## How to Solve Sudoku Puzzles

Sudoku puzzles are available in 4-, 6- and 9-square grids. The object is to complete the grid with the missing numbers so that none of the numbers appear more than once in a row whether vertical or horizontal or in the 4,6 or 9 block square.

Examples:


9x9 Grid

|  | 6 | 5 |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |
|  |  |  | 5 | 6 |  |
|  | 3 | 4 |  |  |  |
|  |  |  |  |  |  |
|  |  |  | 6 | 3 |  |
|  |  |  |  |  |  |
|  | 1 | 2 |  |  |  |
|  |  |  | 4 | 2 |  |

There is only one solution for each puzzle. If any number is repeated in a horizontal or vertical row or in the designated "block", it is incorrect. The puzzles are completed by using logic. To get you on your way to solving one, we'll take step by step using a $4 \times 4$ square grid.

| 4 | 2 |  |  |
| :--- | :--- | :--- | :--- |
|  |  | 2 | 4 |
| 3 | 1 |  |  |
|  |  | 1 | 3 |

We'll start with row 2 . In that row you see a 2 and a 4 . Knowing that we can only use the four digits $1,2,3$ and 4 , we determine that we need to add a 3 and a 1 to that row.

Since we already have a 3 and a 1 in the row below the two empty boxes, we know we cannot put a 3 in the first box or a 1 in the second box, so the first number in the second row is 1 , and the second number is 3 .

| 4 | 2 |  |  |
| :--- | :--- | :--- | :--- |
| 1 | 3 | 2 | 4 |
| 3 | 1 |  |  |
| 2 | 4 | 1 | 3 |

With 3 of the numbers in the first two vertical columns completed, we'll fill in those two columns. Since we used 4,1 and 3 in the first column, logic tells us that the only number left to add is a 2 .

In the second vertical column, we've used 2,3 and 1 , so again logic tells us that the only number we can use is 4 .

| 4 | 2 | 3 | 1 |
| :--- | :--- | :--- | :--- |
| 1 | 3 | 2 | 4 |
| 3 | 1 | 4 | 2 |
| 2 | 4 | 1 | 3 |

We have two more rows to complete, so we'll take the top row first. The numbers we're missing are 1 and 3 . As we look at the row going down where the first empty square appears, we see that there is already a 1 in the column, so the only number that can go into the first empty square is a 3 and the second empty square the number 1 . With this completed, this leaves us with only one more row to complete. We need to put in a 4 and a 2 . Using the same logic as above, the only number that will go into the first empty box is 4 and the second empty box, 2.

So, you've just finished your first Sudoku puzzle. Now it's your turn.
Of course, the 6 -square and 9 -square grids are more challenging, but with a little bit of practice, you'll get better and better and you might find that you want to do more.

