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#### Dedication

This book is dedicated to Ben, Chris, Josh, and Sam, who were students in Class 6 at Bishop Perrin School, Whitton, England. Their enthusiasm for Sudoku puzzles inspired me to put together this book. *James E. Riley* 

#### Other Sudoku puzzle books by James E. Riley:

Super Sudoku Book 1—76 traditional Sudoku puzzles Super Sudoku Book 2—76 puzzles, including dual Sudoku Super Easy Sudoku Book 3—76 easier Sudoku puzzles Super Variety Sudoku—120 puzzles, including traditional, dual, sums, and Wordoku Sudoku SUMS—76 sums puzzles

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Dual Sudoku puzzles	Puzzles 265–312
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## About Sudoku

*Sudoku* is a name for a type of number-placing puzzle. Solving a Sudoku puzzle requires logic and will improve your brain power and reasoning skills. These skills come in handy for all problem solving you might be asked to do.

Sudoku puzzles started in Japan. The Japanese language does not lend itself to crossword puzzles because the language uses complex characters to form words rather than an alphabet. Sudoku number puzzles were created to challenge Japanese readers as crosswords challenge those with alphabet languages.

*Su* means "number" in Japanese. *Doku* means "bachelor" or "single." *Sudoku* can be translated loosely as "single number."

Now Sudoku puzzles are creating a worldwide phenomenon. Hundreds of newspapers around

the world now publish daily Sudoku puzzles. Countless websites are devoted to all things Sudoku. Puzzle fans all over the world are finding themselves becoming addicted to Sudoku—spending hours trying to fill in those last few numbers!

The rules are easy to learn and some puzzles are very easy. However, some are extremely difficult. This book contains puzzles at four difficulty levels rated from one to four stars. When solving a puzzle, always use a pencil with a good eraser.

This book includes solutions in the back. Do not use them for hints if you become stuck. It is better to set the puzzle aside for awhile and return to it later with a fresh mind. When you have solved the puzzle correctly, the solution is obvious because all the number-placement rules are evident.

## The Puzzle

A Sudoku puzzle contains nine 3x3 squares inside a 9x9 square. See the example below.

The eighty-one small squares are called *cells*. The 3x3 squares are called, sensibly enough, *squares*. A horizontal line of nine cells is called a *row*. A vertical line of nine cells is called a *column*. The entire 9x9 square is called the *puzzle*.

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

The rules of the game are simple. Namely, place the digits 1 through 9 in the cells so that each digit occurs once and only once in each square, row, and column. Below is the solution for the puzzle.

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

## **Solving Strategies**

Sudoku puzzles are solved by using logical thought. You don't need a knowledge of mathematics, and guessing will not help. In fact, guessing can hinder finding the solution. This section provides you with strategies for solving Sudoku puzzles.

You're going to solve the following Sudoku puzzle using various Sudoku strategies. As you work through the strategies, you will replace the shaded letters in each cell with the correct numbers.

S				G	5	9	3	2
3	5		4	2		V	W	8
R	8	Α				U	В	Η
5		8			4	7	Ρ	1
1	4			7		Q	8	6
2	С	3	8	Ι	Т	5	J	9
D		F				Ε	1	0
6				9	1	Κ	7	5
7	3	1	6			L	Μ	Ν

#### Starting Out—Find the Lone Number

Every Sudoku puzzle contains blank cells that can be determined logically by examining the known cell digits. Consider the upper left square of our sample puzzle. That square is missing a 2. Because the top two rows of the puzzle already contain 2s, the cell R or A must contain a 2. However the column containing cell R already contains a 2. Thus cell A must contain the 2 for this square. Write a 2 in cell A.

Using this method, you will see that cell B is 5, cell C is 7, and cell D is 8. Use this procedure to determine the digits for cells E, F, G, H, I, and J. Write the digits in the proper cells.

### Going Deeper—Find the Doubles

Cells P and Q are now the only unknowns in the right middle square. The only two digits not listed in that square are 2 and 3, except you do not know which is which. These pairs are known as *doubles*.

In this case P is in a column with a 3. Thus, P is not 3. It must then be 2. Q is 3. Cells S and R are also doubles. Try to determine their digits.

#### Stepping It Up—Explore the Possibilities

You will reach a point where you have no more obvious choices. Now examine all the cells. That is, select a square, row, or column and write in all possible choices for each cell. Consider the lower right square. Cell K could be 2 or 8. 4 is not a possibility because there is already a 4 in column 8 and we know the 4 for the upper right square must be in column 7. Cell L could be 2 or 8. M can only be a 9.

N could be 4. O could be 3 or 4. Write these digits lightly in the appropriate cells. Cell N is 4 because that is the only choice. Cell O cannot be 4, so O must be 3. This leaves K and L as the doubles 2 and 8. Examine all the cells in the upper right square and determine the digits for cells U, V, and W.

#### Complete the Squares, Rows, and Columns

When any square, row, or column has only one or two unknown digits, you can often determine them easily. The sixth row has only one unknown cell, T, which must be 6. You should now be able to complete the second row also.

#### When All Else Fails—Guess

Generally, guessing will not help. However, when all else fails—guess. But guess smart. Select a cell with only two unknowns. Select one of the possible choices and circle it. Continue working the puzzle, circling each placement. If you have made a good guess, you will move toward a correct solution. If you make an incorrect guess, you will most likely see an error. That is, the same digit will appear twice in the same square, row, or column. Erase all the circled digits and proceed with the "correct" guess. Guessing is not needed in our puzzle.

Continue using the techniques discussed here to complete the solution to the puzzle. The solution is at right. You may peek at the solution just this once.

The puzzles in this book provide you with a variety of Sudoku puzzle types: traditional Sudoku (puzzles 1–168), new Sudoku Sums (puzzles 169–216), Wordoku (puzzles 217–264), and dual Sudoku puzzles (puzzles 265–312).

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

## Sudoku Sums

Sudoku Sums puzzles are an intriguing variation of Sudoku with the same basic rules. However, two types of clues are provided: the traditional number clues used in puzzles 1 through 168, and a new type of clue, a sum.

Notice in the puzzle below that where traditional clues do not exist, there are two adjacent cells bound together, called *regions*. The digits of the cells in the bounded regions add up to the number clue printed in the upper left corner of the region. To solve the puzzle place each digit 1 through 9 in every square, column, and row. No digit is repeated in a two-cell region. Some puzzles have regions of three adjacent cells.

#### Hints

Three simple observations will help you solve Sudoku Sums: 1) Sudoku Sums puzzles are based on Sudoku puzzles. All strategies used to solve Sudoku puzzles can be used to solve Sudoku Sums puzzles; 2) Because each square, column, and row contains the digits 1 through 9, the sum of all digits in each square, column, and row must total 45; and 3) The two-cell region sums range from 3 to 17; the three-cell region sums can range from 6 to 26. The puzzle solution appears below.

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



## Wordoku

Want to try something a bit different and a little more challenging? Try one of these new Wordoku puzzles. Using the same puzzle solving techniques as Sudoku, place each of the nine letters of the puzzle's anagram clue into each square, column, and row. When you've solved the puzzle, a hidden word will be revealed in one of the puzzle's columns, rows, or diagonals. Here is a sample puzzle and its solution:

1.	.U	Ν	G	В	Α	U	V	15

0 A



#### W G В Ν S U L А 0 S Α U G W Ν В 0 L В S U L G 0 Ν W Α L S W 0 Ν G Α В U U G S Α Ν W 0 В L W L G S В Ν U 0 Α G S Α U 0 В L Ν W S G U W Ν L 0 А В

G

S

UNW

В

## **Dual Puzzles**

You're going to enjoy solving dual puzzles too! Each puzzle has one overlapping square of nine cells.

Your challenge is to solve each puzzle. The digits in the nine cells of the overlapping square will be the same for each puzzle. As you solve one puzzle and fill in the cells in the overlapping square, you will be gaining more clues for the other puzzle. The rules of Sudoku apply for each separate puzzle.

Good luck and good puzzling!

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

1

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

My Time:

2

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

My Time:

Sudoku

\* \$ \$ \$ \$

169

	8	9		12		9		9	
		17	5		15		11		12
	15		3	1	7	5	4	7	
		5	7	6		3	9		10
	13		7		7	12		4	
		7	6	8	9	9	2		9
	8		8	7		1	3	13	
		9		14		7			13
e:	5		12		10		13		

My Time:

170

5	15	6	5	16		1	7	
		9		3	13	8	10	
1	5	4	8			9	7	3
15	7		8	6		9	16	
	9	7		8	7		4	13
7			16			3		
6	1	3	17	11		5	2	9
7		7		1	5	4	11	7
13		8	11			7		

My Time:

217

**CAUSERVON** 

	S				Е	С		Α	V
				R		Α			
			Α			V	S		0
		V	Ν	Α					
	0				V				Ν
						Ν	С	V	
	C		S				R		
				Ε		U			
9:	R	U		С	Α				Ε

My Time:

218

**MINERGHAT** 

		Μ	R				Α	
Т								Μ
		R	Ι	Ν		G		
	Μ		Ν		R	Н		Α
		Ι		A		Т		
Ν		Ε	Н		G		Ι	
		Н		R	Ι	Α		
E								Ι
	R				Α	Ε	Ν	

My Time:

-		100
	h	-
~	U	_

7	5							6							
		9			3		8								
					1			9							
	1			4		2	7								
			1		8										
	4	5		2			9								
9			4				3							1	266
	8		9			1			8	5		*	2		
3							2	4			6				
						3	5		6	2	8				
										9					
									3	7	4		5	9	
									9			7	3		
	My Time:						9			6	1	2	4		
						5									

-	-
h	
$\mathbf{v}$	

1	4			9	2										
8			1		4			5							
				7			9								
		2	6			9									
	5	8				3	1								
		9			3	2									_
	3			1						1				3	268
9			4		6			3			2		8	4	
			9				8	2	4			9			
										9			4	8	
							1			2			3		
						7	2			5					
			1			9									
My Time:							9		3					6	
						8				7			1	9	