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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

## 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.

A Sudoku puzzle contains nine $3 \times 3$ squares inside a $9 \times 9$ square and looks like this:

|  |  |  |  |  | 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 eighty-one small squares are called cells. The $3 \times 3$ 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.

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. Following is the solution for the above 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 | 3 | 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 | $A$ |  |  |  | U | B | H |
| 5 |  | 8 |  |  | 4 | 7 | $P$ | 1 |
| 1 | 4 |  |  | 7 |  | $Q$ | 8 | 6 |
| 2 | C | 3 | 8 | I | T | 5 | J | 9 |
| D |  | $F$ |  |  |  | E | 1 | 0 |
| 6 |  |  |  | 9 | 1 | K | 7 | 5 |
| 7 | 3 | 1 | 6 |  |  | L | M | N |

## 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 2 s , 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.

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 60 , and a new type of clue, a sum.

Notice in the puzzle below, and in puzzles 61 through 78, there are two or three adjacent cells bound together, called regions. The digits of the cells in the bounded regions add up to the number 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 2 -cell region.

Here is a Sudoku Sums puzzle and its solution:

| 2 | 4 | $1^{16}$ |  | ${ }^{11}$ |  |  | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | $\mathbf{C l}^{9}$


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

## 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 2 -cell region sums range from 3 to 17 ; the 3 -cell region sums can range from 6 to 26 .

## 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:

LONGBAUWS

|  | G |  |  |  |  | S |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| L |  | U | O |  |  |  | N |  |
|  | O |  |  | U | B |  |  | G |
| O |  | G |  |  |  | U |  | W |
|  |  |  | N | W |  |  |  |  |
| U |  | L |  |  |  | B |  | N |
| A |  |  | B | L |  |  | W |  |
|  | L |  |  |  | A | G |  | U |
|  |  | S |  |  |  |  | 0 |  |


| W | G | B | L | A | N | S | U | O |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| L | A | U | 0 | G | S | W | N | B |
| S | O | N | W | U | B | A | L | G |
| O | N | G | A | B | L | U | S | W |
| B | S | A | N | W | U | 0 | G | L |
| U | W | L | G | S | 0 | B | A | N |
| A | U | O | B | L | G | N | W | S |
| N | L | W | S | O | A | G | B | U |
| G | B | S | U | N | W | L | O | A |


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

My Time:
$\square$
2

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

My Time:
$\square$


My Time:
$\square$

