Sword of Ethereal Triumph – Full Solution Guide

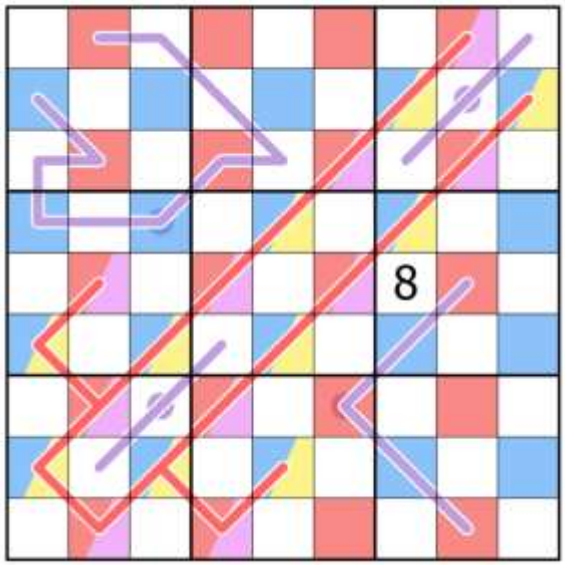
This is a full solution guide to my puzzle *Sword of Ethereal Triumph*, and so spoilers are ahead.

Rules

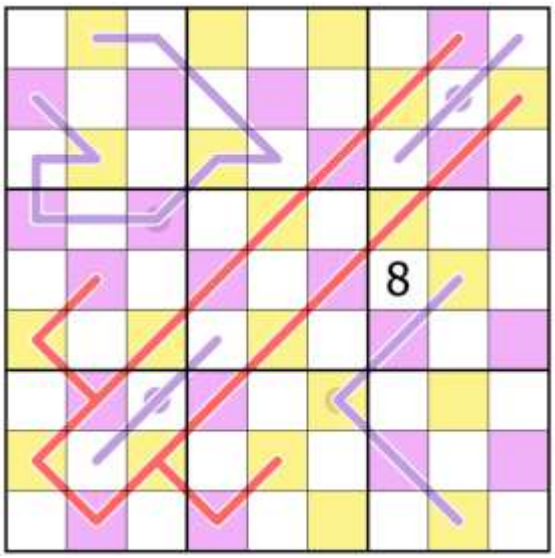
- Normal sudoku rules apply: Place the digits 1 to 9 once each in every row, column, and 3x3 box
- **Parity Line**: Digits along a red parity line alternate between odd and even
- **Zipper Line**: Digits an equal distance from the center of a lavender zipper line sum to the digit in the center

Solve Path

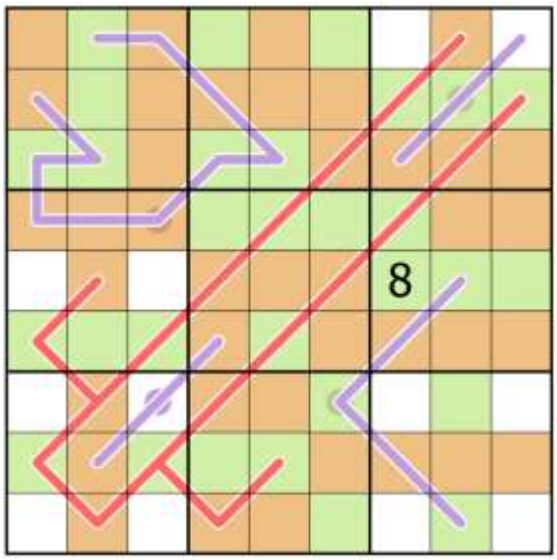
- The break-in to this puzzle involves SET theory
- If we colour the parity line we see that there are 10 odds and 10 evens
- If we colour rows 2468 in one set (blue), this is 4 sets of the digits 1 to 9. If we colour columns 2468 in the other set (red), this is 4 sets of the digits 1 to 9. If we remove the overlap then we still know that blue and red contain the same digits, and these sets are 20 digits each
- All of the evens on the parity line are in one set, and all of the odds on the parity line are in the other set



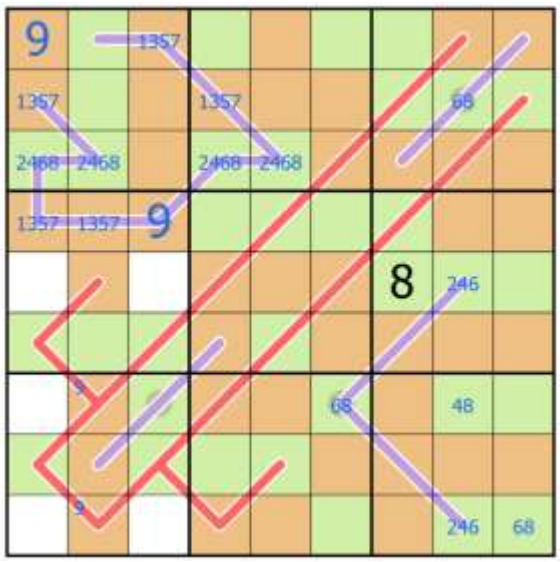
- Both red and blue sets have 10 cells on the parity line which are all of the same parity, and 10 cells off the parity line. Since red and blue contain the same digits, to equalise these we need the cells off the parity line in each set to be the other parity
- Gets to this parity shading, but we don't yet know which is odd or even



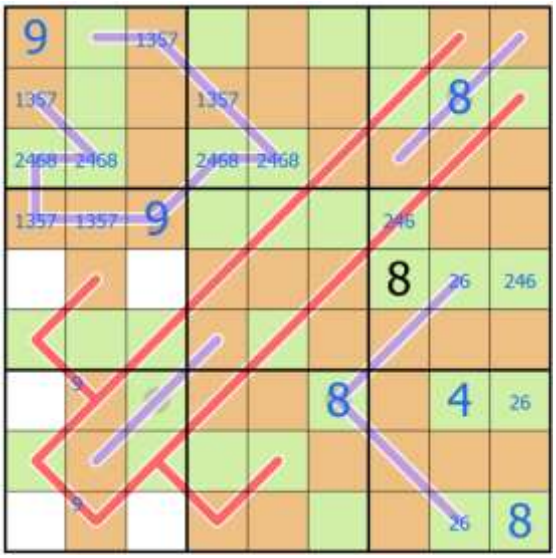
- By the R7C6 zipper, yellow must be even, as odd + odd does not sum to odd
- R4C3 zipper has an odd center, so the pairs of digits either side must be one odd and one even, which allows shading much of box 1 and 2
- By considering rows, columns, and boxes, we can parity shade much of the grid



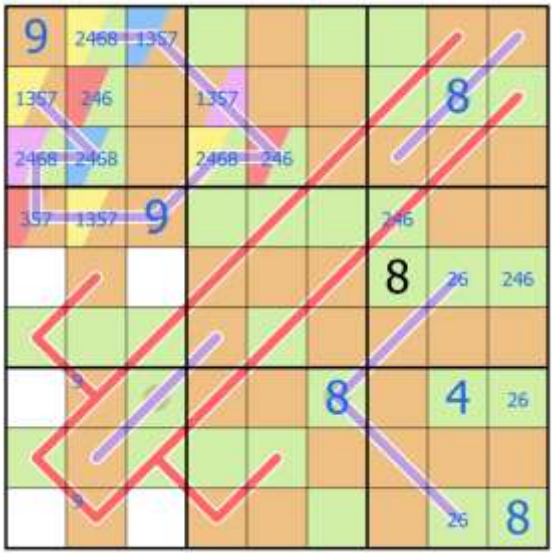
- By zipper parity, R7C3 must be even, R1C9 must be odd, which allows shading more of the grid
- R4C3 has four different even digits on its wings, so this digit is a 9, placing 9 in box 1
- R7C6 is either 6 with a 24 pair in column 8, or an 8 with a 26 pair in column 8. R7C6 in column 8 is the same digit as R2C8, and R7C8 is the left over even, either 4 or 8



- R7C6 is the sum of a pair of odd digits, in R6C7 and R8C7. R2C9, the same digit, is the sum of a pair of odd digits in R1C9 and R3C7. If the zipper center were a 6, only 15 would work as possible sum totals, and this would place 3 15s in column 7. Hence R7C6 is 8



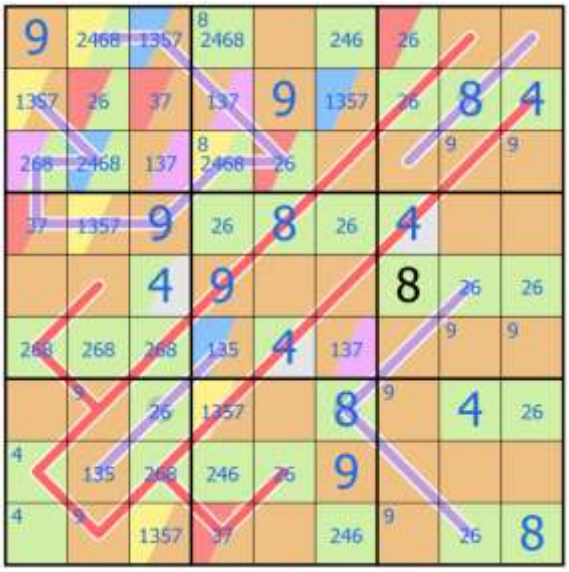
- We can colour the four flavours of sum to 9 in box 1
- R2C1 is from 1357 and it sees all flavours except R4C2



- R2C1 (odd yellow) can be placed in column 3
- Finishes our shading
- We get some pencilmarks on 9s, placing 9 in box 8, 2, 5
- By sudoku R5C3 = R6C5 = R7C4 (and we can note that rows 456 have roping which may be useful)

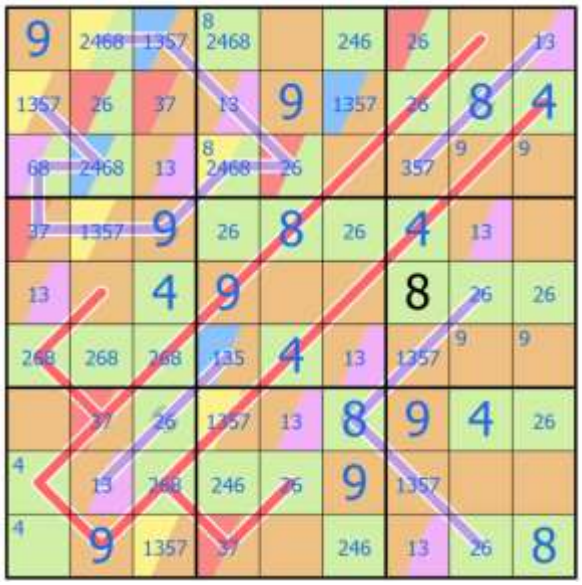
- We can mark the even cells and get some 26 pencilmarks
- By colouring these, we find that R5C3 sees both flavours of 26, and thus is 4

- 4 is removed from even red
- 4 can be marked in box 7
- Removes 4 from even pink
- Pencilmark 8 in box 2, which places 8 in box 5
- We can mark some odd digits, particularly using the roping in rows 456 R6C4 is odd blue
- By column 4 R7C4 is odd yellow, leaving R9C4 to be odd red

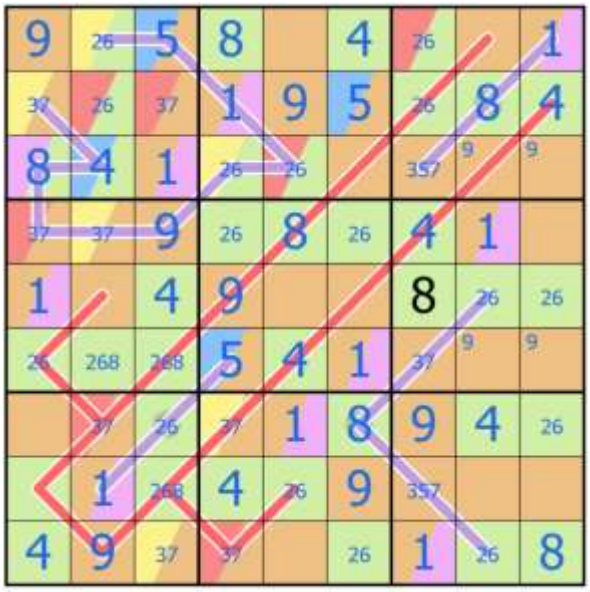


- Odd red in box 7 can't go in R8C2 because both 3 and 7 break the zipper, so this is R7C2
- Places more 9s
- Note that R6C7 and R8C7 is a sum to 8, and R1C9 and R3C7 is a different sum to 8. Means that R1C9 and R9C7 have to be the same digit
- This digit is the same as R8C2 and R7C5

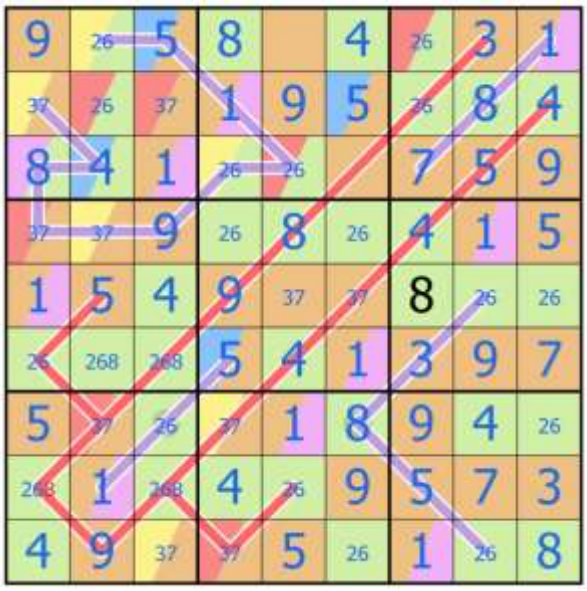
- By rows 1 and 9, R1C9 and its clones can only be the same as odd pink
- By our previous work, odd pink can now only be from 13



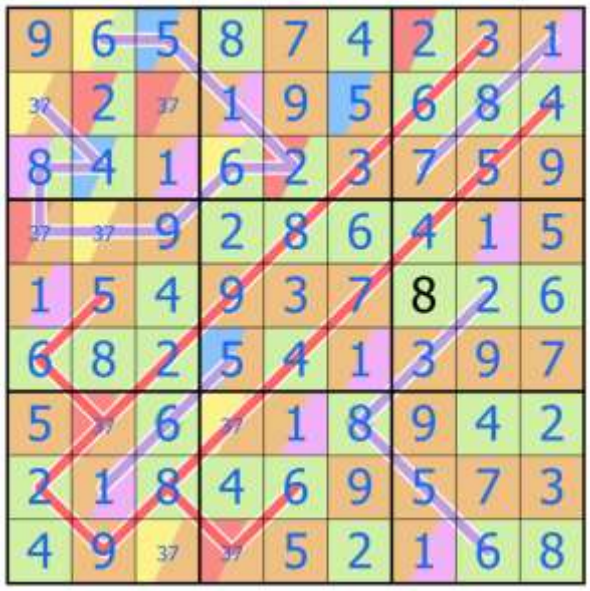
- By the R7C3 zipper, this can only be 6 with odd pink being 1 and odd blue being 5



- By box 3 and column 7 zippers we can place more odds



- Using box 7 zipper we can finish the evens



- Resolve the remaining digits by the box 1 zipper