Mean Minis

8th – 13th May 2020

Duration: 90 minutes

Author

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Important Links

Submission Page : http://logicmastersindia.com/2020/05S

Discussion Thread : http://logicmastersindia.com/t/?tid=2742

F. A. Q. : http://logicmastersindia.com/t/?tid=381

Registration, if required : http://logicmastersindia.com/register.asp

About this Test

- This test has 18 6x6 Sudoku variants.
- Each Sudoku uses exactly six numbers from 1 to 9.
- The numbers for each Sudoku need to be determined as part of solving.

How to participate?

- Understand the rules of different Sudokus that will appear in this episode. This Instruction Booklet has rules and examples for each Sudoku.
- Download the password protected Sudoku booklet (will be uploaded before the test starts). The Sudoku booklet contains the actual Sudokus to be solved. It is password protected, so you won't be able to open it.
- Any time on or after 8th May (but on or before 13th May), login at the submission page using your LMI userid and password.
- Please check the submission page for exact timing.
- Click on "Start". At this time, password for pdf will be shown and timer will start.
- You can either solve online using flash interface or print the pdf and solve on paper.
- Each Sudoku will be marked with two arrows
- If solving on paper
    - Fill the answer form with digits along the marked arrow(s)
    - Click submit button
- If solving online
    - After solving the Sudoku, click on "Submit" button below the grid
    - Each Sudoku grid has different submit buttons

If you are participating at LMI for first time, you must check the F.A.Q. at: http://logicmastersindia.com/t/?tid=381.

Instant Grading and Scoring

This test uses instant grading where a solver can submit any individual Sudoku and receive confirmation that the solution is correct or not. Each incorrect submission reduces the sudoku's potential score. The first, second, third, and fourth incorrect submissions reduce the potential score to 90%, 70%, 40%, and 0% respectively.

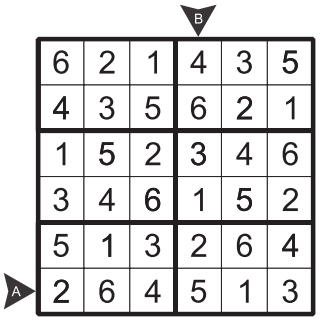
Bonus

If you submitted all Sudokus correctly, you can have bonus points 1 point per minute saved, computed up to seconds.

General Rules

Each Sudoku will be marked with, at max, 2 lettered arrows. If you are solving on paper, you need to submit the digits in these arrows, in order, including the givens.

For example, the answer key for the Sudoku at the right is 264513, 463125.



6	2	1	4	3	5
4	3	5	6	2	1
1	5	2	3	4	6
3	4	6	1	5	2
5	1	3	2	6	4
2	6	4	5	1	3

About the Sudoku Booklet

The password protected Sudoku booklet will have 9 pages. If you are planning to solve on paper, we advise you to have a printer accessible with enough paper.

The Sudoku booklet will look similar to the next pages in this instruction booklet. The font sizes, cell sizes, colors, borders, shading, margin will be similar. We recommend you to print few pages of this instruction booklet. You can avoid any last minute surprise during the test.

Points Table

Points typically indicate difficulty of the Sudokus and time required to solve them. While the organizers have made best efforts to match them, your personal experience and preference may differ.

Sudoku Variant	Points
Arrow	6
Consecutive	5
Inequality	1
Killer	9
Kropki	7
Little Killer	9
Non Consecutive	3
Odd Even Bridge	7
Odd Even Count	6

Sudoku Variant	Points
Perfect Squares	4
Renban	1
Rhombus	4
Sequence	9
Skyscraper	9
Sum Detector	7
Thermo	3
X Sums	9
XV	1

(listed in alphabetical order)

To aid solving a list of digits from 1 to 9 has been provided next to each Sudoku. This can be used to mark / eliminate digits while solving.

Arrow Sudoku

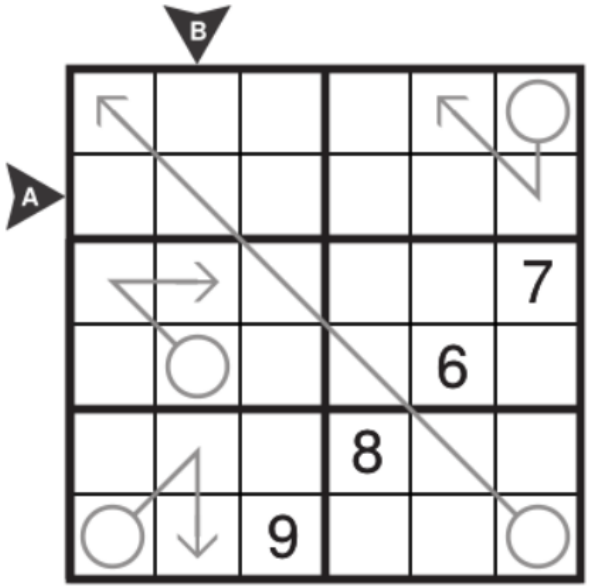
6 points

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box.

Exactly six digits must be used.

Additionally, the sum of the digits along the path of each arrow must equal the digit in the circled cell.

Digits can repeat within an arrow line.



1	2	3	4	5	6	7	8	9
					✓	✓	✓	✓

Consecutive Sudoku

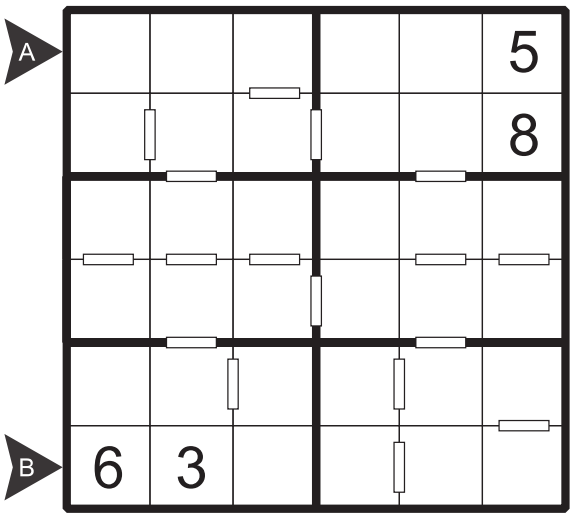
5 points

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box.

Exactly six digits must be used.

Orthogonally adjacent cells containing consecutive numbers are separated by bars.

All possible bars are marked.



1	2	3	4	5	6	7	8	9
		✓		✓	✓		✓	

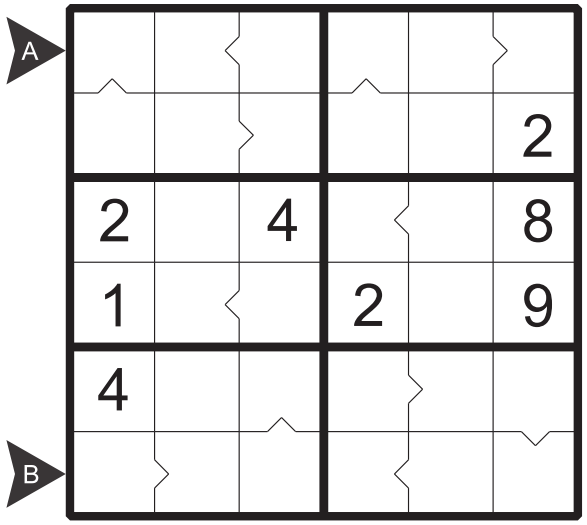
Inequality Sudoku

1 point

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box.

Exactly six digits must be used.

Additionally, there are some 'greater than' (>) and 'less than' (<) signs in the grid. The cell with the open end of the sign should be greater than the cell with the pointed end of the sign.



1	2	3	4	5	6	7	8	9
✓	✓		✓				✓	✓

Killer Sudoku

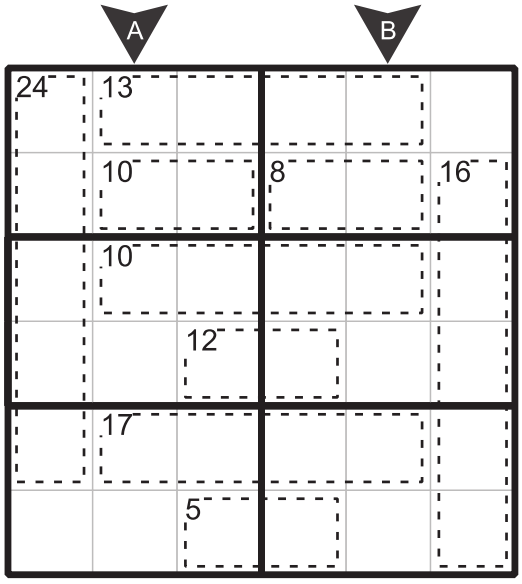
9 points

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box.

Exactly six digits must be used.

Additionally, the sum of digits in cells inside every cage must equal the total given for the cage at the upper left cell.

Digits do not repeat inside a cage.



1	2	3	4	5	6	7	8	9

Kropki Sudoku

7 points

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box.

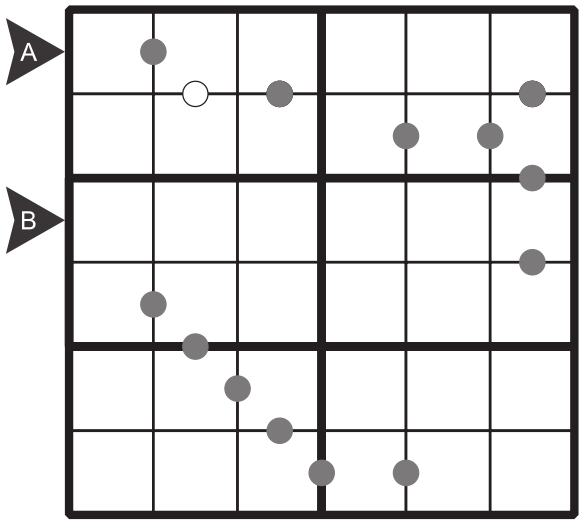
Exactly six digits must be used.

If the difference between digits in orthogonally adjacent cells is 1, then they are separated by a white dot.

If the digit in a cell is half of the digit in an orthogonally adjacent cell, then they are separated by a black dot.

The dot between '1' and '2' can have any of these dots.

All possible dots are marked.



1	2	3	4	5	6	7	8	9

Little Killer Sudoku

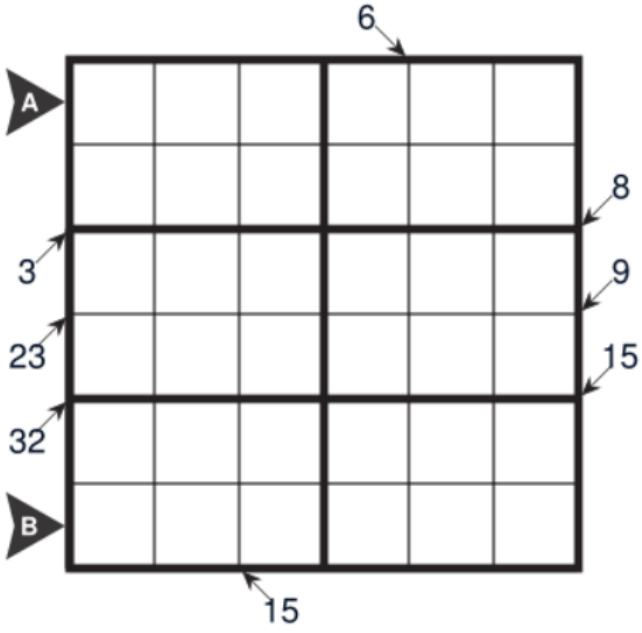
9 points

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box.

Exactly six digits must be used.

Additionally, the numbers with arrows outside the grid indicate the sum of the digits appearing in the cells in the corresponding direction.

Digits can repeat in the direction of the arrow.



1	2	3	4	5	6	7	8	9

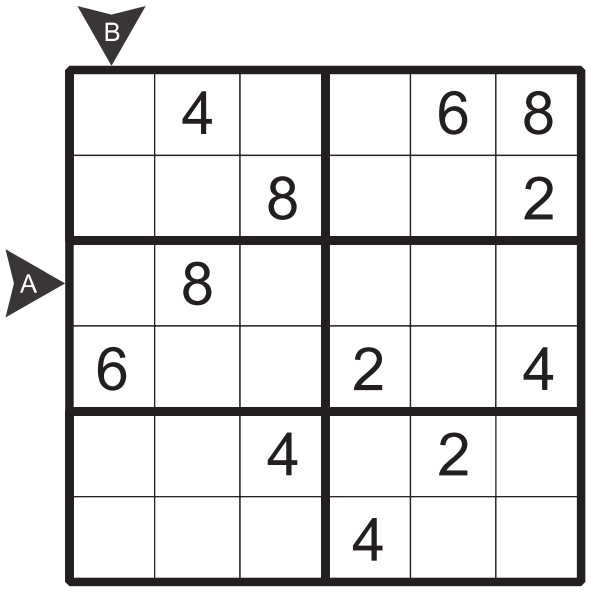
Non Consecutive Sudoku

3 points

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box.

Exactly six digits must be used.

No adjacent cell pairs (sharing an edge) can contain digits which are consecutive to each other.



1	2	3	4	5	6	7	8	9
	✓		✓		✓		✓	

Odd Even Bridge Sudoku

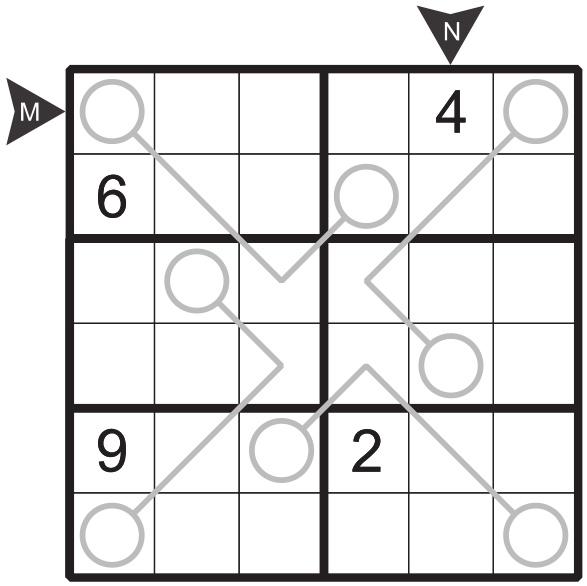
7 points

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box. Exactly six digits must be used.

Additionally, some circled cells are connected by a bridge.

An odd digit in a circle equals the number of odd digits on the bridge. An even digit in a circle equals the number of even digits on the bridge. The digits on the circles are not counted.

It is possible for digits in both circles on a bridge to have the same parity.



1	2	3	4	5	6	7	8	9
	✓		✓		✓			✓

Odd Even Count Sudoku

6 points

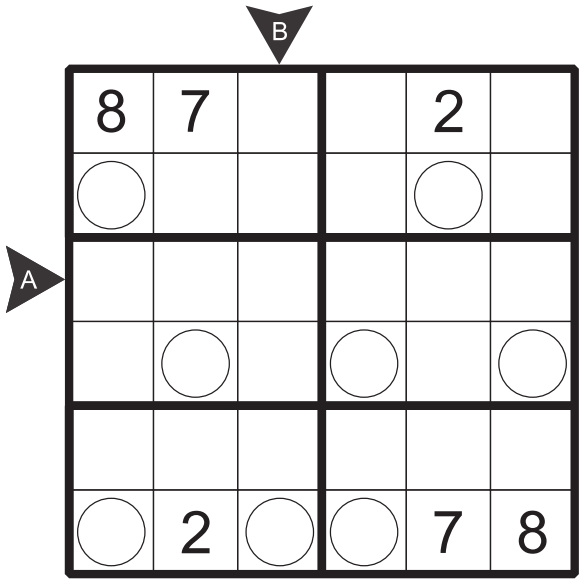
Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box.

Exactly six digits must be used.

Additionally, an even digit inside a circle represents the number of cells with even digits in the surrounding 8 cells.

An odd digit inside a circle represents the number of cells with odd digits in surrounding 8 cells.

All possible circles are marked.



1	2	3	4	5	6	7	8	9
	✓					✓	✓	

Perfect Squares Sudoku

4 points

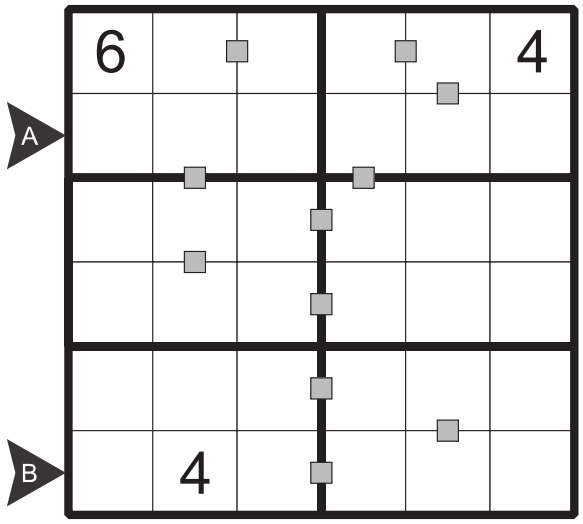
Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box.

Exactly six digits must be used.

Adjacent cells, reading left-to-right or top-to-bottom, that are a two-digit perfect square are marked by a grey square in the grid.

All such two-digit perfect squares are marked.

The list of two-digit perfect squares:
16, 25, 36, 49, 64, 81



1	2	3	4	5	6	7	8	9
			✓		✓			

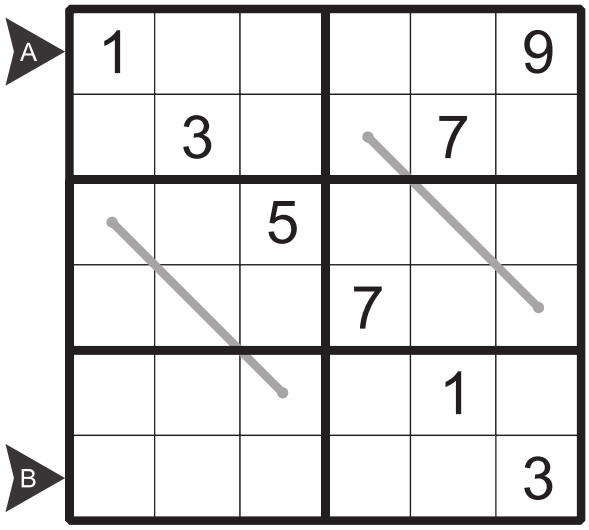
Renban Sudoku

1 point

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box.

Exactly six digits must be used.

Additionally, the set of digits on each line must be distinct consecutive digits.



1	2	3	4	5	6	7	8	9
✓		✓		✓		✓		✓

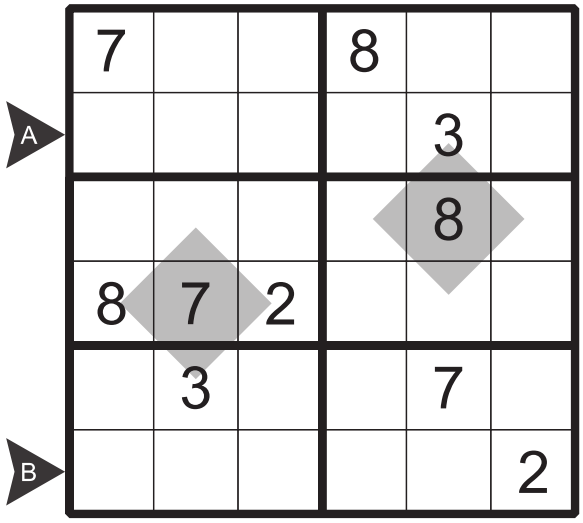
Rhombus Sudoku

4 points

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box.

Exactly six digits must be used.

The sum of digits on the vertices of each rhombus is a multiple of the digit at the centre of the rhombus.



1	2	3	4	5	6	7	8	9
	✓	✓				✓	✓	

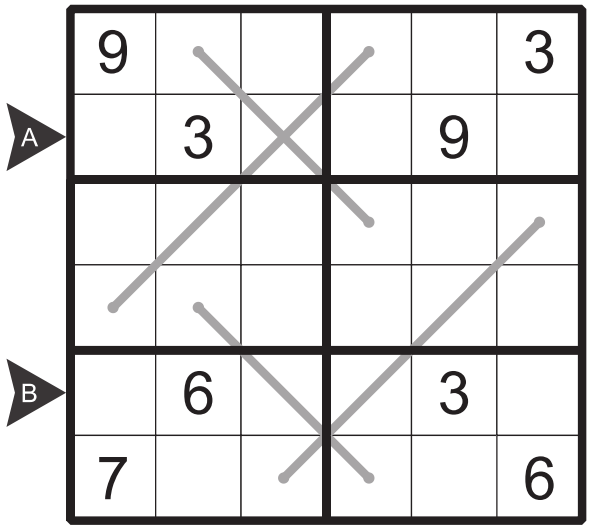
Sequence Sudoku

9 points

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box.

Exactly six digits must be used.

Digits along each line form an arithmetic progression.



1	2	3	4	5	6	7	8	9
		✓			✓	✓		✓

Skyscraper Sudoku

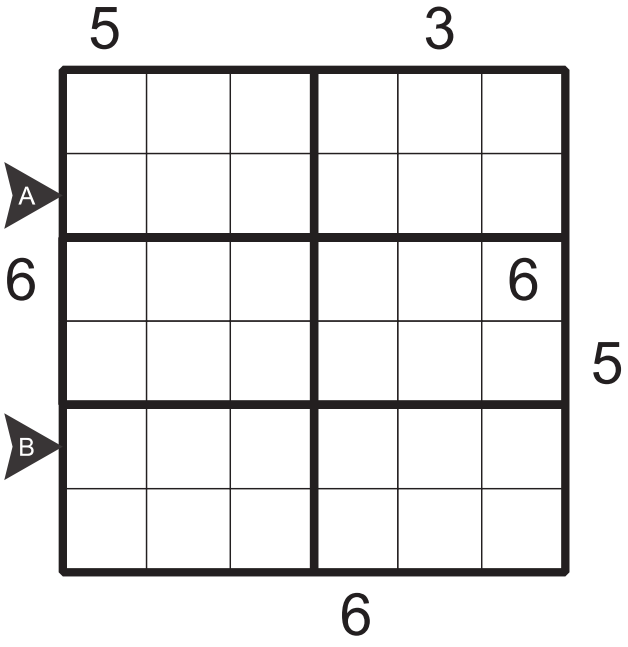
9 points

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box.

Additionally, consider each number to be the height of a building. The numbers outside the grid indicate how many buildings can be seen when looking in that direction (taller buildings conceal smaller buildings behind them).

Exactly six digits must be used inside the grid.

The outside skyscraper clues may contain digits which are not used inside the grid.



1	2	3	4	5	6	7	8	9
					✓			

Sum Detector Sudoku

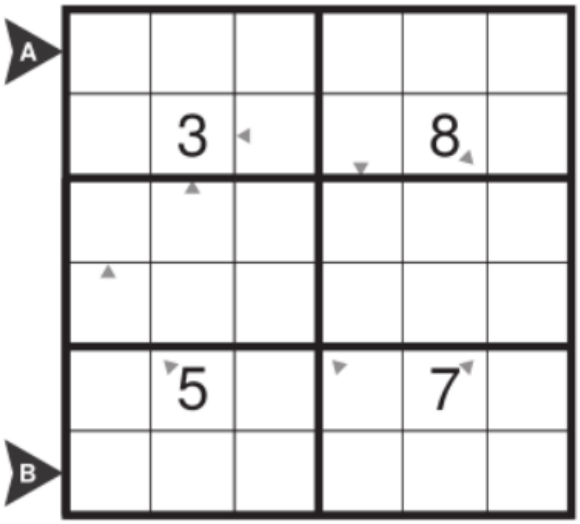
7 points

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box.

Exactly six digits must be used.

An arrow in a cell indicates that the sum of the first 'n' consecutive digits along the direction pointed by the arrow equals the digit in the cell for some value of 'n'.

Not all arrows are marked.



1	2	3	4	5	6	7	8	9
		✓		✓		✓	✓	

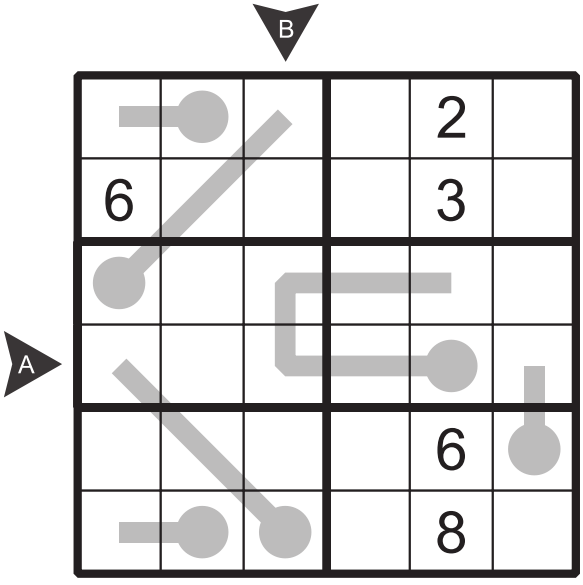
Thermo Sudoku

3 points

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box.

Exactly six digits must be used.

Additionally, the digits in each "thermometer" shaped region must be strictly increasing from the circular "bulb" to the other end.



1	2	3	4	5	6	7	8	9
	✓	✓			✓		✓	

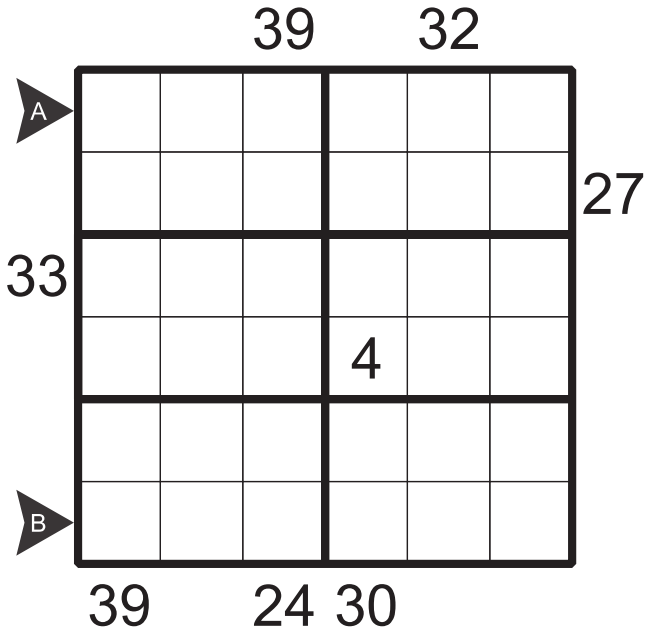
X Sums Sudoku

9 points

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box.

Exactly six digits must be used.

Additionally the clues outside the grid indicate the sum of the first X numbers placed in the corresponding direction, where X is equal to the first number placed in that direction. This first number cannot be more than 6.



1	2	3	4	5	6	7	8	9
			✓					

XV Sudoku

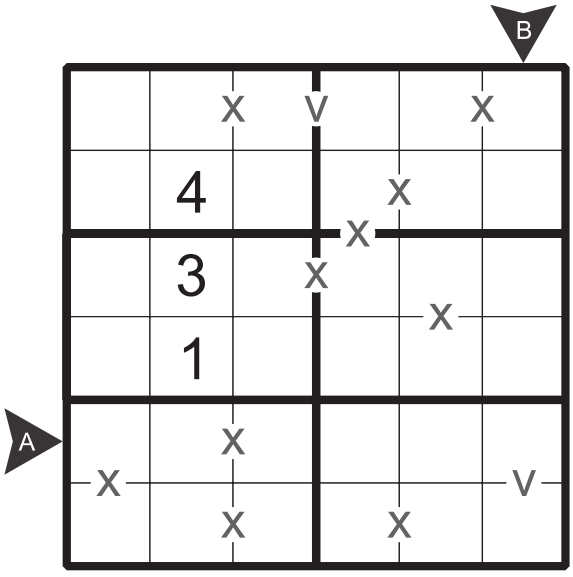
1 point

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box.

Exactly six digits must be used.

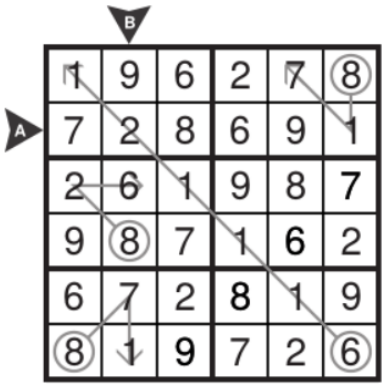
Additionally, if the sum of digits in orthogonally adjacent cells is 10, then they are separated by X. If the sum of digits in orthogonally adjacent cells is 5, then they are separated by V.

All possible X and V are marked.



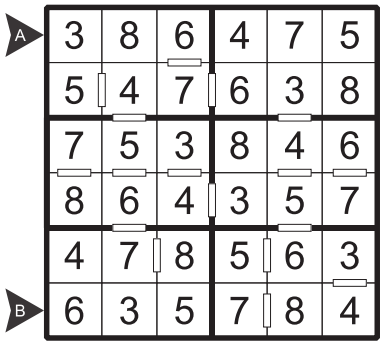
1	2	3	4	5	6	7	8	9
✓		✓	✓					

Arrow



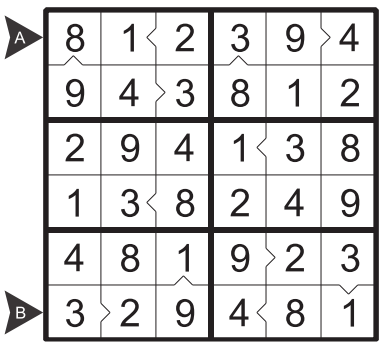
1	9	6	2	7	8
7	2	8	6	9	1
2	6	1	9	8	7
9	8	7	1	6	2
6	7	2	8	1	9
8	1	9	7	2	6

Consecutive



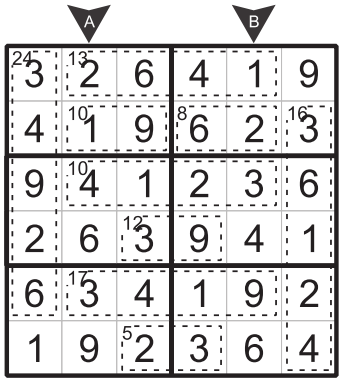
3	8	6	4	7	5
5	4	7	6	3	8
7	5	3	8	4	6
8	6	4	3	5	7
4	7	8	5	6	3
6	3	5	7	8	4

Inequality



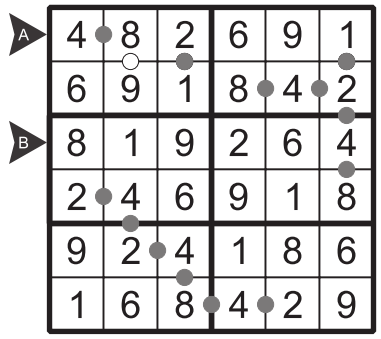
8	1	2	3	9	4
9	4	3	8	1	2
2	9	4	1	3	8
1	3	8	2	4	9
4	8	1	9	2	3
3	2	9	4	8	1

Killer



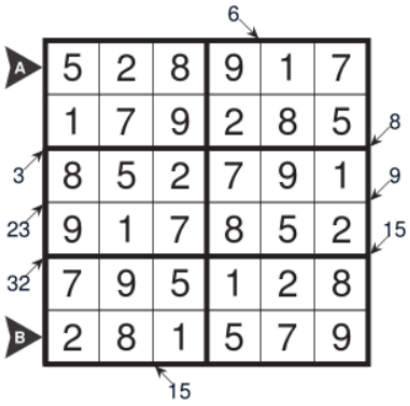
3	2	6	4	1	9
4	1	9	6	2	3
9	4	1	2	3	6
2	6	3	9	4	1
6	3	4	1	9	2
1	9	2	3	6	4

Kropki



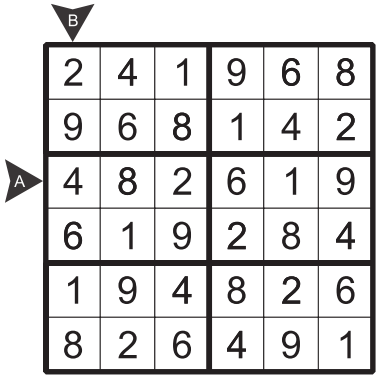
4	8	2	6	9	1
6	9	1	8	4	2
8	1	9	2	6	4
2	4	6	9	1	8
9	2	4	1	8	6
1	6	8	4	2	9

Little Killer



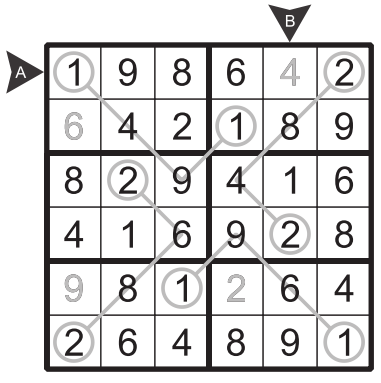
5	2	8	9	1	7
1	7	9	2	8	5
8	5	2	7	9	1
9	1	7	8	5	2
7	9	5	1	2	8
2	8	1	5	7	9

Non Consecutive



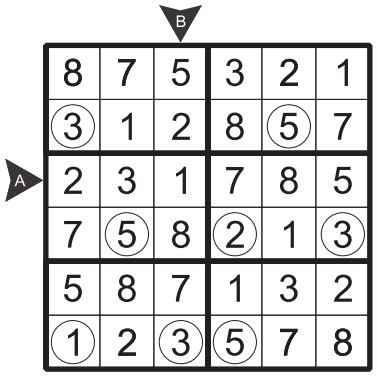
2	4	1	9	6	8
9	6	8	1	4	2
4	8	2	6	1	9
6	1	9	2	8	4
1	9	4	8	2	6
8	2	6	4	9	1

Odd Even Bridge



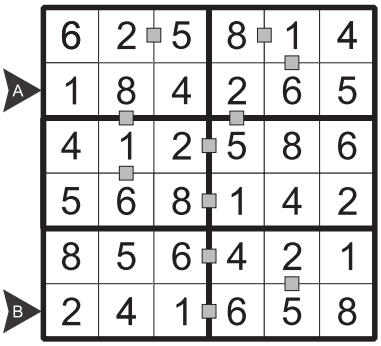
1	9	8	6	4	2
6	4	2	1	8	9
8	2	9	4	1	6
4	1	6	9	2	8
9	8	1	2	6	4
2	6	4	8	9	1

Odd Even Count



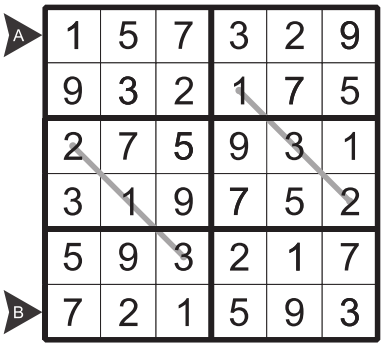
8	7	5	3	2	1
3	1	2	8	5	7
2	3	1	7	8	5
7	5	8	2	1	3
5	8	7	1	3	2
1	2	3	5	7	8

Perfect Squares



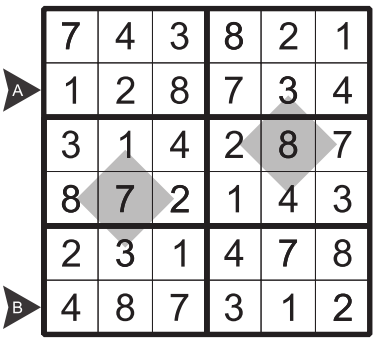
6	2	5	8	1	4
1	8	4	2	6	5
4	1	2	5	8	6
5	6	8	1	4	2
8	5	6	4	2	1
2	4	1	6	5	8

Renban



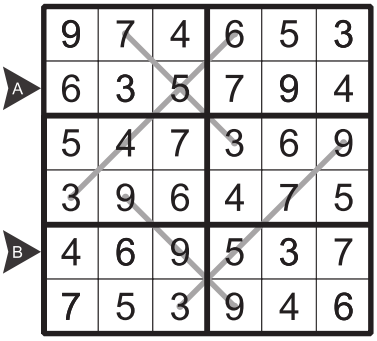
1	5	7	3	2	9
9	3	2	1	7	5
2	7	5	9	3	1
3	1	9	7	5	2
5	9	3	2	1	7
7	2	1	5	9	3

Rhombus



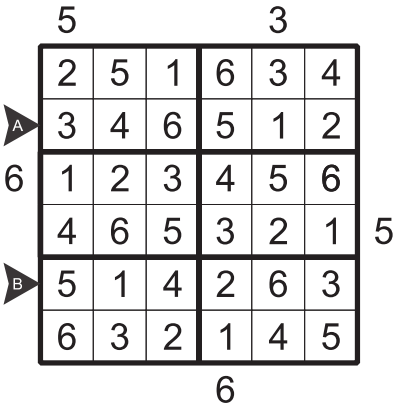
7	4	3	8	2	1
1	2	8	7	3	4
3	1	4	2	8	7
8	7	2	1	4	3
2	3	1	4	7	8
4	8	7	3	1	2

Sequence



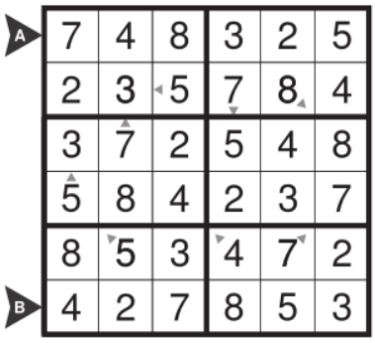
9	7	4	6	5	3
6	3	5	7	9	4
5	4	7	3	6	9
3	9	6	4	7	5
4	6	9	5	3	7
7	5	3	9	4	6

Skyscraper



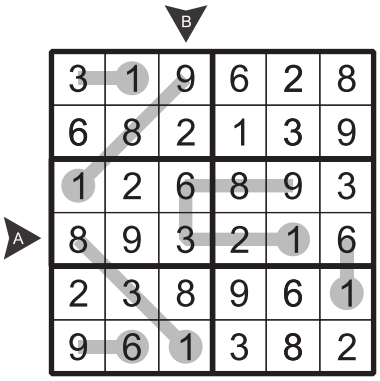
2	5	1	6	3	4
3	4	6	5	1	2
1	2	3	4	5	6
4	6	5	3	2	1
5	1	4	2	6	3
6	3	2	1	4	5

Sum Detector



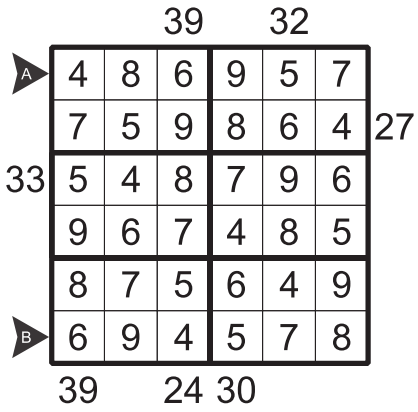
7	4	8	3	2	5
2	3	5	7	8	4
3	7	2	5	4	8
5	8	4	2	3	7
8	5	3	4	7	2
4	2	7	8	5	3

Thermo



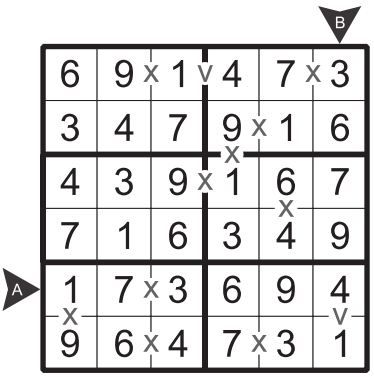
3	1	9	6	2	8
6	8	2	1	3	9
1	2	6	8	9	3
8	9	3	2	1	6
2	3	8	9	6	1
9	6	1	3	8	2

X Sums



4	8	6	9	5	7
7	5	9	8	6	4
5	4	8	7	9	6
9	6	7	4	8	5
8	7	5	6	4	9
6	9	4	5	7	8

XV



6	9	1	4	7	3
3	4	7	9	1	6
4	3	9	1	6	7
7	1	6	3	4	9
1	7	3	6	9	4
9	6	4	7	3	1