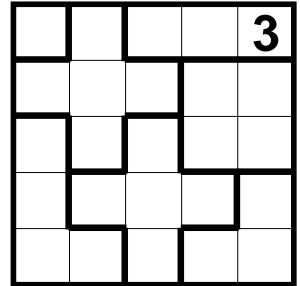


SUGURU

In this puzzle there is a square grid divided into a number of ‘cages’ of various sizes. If a cage has N squares, all the digits from 1 to N must appear in the cage. No entry can have a neighbour of the same digit, neighbours being defined as squares sharing edges and squares sharing corners. There are some ‘givens’ for this puzzle which I call ‘direct givens’, which, as in sudoku, are an integral part of the solution.

Here is a simple 5 × 5 example. There is only one given, the 3 in the top right corner, and without this there is no unique answer.



Top left is a cage with just one square, so it must be a 1.

Bottom left is a cage which must contain 1, 2, 3 & 4, and as all these squares are neighbours to one particular square, that square can only be a 5.

Similarly the cage top right, containing 1, 2 & 3, has one particular neighbour for each of these, so that neighbour must be a 4.

1	23 45	12	12	3
23 45	23 45	5	4	12
123 4	123 4	123	123	123
123 4	5	123 4	4	12
123 4	123 4	123 4	123	123

To make solving a little easier, the possible values for all the undetermined squares have been entered in this diagram of the first step of progress.

On examining where the 1 might go in the 5-square cage top left, we see just one possible place. This has resulted from the fact that this square in the third column is a neighbour to the two undecided squares of the top right cage, which are both 1 or 2, so it cannot be 1 or 2.

Now we see that the bottom right cage of 1, 2 & 3 has a neighbour for all these three positions, and this neighbour must be 4 or 5, but as there is now a 5 in this neighbour’s cage, it is therefore a 4.

1	23 45	12	12	3
23 45	23 45	5	4	12
23 4	1	23	123	123
123 4	5	23	4	12
23 4	123 4	123	123	123

Now we see the middle square in the bottom row must be a 1, the only possibility in its cage.

The 2 and 3 remaining in this cage force their undetermined neighbour to be a 1.

The full answer now follows easily.

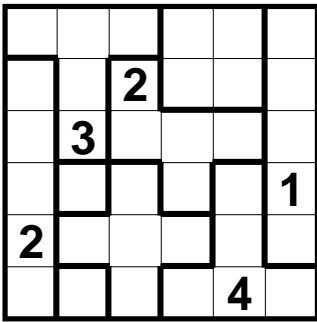
1	23 45	12	12	3
23 45	23 45	5	4	2
23 4	1	23	1	23
23 4	5	23	4	2
123 4	23 4	1	23	123

1	3	2	1	3
2	4	5	4	2
3	1	3	1	3
2	5	2	4	2
1	4	1	3	1

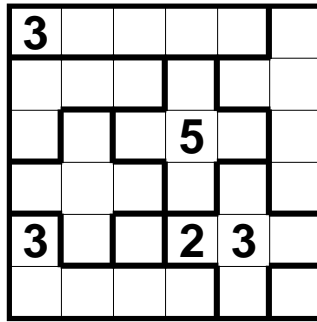
I first came across this puzzle in the Saga magazine, but as it must be too difficult for the over-fifties they have discontinued, but you will find them in Bellos’ book *Puzzle Ninja*, where he tells us that the Japanese originator of this puzzle named it Block Number.

The puzzles do not demand to be square, but this is a rare example of a form where the puzzles are both easier to construct and easier to solve when there is a high proportion of edge squares. Recently some 6 × 6 puzzles have sprouted in the national press to give readers more to occupy their grey matter in these troubling times, but these are essentially trivial puzzles – just one page of these. I found making patterns for 8 × 8 puzzles rather tiresome when making a few for my book, and somehow slipped up over #205, but I am now improving and can make enough for this web site. For the keen puzzlers I hope a dozen bigger ones are enough!

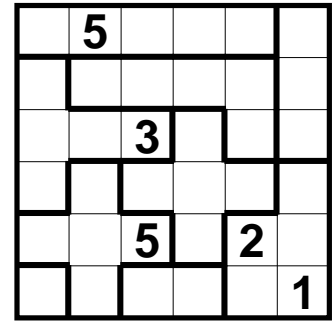
This is a good DIY puzzle. Try making a pattern with the squares filled in carefully following the rules, and you have an answer. Now start removing some of the digits until the puzzle becomes a task worth solving, but then be sure as you solve it that it has a unique solution.



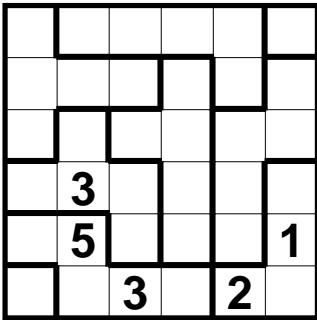
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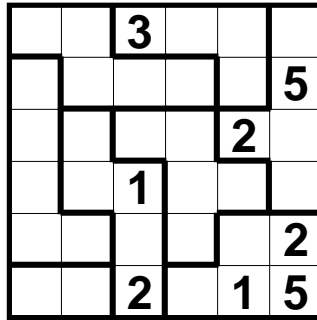
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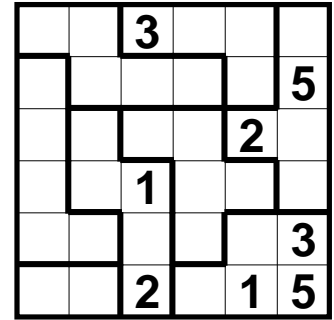
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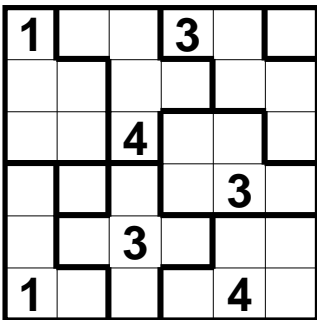
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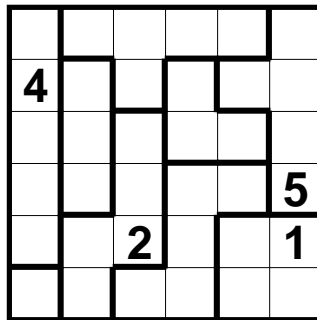
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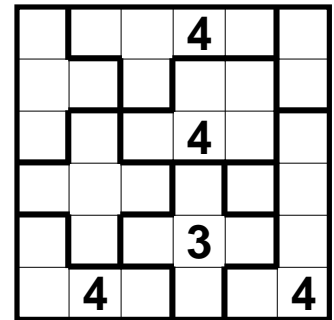
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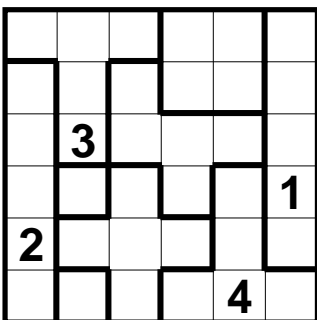
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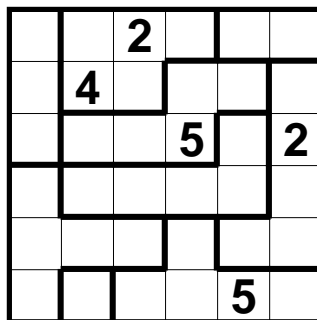
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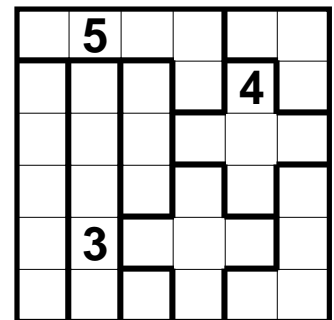
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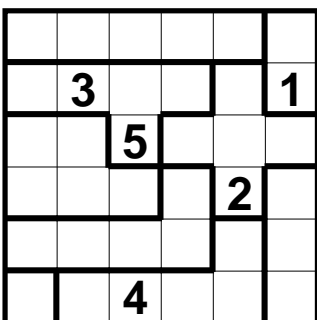
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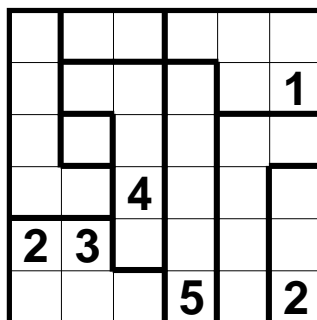
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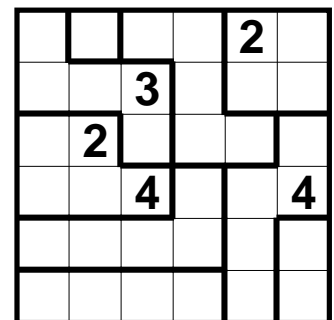
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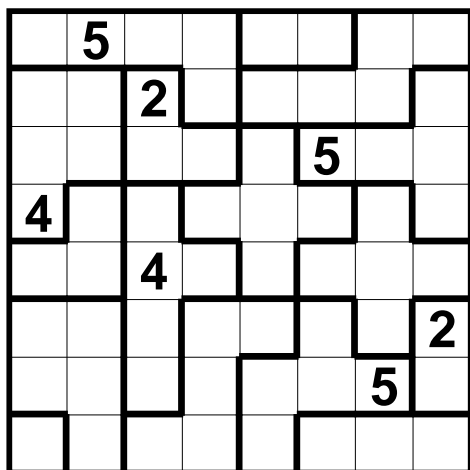
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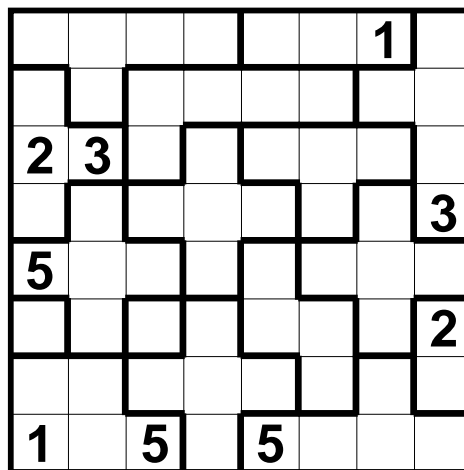
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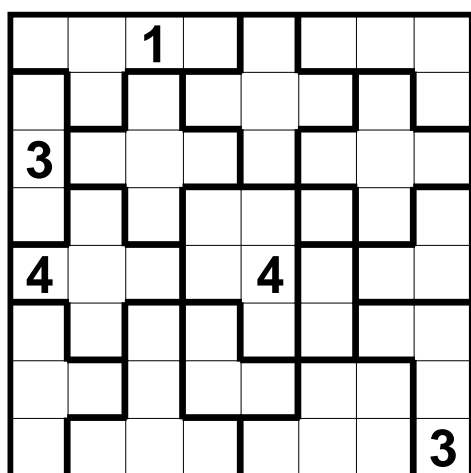
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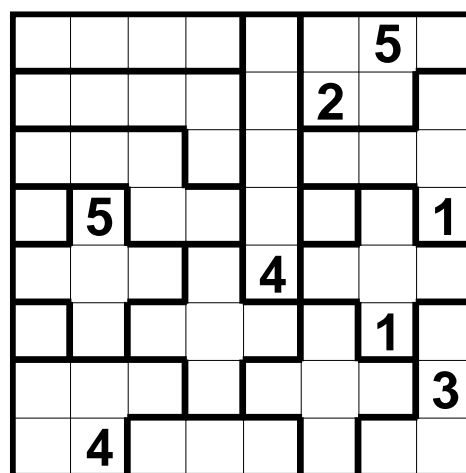
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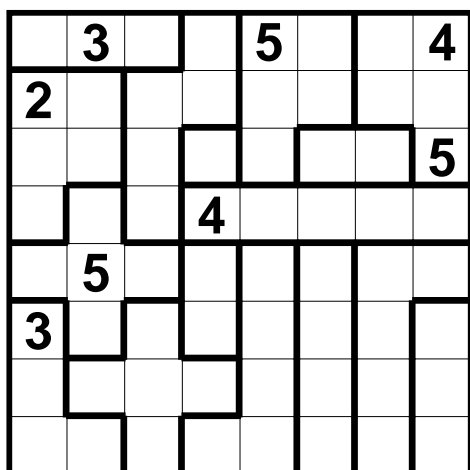
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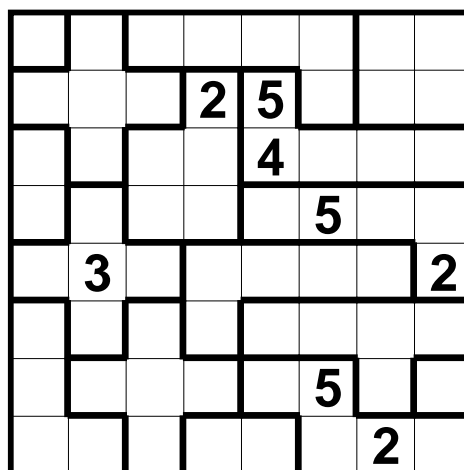
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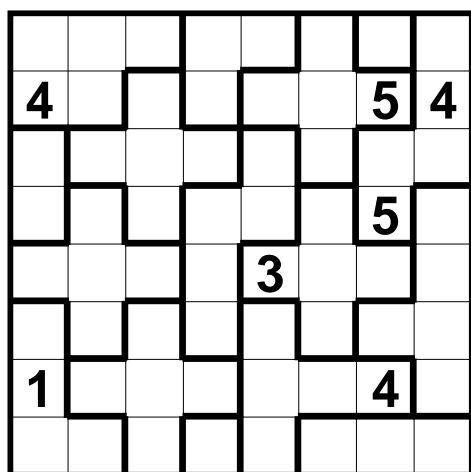
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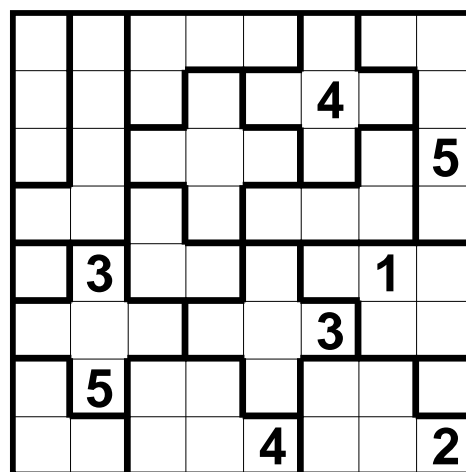
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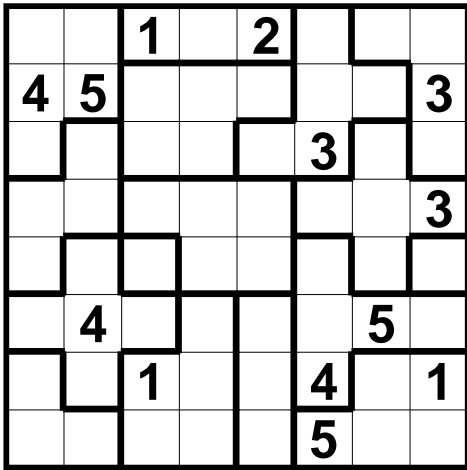
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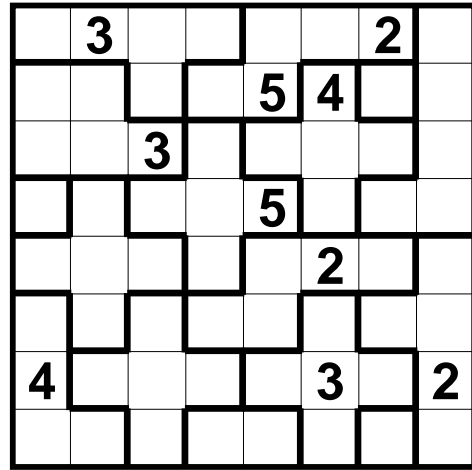
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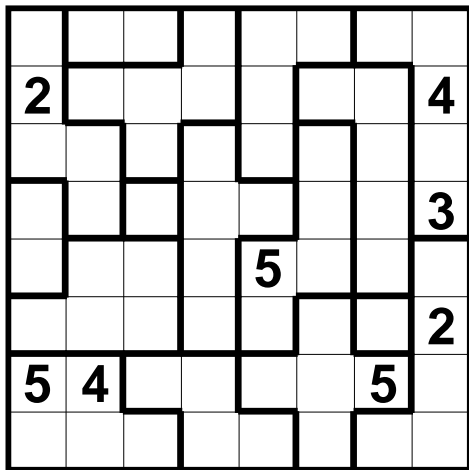
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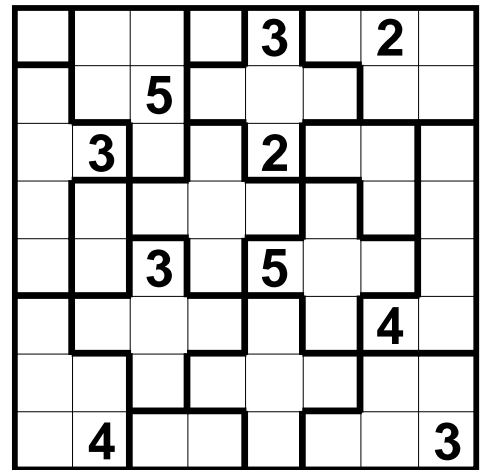
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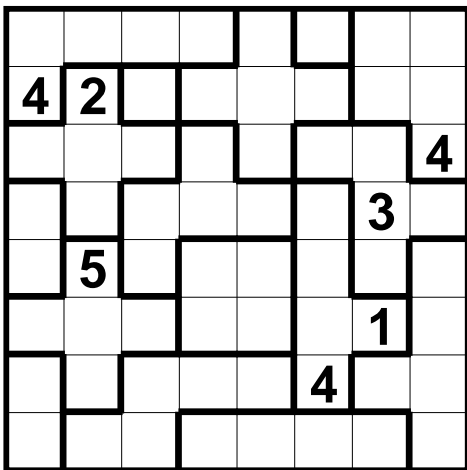
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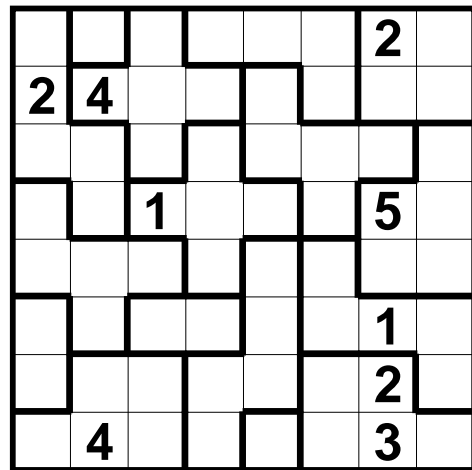
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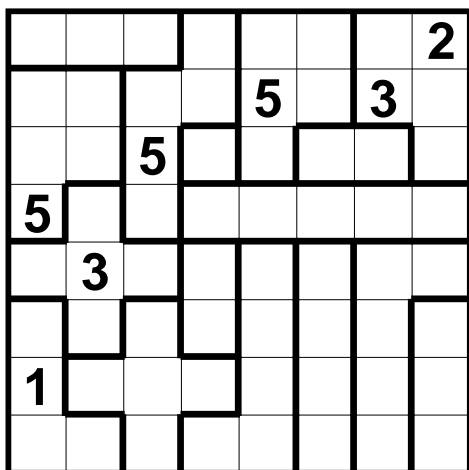
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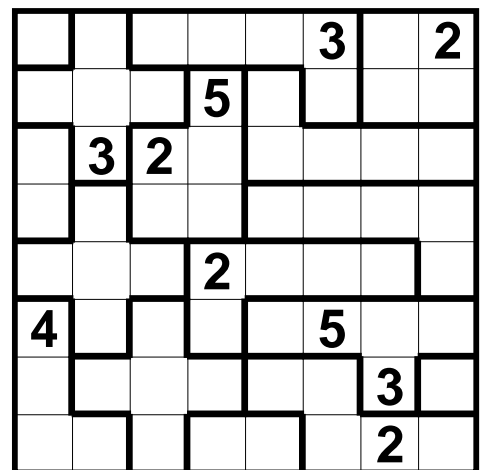
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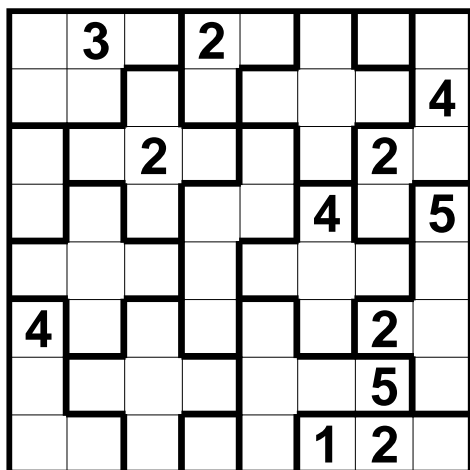
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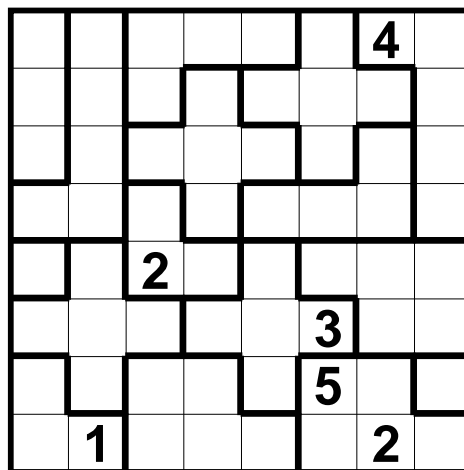
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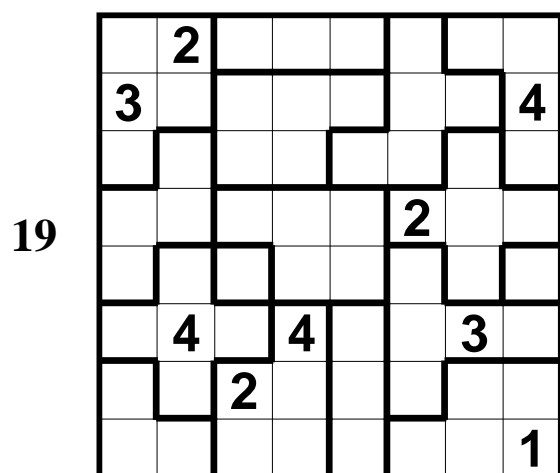
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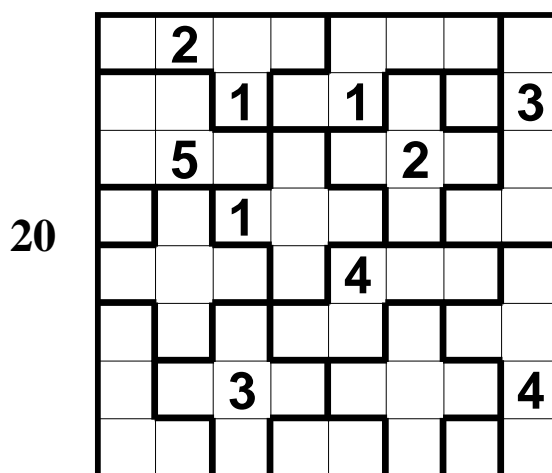
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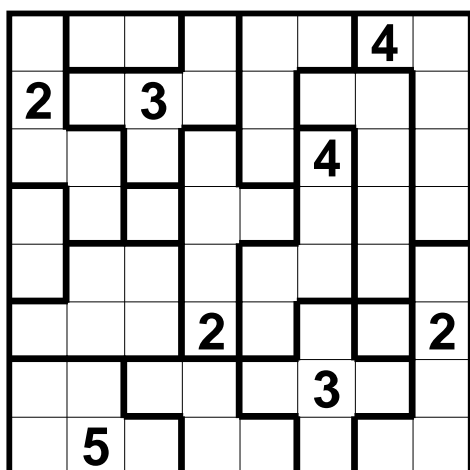
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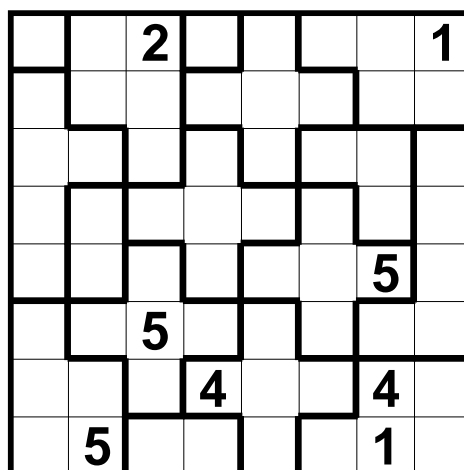
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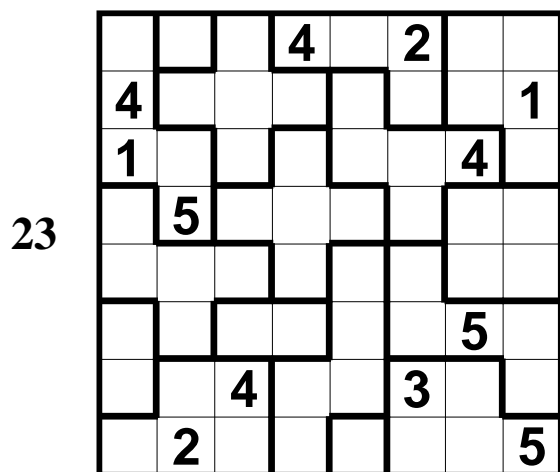
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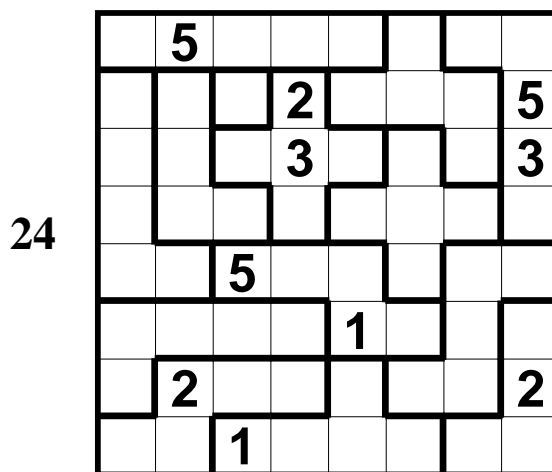
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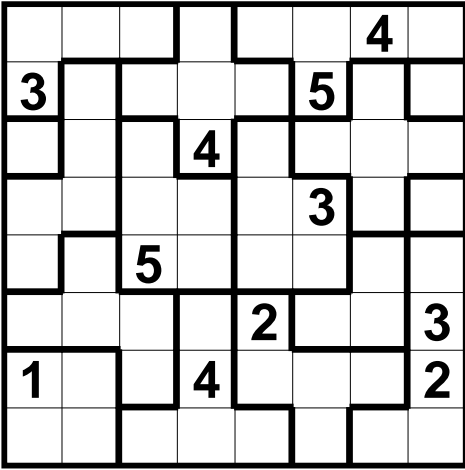
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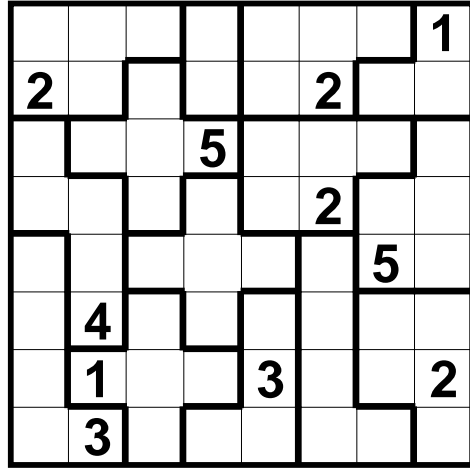
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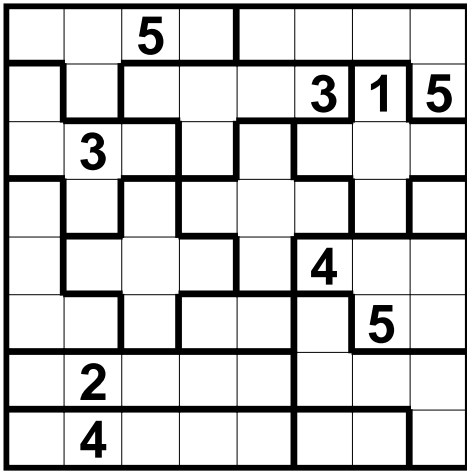
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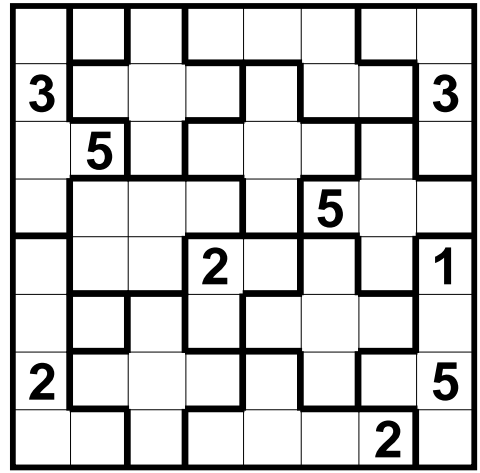
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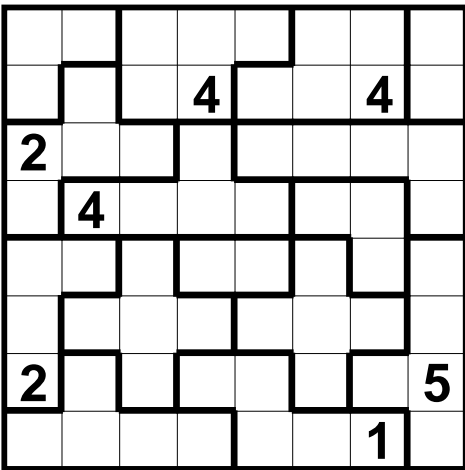
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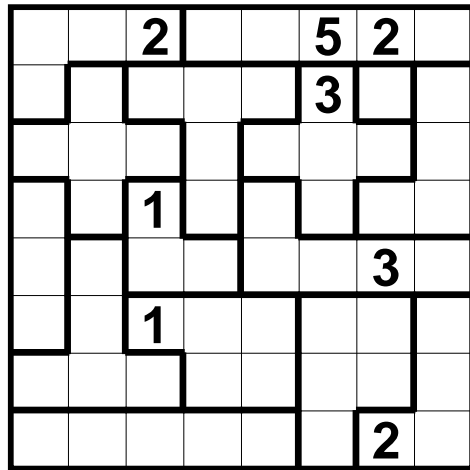
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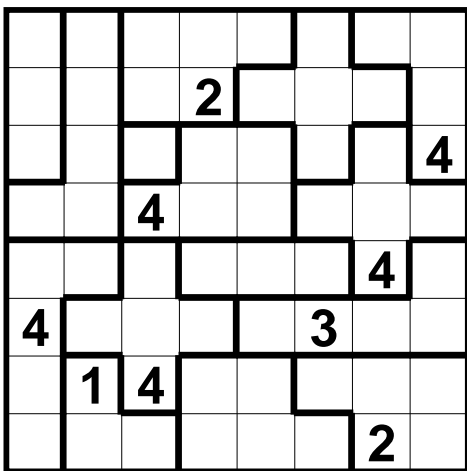
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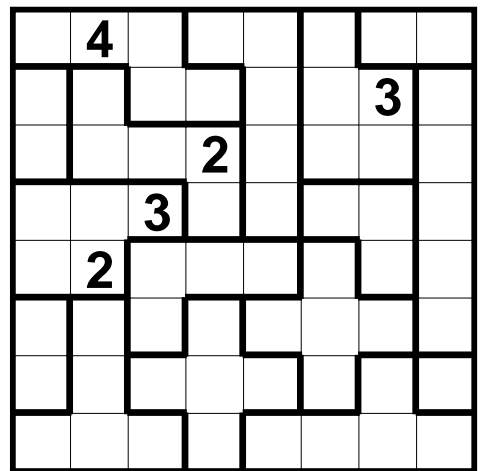
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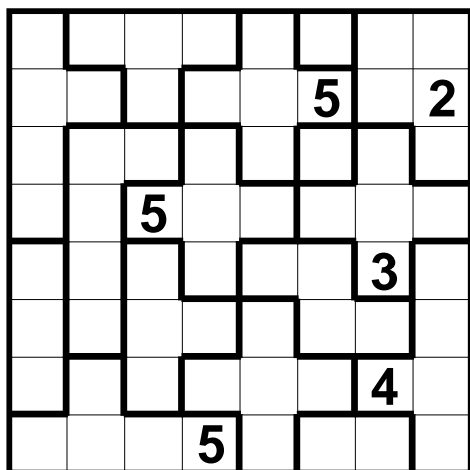
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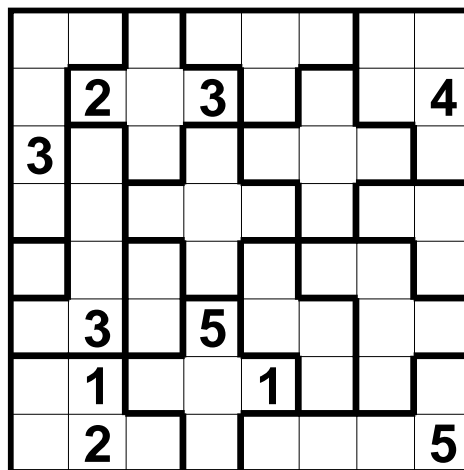
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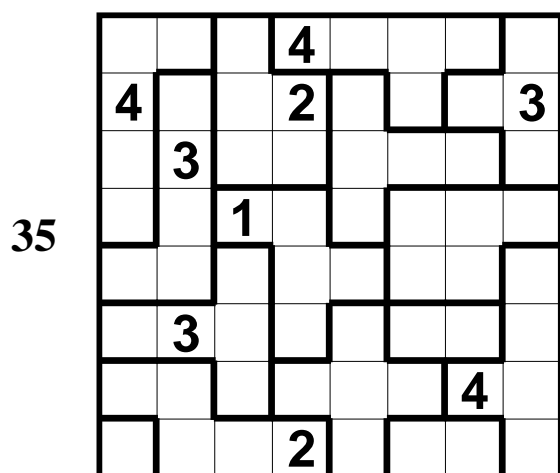
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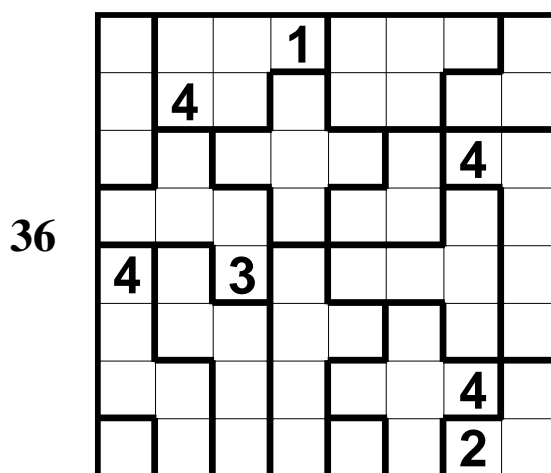
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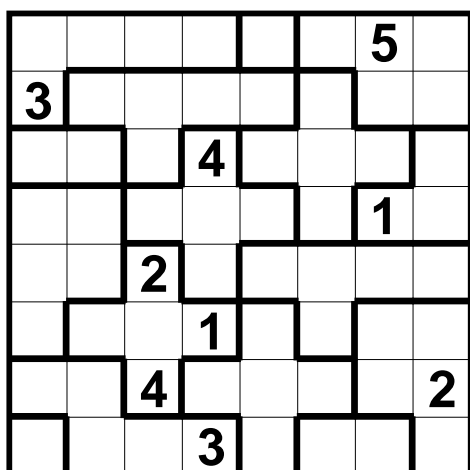
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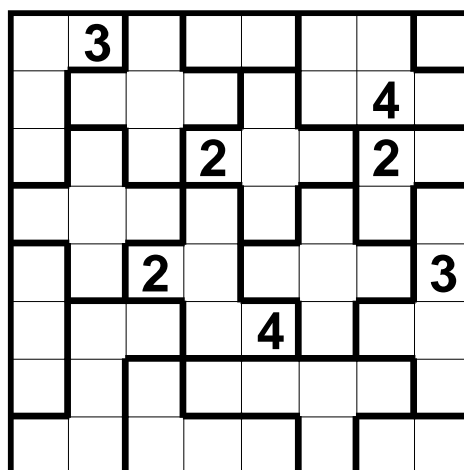
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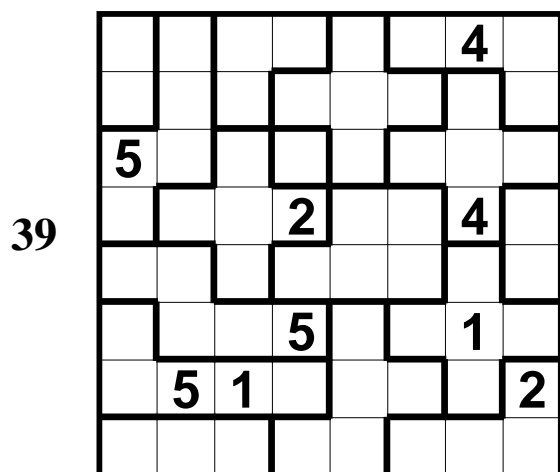
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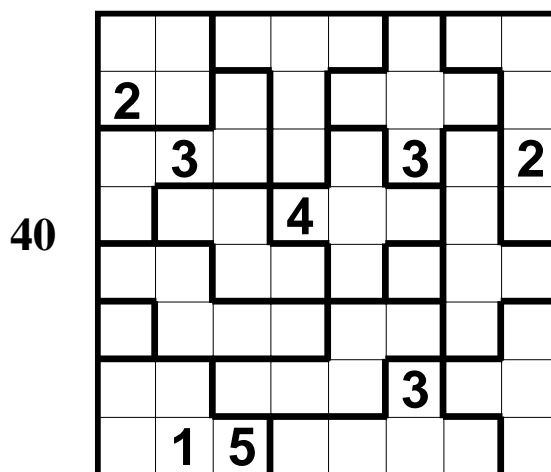
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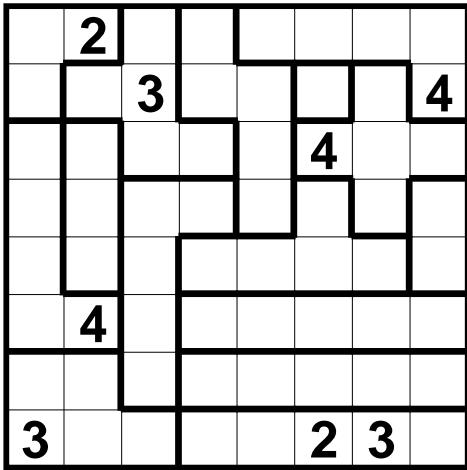
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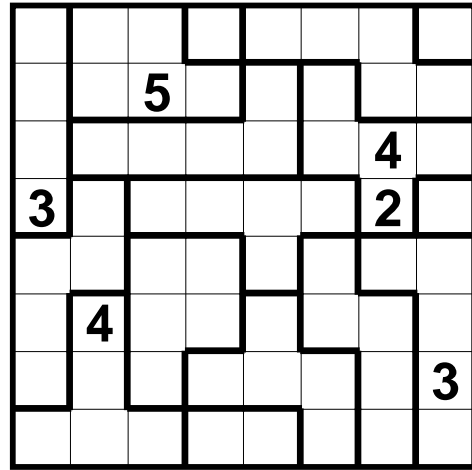
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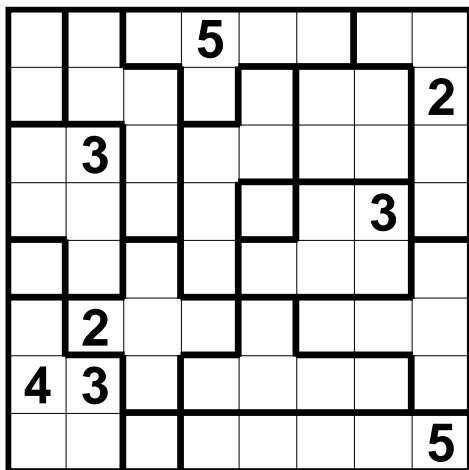
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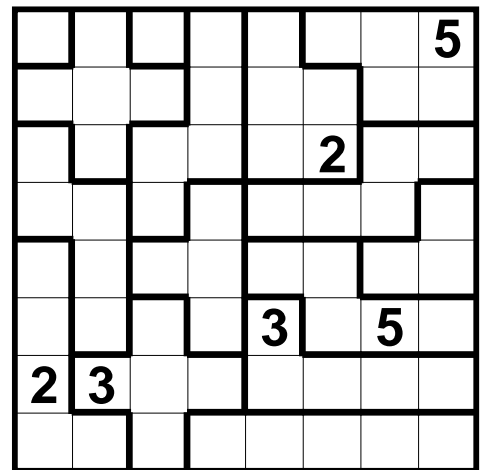
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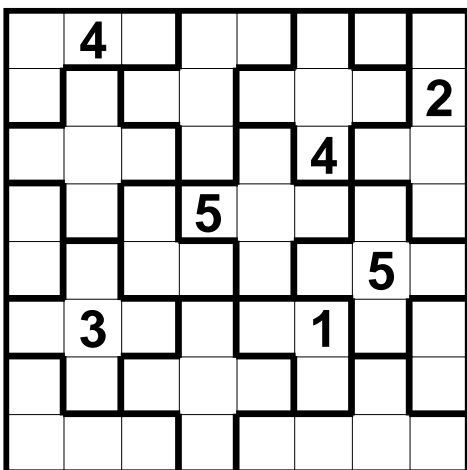
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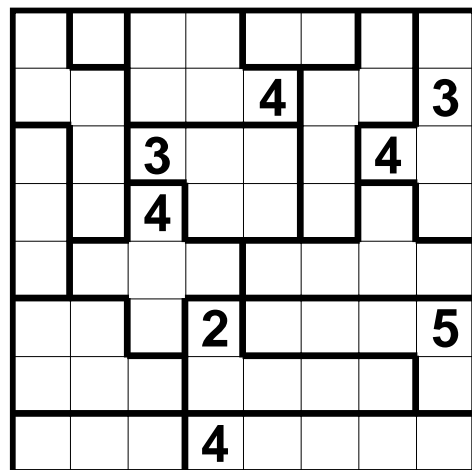
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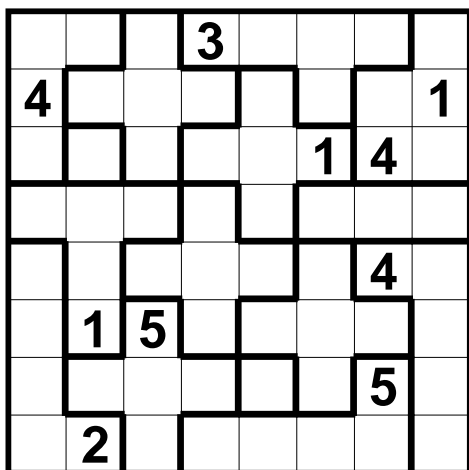
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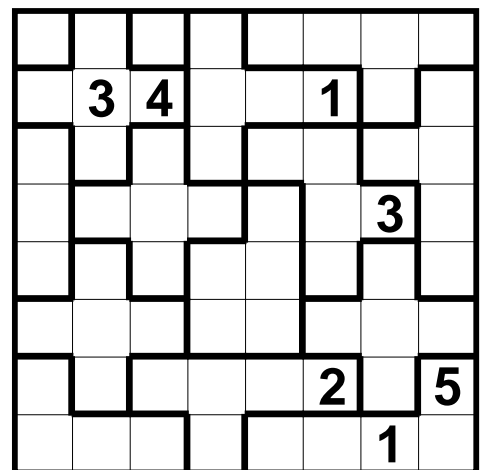
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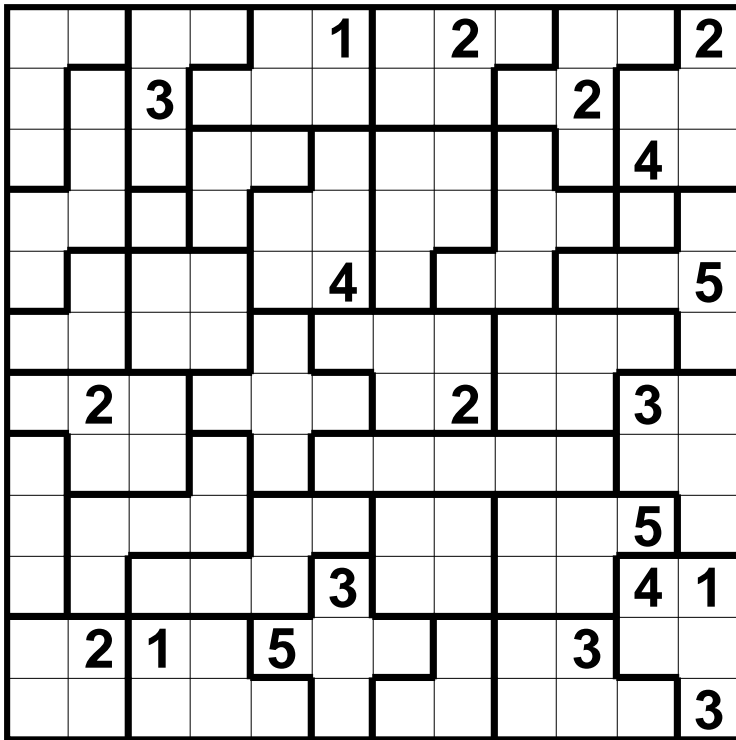
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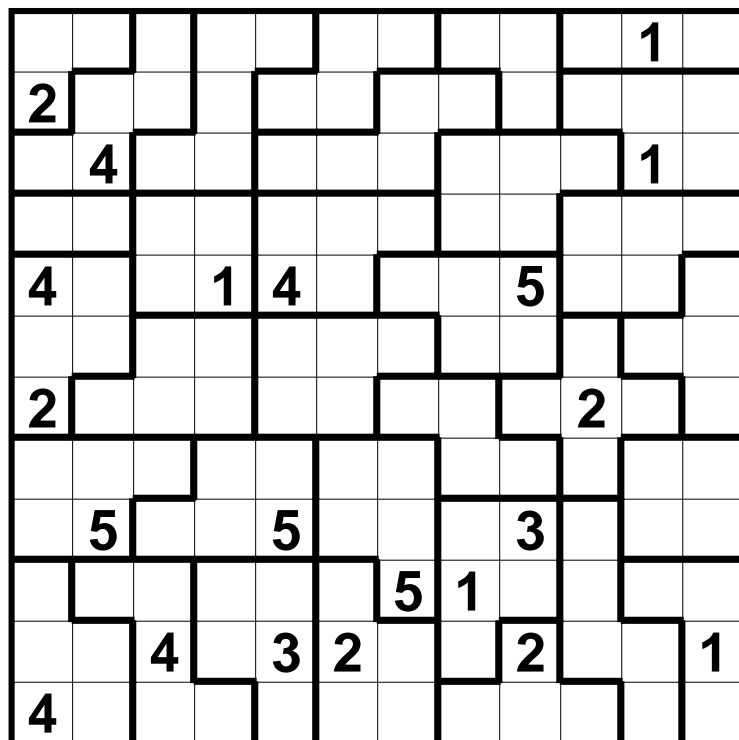
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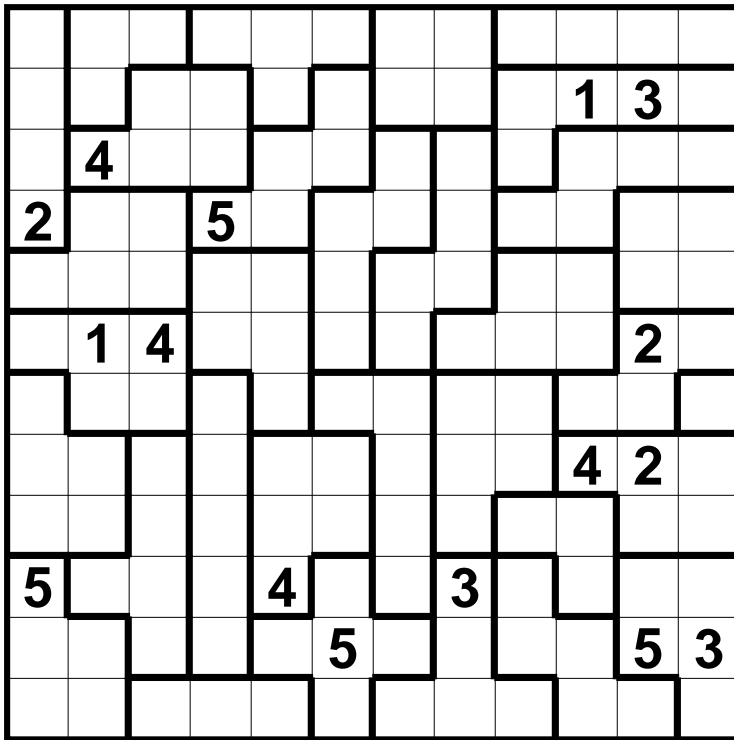
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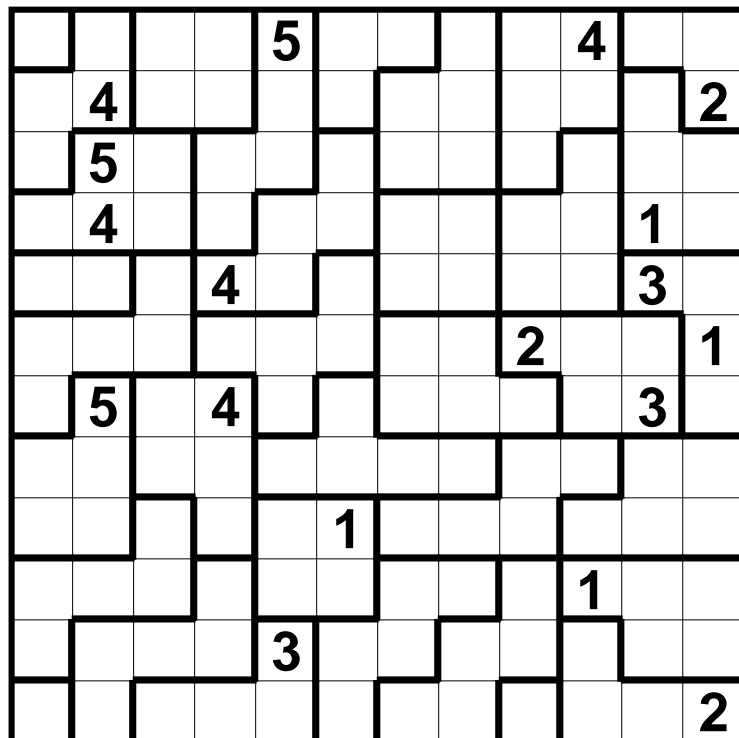
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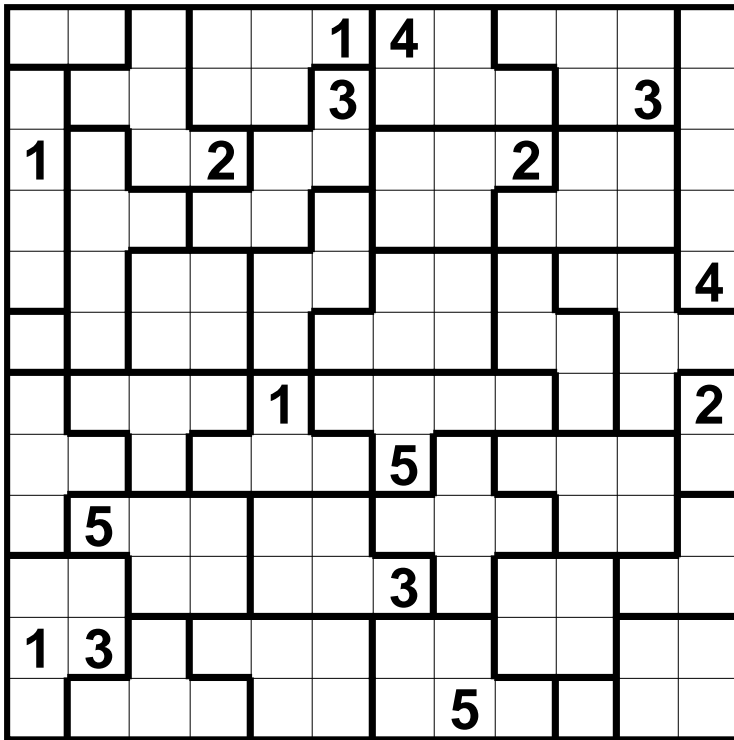
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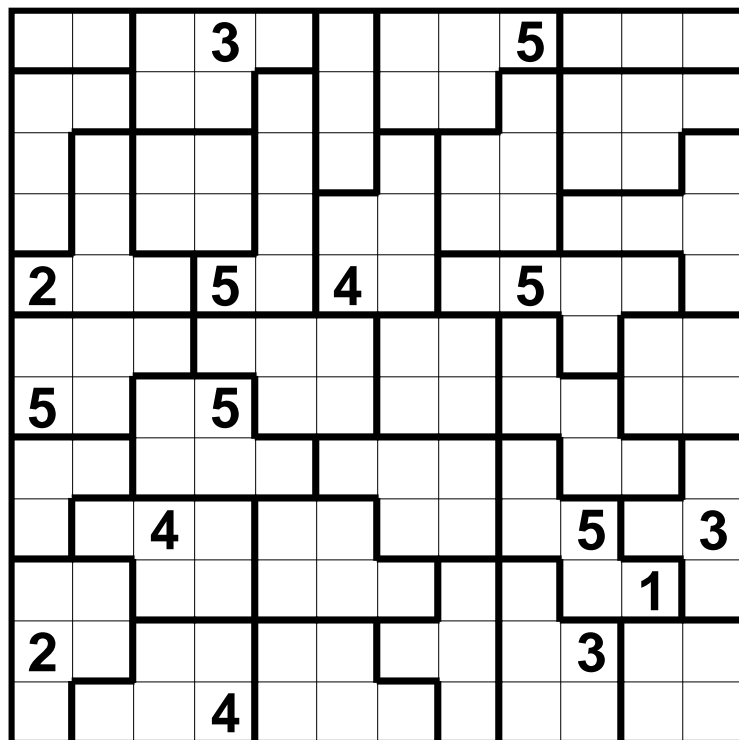
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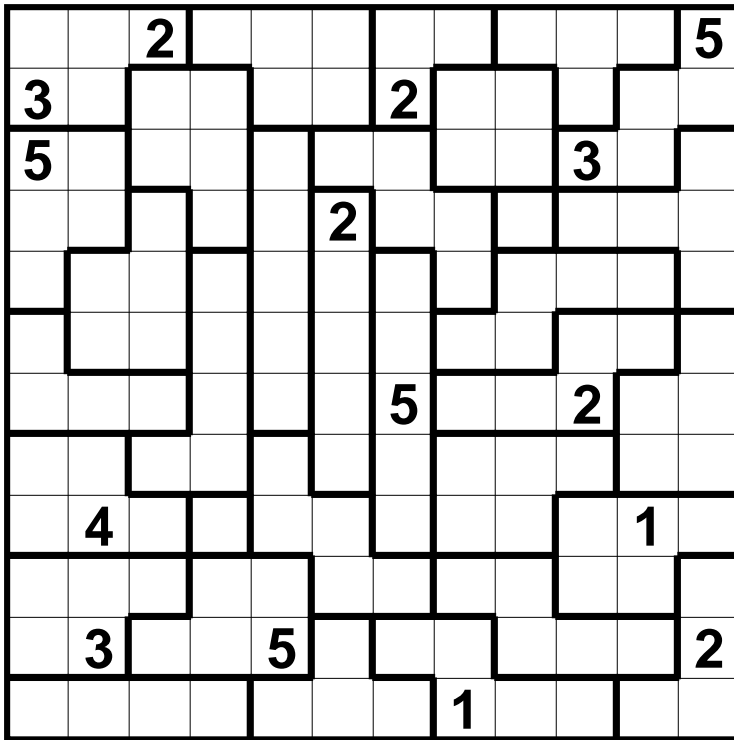
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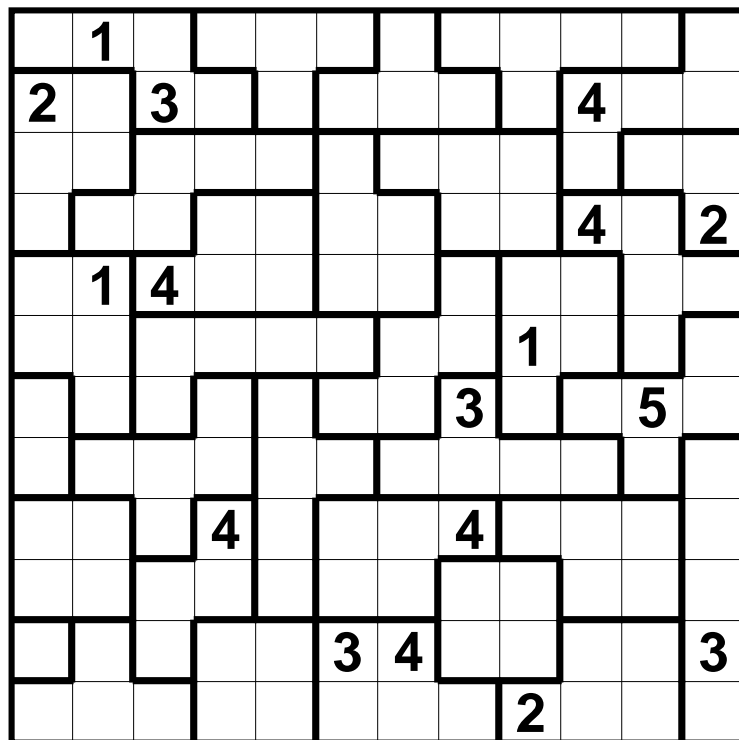
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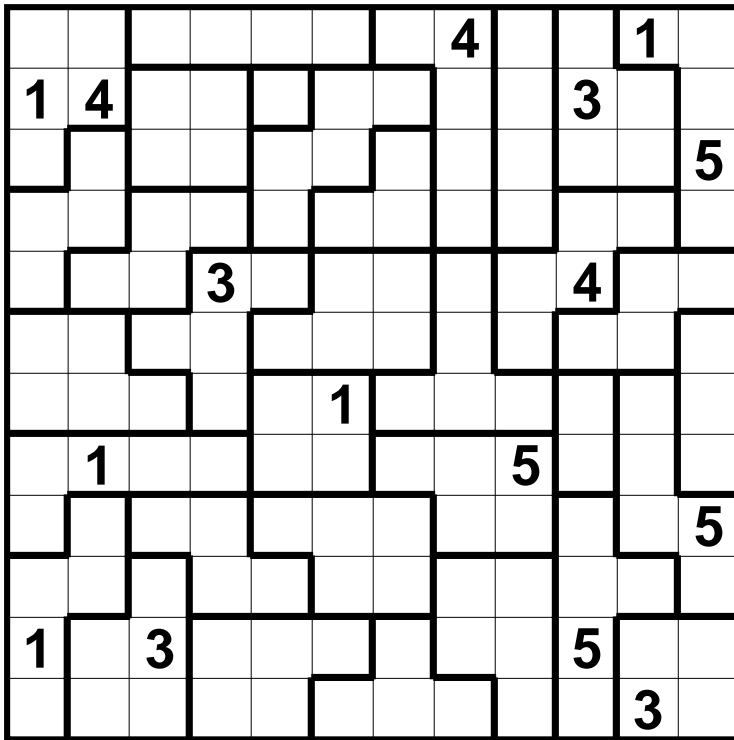
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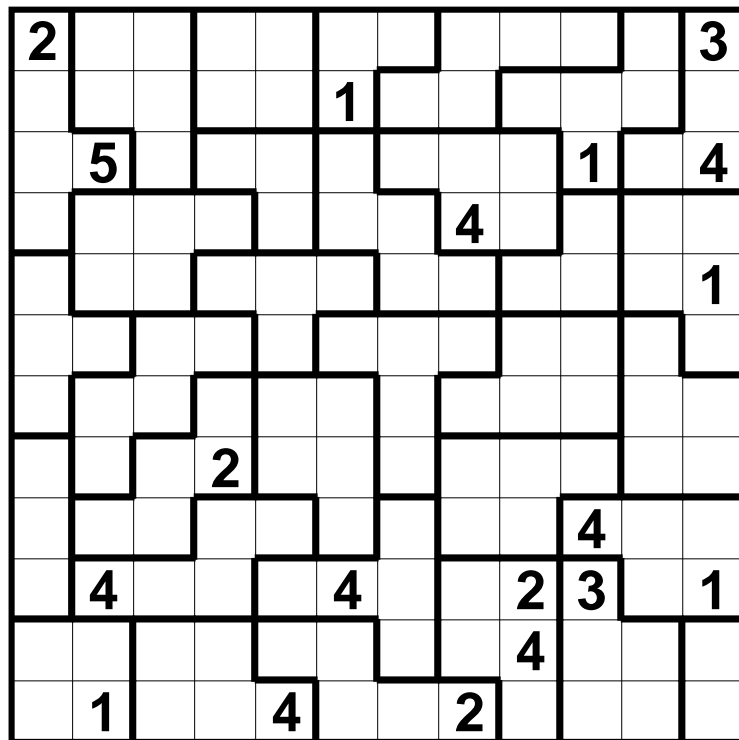
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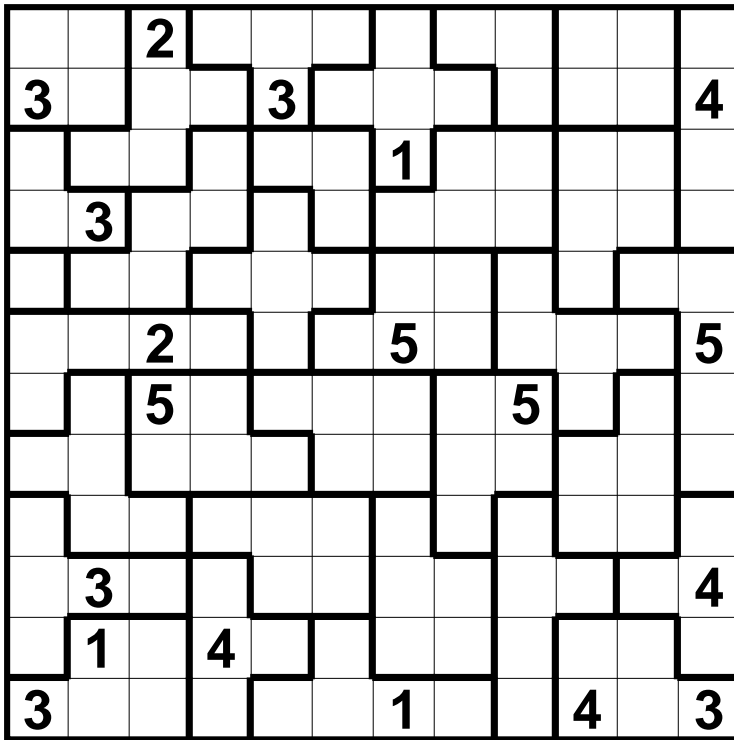
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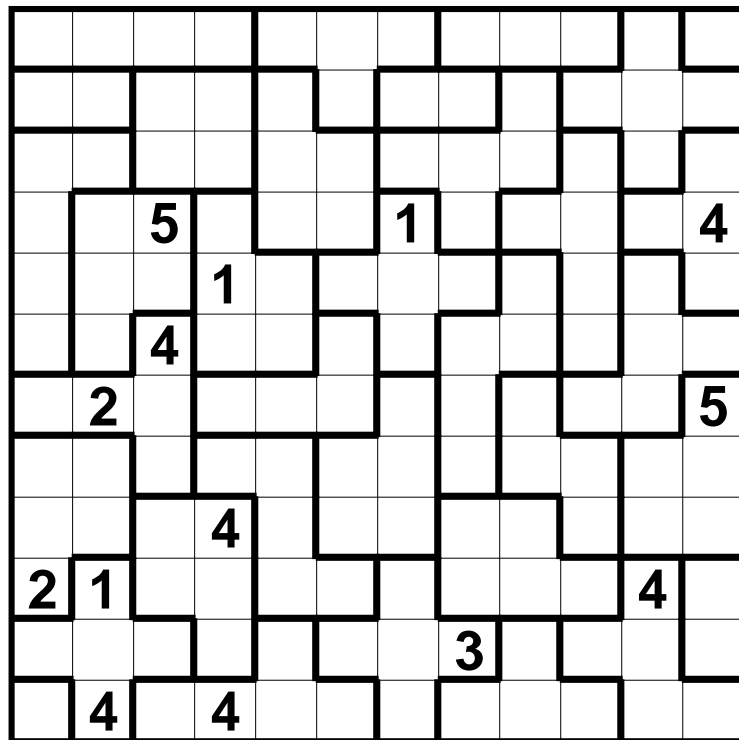
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10



11



12

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1	4	2	4	2	5
5	3	5	1	3	4
4	1	2	4	5	1
2	5	3	1	3	2
3	1	4	2	4	1

1

3	5	1	2	4	2
1	2	4	3	1	3
3	5	1	5	2	4
1	2	3	4	1	5
3	4	1	2	3	4
1	2	5	4	5	1

2

2	5	3	4	1	3
1	4	1	2	5	2
2	5	3	4	3	1
4	1	2	1	5	4
2	3	5	3	2	3
1	4	2	1	5	1

3

5	1	5	3	4	1
2	3	4	1	2	3
1	5	2	5	4	1
4	3	1	3	2	3
2	5	2	4	5	1
1	4	3	1	2	4

4

3	2	3	1	2	1
4	1	4	5	4	5
2	5	2	3	2	3
1	4	1	4	1	4
3	5	3	5	3	2
2	1	2	4	1	5

5

3	2	3	1	2	1
4	1	4	5	4	5
2	5	2	3	2	3
1	4	1	4	1	4
3	5	3	5	2	3
2	1	2	4	1	5

6

1	3	1	3	2	1
4	5	2	5	4	5
2	3	4	1	2	1
4	1	2	5	3	4
3	5	3	1	2	1
1	2	4	5	4	3

7

3	2	4	1	3	1
4	1	5	2	4	2
5	2	4	3	1	3
1	3	1	5	2	5
2	5	2	3	4	1
1	3	4	1	2	3

8

3	2	1	4	3	2
1	4	5	2	5	1
2	3	1	4	3	2
1	4	2	5	1	5
3	5	1	3	2	3
1	4	2	4	1	4

9

2	5	1	3	1	3
1	4	2	4	2	5
5	3	5	1	3	4
4	1	2	4	5	1
2	5	3	1	3	2
3	1	4	2	4	1

10

2	5	2	1	2	1
1	4	3	4	3	4
3	2	1	5	1	2
1	5	3	2	4	5
3	2	4	1	3	1
5	1	3	2	5	4

11

1	5	4	3	1	3
3	2	1	2	4	2
5	4	3	5	3	1
2	1	2	1	2	4
4	3	4	3	5	3
1	5	1	2	1	2

12

2	4	5	1	3	2
1	3	2	4	5	1
5	4	5	1	3	4
1	3	2	4	2	1
2	5	1	3	5	3
1	3	4	2	1	2

13

1	2	1	2	3	4
3	5	3	4	5	1
2	1	2	1	2	3
4	5	4	3	5	1
2	3	1	2	4	3
1	5	4	5	1	2

14

2	1	4	1	2	3
4	5	3	5	4	1
1	2	1	2	3	2
3	5	4	5	1	4
4	1	3	2	3	2
3	2	4	1	5	1

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2	5	3	1	2	1	5	1
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4	1	2	5	3	1	4	2
2	3	4	1	4	2	5	1
4	1	5	2	3	1	3	2
3	2	3	1	4	2	5	1
1	5	4	5	3	1	3	2

1

2	3	1	4	2	3	1	4
1	5	2	3	1	5	2	5
2	3	4	5	2	3	4	1
4	1	2	1	4	1	2	3
5	3	4	3	2	3	4	1
1	2	1	5	4	1	5	2
4	3	4	3	2	3	4	1
1	2	5	1	5	1	2	3

2

2	3	1	5	2	4	3	1
1	4	2	4	3	1	5	2
3	5	3	1	5	2	3	1
2	1	4	2	3	1	4	2
4	3	5	1	4	2	3	1
1	2	4	3	5	1	4	2
4	3	5	1	2	3	5	1
2	1	2	3	4	1	2	3

3

3	2	1	4	5	4	5	3
1	5	3	2	1	2	1	4
3	4	1	4	3	5	3	2
1	5	2	5	2	1	4	1
2	3	1	3	4	5	2	3
1	4	2	5	1	3	1	4
2	5	3	4	2	4	5	3
1	4	2	1	3	1	2	1

4

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2	4	5	4	2	4	3	1
5	1	3	1	3	1	2	5
3	4	2	4	2	5	3	1
1	5	3	1	3	1	4	2
3	2	4	2	5	2	3	1
1	5	1	3	1	4	5	2
2	4	2	4	2	3	1	3

5

1	4	5	4	1	3	1	2
5	2	1	2	5	2	4	3
1	3	4	3	4	3	1	2
2	5	1	5	1	5	4	3
1	3	4	2	4	3	1	2
4	2	1	5	1	2	4	5
3	5	3	4	3	5	3	1
2	1	2	1	2	1	2	4

6

1	3	5	3	1	3	1	2
4	2	1	2	4	2	5	4
1	3	4	5	3	1	3	1
2	5	2	1	2	4	5	4
1	4	3	4	3	1	2	1
3	2	1	5	2	5	3	5
1	5	3	4	3	1	4	2
2	4	2	1	5	2	3	1

7

3	1	2	1	3	1	2	1
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1	3	2	3	1	5	1	5
2	4	1	4	2	3	4	3
1	3	2	3	1	5	1	2
2	4	1	5	4	3	4	3
1	5	2	3	2	1	5	1
2	3	1	5	4	3	4	2

8

1	3	1	3	2	1	2	1
4	5	2	4	5	4	5	3
2	3	1	3	2	3	1	4
1	4	2	5	1	5	2	3
2	3	1	3	4	3	4	1
1	4	2	5	2	1	5	2
3	5	1	4	3	4	3	1
1	2	3	2	1	5	2	4

9

4	3	5	2	1	3	2	5
1	2	1	4	5	4	1	3
4	5	3	2	3	2	5	2
1	2	4	1	5	1	4	1
4	3	5	3	4	2	3	5
2	1	2	1	5	1	4	1
4	5	4	3	4	3	5	2
1	3	1	2	1	2	1	3

10

4	1	2	5	4	1	2	1
2	3	4	1	3	5	3	4
1	5	2	5	2	4	2	5
2	3	1	4	1	3	1	3
1	4	5	2	5	2	4	5
2	3	1	3	1	3	1	2
5	4	2	4	2	4	5	4
2	1	3	1	3	1	3	1

11

1	3	2	1	3	4	2	3
2	4	5	4	5	1	5	1
1	3	1	3	2	3	2	3
5	2	5	4	1	4	1	5
4	1	3	2	5	2	3	2
5	2	4	1	4	1	4	1
1	3	5	3	5	2	5	2
2	4	1	2	1	4	1	3

12

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1	5	3	2	3	1	5	1
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1	5	4	3	1	5	1	4
2	3	1	5	4	2	3	2
1	5	2	3	1	5	4	5
2	4	1	4	2	3	1	3
1	3	2	3	5	4	2	4
2	4	1	4	2	1	3	1

13

3	1	5	3	2	4	2	1
2	4	2	1	5	1	3	4
1	5	3	4	3	4	2	1
2	4	1	2	5	1	5	3
1	3	5	3	4	2	4	2
2	4	1	2	1	5	1	3
1	5	3	5	3	4	2	4
2	4	1	2	1	5	3	1

14

3	1	2	1	2	1	5	2
2	4	3	4	5	4	3	1
3	1	5	1	3	1	2	4
5	4	2	4	2	5	3	1
1	3	5	1	3	1	4	2
4	2	4	2	5	2	3	1
1	5	1	3	1	4	5	2
2	3	2	4	2	3	1	3

15

1	2	4	2	1	3	1	2
4	5	1	5	4	5	4	3
1	3	2	3	2	3	1	5
2	4	1	4	1	5	2	4
1	5	3	2	3	4	1	3
4	2	1	5	1	5	2	4
3	5	3	4	3	4	3	1
2	1	2	1	2	1	2	5

16

1	3	5	2	1	2	1	5
2	4	1	3	5	4	3	4
1	5	2	4	2	1	2	1
2	4	3	1	3	4	3	5
1	5	2	4	2	5	1	4
4	3	1	5	1	3	2	3
2	5	2	4	2	4	5	1
3	1	3	1	3	1	2	3

17

3	1	3	1	2	1	4	1
2	5	4	5	4	3	2	3
1	3	2	3	1	5	1	5
2	4	1	4	2	4	3	2
1	3	2	3	1	5	1	4
2	5	1	5	4	3	2	3
3	4	2	3	2	5	4	1
2	1	5	1	4	1	2	3

18

1	2	1	2	3	1	3	1
3	4	3	4	5	2	5	4
5	2	1	2	3	4	1	2
1	4	3	4	1	2	3	4
3	2	1	2	5	4	5	1
1	4	3	4	3	1	3	2
2	5	2	5	2	5	4	5
1	3	1	3	1	3	2	1

19

5	2	3	4	3	4	2	4
1	4	1	5	1	5	1	3
2	5	3	4	3	2	4	2
1	4	1	2	5	1	5	1
2	3	5	3	4	2	3	2
4	1	2	1	5	1	5	1
3	5	3	4	3	4	2	4
1	2	1	2	1	5	1	3

20

3	1	2	5	4	1	4	3
2	4	3	1	2	5	2	1
1	5	2	5	3	4	3	5
2	4	1	4	1	2	1	2
1	3	5	3	5	3	4	5
4	2	1	2	1	2	1	2
1	3	4	3	4	3	5	3
4	5	2	1	2	1	4	1

21

1	4	2	1	4	2	5	1
2	3	5	3	5	1	4	3
1	4	1	4	2	3	2	5
3	2	3	5	1	4	1	4
5	1	4	2	3	2	5	2
3	2	5	1	5	1	3	1
1	4	3	4	3	2	4	2
2	5	1	2	1	5	1	3

22

2	1	3	4	3	2	4	2
4	5	2	1	5	1	5	1
1	3	4	3	2	3	4	3
2	5	2	1	5	1	2	1
1	4	3	4	3	4	3	4
2	5	1	2	1	2	5	1
1	3	4	5	4	3	4	3
5	2	1	2	1	2	1	5

23

2	5	3	4	1	3	4	2
1	4	1	2	5	2	1	5
5	3	5	3	4	3	4	3
4	1	2	1	2	1	5	1
2	3	5	4	3	4	3	2
5	4	1	2	1	2	1	4
3	2	5	3	5	4	5	2
1	4	1	4	2	3	1	3

24

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2	1	4	1	2	1	4	3
3	5	2	5	3	5	2	1
1	4	1	4	2	1	4	3
2	3	2	3	5	3	5	1
1	4	5	4	1	4	2	4
5	3	1	3	2	3	1	3
1	4	2	4	1	5	4	2
2	3	1	5	2	3	1	5

25

3	1	4	2	3	1	5	1
2	5	3	1	4	2	3	2
1	4	2	5	3	5	4	1
2	3	1	4	1	2	3	2
1	5	2	5	3	4	5	4
2	4	3	1	2	1	3	1
5	1	2	5	3	5	4	2
4	3	4	1	4	2	3	5

26

1	2	5	3	1	4	2	3
5	4	1	4	2	3	1	5
1	3	2	5	1	4	2	3
2	4	1	4	2	3	5	1
1	5	2	3	5	4	2	3
4	3	4	1	2	1	5	1
1	2	5	3	4	3	4	2
3	4	1	2	5	2	1	5

27

2	1	5	2	3	1	2	1
3	4	3	1	5	4	5	3
1	5	2	4	3	2	1	4
4	3	1	5	1	5	3	2
5	2	4	2	3	2	4	1
4	1	3	1	4	1	3	2
2	5	4	2	3	5	4	5
1	3	1	5	4	1	2	3

28

2	1	3	1	5	2	5	1
3	4	2	4	3	1	4	2
2	1	3	1	2	5	3	1
5	4	2	5	3	1	2	4
3	1	3	1	2	4	3	1
4	5	2	4	3	1	2	4
2	3	1	5	2	5	3	5
1	5	2	4	3	4	1	2

29

1	3	2	3	1	5	2	4
4	5	1	5	2	3	1	3
1	3	2	3	1	4	5	2
2	4	1	4	5	2	1	4
1	5	3	2	1	4	3	2
3	2	1	4	3	2	1	4
1	4	3	2	5	4	5	3
3	2	5	4	1	3	2	1

30

2	1	3	1	5	1	2	1
3	5	4	2	4	3	5	3
1	2	1	3	1	2	1	4
4	3	4	2	5	3	5	2
1	2	1	3	1	2	4	1
4	3	5	2	4	3	5	2
5	1	4	1	5	1	4	3
3	2	3	2	4	3	2	5

31

2	4	1	2	1	4	1	2
1	3	5	3	5	2	3	4
2	4	1	2	4	1	5	1
1	5	3	5	3	2	3	2
4	2	1	2	4	5	1	5
1	5	3	5	1	3	2	3
2	4	1	4	2	4	5	1
1	3	2	3	1	3	2	4

32

3	1	3	4	3	1	4	1
2	5	2	1	2	5	3	2
1	3	4	3	4	1	4	5
4	2	5	1	2	5	2	1
3	1	3	4	3	4	3	5
2	5	2	1	2	1	2	1
1	3	4	3	4	5	4	3
4	2	1	5	1	2	1	2

33

1	5	1	2	1	3	1	3
4	2	4	3	4	5	2	4
3	1	5	1	2	1	3	5
2	4	2	4	5	4	2	1
1	5	1	3	1	3	5	3
2	3	2	5	4	2	1	2
4	1	4	3	1	3	4	3
3	2	5	2	4	2	1	5

34

3	2	3	4	5	2	1	2
4	5	1	2	1	3	4	3
1	3	4	5	4	2	5	1
5	2	1	2	3	1	3	2
1	4	5	4	5	4	5	1
2	3	1	3	2	1	2	3
4	5	4	5	4	3	4	5
1	3	1	2	1	2	1	2

35

2	3	2	1	2	3	4	3
1	4	5	3	5	1	2	1
3	2	1	2	4	3	4	3
1	5	4	5	1	2	1	2
4	2	3	2	4	5	3	5
1	5	4	1	3	1	2	1
3	2	3	5	2	5	4	3
1	5	1	4	1	3	2	1

36

SUGURU 8 × 8 solutions

1	2	5	4	1	4	5	2
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1	2	3	4	1	3	4	2
3	5	1	5	2	5	1	3
2	4	2	3	4	3	2	5
1	3	5	1	5	1	4	1
4	2	4	2	4	3	5	2
1	5	1	3	1	2	1	3

37

2	3	2	1	2	3	2	1
1	5	4	3	4	1	4	5
4	2	1	2	5	3	2	3
1	3	4	3	1	4	1	4
2	5	2	5	2	3	5	3
1	4	3	1	4	1	2	1
3	5	2	5	2	3	4	5
2	1	3	1	4	1	2	1

38

1	4	1	3	1	3	4	2
2	3	2	5	4	2	5	1
5	1	4	1	3	1	3	2
2	3	5	2	4	2	4	1
1	4	1	3	1	5	3	2
2	3	2	5	4	2	1	4
4	5	1	3	1	3	5	2
1	3	2	5	2	4	1	3

39

4	3	2	1	4	1	3	1
2	1	4	5	2	5	4	5
5	3	2	3	1	3	1	2
1	4	1	4	5	2	5	4
3	2	3	2	3	1	3	2
1	4	1	5	4	5	4	1
2	3	2	3	1	3	2	3
4	1	5	4	2	5	1	4

40

1	2	5	1	2	5	3	1
3	4	3	4	3	1	2	4
2	1	2	1	2	4	5	1
5	3	5	4	5	1	3	2
1	2	1	2	3	4	5	1
3	4	3	5	1	2	3	4
2	5	2	4	3	5	1	2
3	4	1	5	1	2	3	4

41

2	1	4	1	5	1	4	1
4	3	5	2	4	3	2	3
1	2	1	3	5	1	4	5
3	4	5	4	2	3	2	1
1	2	1	3	1	4	5	4
3	4	5	4	2	3	1	2
5	1	2	3	5	4	5	3
2	3	5	1	2	1	2	1

42

1	3	1	5	4	2	1	3
2	5	2	3	1	3	4	2
1	3	4	5	4	2	1	5
5	2	1	3	1	5	3	4
1	4	5	2	4	2	1	2
5	2	1	3	1	5	4	3
4	3	4	5	4	3	2	1
1	2	1	3	2	1	4	5

43

1	3	1	5	1	2	1	5
2	5	4	3	4	3	4	3
3	1	2	1	5	2	1	2
2	5	4	3	4	3	5	3
3	1	2	1	2	1	2	1
5	4	5	4	3	4	5	3
2	3	2	1	5	1	2	4
4	1	4	3	2	4	5	1

44

1	4	3	2	3	5	1	4
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1	4	2	4	3	4	5	1
2	3	1	5	2	1	2	3
1	4	2	3	4	3	5	1
2	3	1	5	2	1	4	2
1	5	2	3	4	3	5	1
2	3	4	1	2	1	4	3

45

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3	4	2	5	4	5	2	3
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3	5	4	5	4	3	5	2
1	2	1	3	1	2	4	3
5	3	5	2	4	3	1	5
2	4	1	3	1	5	4	2
1	3	2	4	2	3	1	5

46

2	1	2	3	4	1	5	2
4	5	4	1	5	2	3	1
3	1	3	2	3	1	4	5
2	5	4	5	4	2	3	1
4	3	2	1	3	1	4	5
5	1	5	4	5	2	3	1
3	4	3	2	1	4	5	2
1	2	1	4	3	2	1	3

47

1	2	1	2	5	3	2	1
5	3	4	3	4	1	4	3
2	1	2	5	2	5	2	5
3	4	3	1	3	1	3	1
1	2	5	4	5	4	5	4
4	3	1	2	1	3	1	2
1	5	4	3	5	2	4	5
4	3	2	1	4	3	1	2

48

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3	5	3	5	4	3	5	1	5	2	5	1
4	2	4	2	1	2	4	3	4	3	4	3
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4	2	4	2	1	4	2	3	2	3	4	5
1	3	1	3	5	3	5	1	4	1	2	1
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3	1	3	5	3	2	3	5	4	1	4	1
2	4	2	1	4	1	4	1	2	3	5	2
1	3	5	3	2	3	2	3	4	1	4	1
4	2	1	4	5	1	4	1	5	3	5	2
1	3	5	2	3	2	3	2	4	2	1	3

1

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3	1	3	2	4	1	5	1	5	4	3	4
5	2	4	1	3	2	3	4	2	1	5	1
4	1	5	2	5	4	5	1	3	4	3	2

2

4	1	3	2	3	1	4	1	3	2	4	1
3	2	5	1	4	2	3	2	4	1	3	2
1	4	3	2	3	1	4	1	5	2	5	1
2	5	1	5	4	5	2	3	4	3	4	2
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2	1	4	1	4	1	2	3	2	4	2	4
5	3	5	3	5	3	4	1	5	1	3	1
2	1	2	4	2	1	2	3	2	4	2	5
3	4	5	1	5	3	5	4	1	3	1	3
5	1	3	2	4	2	1	3	5	2	4	2
4	2	4	5	1	5	4	2	1	3	5	3
1	3	1	3	2	3	1	5	4	2	4	1

3

1	3	2	4	5	1	2	5	3	4	3	1
2	4	1	3	2	3	4	1	2	1	5	2
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4

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5

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6

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7

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8

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9

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10

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