Good Neighbours Become Good Friends – Full Solution Guide

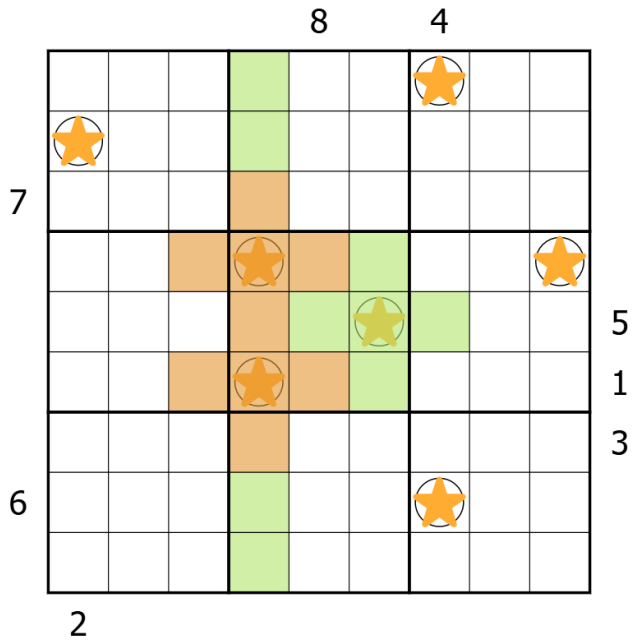
This is a full solution guide to my puzzle *Good Neighbours Become Good Friends*, and so spoilers are ahead.

Rules

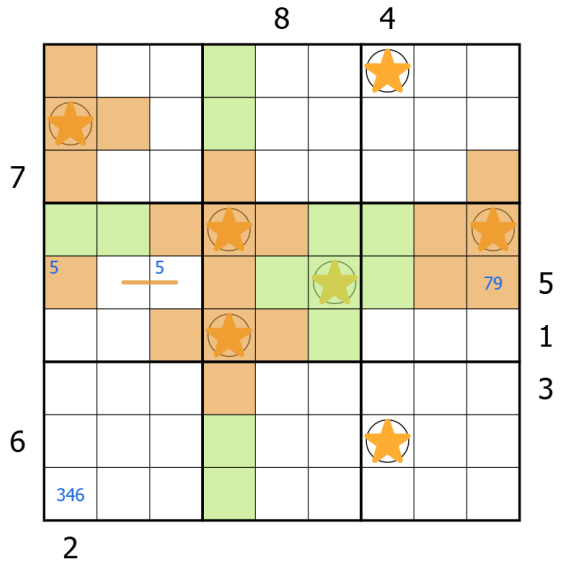
- Normal sudoku rules apply: Place the digits 1 to 9 once each in every row, column, and 3x3 box
- **Parity Stars**: A cell contains a star if all its (up to 4) orthogonal neighbours are the same odd-even parity as the digit in the star. **ALL stars are given**
- **Numbered Rooms**: Clues outside the grid give the digit to be placed in the Nth cell in that row or column, where N is the digit in the first cell

Solve Path

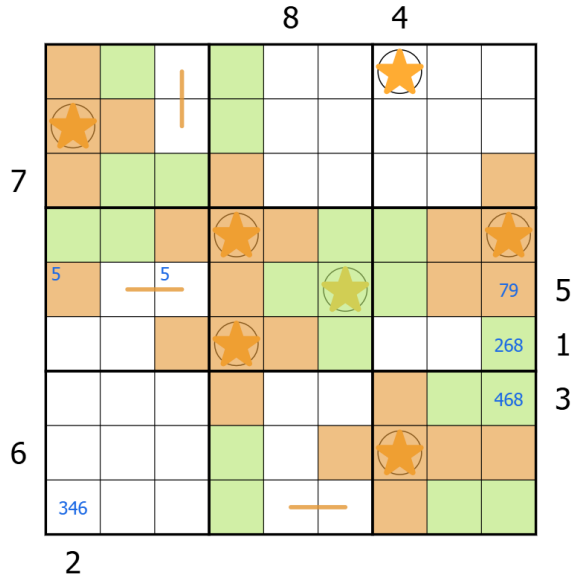
- We can parity shade using greEN for evEN and Orange for Odd
- The two stars in column 4 both touch R5C4, so these are the same parity. By count in box 5 this must be odd, and R5C6 must be even
- The rest of column 4 is even



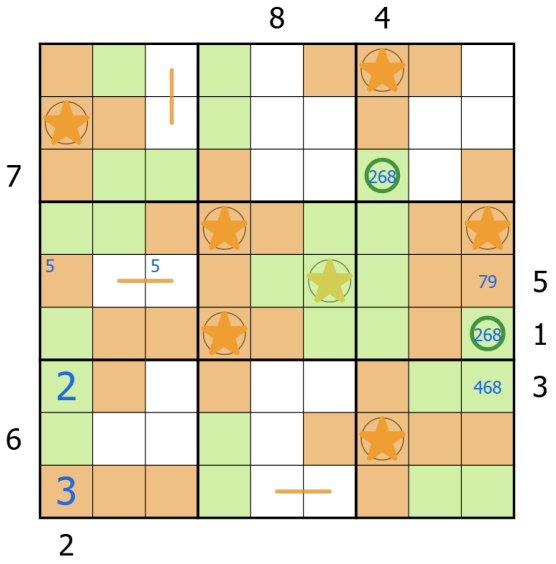
- The star in box 1 can't be even. If it were then we would get an unstarred odd shape centered at R3C3
- If R5C2 and R5C3 were both odd we would get an unstarred odd shape centered at R5C3, so the last even for R5 is here and the other cells in R5 are odd
- This allows colouring the star at R4C9
- The 2 and 5 numbered rooms clues are already constrained by where the digit can go



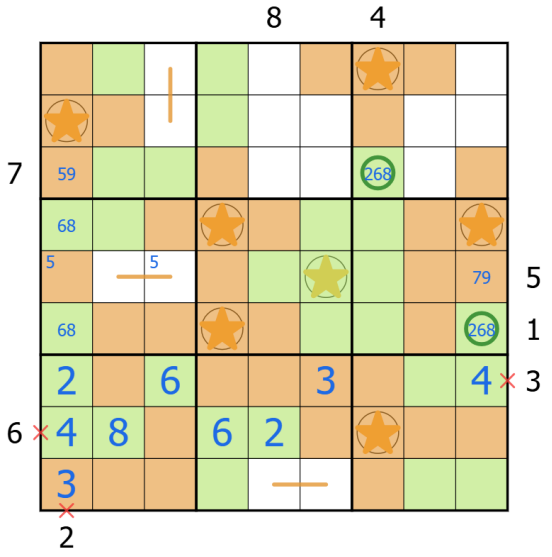
- In box 1, the last odd can't go in row 3 otherwise there would be a bad shape of evens, so R3C2 and R3C3 are even
- In box 1, R1C2 is even to prevent a bad shape of odds centered at R1C1
- (Note a corner cell and its two immediate neighbours can't all be the same parity by the negative constraint)
- R6C9 is even to avoid a bad shape centered at R5C9
- The star at R8C7 is odd by count in column 7
- The last odd in box 9 can only go in R8C9 otherwise we get a bad shape of evens in R7C9 or R9C9
- The 1 and 3 numbered rooms are getting a bit limited



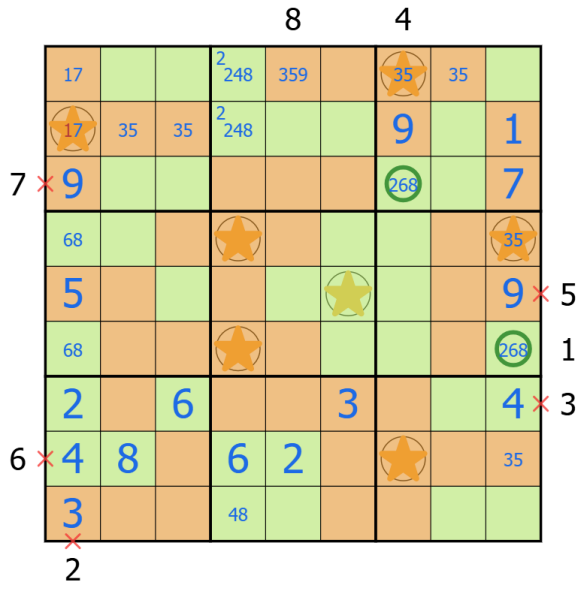
- All of the evens are used up in row 9, so R9C1 to R9C3 are odd
- This means R9C1 is a 3 which places the 2
- As we have two evens in row 1 already the star at R1C7 is odd, and by count the rest of column 7 is even
- By sudoku R3C7 = R6C9



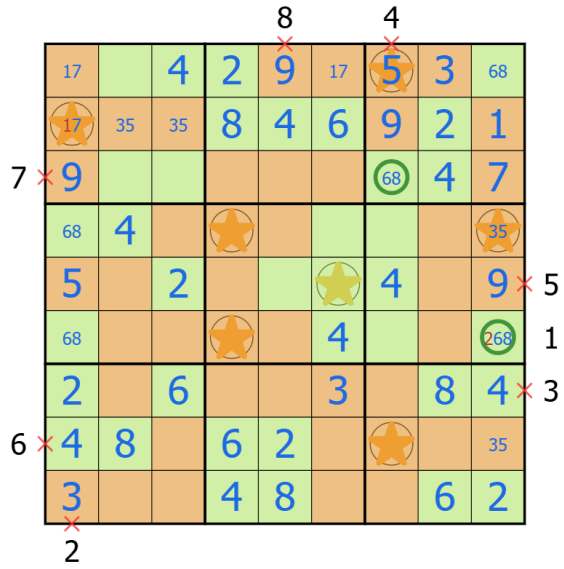
- R8C2 is even to avoid a bad shape at R9C2
- The only option that works for the 6 numbered room is a 4 by parity
- This places 6 and 8 in box 7
- Leaves only 4 for the 3 numbered room which places an odd in box 8
- We can place some more even digits and pencilmarks



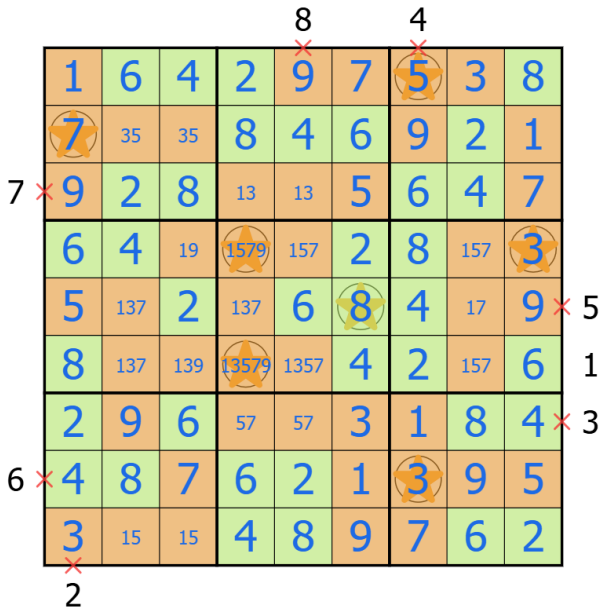
- R5C3 is now even, which resolves the 5 numbered room, and then the 7
- By marking the options for R1C5 we find that 8 is limited to positions 359 which are all odd. This completes the count of odds for row 1 and allows finishing all the shading
- Some digits and pairs also pop out
- The 4 numbered room is very limited



- Pair in row 1 makes R1C5 a 9, placing the 8
- Due to pointing 4s in box 6, the only option for R1C7 is a 5 placing 4 in RC7
- The even sudoku largely completes itself now



- Normal sudoku gets us to almost completing the grid, leaving only the 1 numbered room to go



- Fulfilling the 1 numbered room by placing 1 in R6C4 resolves the puzzle