

PATHWAY SUDOKU

LMI Fun Contest: June 22-26, 2018

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BACKGROUND

This is a puzzle which was considered but not included in WSC 2017.

RULE OF THE PUZZLE

Apply **Classic Sudoku** Rules on all 9 Sudoku grids.

In addition there are 5 paths connecting the 10 shaded cells in these grids. Paths can only go horizontal and vertical, not diagonal. The paths don't cross or overlap each other. Paths can't overlap or cross themselves either. However the paths can touch each other. The path can possibly occupy all cells in a 2x2 area.

Each path follows a different rule from the given six rules below. No rule is used more than once. Except Renban, digits can repeat on the path. There could be more than one path connecting two points with a specific rule. Five out of these six given rules are used by the paths:

1. **Consecutive-on-line:** Two orthogonal cells on the path should contain consecutive digits.
2. **Even Labyrinth:** Path should contain only even digits.
3. **Incremental Arrow:** Starting from the third digit, each digit along the path is the unit's digit of the sum of previous two digits on the path.
4. **Odd Labyrinth:** Path should contain only odd digits.
5. **Palindrome:** Digits on the path form a palindrome - they read the same from both directions.
6. **Renban:** Path contains a set of distinct consecutive digits, not necessarily in sequential order.

ANSWER KEY

Enter the nine digits for each marked row/column from left to right/ top to bottom.

For the example, the answer key is 634152, 632145, 432165, 513246

EXAMPLE (The example uses four 6x6 grids)

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

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

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

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

SOLUTION

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

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

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

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