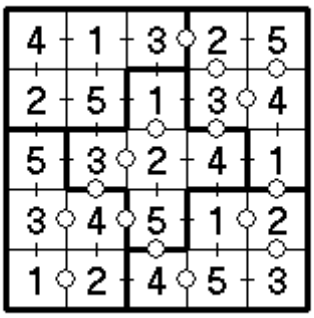
Variants on SUDOKU

On the following pages you find a collection of puzzles all being variants of SUDOKU. The rules are as follows:

- Every puzzle consists of an n x n square of cells.
- All cells have to be filled by numbers from 1 to n.
- There are at leastthe following blocks: the n rows, the n columns and the indicated groups of cells bounded by fat lines.
- In case the diagonals are indicated there are two more blocks: the two diagonals.
- The cells have to be filled in such a way that every block contains no duplicates. For most puzzles this means that every block contains every number exactly once. Later on, however, this is not always the case as there are blocks with less than n cells.
- In case the line between two neighboring cells contains a circle, the corresponding numbers should be consecutive.
- In case the line between two neighboring cells contains a cross-line, the corresponding numbers should not be consecutive.
- In case the line between two neighboring cells contains neither a circle nor a cross-line, there is no information on the corresponding numbers.
- There is exactly one solution.

The example below shows a solution with all possible circles and cross-lines:

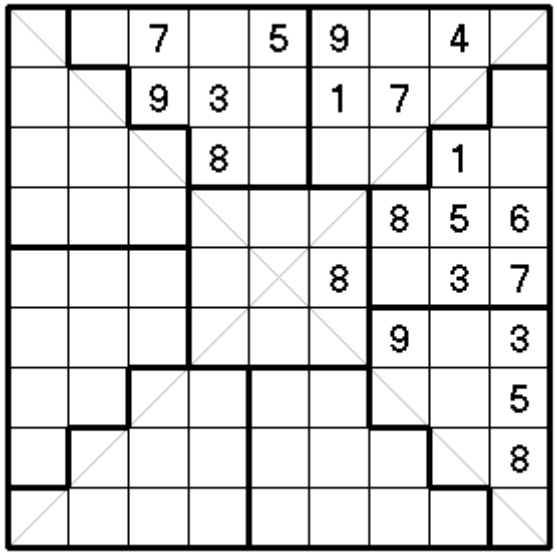


All puzzles have been designed by a program written in Dephi by starting with a solution and repeatingly removing information and checking (by back-tracking) whether the solution is still unique. All puzzles were solved by hand. The hardest are marked by a '*'.

Good luck!

Hans Zantema, April / May, 2009.

1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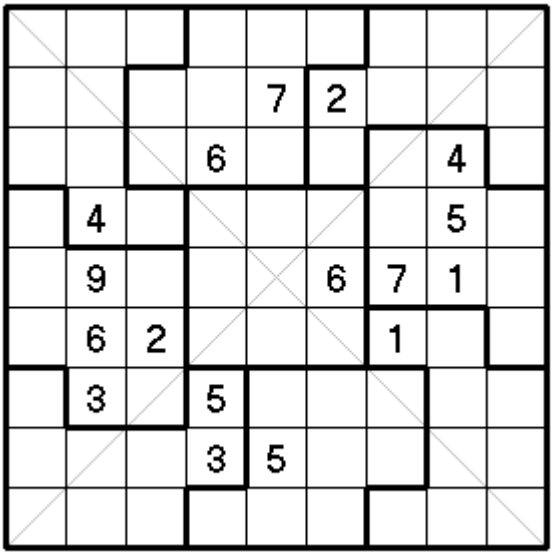
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6 2 1
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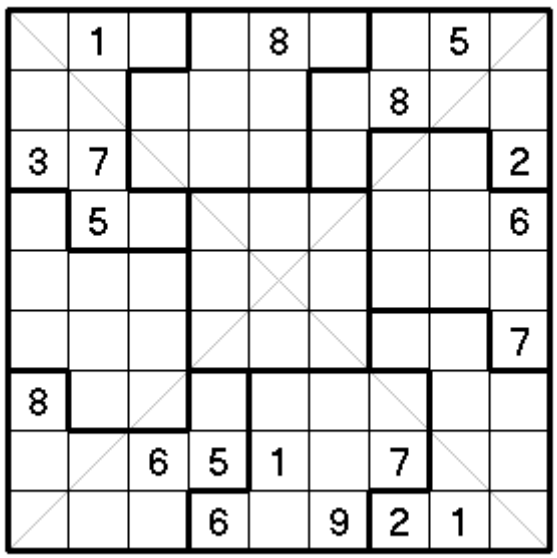
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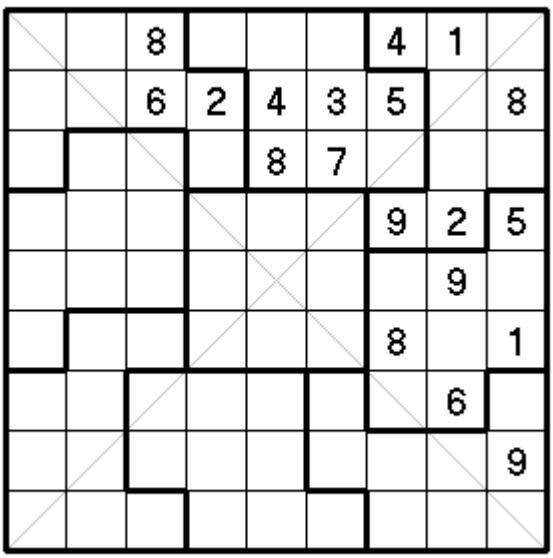
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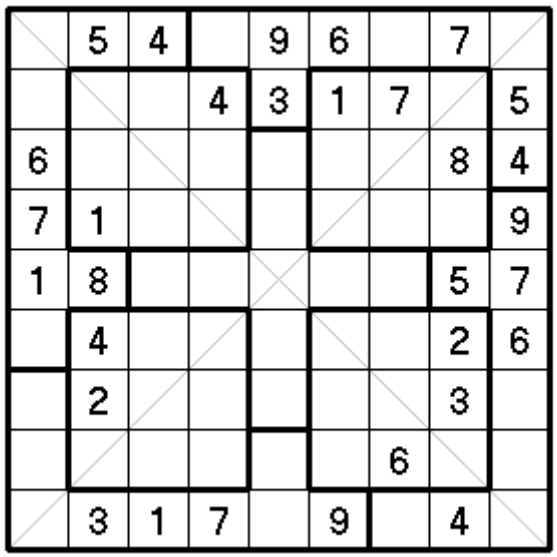
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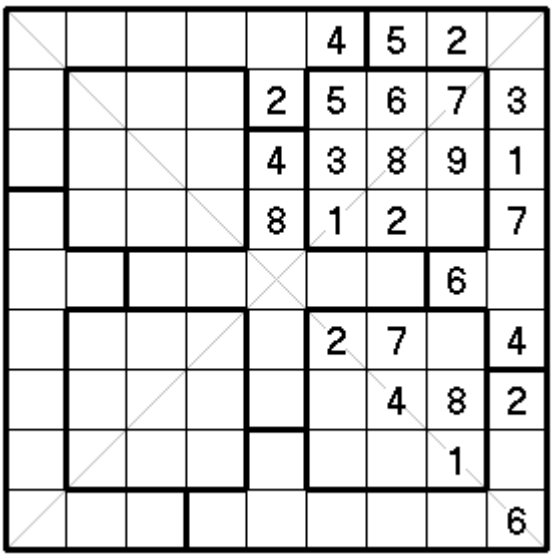
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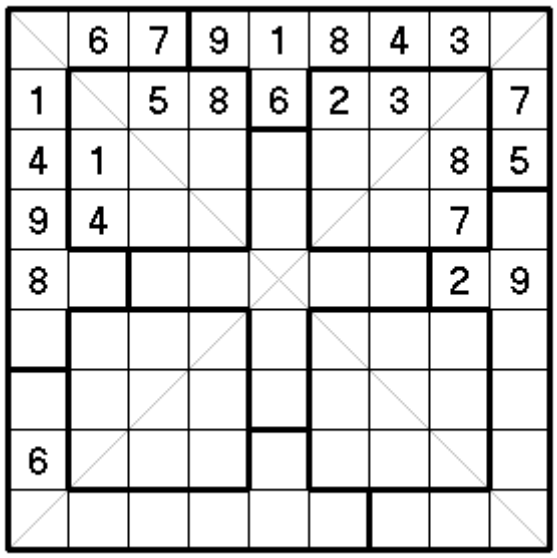
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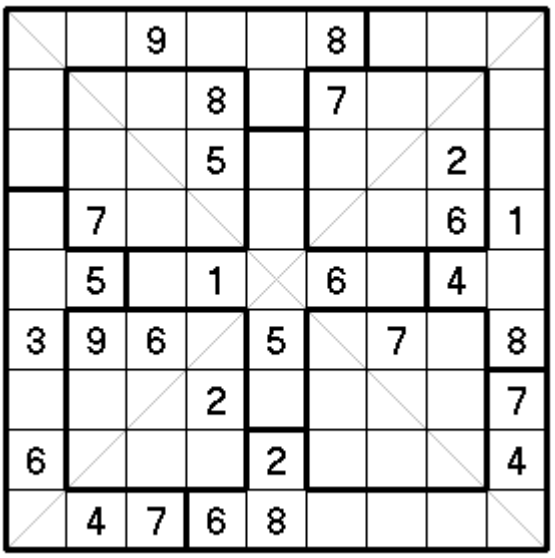
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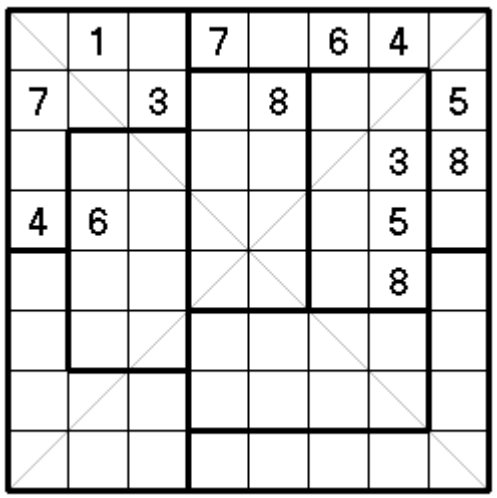
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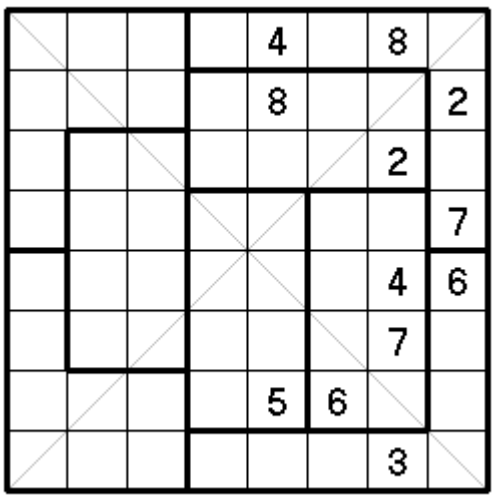
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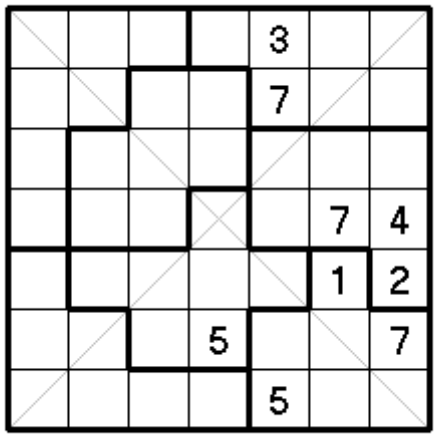
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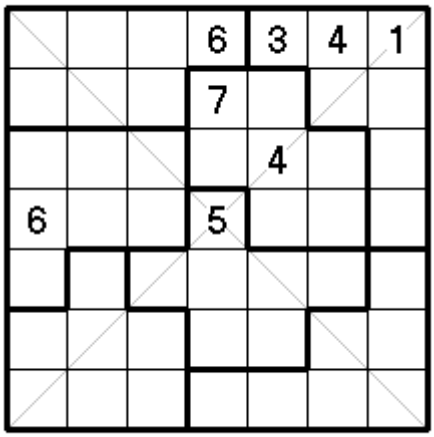
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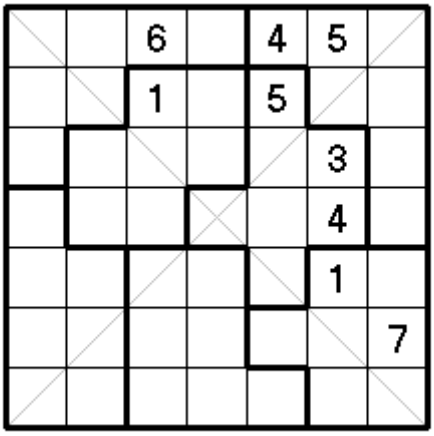

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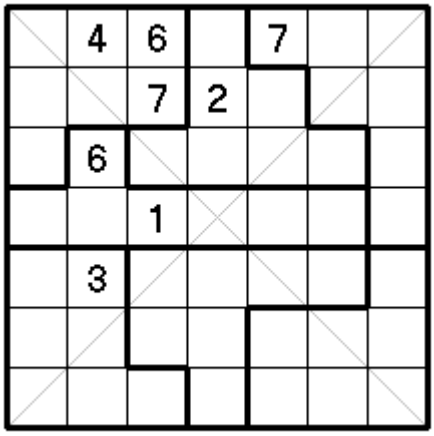

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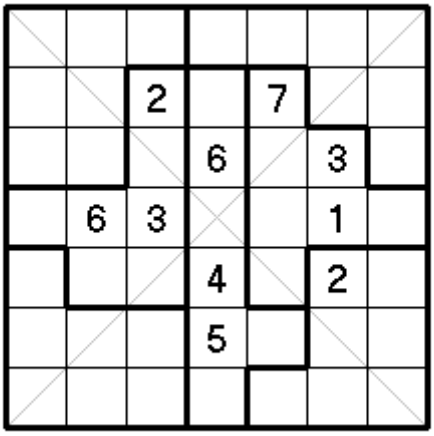

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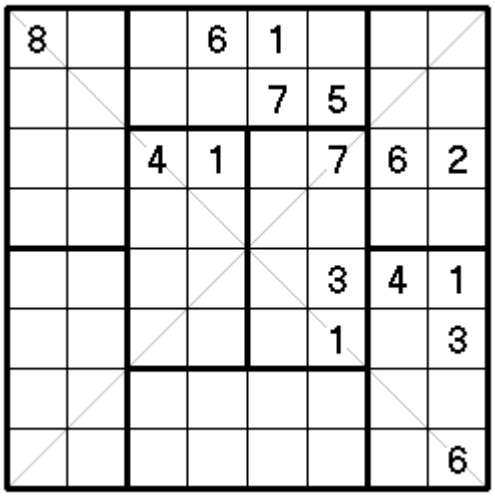

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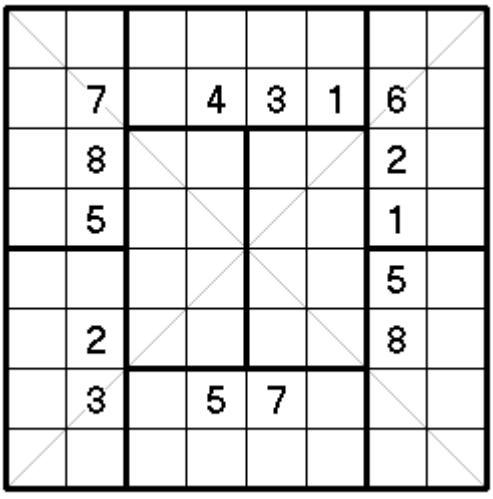

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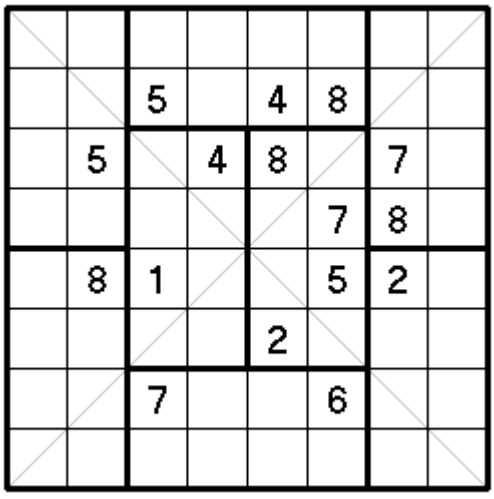

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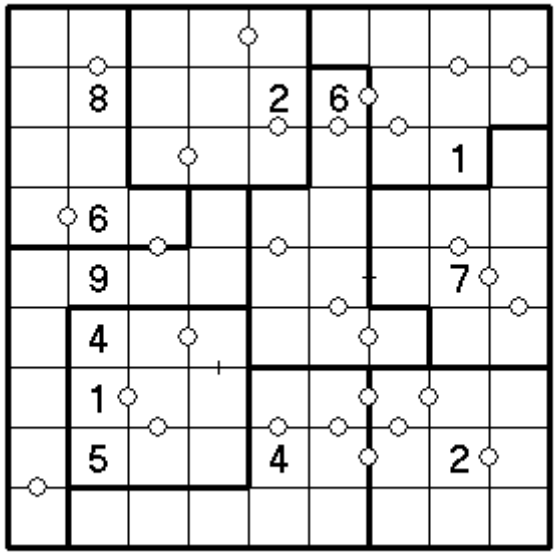

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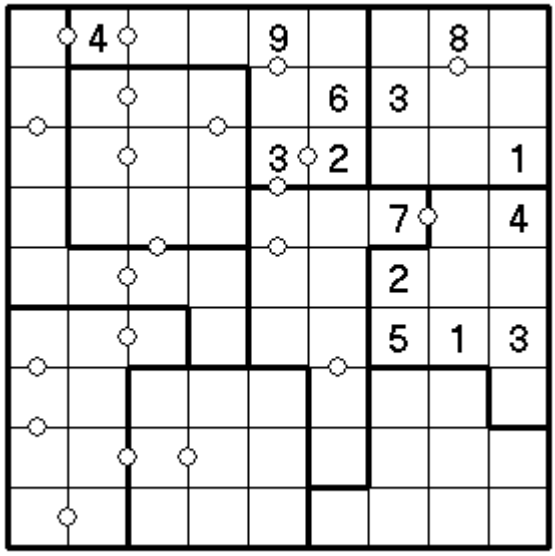

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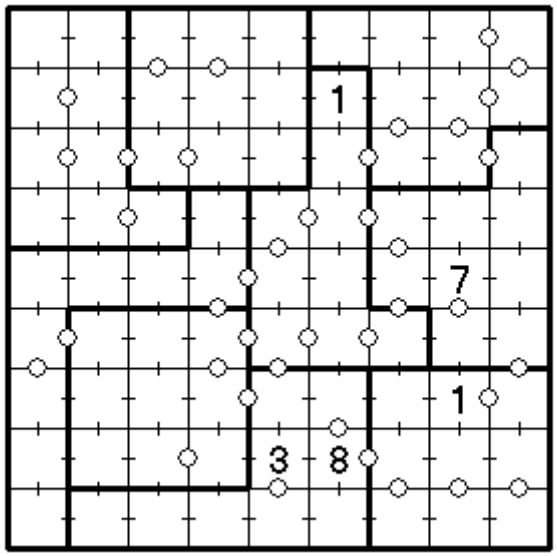

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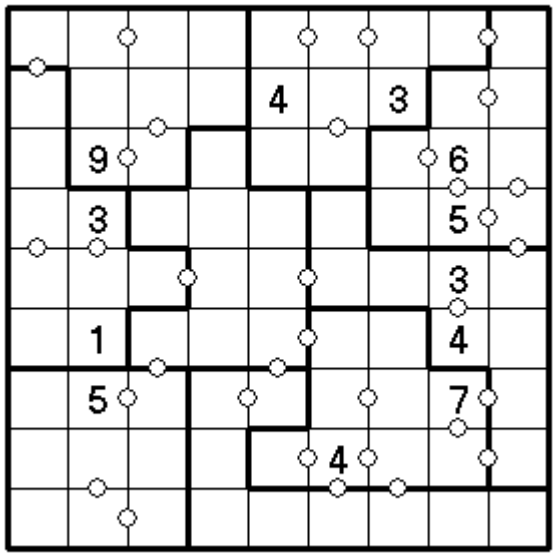

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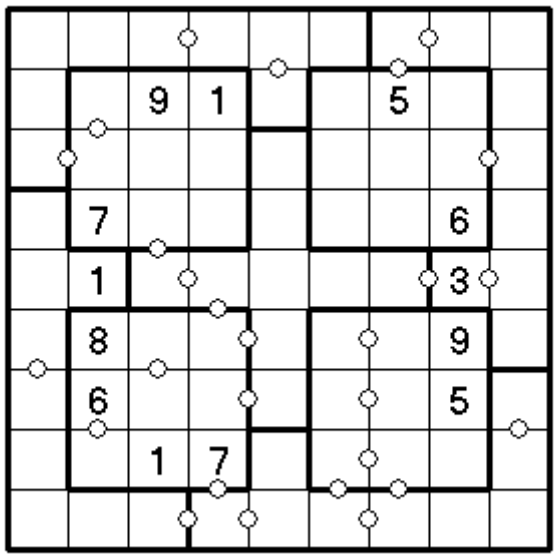

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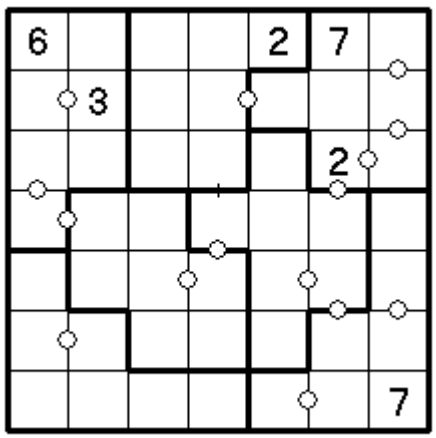

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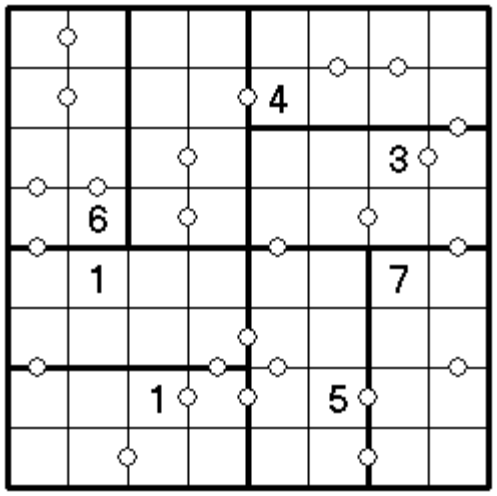

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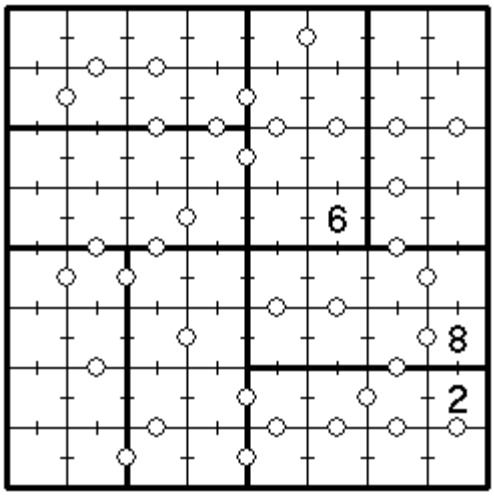

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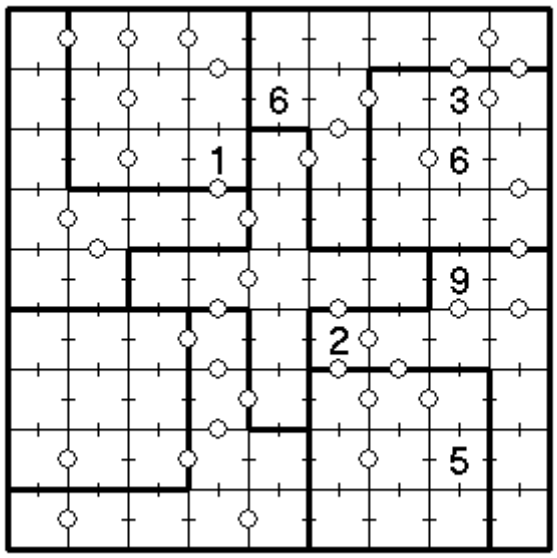

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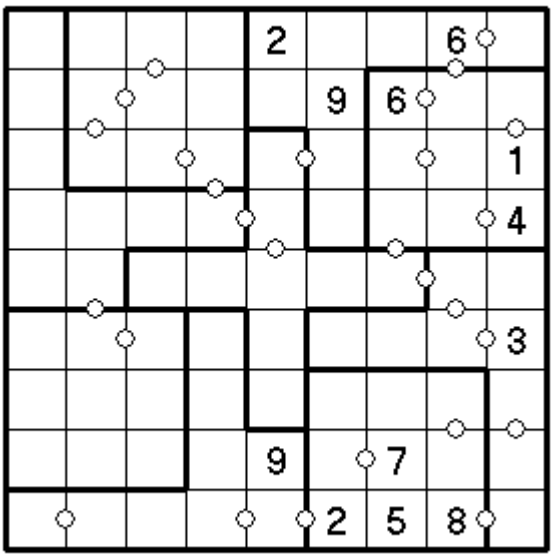

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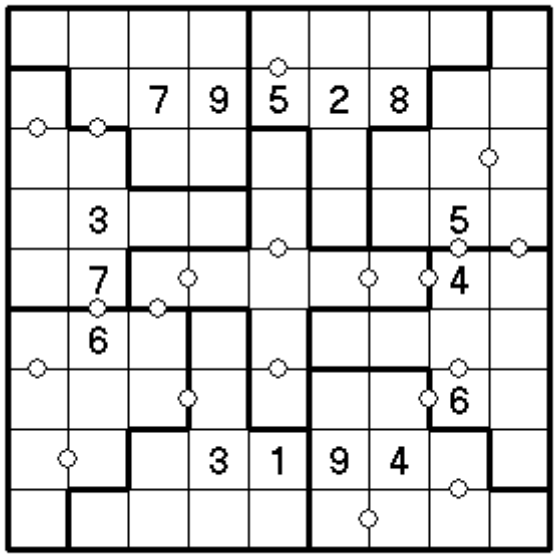

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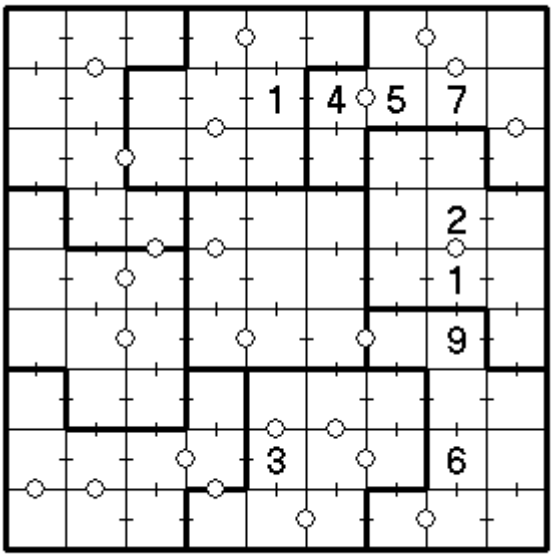

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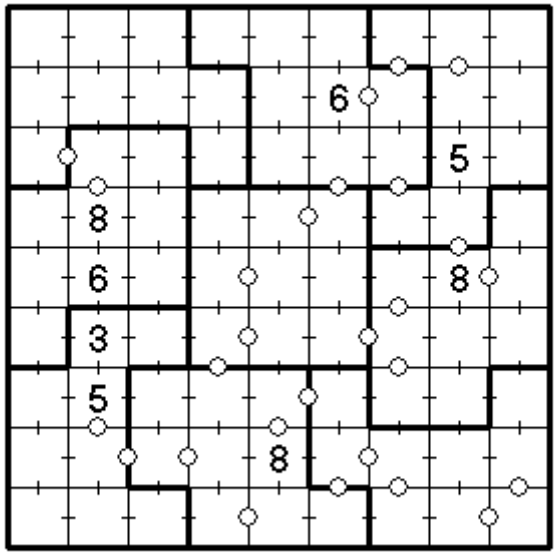

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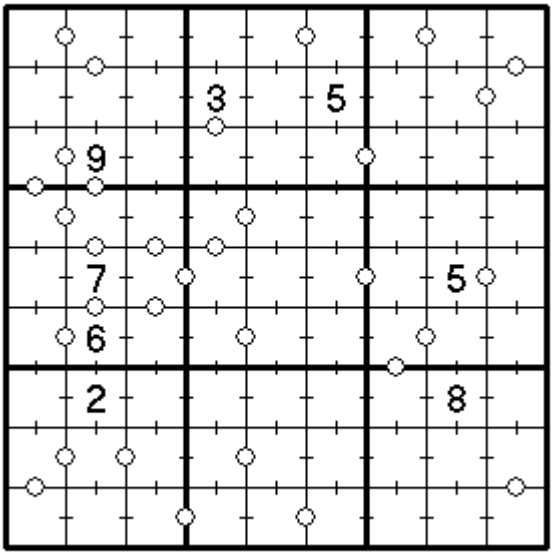

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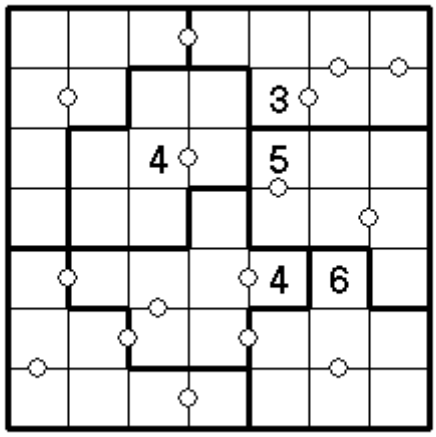

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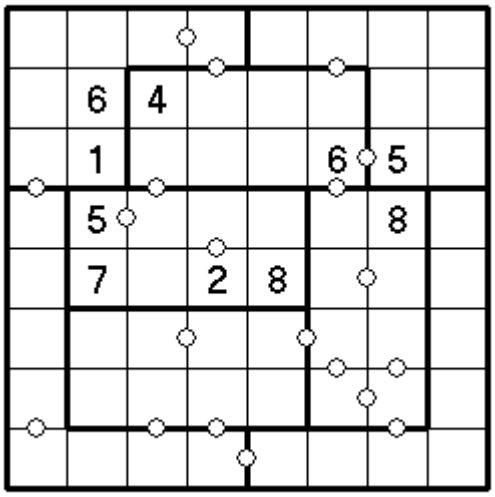

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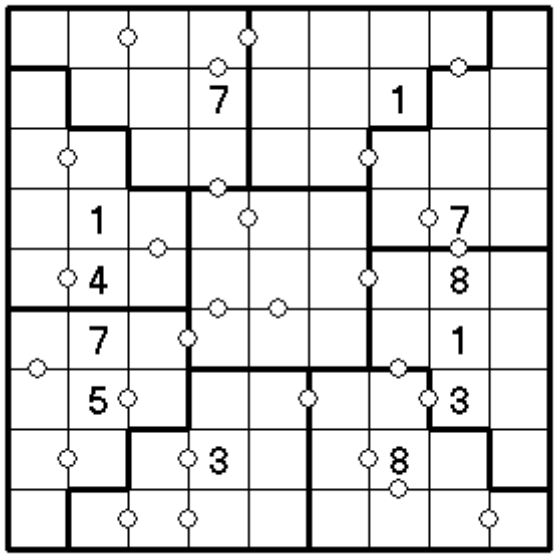

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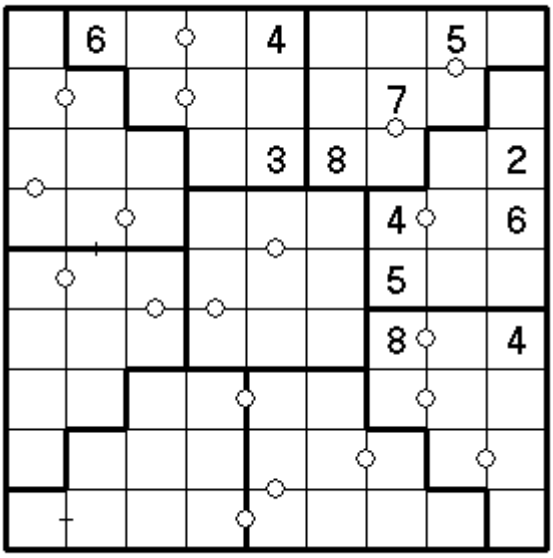

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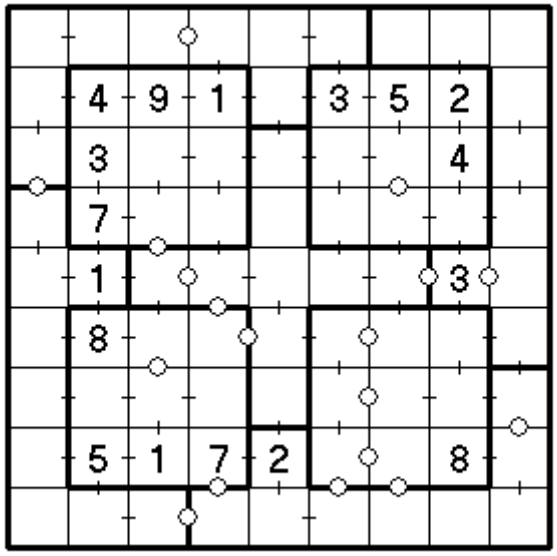

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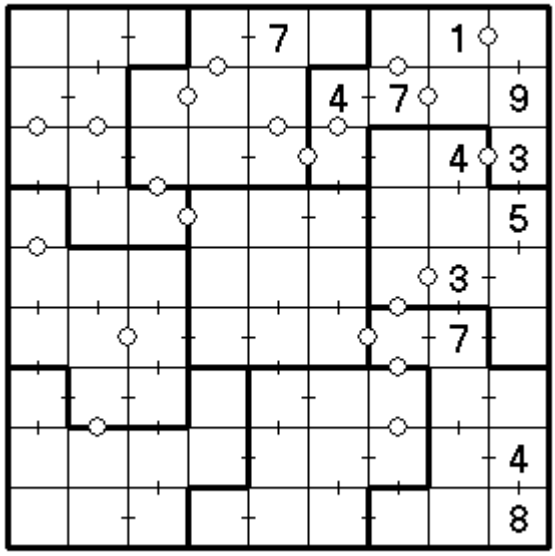

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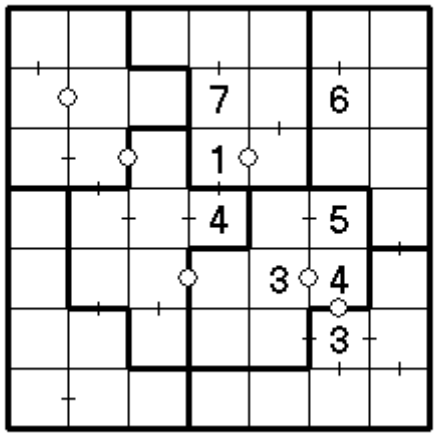

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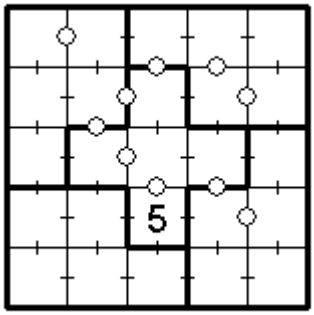

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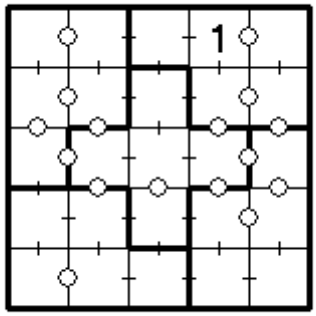

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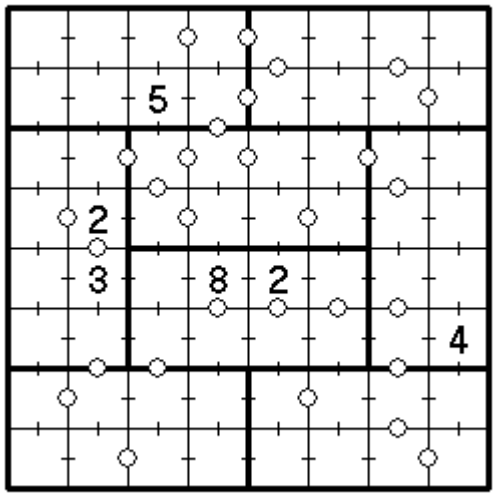

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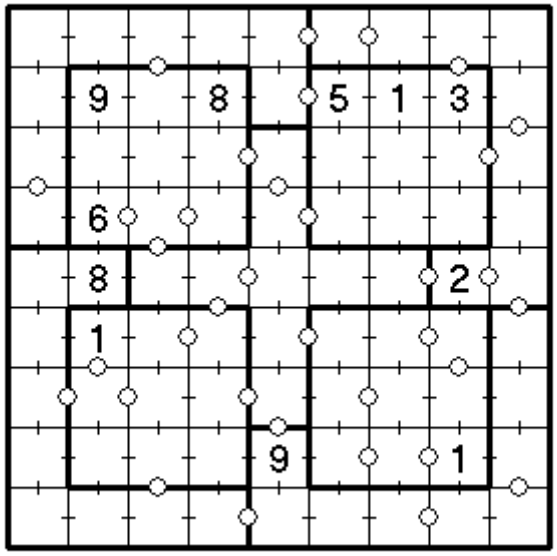

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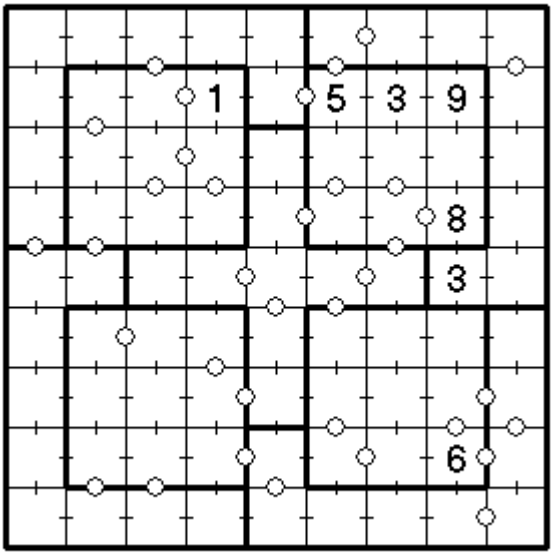

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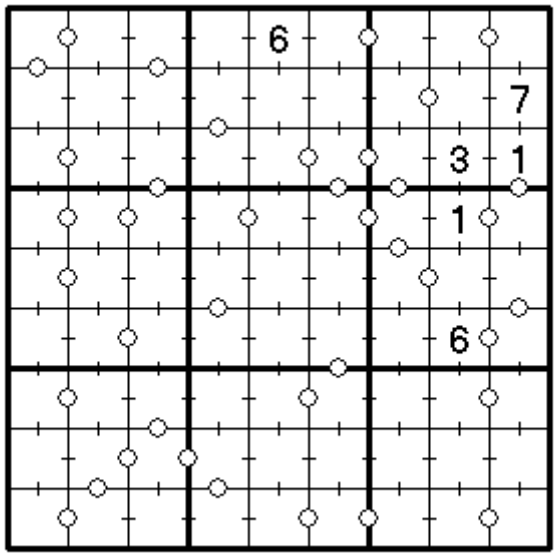

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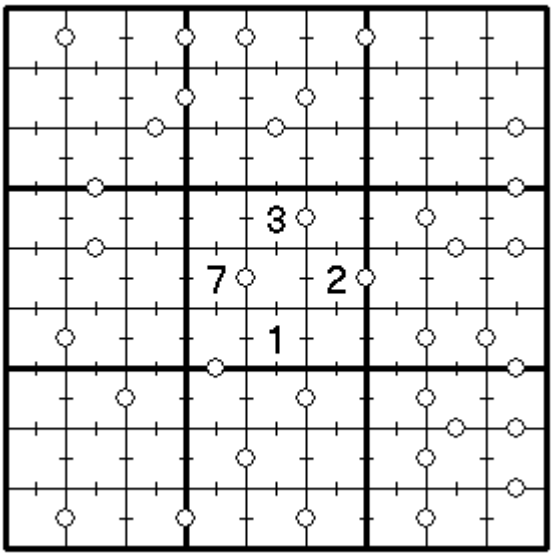

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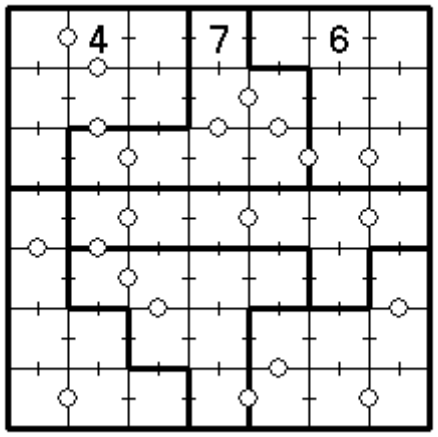

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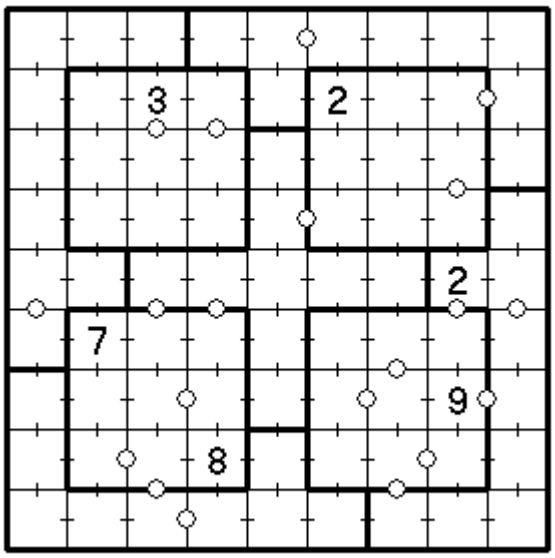

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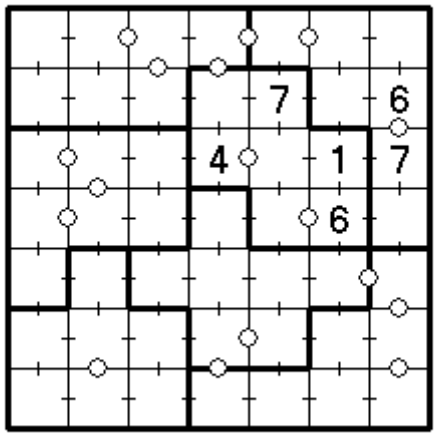

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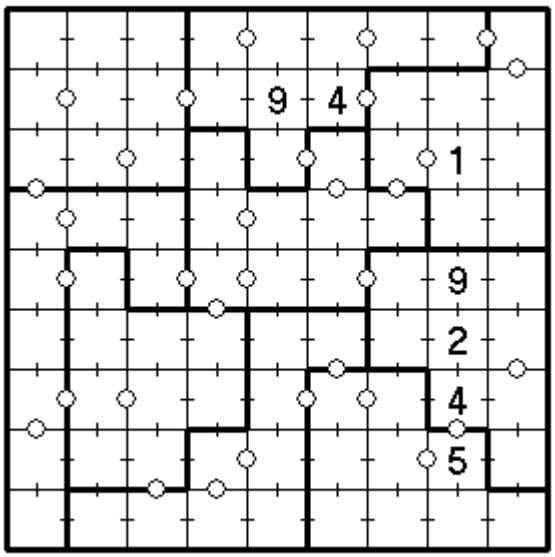

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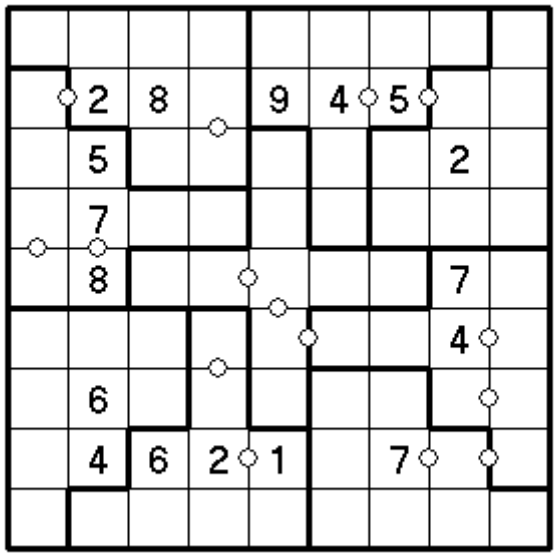

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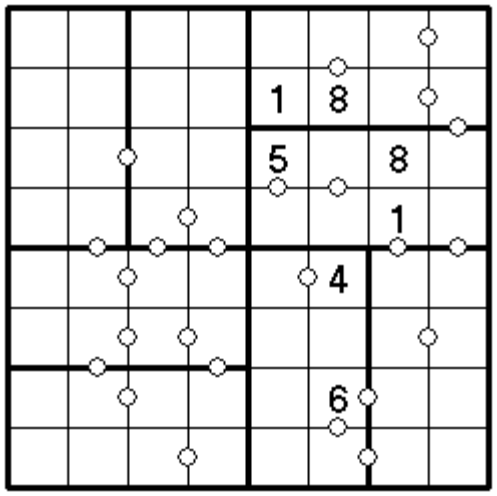

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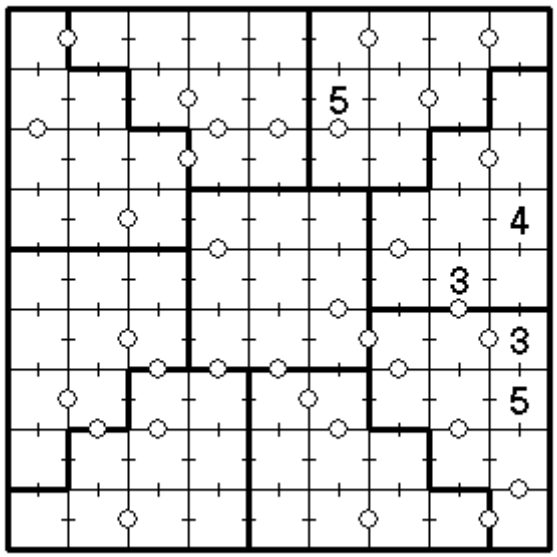

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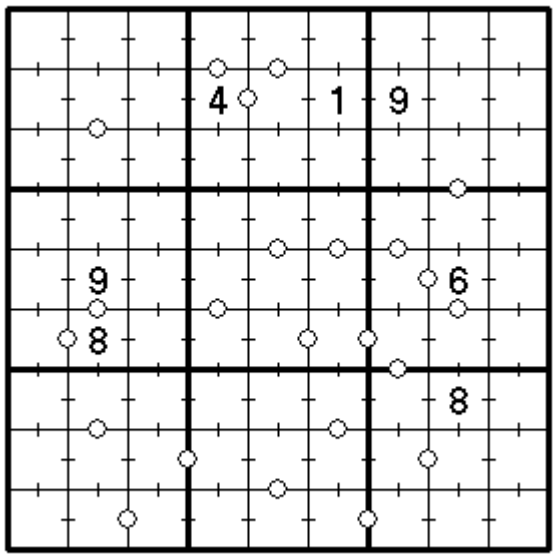

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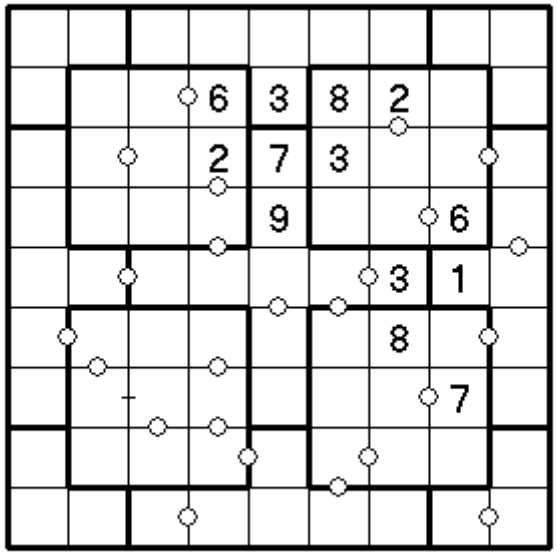
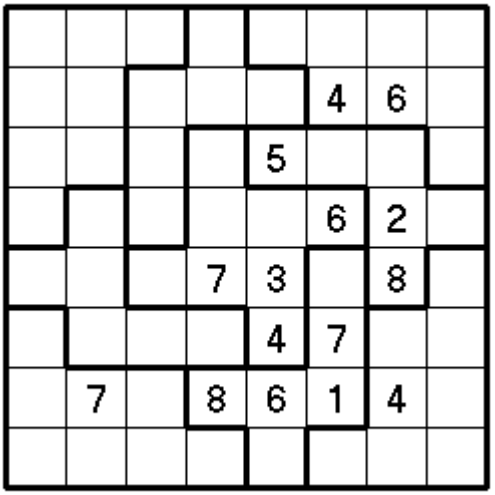
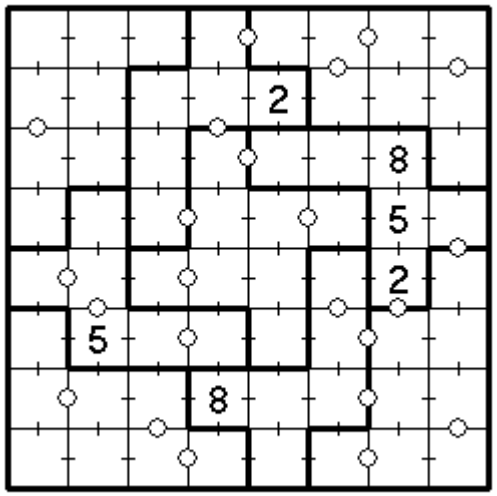


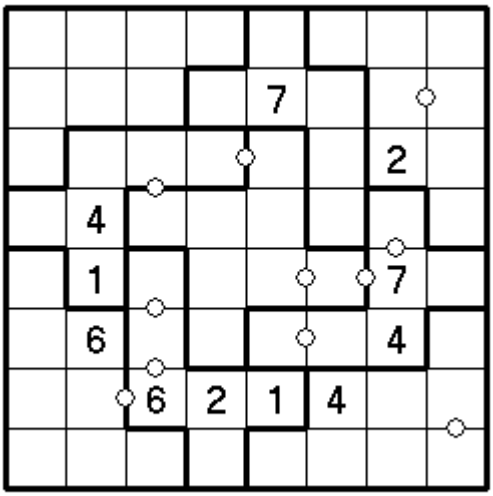
56



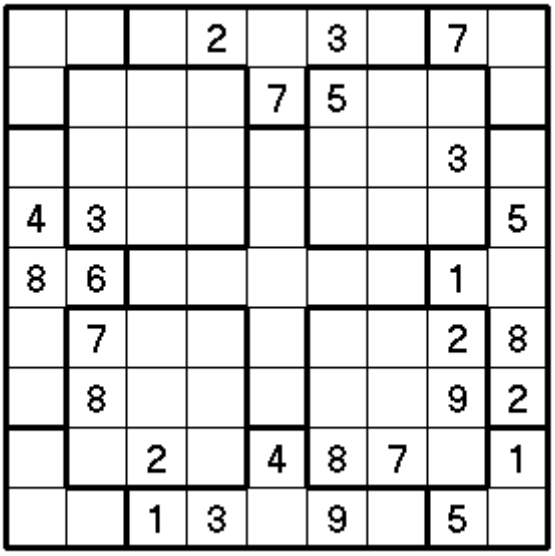
57*



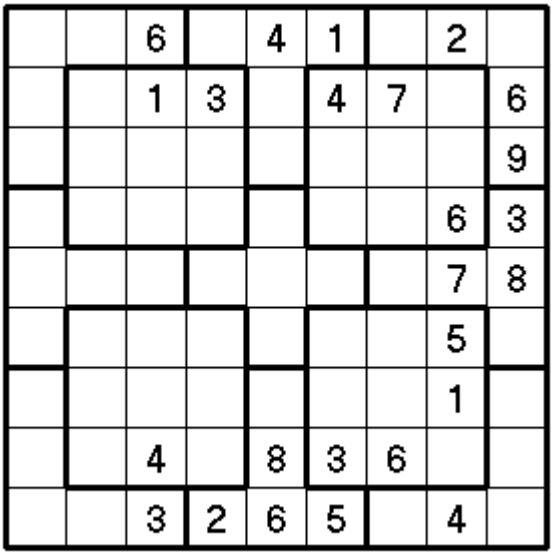
58*



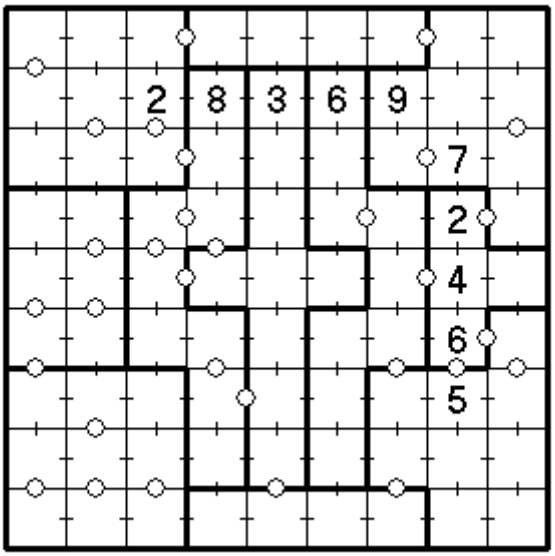
59*



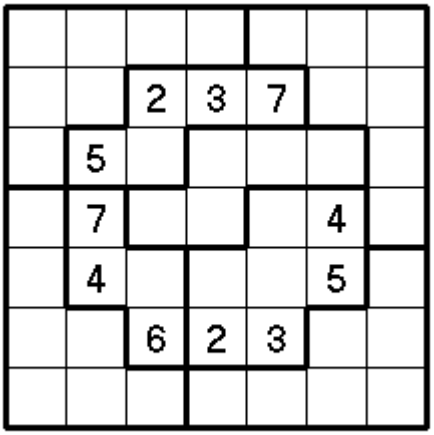
60*



61



62*



Note: the next one has width 9 and height 8. This means that it should be filled by numbers 1 to 9, and the columns should contain no duplicates.

63