



# SUDOKU VARIATIONS

## 50 Challenging Sudoku Variations

### VOLUME 1

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This book contains a fantastic collection of 50 handcrafted Challenging Doku Variations, arranged in difficulty levels Beginner (18 puzzles), Advanced (16 puzzles) and Professional (16 puzzles), with grid sizes ranging from 6 by 6 up and until 12 by 12.

This book is a must have for all Sudoku enthusiasts who want to tackle other than standard Sudokus and who dare to tease their brain to the utmost to solving these fantastic challenging puzzles, appealing to various kinds of logic to find the clues for deriving the unique solution.

You will be challenged with Doku puzzles with one or more extra groups of coherent cells with attractive patterns and figures that also have to contain the different digits exactly once. You even will be challenged more by the Dokus with extra groups of coherent cells with special features. To solve these puzzles you literally have to think "out-of-the-box" for these exiting new challenges.

Use your math skills at the CalculoDoku and SeriesDoku, Sharpen your two-dimensional insight at the InfinityDoku, and appeal to your spatial expertise at the JigSawPiecesDoku, PalindromeDoku and TetrisDoku. Enjoy the Word Sudoku variations with different letters for finding meaningful words as extra solution of these Dokus. Some Dokus are combinations of the types of logic.

The answers are included at the end.

Give yourself a well-earned pat on your shoulder when you have cracked the features of these Dokus after many hours of brain entertaining puzzling fun, while sharpening your concentration and solving skills.

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# 1. Introduction

This book contains 50 handcrafted Sudoku variations, i.e. puzzles deviating from the standard Sudoku solving rules with exciting new challenges across the difficulty levels Beginner, Advanced and Professional.

This book is a must have for all Sudoku enthusiasts that are eager to be challenged with puzzles needing other logics and/or extra groups with special features (Dokus) to find the unique solution. You literally have to think "out-of-the-box" to find the twist(s) of the Doku to move forward to the unique solution.

This book contains (combinations of) Dokus such as the CalculoDoku, InfinityDoku, JigSawPiecesDoku, PalindromeDoku, PrimeNumberDoku, SeriesDoku, SpiraloDoku and TetrisDoku.

Grid sizes vary from 6 by 6 up and until 12 by 12.

Extra groups of coherent cells, equal to the grid size, with nice patterns and figures, also must contain the different digits exactly once.

The Dokus provide you with many enjoyable hours of puzzling fun to complete the puzzles, while sharpening your reasoning skills and helping your brain to keep agile and healthy and cognitively fit.

I wish you many pleasant and entertaining hours of solving these brain-stimulating Dokus. There are a lot of Doku Variations for you to solve to ever get bored with this book

Folkert van der Meulen Bosma

## 2. Instructions

Every Challenging Sudoku Variation complies with the basic rules of a standard 9 by 9 Sudoku:

*"In a solved Sudoku puzzle every row, column and block of 3 by 3 cells must contain the different digits exactly once."*

Each Sudoku Variation has one or more special features. The number of cells with these features can deviate from the grid size.

In the puzzle description these special features are explained.

Without these extra constraints each puzzle has, with the digits given, multiple solutions.

I distinguish the following difficulty levels:

***Beginner (B), Advanced player (A), Professional (P)***

In stead of different digits different letters are used in so called Challenging Word Sudoku Variations, resulting in meaningful words as an extra solution.

### 3. Description of the Doku Variations

In this book you will find one or more of the following Challenging Doku Variations:

**CalculoDoku:**

*A CalculoDoku holds one or more groups of coherent cells with mathematical features. A CalculoDoku is specially designed to make (combinations) of all kind of mathematical calculations with the numbers present in these special groups.*

*Examples of mathematical features are addition, subtraction, multiplication, division, square numbers, prime numbers, magic squares and Fibonacci numbers.*

**InfinityDoku:**

*An InfinityDoku consists of nine groups of 3 cells. Any horizontal or vertical combination of three of these groups also has to contain the digits 1 through 9 exactly once.*

**JigSawPiecesDoku:**

*In a JigSawPiecesDoku a number of coherent cells with the shape of jigsaw pieces must be logically positioned in the puzzle in order to derive the unique solution.*

**OddEvenDoku:**

*In an OddEvenDoku some cells are highlighted. These highlighted cells contain either only odd digits or even digits.*

**PalindromeDoku:**

*In a numerical PalindromeDoku the order of the digits is the same forwards and backwards (e.g. 25381518352).*

**SeriesDoku:**

*Each group in a SeriesDoku must contain any series of consecutive digits in any order, e.g. 97182.*

*For the purposes of this Doku, 9 and 1 and, if applicable, 2 etc. and vice versa, are considered to be consecutive.*

**SpiraloDoku:**

*A SpiraloDoku holds one or more spiral groups.*

*In a spiral group the nine digits roll-out in their natural order, forwards or backwards, starting in the middle cell and starting with any digit, e.g.*

*789123456 or 43219876.*

## **4. 50 Challenging Doku Variations**

For Volume 1 of Challenging Doku Variations I selected 50 Dokus from my collection of more than 1,000 Doku designs, to introduce you into a new world of enjoyable and entertaining brain teasing puzzles with new exiting challenges.

I designed and constructed these Dokus with the greatest care, partly inspired by examples at the Internet.

If you encounter errors in these Dokus or have any comments, questions or other feedback feel free to send an email to [folkert@sudoku-variations.com](mailto:folkert@sudoku-variations.com).

I am very curious of what you think about my Challenging Doku Variations. Please let me know.

I hope you will enjoy this first selection of 50 Challenging Doku Variations with this kind of Sudoku puzzles.

**4.1. Challenging Beginner Doku Variations (18 puzzles)**

**Sudoku 01 6 by 6 Three Extra Groups - B**

<b>5</b>	<i>A</i>				<i>B</i>
					<b>3</b>
		<b>6</b>		<b>4</b>	
			<b>2</b>		
<b>4</b>					
	<i>C</i>				<b>1</b>

In this 6 by 6 Doku Variation there are three more items to solve. These are the three highlighted groups of six cells, marked A through C.

These three extra groups also must contain the digits 1 through 6 exactly once.

Only seven digits are given.

### Sudoku 02 Three Extra Groups - B

	3		7		1		6	
4	<sup>A</sup>			3	<sup>B</sup>			5
		5		6		7		
2								9
		<sup>C</sup>		9				
3	5		1		8		2	7
		3		1		4		
9								6
	1		9		5		7	

In this 9 by 9 Doku Variation there are three more items to solve. These are the highlighted groups, marked A, B and C.

These three groups also must contain the digits 1 through 9 exactly once.

Without these extra groups this puzzle has, with the 29 digits given, 21 different solutions.

**Sudoku 03 One Extra Group - B**

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

In this 9 by 9 Doku Variation there is one more item to solve. This is the highlighted diagonal of nine cells.

This group also has to contain the digits 1 through 9 exactly once.

Without this extra group this puzzle has, with the 27 digits given, 5 different solutions.

**Sudoku 04 7 by 7 Four Extra Groups - B**

<b>5</b>				<b>6</b>		<b>4</b>
	<b>5</b>	<b>7</b>	<i>A</i>			
<b>7</b>			<b>1</b>			
	<i>D</i>	<b>4</b>	<b>5</b>	<b>3</b>	<i>B</i>	
			<b>6</b>			<b>7</b>
			<i>C</i>	<b>1</b>	<b>6</b>	
<b>6</b>		<b>1</b>				<b>3</b>

In this 7 by 7 Doku Variation there are four more items to solve. These are the four highlighted groups of seven cells, marked A through D.

These four extra groups also must contain the digits 1 through 7 exactly once.