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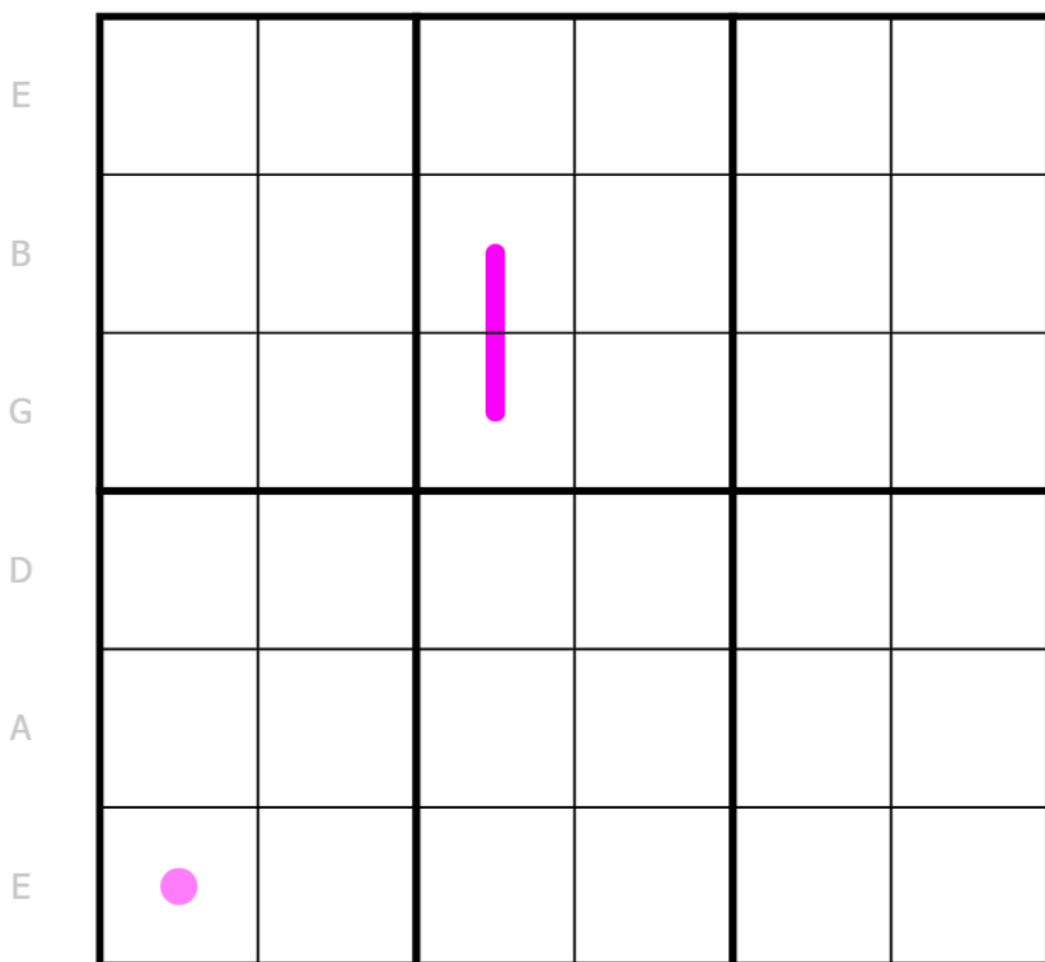
A Grid in A# (Negative Renban)

Normal Sudoku rules apply.

Renban: for numbers 2-5, box N's cells (both) all have orthogonal lines N long, which have consecutive digits in any order, can overlap, and all lines are given.

Minimum: the dot's digit is less than its orthogonally adjacent cells.

For clarification: top row boxes are 123, bottom are 456.



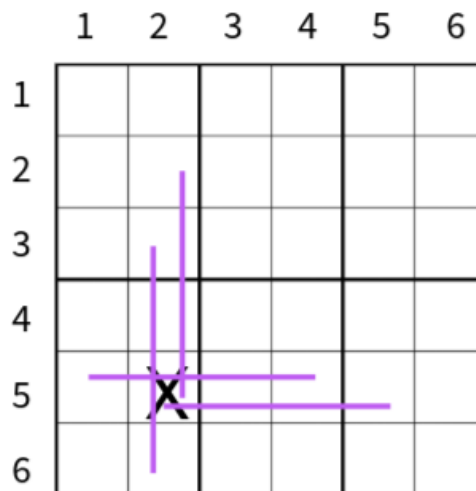
Example Cell

This ruleset is similar to a Kropki puzzle with a negative constraint, where if “all dots are given” and none are in the grid, adjacent cells cannot be consecutive or be in a 2:1 ratio.

Here is an example of all the “missing” lines that would pass through R5C2:

Box 4
lines are 4 long
orthogonal touching the cell

Therefore putting digits 1324 in R5C2-5 would break the puzzle as there is now a run of 4 consecutive digits in any order.



Example Cell
R5C2 in Box 4

Note: the reason why Renban numbers in this puzzle are 2-5 is because a Renban of 1 is impossible, and a Renban of 6 would automatically fail. Thus 2-5 creates the maximum amount of lines in the grid, which ends up being 49 total lines.

Negative Renban Theorems (examples here are for a 9x9 grid)

1. If a Renban line is long enough that certain numbers must appear on them (ex.: length 4 has 34), with a negative constraint:
 - a. If any of those numbers are beyond that line's length, the negative constraint will always be satisfied.
 - i. Example 1: line length 4 always has **34** with optional **1256**, therefore if a **4** is 4 or more away from **3** there can never be a valid line.
 - ii. Example 2: repeat for line length 5 (**2345**).
 - b. If all of those numbers are within that line's length, the remaining values on that line must either be beyond that line or on either opposite sides outside that line.
AKA: if ***bigN - smallN >= line length***, place between the numbers if possible.
 - i. Example 1: line length 4 with **34** in the middle of the grid, any number belonging to the following groups must be more than 4 away from the end of the line:
 1. Low values of **1**
 2. Adjoining values of **25**
 3. High values of **6**
 - ii. Example 2: any line length 5 (**2345** required) must have a 1 and 6 in the middle, AKA 1 or 6 can never be on the edge of the grid.
2. Any line length 2 can only have non-consecutive digits (similar to a negative white Kropki dot).

Hints

Because this is an easier puzzle, I'm skipping over a few parts in the full solve path, but the majority is given.

Basic locations/logic are visible, with more explicit hints REDACTED if you do not want to be spoiled. I have split the hints up that get progressively more specific if you only need a little push.

Note, spoiler text may still be visible on mobile or if you are using dark mode.

If you can see the word “redacted” above, switch to light mode to hide all spoilers below.

1. Negative Renban theorem application part 1:
rule out numbers in specific locations

- a. Subtle hint: [REDACTED]
- b. Medium hint: [REDACTED]
- c. Full hint:
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

2. Find more pairs:

- a. Subtle hint: [REDACTED]
- b. Full hint: [REDACTED]
[REDACTED]

3. Even more pairs:

- a. Subtle hint: [REDACTED]
- b. Full hint: [REDACTED]
[REDACTED]

4. Last of the pairs

- a. Hint: [REDACTED]

5. A tighter focus

- a. Subtle hint: [REDACTED]
- b. Medium hint 1: [REDACTED]
[REDACTED]
- c. Medium hint 2: [REDACTED]
- d. Full hint: [REDACTED]
[REDACTED]
[REDACTED]

6. More pairs emerge

- a. Subtle hint: [REDACTED]
- b. Full hint: [REDACTED]
[REDACTED]
[REDACTED]

7. Focus on runs

- a. Subtle hint: [REDACTED]
- b. Full hint: [REDACTED]
[REDACTED]
- c. Follow up hint: [REDACTED]

8. Follow the pairs

- a. Subtle hint: [REDACTED]
- b. Full hint: [REDACTED]

9. Finishing the puzzle:

- a. Subtle hint: [REDACTED]
[REDACTED]

- b. Medium hint: [REDACTED]
[REDACTED]
[REDACTED]
- c. Final hint (major location spoiler): [REDACTED]
- d. Final hint (major answer spoiler): [REDACTED]
[REDACTED]