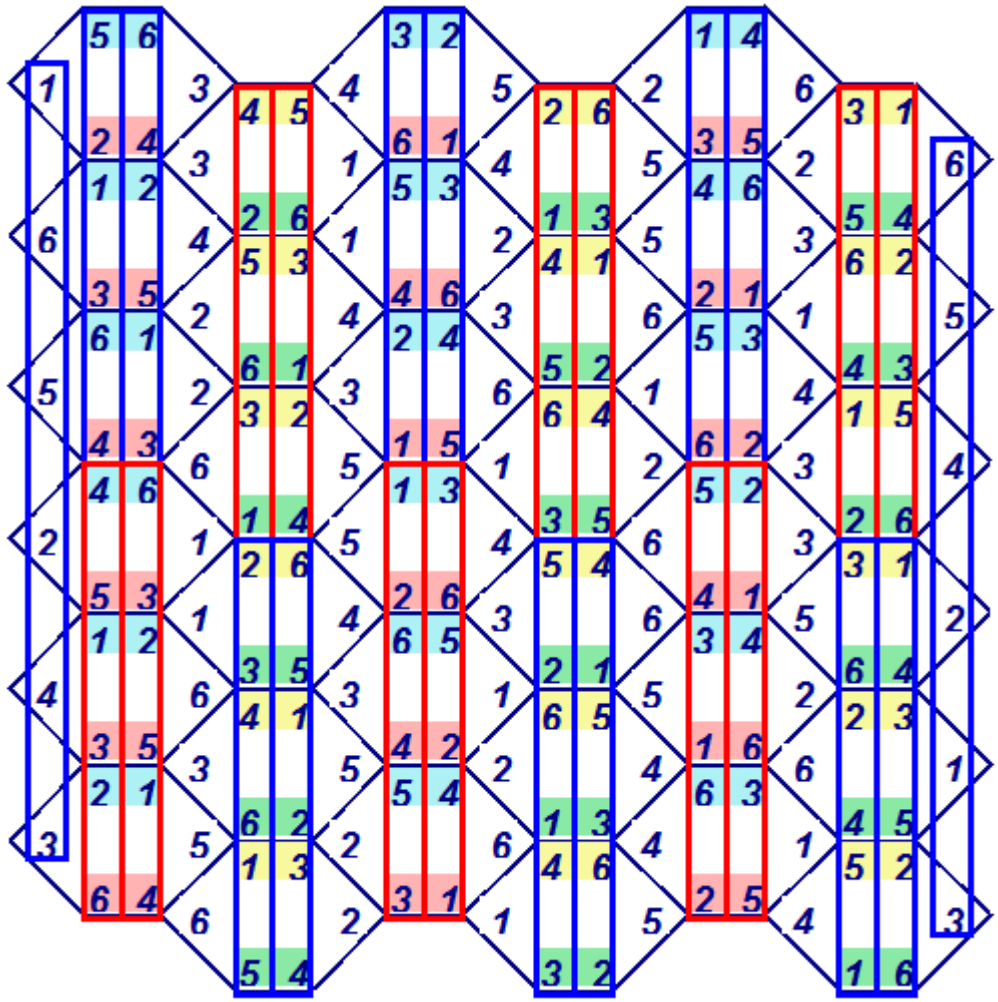
The diagonals are marked with arrows.



31 Honeycomb Sudoku

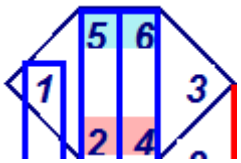
Explanation:

Solution:



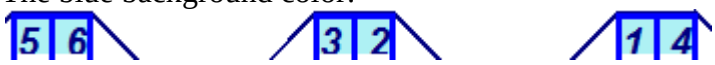
This Sudoku variant uses the numbers 1, 2, 3, 4, 5 and 6.

In the hexagon the numbers 1 up to and including 6 are once prevented.

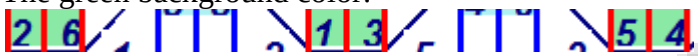


In the horizontal rows marked with the different background colors the numbers 1 up to and including 6 are once prevented

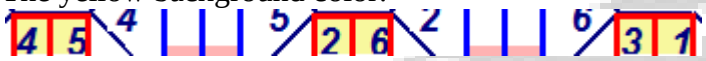
The blue background color:



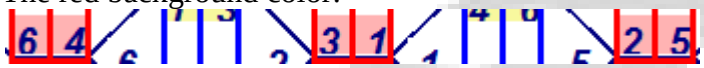
The green background color:



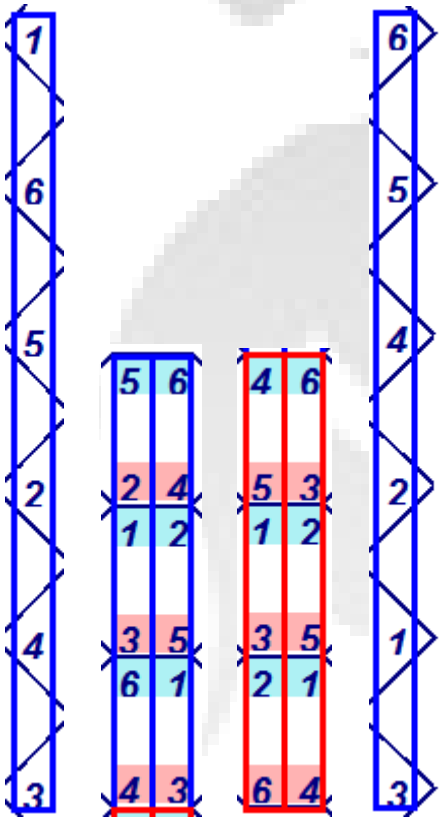
The yellow background color:



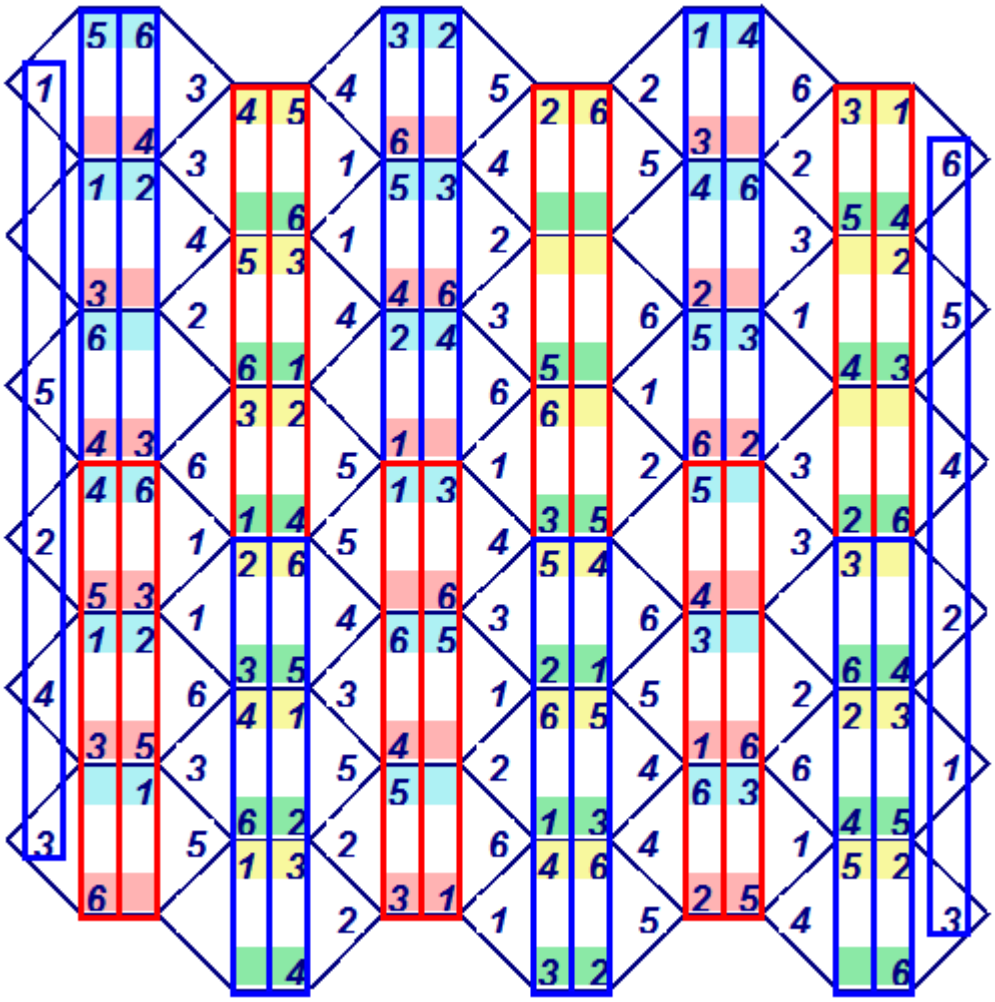
The red background color:



In the vertical columns market with right angels with the border colors blue and red, this rule is used as well.



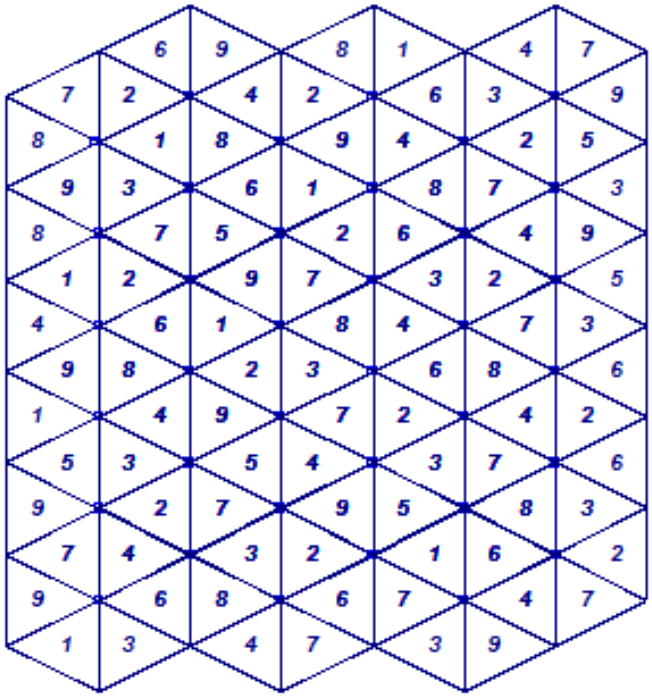
The puzzle looks like:



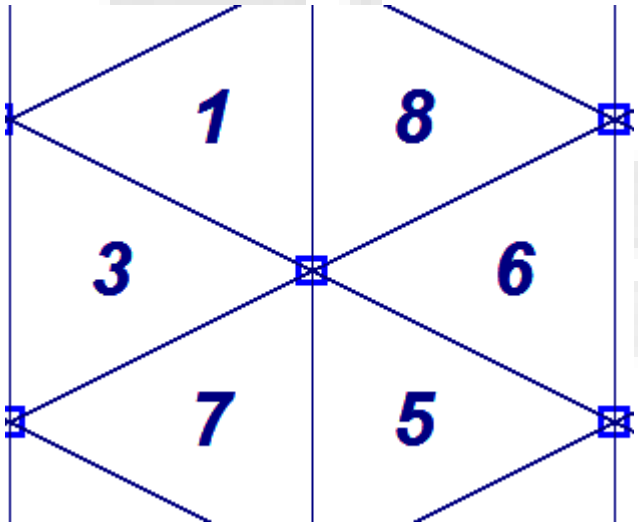
32 Triangle puzzle.

Explanation.

Solution:

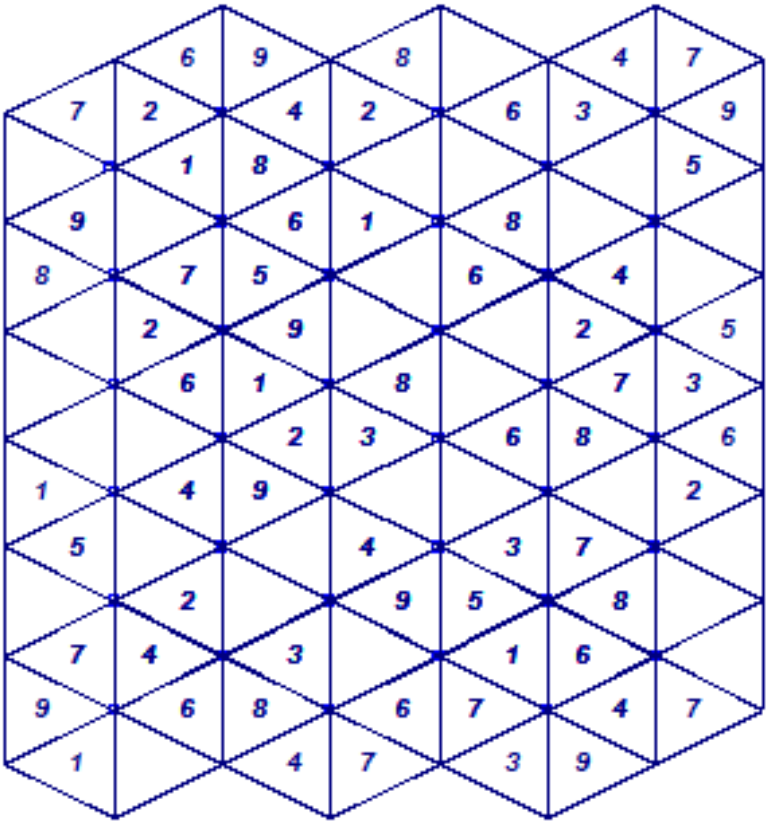


This puzzle uses the numbers 1 up to and including 9.
Each number can appear only once at a crossing market with a square.



De sum of the numbers is always: 30, (in this example 3+1+8+6+5+7=30)

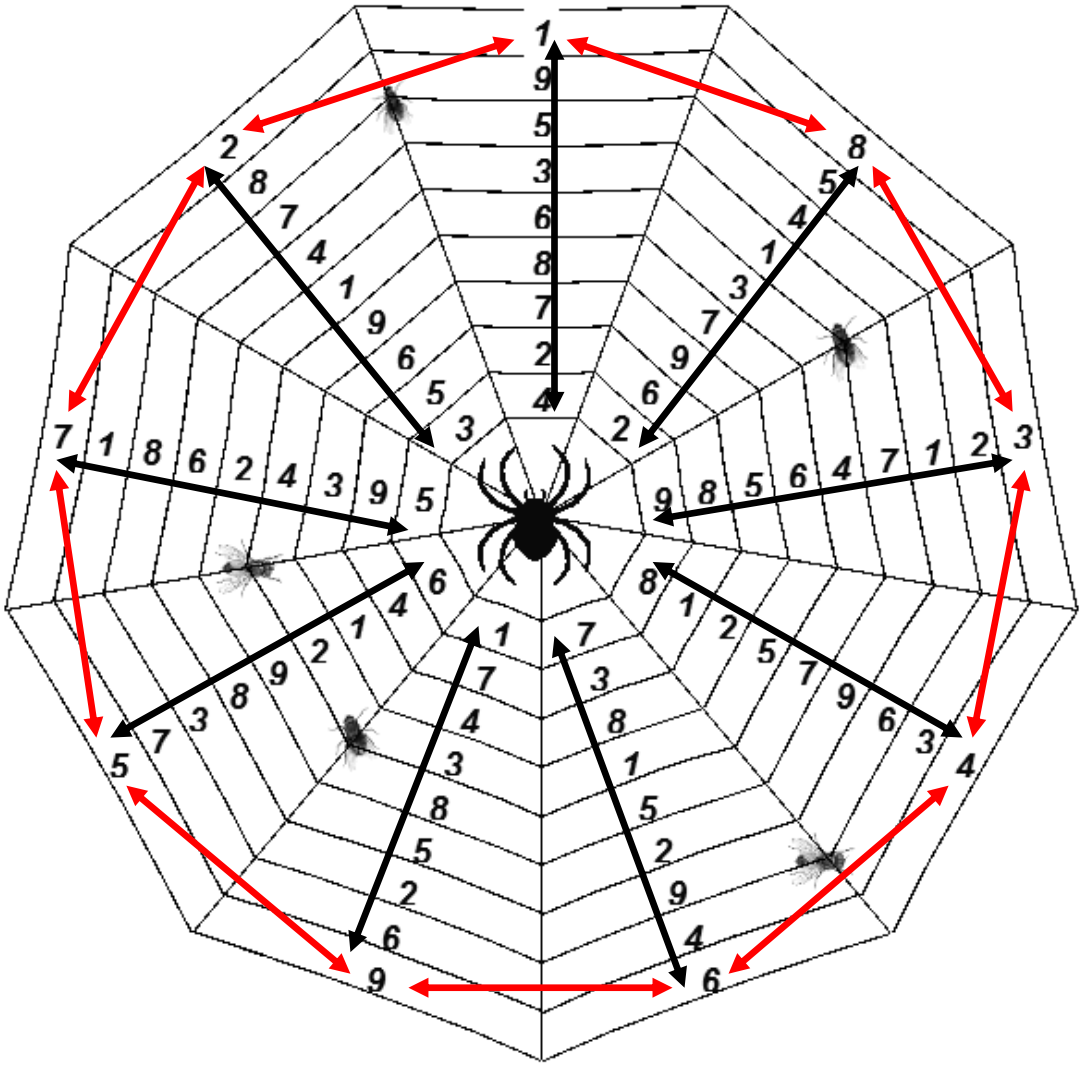
The puzzle looks like:



33 Spider Sudoku.

Explanation Spider Sudoku (Spidoku).

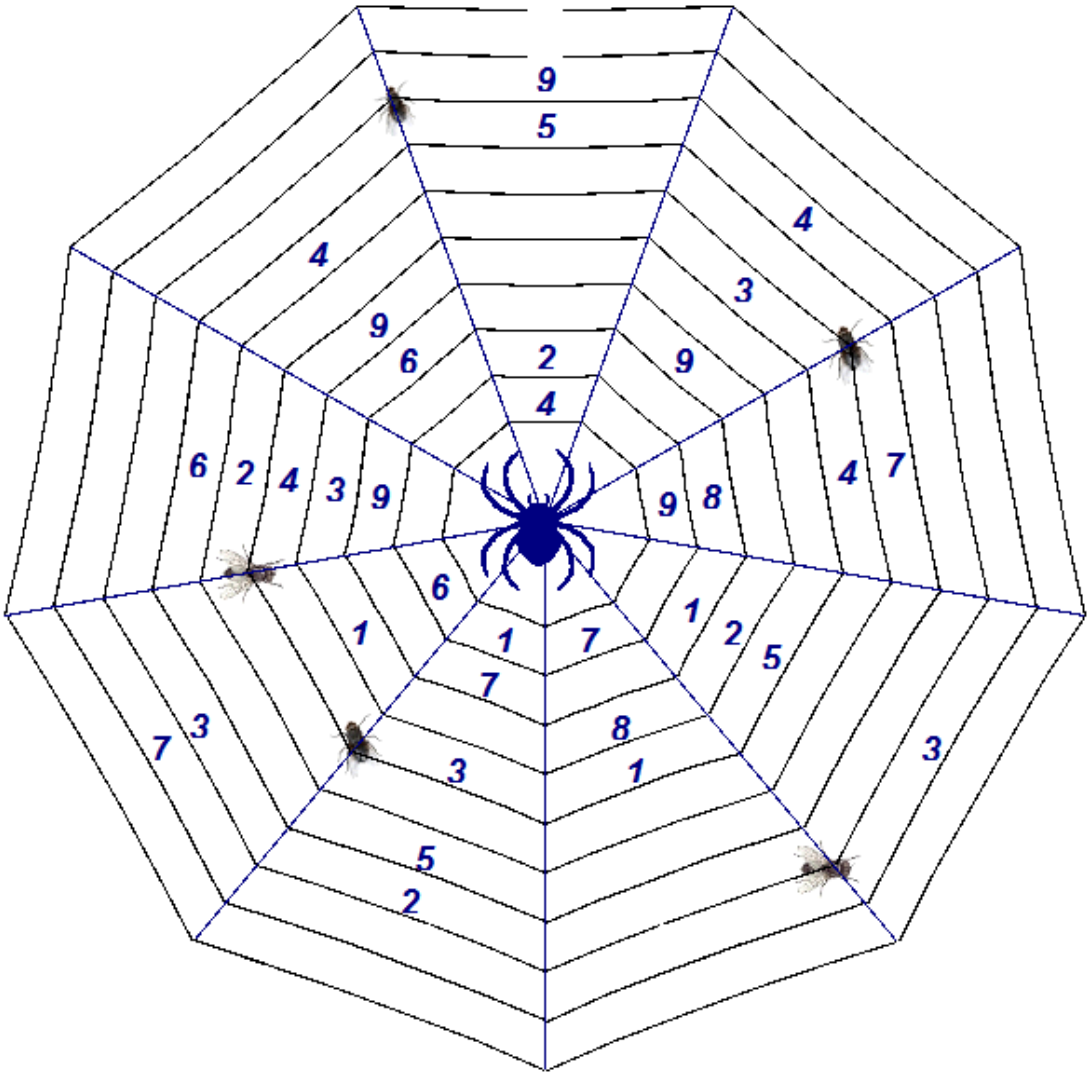
Solution:



Explanation:

This Sudoku variant contains the numbers: 1 till 9.
Each ring (9 pieces) contains the digits 1/9. (red lines).
This rule also applies in Radial direction (black lines).

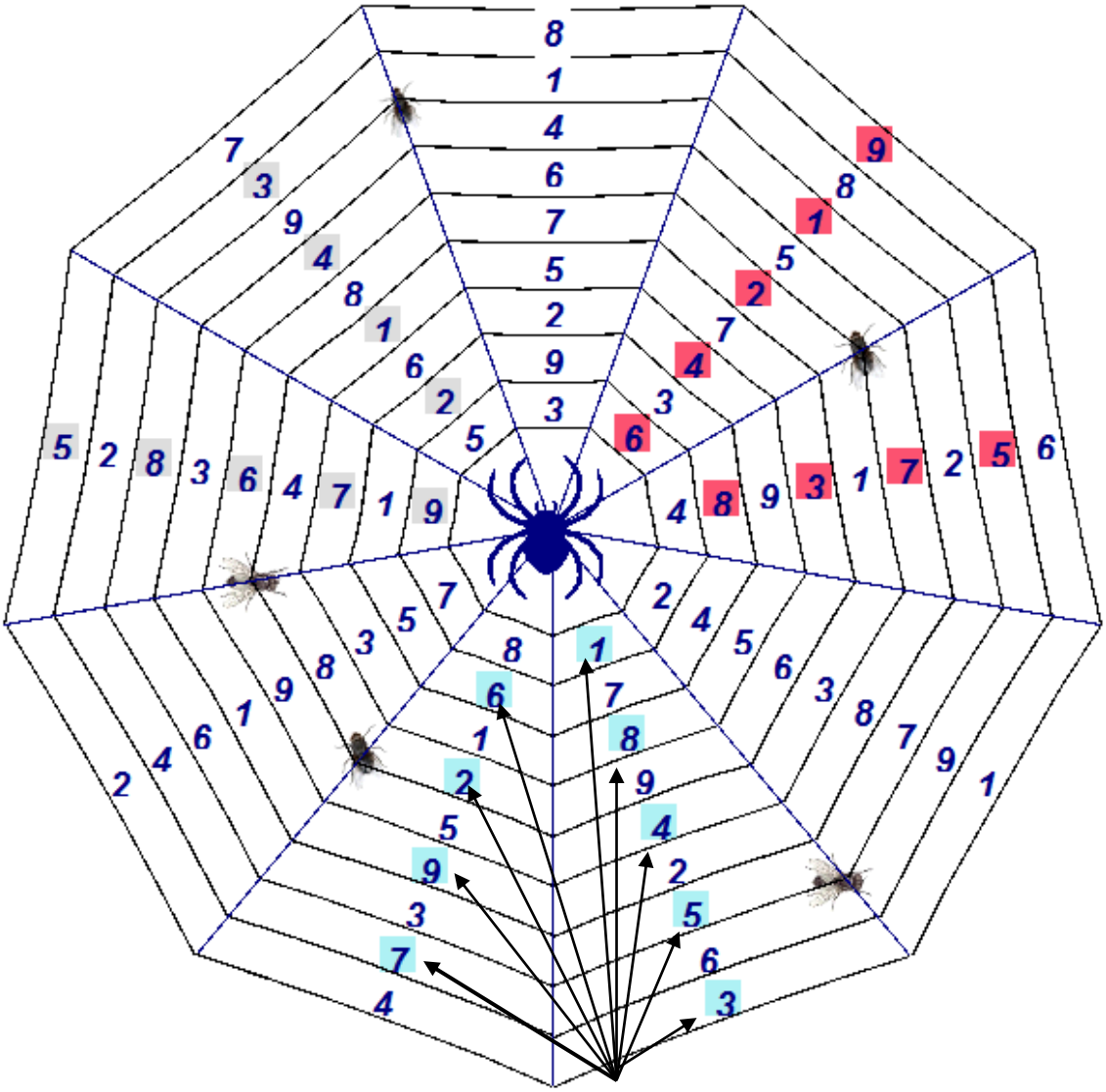
Puzzle:



33.1 Spider Sudoku with patterns.

Explanation Spider Sudoku (Spidoku) with patterns.

Solution:

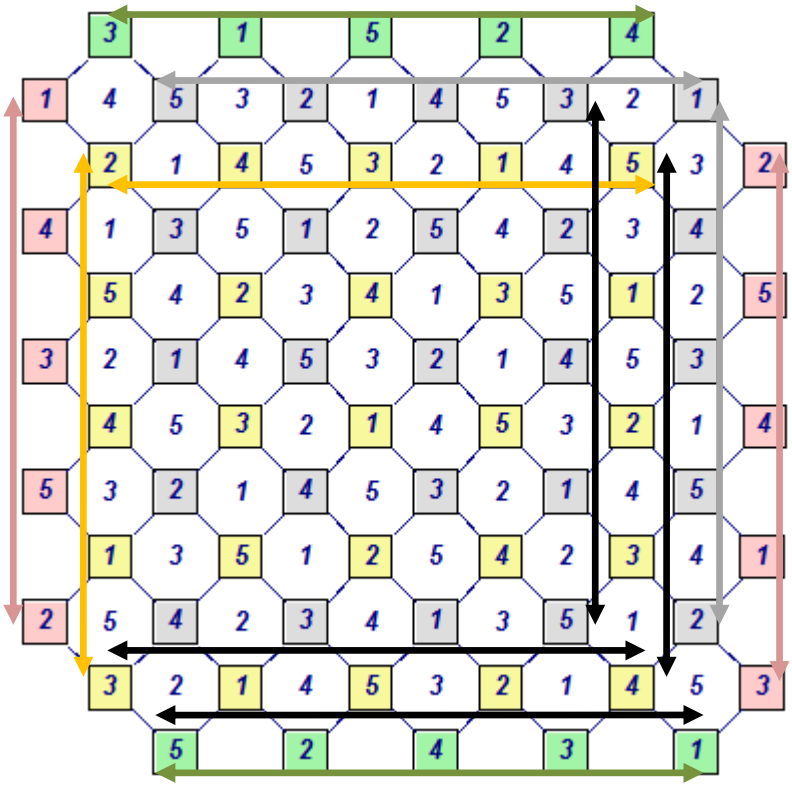


This Sudoku has the additional rule that the positions colored (grey, red and blue) also once contains the numbers 1 till 9.

34 Octagon Sudoku

Explanation octagon Sudoku.

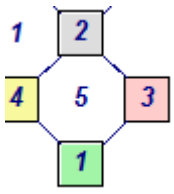
Solution:



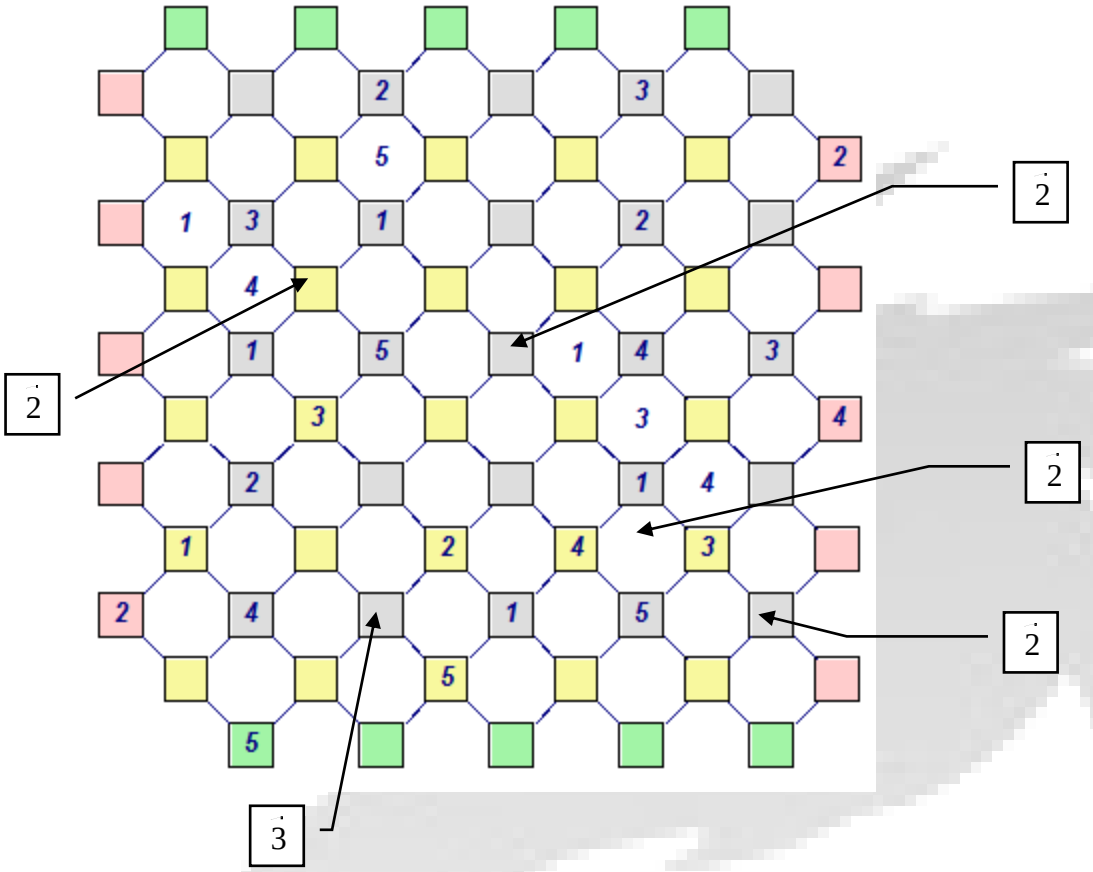
Explanation:

This Sudoku variant contains the numbers: 1 till 5.

In the grey and yellow squares (5 by 5) the numbers 1 till 5 are horizontally and vertically found once (grey and yellow lines).
In the red squares (left and Right) the numbers 1 till 5 are vertically present ones (red lines).
In the green squares (top and bottom) the numbers 1 till 5 are horizontally present ones (green lines).
In the white octagons horizontally (10 times) and vertically (10 times) the number 1 till 5 are horizontally and vertically present ones (black lines).
Around the octagons the numbers 1 are till 5 are present ones.



Puzzle:



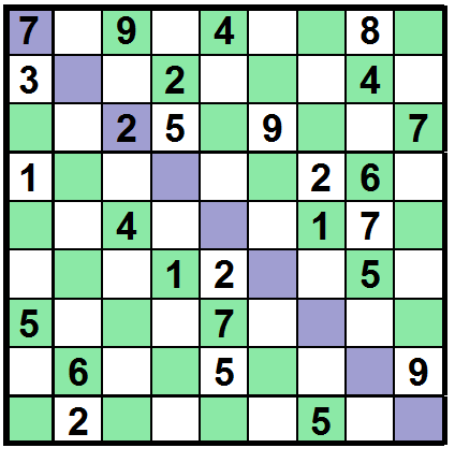
35 Dudoku (diagonal Sudoku)

Solution:

Explanation:

This Sudoku variant has the same rules as the traditional Sudoku in term of that numbers 1 to 9 can appear only once in a column and a row (see the red dimension lines).
In every diagonal (with white or green background color, from left above to right underneath, marked with yellow dimension lines) a number can appear only once.
So the diagonal in the center (grey background showed in blue dimension lines) contains de numbers 1 to 9 only once.

Puzzle:



36 Tartan Sudoku.

This Sudoku variant derives its name from a tartan-like layout in which it is presented..

Explanation:

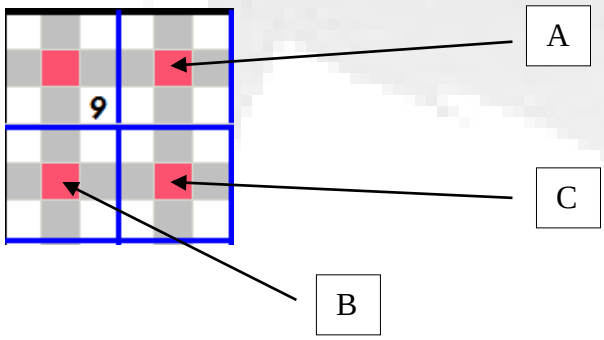
Deze Sudoku variant bevat de cijfers: 1 t/m 9.
Alle regels (cijfer mag maar één maal voorkomen per rij, kolom en blok) die gelden voor de klassieke Sudoku zijn hier ook van toepassing.
Op elke positie (totaal zijn er 81) zijn negen blokjes aanwezig, elk cijfer is altijd op dezelfde positie (blokje) geplaatst:

This Sudoku variant contains the numbers 1 till 9.
All rules (numbers may occur only once in each row, column and block) that apply to the classic Sudoku are also applicable here.
At each position (total of 81) nine blocks are present, each number is always in the same position (block) posted:

The 1 top left, beside the 2, then 3, 4 in the first position of the second row and so on.

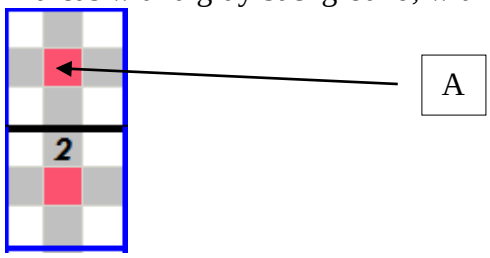
In the puzzle are 3 background colors (white, gray and red) are present in an area with the same background color only one number is allowed.

For example:



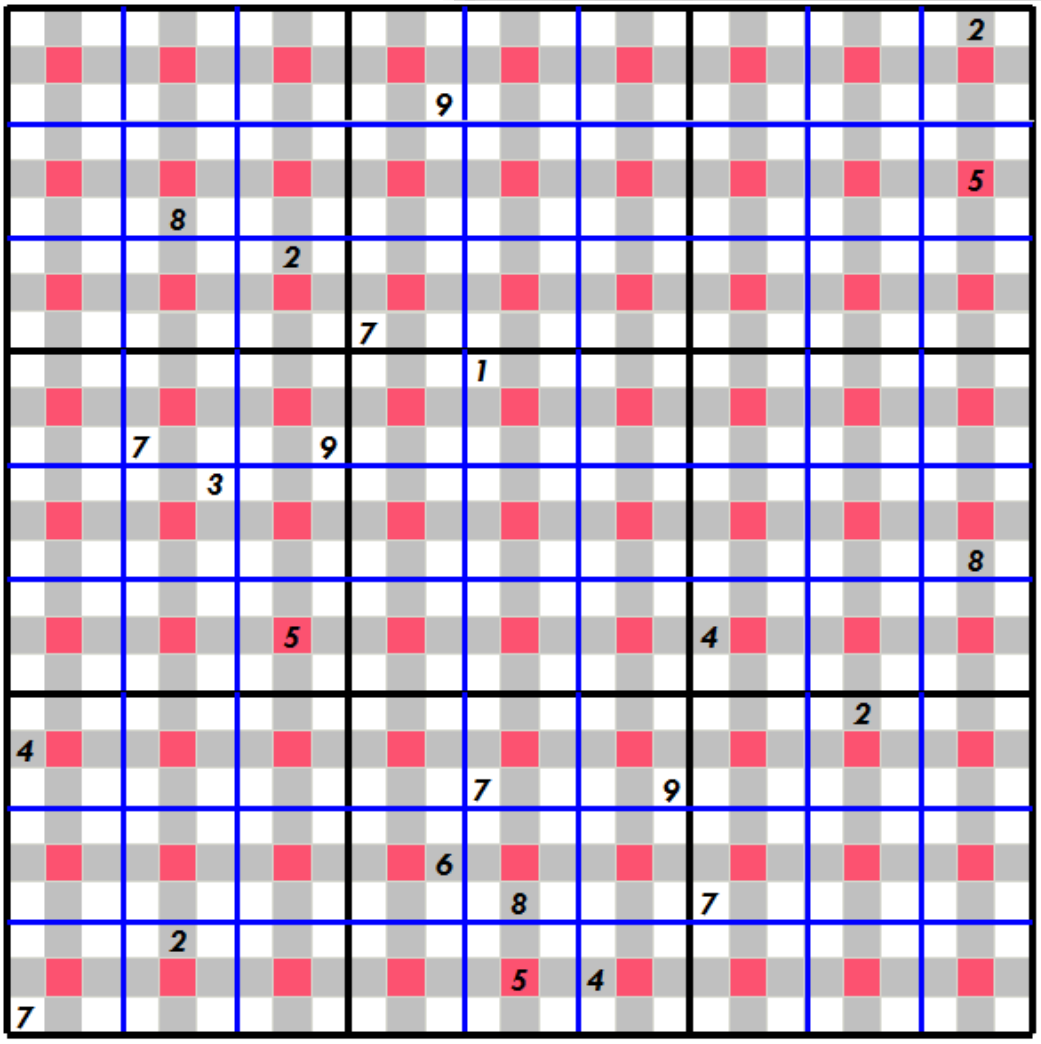
In the part with the white background color in the middle 4 blocks are present.
Top left is the 9 is filled in, this implies that the other three blocks may not contain any number.
This includes the right top 7, so position A cannot contain number 7.
This includes the 3 bottom left, so position B cannot contain 3.
This concerns the bottom right one, so position C cannot contain 1.

In areas with a gray background, with 2 blocks horizontally or vertically, applies:



The filled in number 2 at the location of the lower position implies that at the position A cannot be filled with the number 8.

Puzzle:



Sudoku Plaza ©

Solution:

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

37 Sudoku with Magic square.

This variant is a traditional Sudoku combined with a magic square (five by five positions). A number can appear only once in every row, column and block.

Solution of the Sudoku:

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

Explanation:

In the Block in the middle (five by five positions) the sum of the numbers (horizontal and vertical) is always 25.

Horizontal, third row: 5+6+9+1+4 = 25
Horizontal, fourth row: 1+9+2+8+5 = 25
Etcetera.
Vertical third column 5+1+7+8+4 = 25
Vertical , fourth column row: 6+9+1+4+5 = 25
Etcetera.

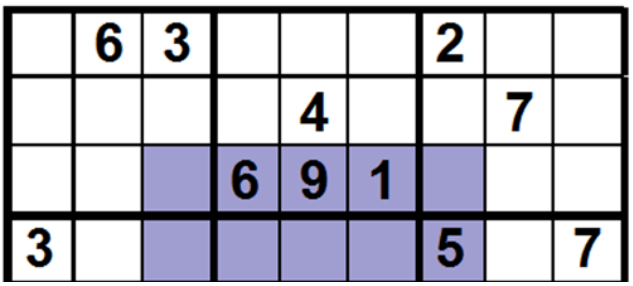
4	6	3	7	8	5	2	1	9
1	8	9	3	4	2	6	7	5
2	7	5	6	9	1	4	3	8
3	4	1	9	2	8	5	6	7
5	9	7	1	6	3	8	2	4
6	2	8	4	5	7	1	9	3
9	1	4	5	3	6	7	8	2
7	5	2	8	1	9	3	4	6
8	3	6	2	7	4	9	5	1

Because the sum of each full row and column (nine positions) is 45, the sum of the remaining four positions in a row and column is: 20,
Horizontal third line: 2 +7 +3 +8 = 20
Vertical third column: 3 +9 +2 +6 = 20

Sudoku

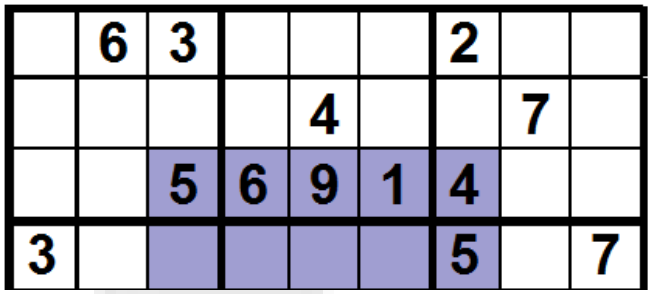
	6	3				2		
				4			7	
			6	9	1			
3						5		7
							2	4
6		8						
	1		5		6	7		
7	5	2					4	
			2					1

Solution examples:



In the top line of the magic square the 6, 9 and 1 are filled in; the sum = 16.
Remains for the other two positions: 25-16 = 9, possible is: 1 and 8 or 2 and 7 or 6 and 3 or 4 and 5, the 1 is already present so 1 and 8 is not possible.
The 6 and 3 cannot be completed on the first position in the top row of the magic square, are already present in the left upper block, so 3 and 6 is not possible.
2 and 7 are already filled in the right block so the combination 2 and 7 is also not possible.
Therefore remains 4 and 5. 5 cannot be filled in at the most right position because that number is already filled in the 7th column.

The solution is therefore:



Continuation:

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

In the fifth row in the columns 8 and 9, the 2 and 4 filled.
In this row the sum of the digits in positions 1, 2, 8 and 9 is: 20.
So, the sum of the digits in the first and second column is: 20 - 6 = 14.
Possible is: 9 and 5 or 8 and 6.
8 and 6 is impossible because these numbers are both already found in the left block.
Remains the combination: 9 and 5,
Because the 5 already present in the second column, the solution is:

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

In addition to the solution based on the properties of the magic square all the solution methods of a traditional methods are needed to solve the puzzle.

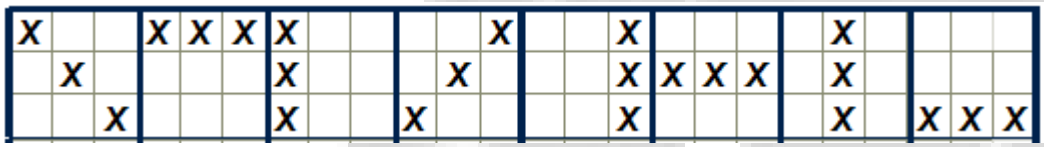
38 Tic Tac Toe Sudoku.

This Sudoku variant is based on the Tic Tac Toe game.

Explanation:

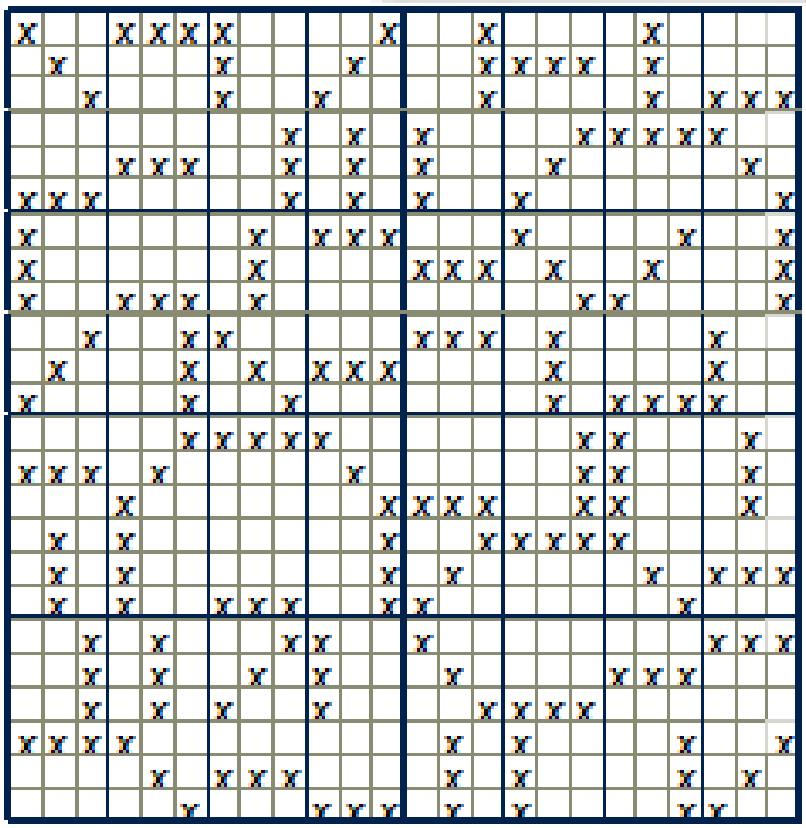
This Sudoku consists of 64 (8 by 8) positions.
Each position has to be filled with three crosses.
There are 8 different variants; three horizontal and three vertical rows and two diagonals.

In a row Looks like:

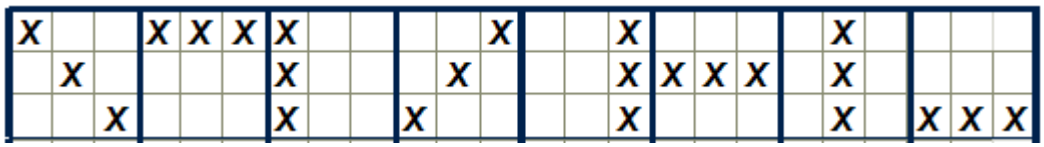


Each variant can appear once in a row, column and Block (four columns and two rows).
This is in accordance with the Sudoku rules.

The solution of a puzzle looks like this:



In addition to the solution methods of a traditional Sudoku there are the following, additional, methods to solve the puzzle:



On each of the 64 positions a cross can be places in a sub-positions.
At each position tree crosses must be filled in.

If two sub-positions are filled with crosses the solution can be found immediately:

For example (Red is the solution, black was already filled):

X		
	X	
		X

X	X	X

X		
X		
X		

Per row, column and block are 3 * 8 = 24 crosses present in the solution.
The number of possible crosses varies for each sub-position, and looks like this:

3	2	3
2	4	2
3	2	3

On sub-positions where only two crosses can occur the solution can be found on the most easy way, for example (considered a row):

X	X	X

	X	

Then the solution is, marked in red:

X	X	X

	X	
	X	
	X	

At sub-positions with three possible crosses:

X		
	X	
		X

X	X	X

X		

The Solution is (marked in red):

X		
	X	
		X

X	X	X

X		
X		
X		

In the sub-positions, in the middle, with four possible crosses:

X	X	X

	X	
	X	
	X	

X		
	X	
		X

	X	

The Solution is (marked in red):

X	X	X

	X	
	X	
	X	

X		
	X	
		X

		X
	X	
X		

Tip to solve the puzzle:

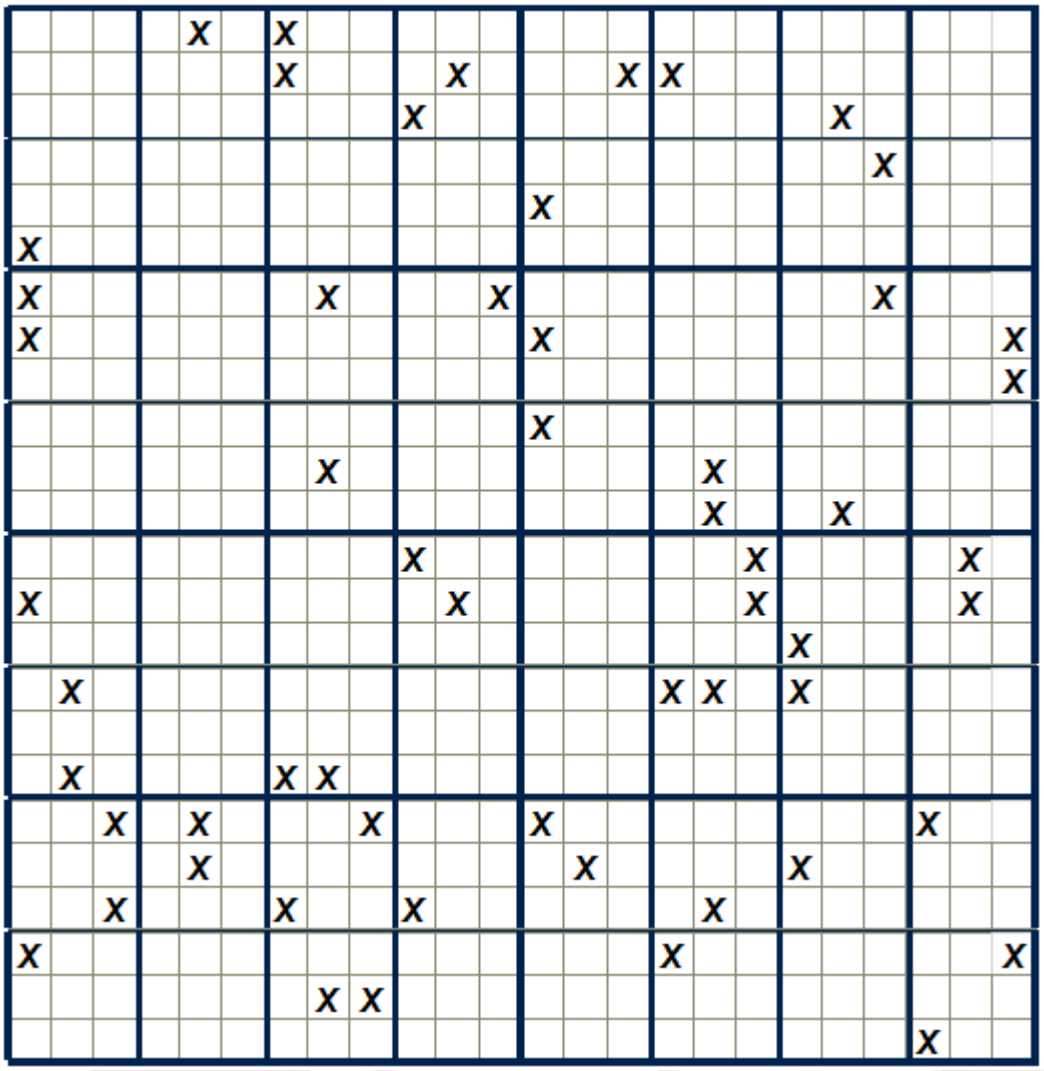
Highlight the possible sub-positions with a dot, for example:

X	X	X

	X	
	X	
	X	

•		•
	X	
•		•

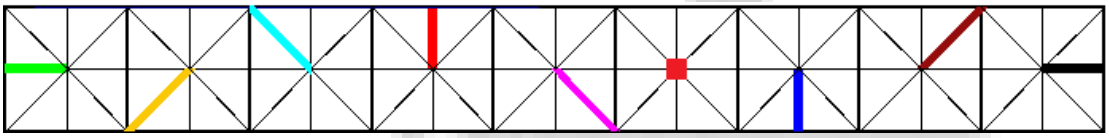
The complete puzzle looks like:



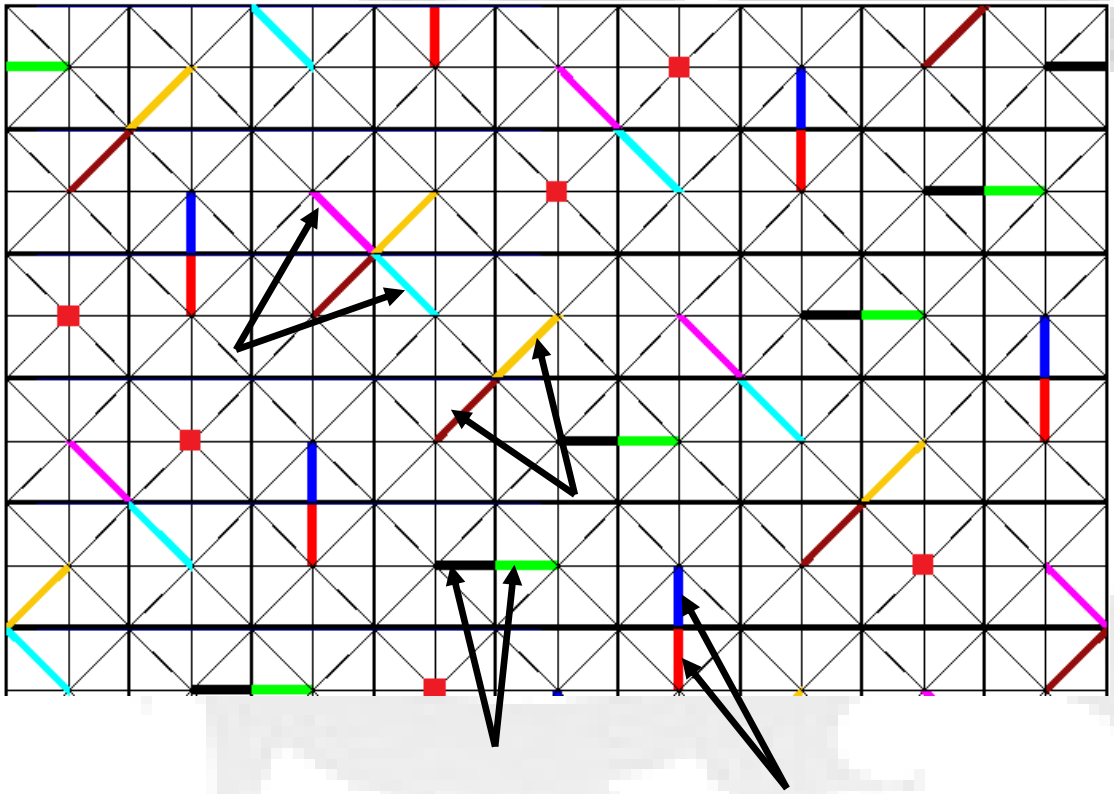
39 Sudoku with connected lines.

Explanation:

This Sudoku contains nine rows and columns.
In each row and column (not in blocks) the nine symbols (eight lines and one point symbol) are one time present.

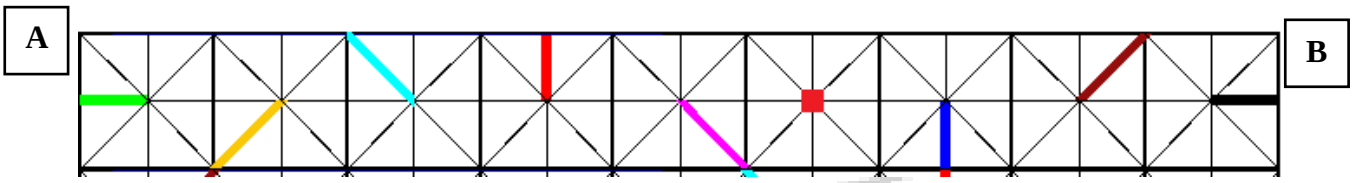


The lines (two horizontal, two vertical and four diagonals) are connected with the related positions.



Situation at the edges of the puzzle:

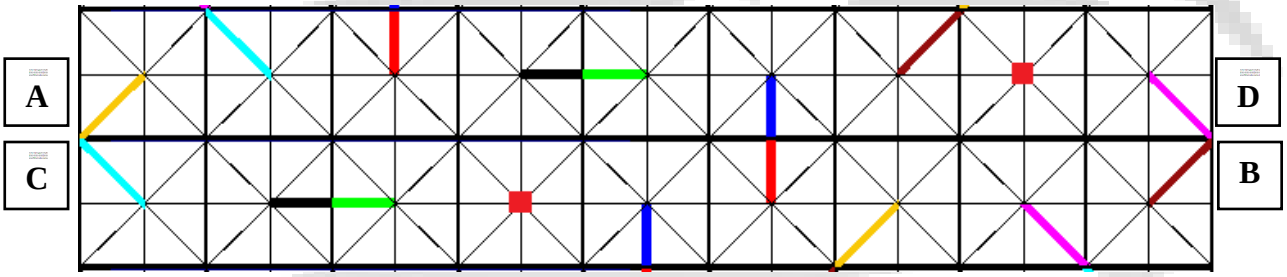
1. Horizontal and vertical lines:



When the First column contains a horizontal line, from the middle to the left [A], the left connecting position must be a horizontal line, from the middle to the right [B]. Because this position is outside the puzzle the symbol [B] cannot be places with using the convention of the connected lines. So symbol [B] can only be placed in last column of that row.

This rule is also used with vertical Lines in the columns.

2. Diagonals:

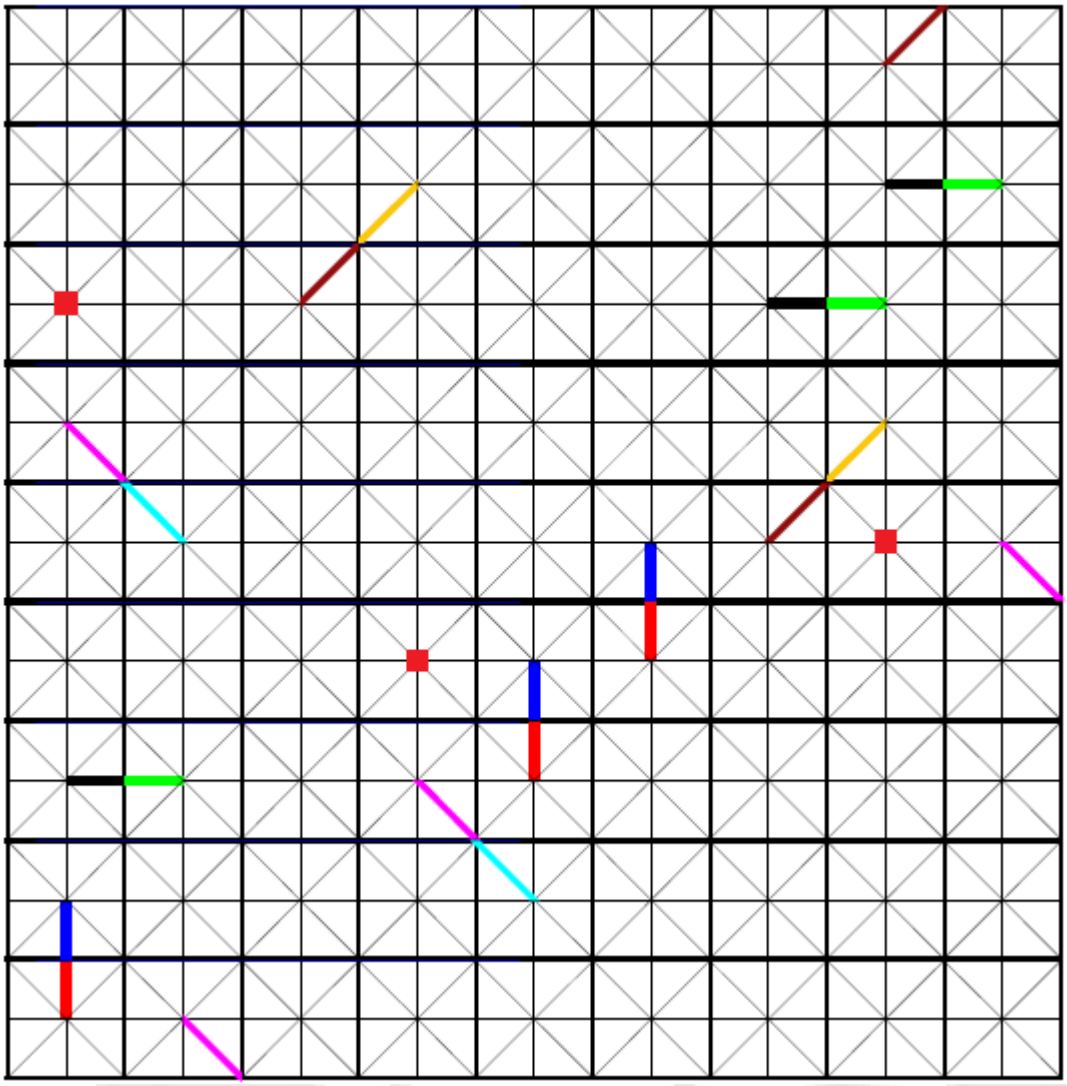


Diagonal [B] must be placed Left under diagonal [A].
In this example this position is outside the Sudoku. in this case diagonal [B] must be placed in the last column of the next row [C .. B]..

Left above diagonal [C] diagonal [D] must be placed. This position is outside the puzzle so diagonal [D] must be placed in the last column of the row above [A ..D].

This rule is also used in the columns.

The puzzle looks like:



The solution is: