

इयवठकय ललहलठलरलत

Episode – 7
21st– 23rd March

Converse by Swaroop Guggilam

Important Links

Submission Page : <http://logicmastersindia.com/SM/201503/>

Discussion Thread : <http://logicmastersindia.com/t/?tid=936>

About Sudoku Mahabharat : <http://logicmastersindia.com/SM/>

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

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

About this Episode

Apart from classic Sudokus of different sizes, this episode has five variants dealing with converse rules, namely, Consecutive Sudoku, Kropki Sudoku, Sudoku XV, No Knight Step Sudoku, Average Sudoku.

How to participate?

- Understand the rules of different Sudokus that will appear in this episode. This Instruction Booklet has rules 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 after 21st March (but before 23rd March), login at the submission page using your LMI userid and password.
- LMI uses GMT time zone. 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 arrows
 - 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>.

Points Table and Scoring

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.

| | |
|-------------------------|------------|
| Standard 6X6 | 1, 1, 1, 1 |
| Standard 8X8 | 7 |
| Standard 9X9 | 4, 4, 9 |
| Consecutive 6X6, 9X9 | 3, 13 |
| Kropki 6X6, 9X9 | 3, 11 |
| XV 6X6, 9X9 | 2, 10 |
| No Knight Step 6X6, 9X9 | 2, 11 |
| Average 6X6, 9X9 | 3, 14 |

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 submission reduces 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 upto seconds.

General Rules

To make the rules less repetitive, you will see following line “Apply standard Sudoku rules” in most Sudoku rules. This means “Place a digit from 1 to N, where N is the size of the grid, in each empty cell so that each digit appears exactly once in each row, column and outlined region.”

These outlined regions could be 3X3 boxes, or other shapes.

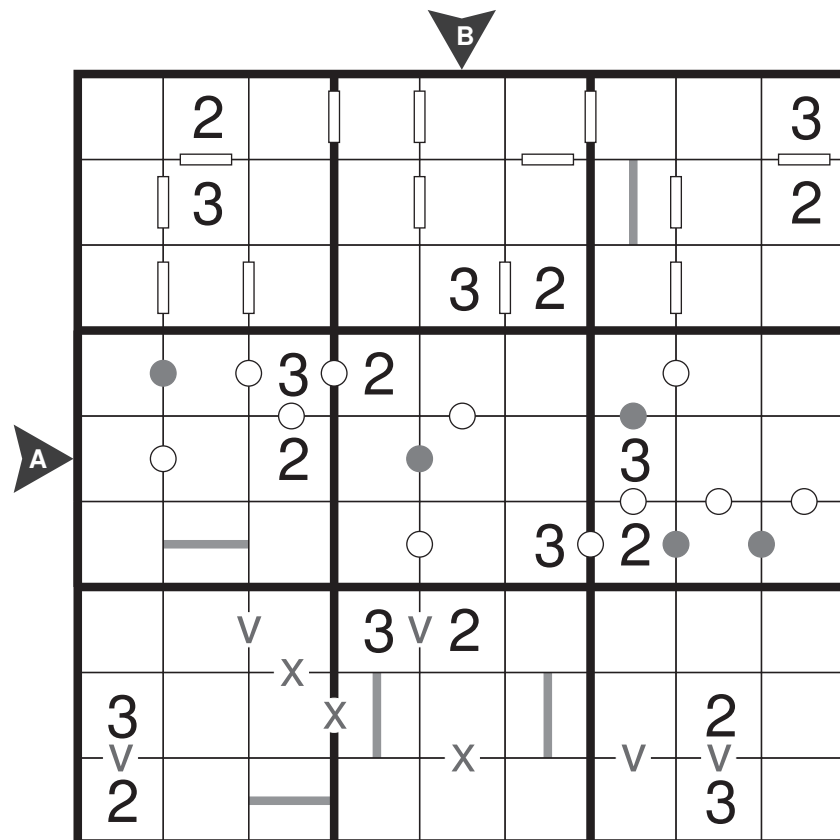
Each Sudoku will be marked with, at max, 2 lettered arrows. If you are solving on paper, you need to submit the digits in these arrows, in order, including the givens. For example, the answer key for the Sudoku at the right is 162897453, 517698432.

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

About the Sudoku Booklet

The password protected Sudoku booklet will have 8 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 exactly like next 8 pages in this instruction booklet. The font sizes, cell sizes, colors, borders, shading, margin will be identical. We recommend you to print few pages of this instruction booklet. You can avoid any last minute surprise during the test.



This grid is for testing how the printout looks.

Standard Sudoku

Place a digit from 1 to 6 in each empty cell so that each digit appears exactly once in each row, column and 2X3 box.

1 points

A B

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

1 points

C D

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

1 points

E F

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

1 points

G H

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

Standard Sudoku 8X8

7 points

Place a digit from 1 to 8 in each empty cell so that each digit appears exactly once in each row, column and 2X4 box.

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

Standard Sudoku (1)

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 3X3 box.

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

Standard Sudoku (2)

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 3X3 box.

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

Standard Sudoku (3)

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 3X3 box.

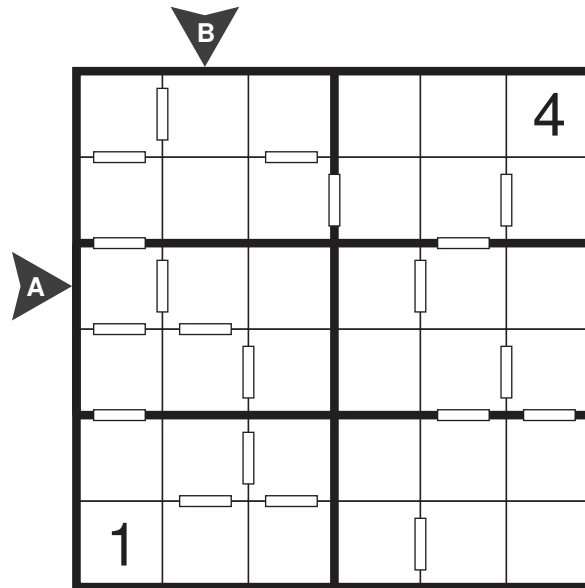
| | | | | | | | | |
|--|---|---|--|---|---|--|---|---|
| | | | | | | | | |
| | 3 | 7 | | 1 | 6 | | 9 | 5 |
| | 1 | | | 8 | | | 6 | |
| | | | | | | | | |
| | 9 | 2 | | 3 | 1 | | 7 | 6 |
| | 8 | | | 7 | | | 1 | |
| | | | | | | | | |
| | 7 | 3 | | 5 | 4 | | 8 | 9 |
| | 5 | | | 9 | | | 3 | |

Consecutive Sudoku

3 points

Apply standard Sudoku rules.

Orthogonally adjacent cells containing consecutive numbers are separated by bars. All possible bars are marked.

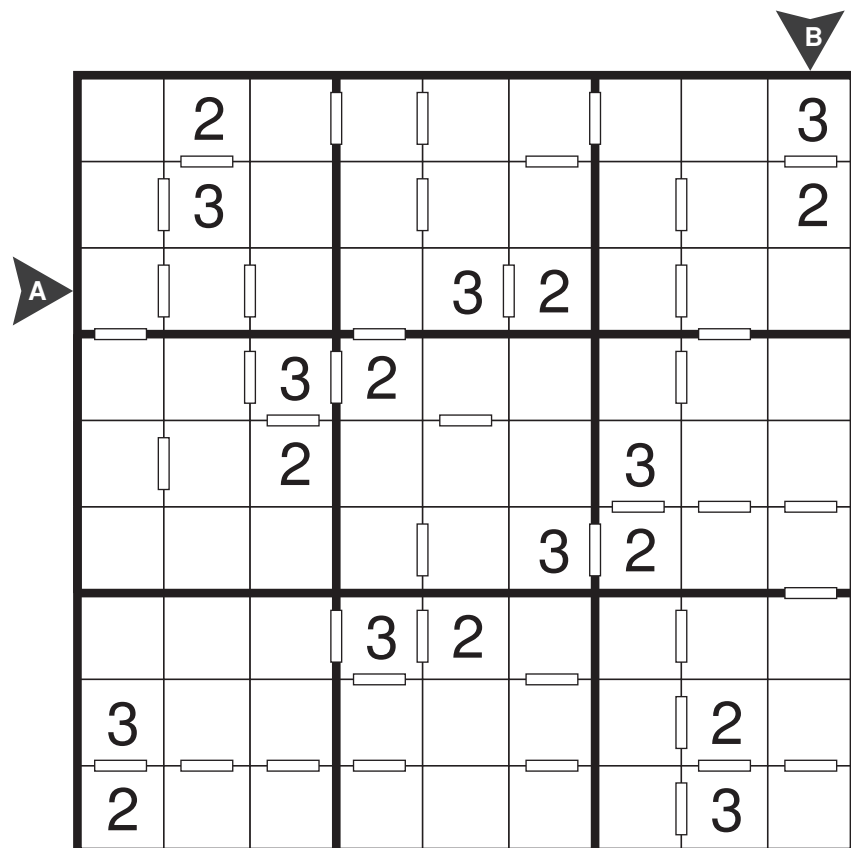


Consecutive Sudoku

13 points

Apply standard Sudoku rules.

Orthogonally adjacent cells containing consecutive numbers are separated by bars. All possible bars are marked.

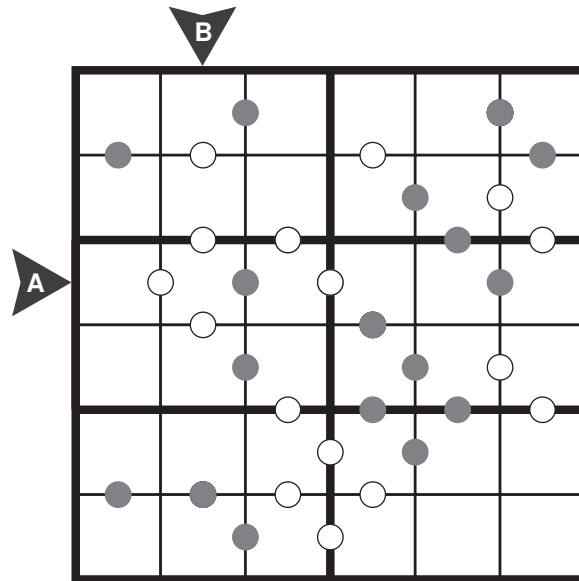


Kropki Sudoku

3 points

Apply standard Sudoku rules.

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.

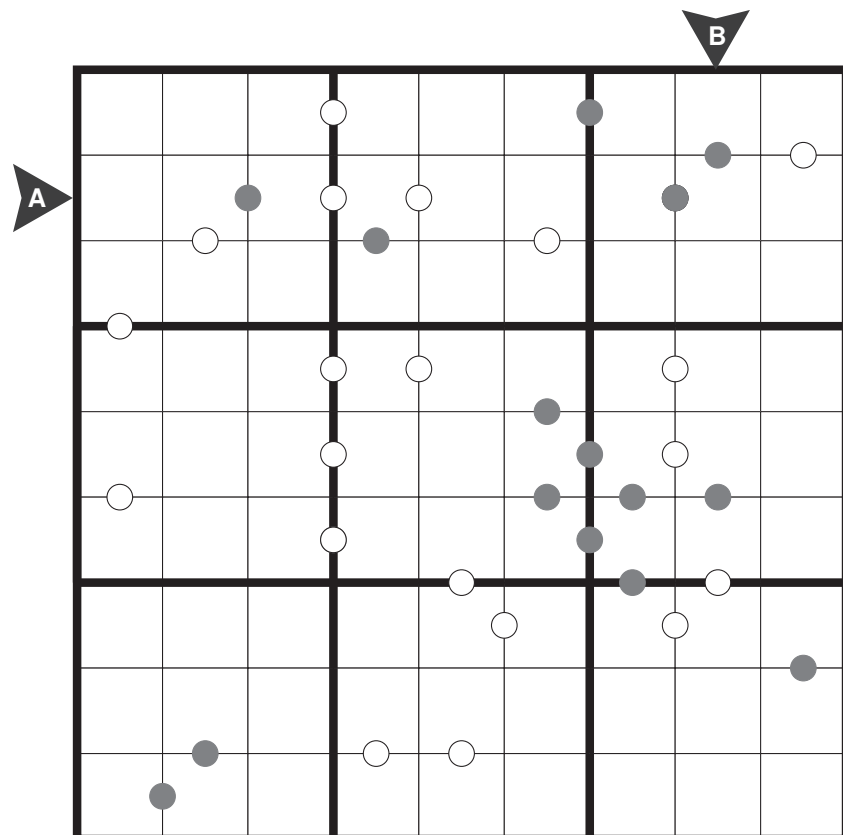


Kropki Sudoku

11 points

Apply standard Sudoku rules.

See 6X6 Kropki Sudoku for additional rules.



Sudoku XV

2 points

Apply standard Sudoku rules.

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.

| | | | | | |
|--|---|---|---|---|--|
| | | | | | |
| | X | | 5 | | |
| | | | | 3 | |
| | | | | | |
| | | | | X | |
| | | | | | |
| | 1 | | | | |
| | | 4 | | | |
| | | | | | |

Sudoku XV

10 points

Apply standard Sudoku rules.

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.

| | | | | | | | |
|--|---|---|---|---|---|---|---|
| | | | | | | | |
| | | | X | V | | | |
| | 9 | | 8 | | 5 | | 2 |
| | | 8 | | | 2 | | 4 |
| | 1 | | 6 | | | 2 | |
| | | | | | | | |
| | | 2 | | | 3 | | 5 |
| | 8 | | 5 | | | 3 | |
| | 4 | | 1 | | 6 | | 8 |
| | | | V | X | | | |

No Knight Step Sudoku

2 points

Apply standard Sudoku rules.

No cell that is a knight-step away can contain the same digit. In chess, a knight moves two squares forward followed by one sideways.

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

| | | | | |
|---|---|---|---|---|
| | X | | X | |
| X | | | | X |
| | | • | | |
| X | | | | X |
| | X | | X | |

No Knight Step Sudoku

11 points

Apply standard Sudoku rules.

No cell that is a knight-step away can contain the same digit. In chess, a knight moves two squares forward followed by one sideways.

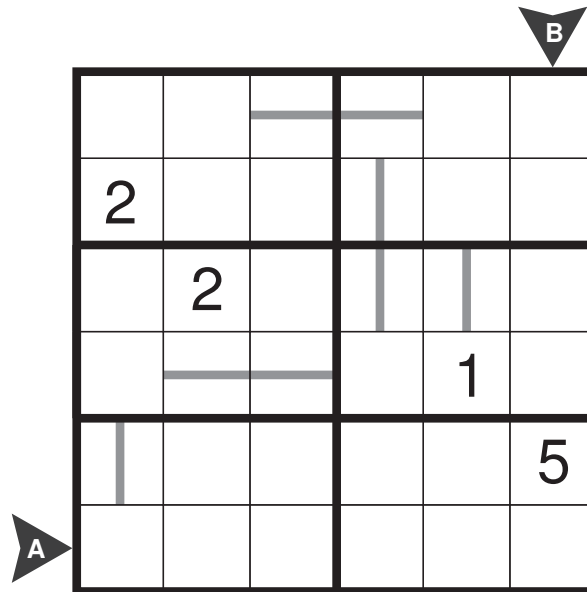
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| 9 | | | | 4 | | 6 | | 7 |
| | 8 | | | 3 | | | 4 | |
| 6 | | | | | | | | |
| | | | 8 | | 5 | | | |
| 1 | 5 | | | | | | 7 | 8 |
| | | | 9 | | 4 | | | |
| | | | | | | | | 4 |
| | 9 | | | 6 | | | 1 | |
| 2 | | 8 | | 9 | | | |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

Average Sudoku

3 points

Apply standard Sudoku rules.

If the number in a cell equals the average of its two horizontal neighbours then the cell is marked with a horizontal line. If the number in a cell equals the average of its two vertical neighbours then the cell is marked with a vertical line. All possible lines are marked.

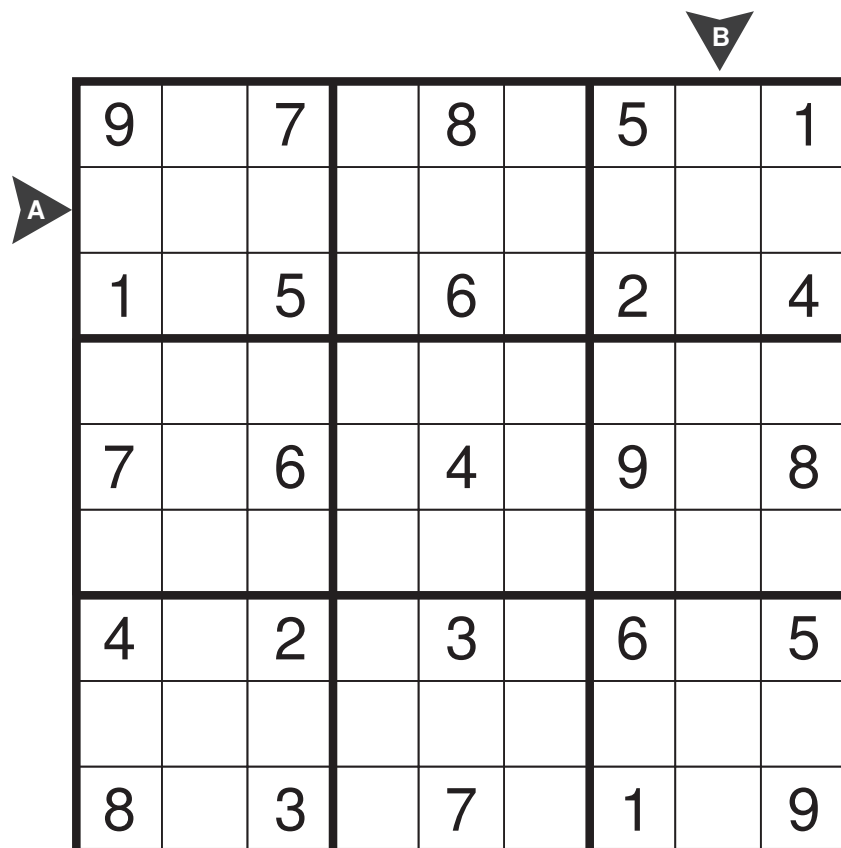


Average Sudoku

14 points

Apply standard Sudoku rules.

If the number in a cell equals the average of its two horizontal neighbours then the cell is marked with a horizontal line. If the number in a cell equals the average of its two vertical neighbours then the cell is marked with a vertical line. All possible lines are marked.



Standard

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

Standard

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

Standard

| | | | | | | |
|---|---|---|---|---|---|---|
| E | 4 | 1 | 5 | 3 | 2 | 6 |
| | 6 | 2 | 3 | 4 | 5 | 1 |
| | 1 | 3 | 2 | 5 | 6 | 4 |
| | 5 | 6 | 4 | 2 | 1 | 3 |
| | 3 | 5 | 6 | 1 | 4 | 2 |
| F | 2 | 4 | 1 | 6 | 3 | 5 |

Standard

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

Standard

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| B | 8 | 5 | 6 | 4 | 1 | 2 | 7 | 3 |
| | 7 | 1 | 2 | 3 | 8 | 5 | 6 | 4 |
| | 1 | 4 | 5 | 6 | 2 | 8 | 3 | 7 |
| A | 3 | 7 | 8 | 2 | 5 | 6 | 4 | 1 |
| | 6 | 3 | 4 | 5 | 7 | 1 | 2 | 8 |
| | 2 | 8 | 1 | 7 | 3 | 4 | 5 | 6 |
| | 4 | 2 | 3 | 1 | 6 | 7 | 8 | 5 |
| | 5 | 6 | 7 | 8 | 4 | 3 | 1 | 2 |

Standard

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| B | 4 | 1 | 2 | 6 | 7 | 3 | 9 | 8 | 5 |
| | 8 | 3 | 7 | 9 | 1 | 5 | 4 | 6 | 2 |
| | 6 | 9 | 5 | 4 | 8 | 2 | 1 | 3 | 7 |
| | 2 | 5 | 9 | 8 | 3 | 1 | 7 | 4 | 6 |
| A | 7 | 8 | 1 | 5 | 6 | 4 | 3 | 2 | 9 |
| | 3 | 4 | 6 | 2 | 9 | 7 | 5 | 1 | 8 |
| | 9 | 7 | 3 | 1 | 2 | 6 | 8 | 5 | 4 |
| | 1 | 2 | 4 | 7 | 5 | 8 | 6 | 9 | 3 |
| | 5 | 6 | 8 | 3 | 4 | 9 | 2 | 7 | 1 |

Standard

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

Standard

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

Consecutive

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

Kropki

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

Consecutive

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

Kropki

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

XV

| | | | | | |
|---|---|---|---|---|-----|
| | | | B | | |
| | 4 | 6 | 3 | 5 | 1 2 |
| | 2 | 5 | 1 | 6 | 3 4 |
| A | 5 | 4 | 2 | 1 | 6 3 |
| | 1 | 3 | 6 | 2 | 4 5 |
| | 3 | 1 | 5 | 4 | 2 6 |
| | 6 | 2 | 4 | 3 | 5 1 |

No Knight Step

| | | | | | |
|---|---|---|---|---|-----|
| | | | B | | |
| | 1 | 2 | 6 | 5 | 3 4 |
| | 4 | 3 | 5 | 1 | 2 6 |
| | 6 | 5 | 3 | 4 | 1 2 |
| | 2 | 1 | 4 | 6 | 5 3 |
| A | 3 | 4 | 1 | 2 | 6 5 |
| | 5 | 6 | 2 | 3 | 4 1 |

XV

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | B | | |
| | 5 | 2 | 7 | 9 | 1 | 4 |
| | 6 | 9 | 4 | 8 | 3 | 5 |
| | 1 | 3 | 8 | 7 | 6 | 2 |
| A | 3 | 1 | 5 | 6 | 8 | 7 |
| | 4 | 7 | 9 | 2 | 5 | 1 |
| | 8 | 6 | 2 | 4 | 9 | 3 |
| | 7 | 8 | 6 | 5 | 4 | 9 |
| | 2 | 4 | 3 | 1 | 7 | 6 |
| | 9 | 5 | 1 | 3 | 2 | 8 |

No Knight Step

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | B | |
| | 9 | 3 | 1 | 5 | 4 | 2 |
| | 7 | 8 | 5 | 6 | 3 | 9 |
| | 6 | 4 | 2 | 7 | 8 | 1 |
| | 4 | 2 | 3 | 8 | 7 | 5 |
| | 1 | 5 | 9 | 3 | 2 | 6 |
| A | 8 | 7 | 6 | 9 | 1 | 4 |
| | 3 | 6 | 7 | 1 | 5 | 8 |
| | 5 | 9 | 4 | 2 | 6 | 7 |
| | 2 | 1 | 8 | 4 | 9 | 3 |

Average

| | | | | | |
|---|---|---|---|---|-----|
| | | | | B | |
| | 1 | 5 | 4 | 3 | 2 6 |
| | 2 | 3 | 6 | 4 | 5 1 |
| | 6 | 2 | 1 | 5 | 3 4 |
| | 3 | 4 | 5 | 6 | 1 2 |
| | 4 | 1 | 3 | 2 | 6 5 |
| A | 5 | 6 | 2 | 1 | 4 3 |

Average

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | B | |
| | 9 | 3 | 7 | 4 | 8 | 2 |
| A | 6 | 2 | 4 | 5 | 1 | 9 |
| | 1 | 8 | 5 | 7 | 6 | 3 |
| | 3 | 1 | 9 | 8 | 2 | 6 |
| | 7 | 5 | 6 | 3 | 4 | 1 |
| | 2 | 4 | 8 | 9 | 5 | 7 |
| | 4 | 9 | 2 | 1 | 3 | 8 |
| | 5 | 7 | 1 | 6 | 9 | 4 |
| | 8 | 6 | 3 | 2 | 7 | 5 |