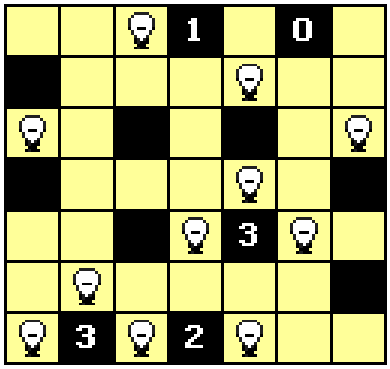
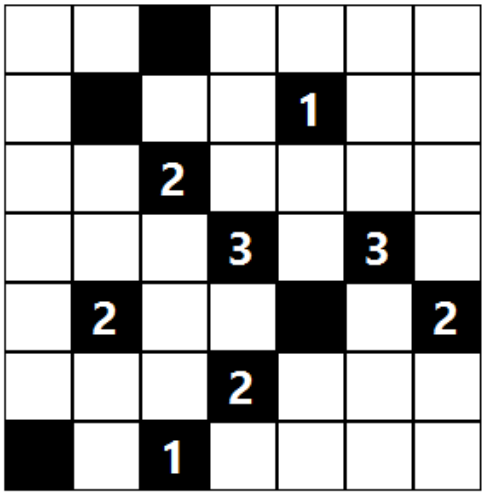
Light up

The player places light bulbs in white cells such that no two bulbs shine on each other, until the entire grid is lit up. A bulb sends rays of light horizontally and vertically, illuminating its entire row and column unless its light is blocked by a black cell. A black cell may have a number on it from 0 to 4, indicating how many bulbs must be placed adjacent to its four sides; for example, a cell with a 4 must have four bulbs around it, one on each side, and a cell with a 0 cannot have a bulb next to any of its sides. An unnumbered black cell may have any number of light bulbs adjacent to it, or none. Bulbs placed diagonally adjacent to a numbered cell do not contribute to the bulb count. Here is an intended solution:

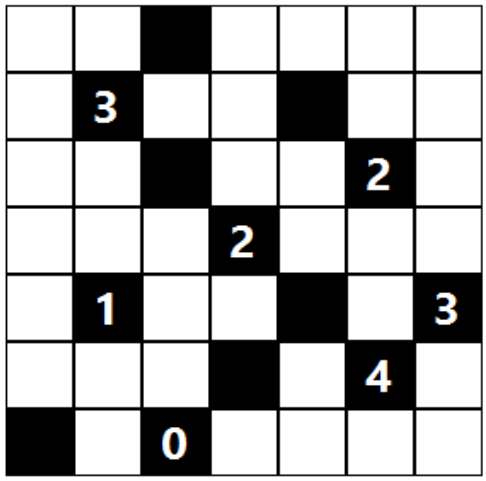


The following puzzles have been designed by Hans Zantema, in September 2020. Each of them has a unique solution, but finding it may be very hard.

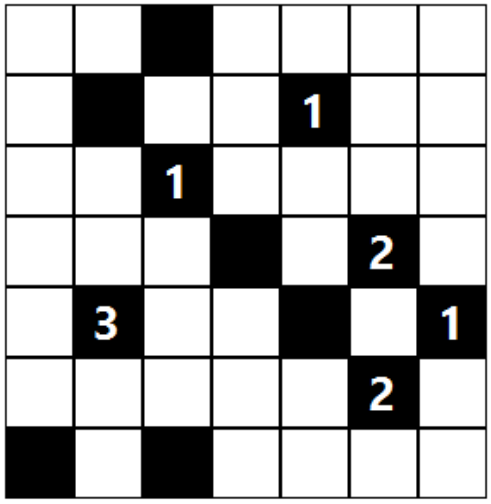
q1



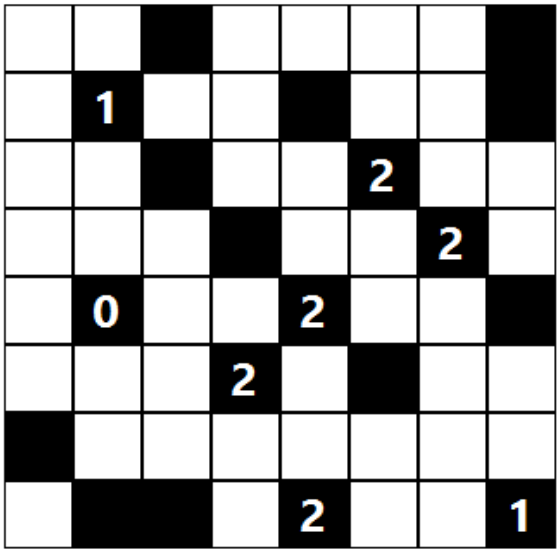
q2



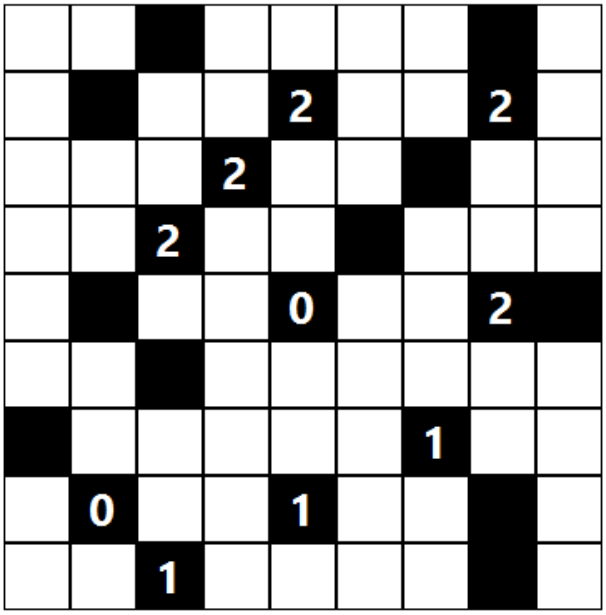
q3



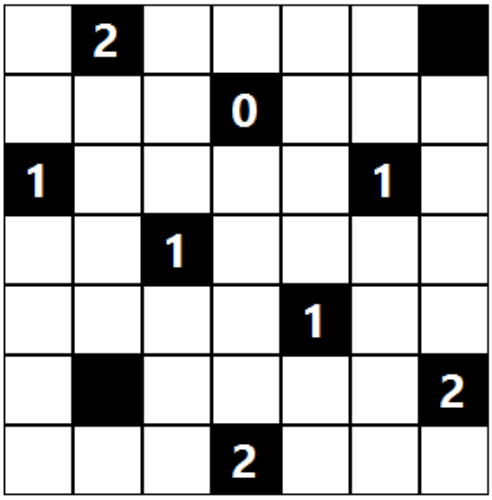
q4



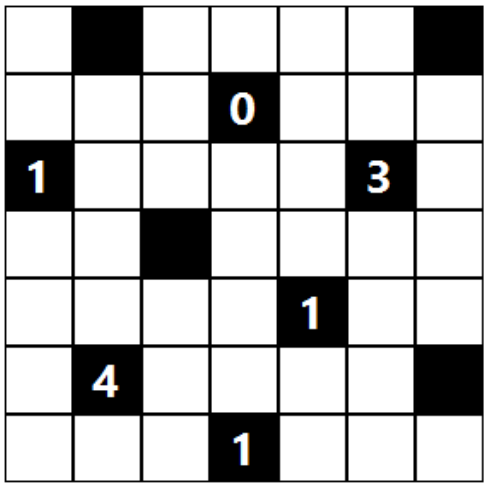
q5



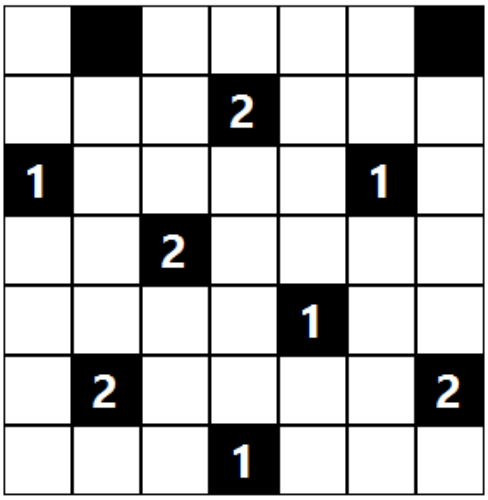
q6



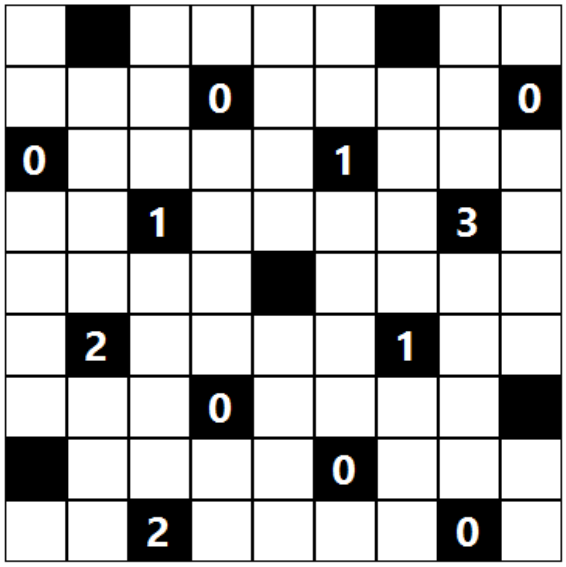
q7



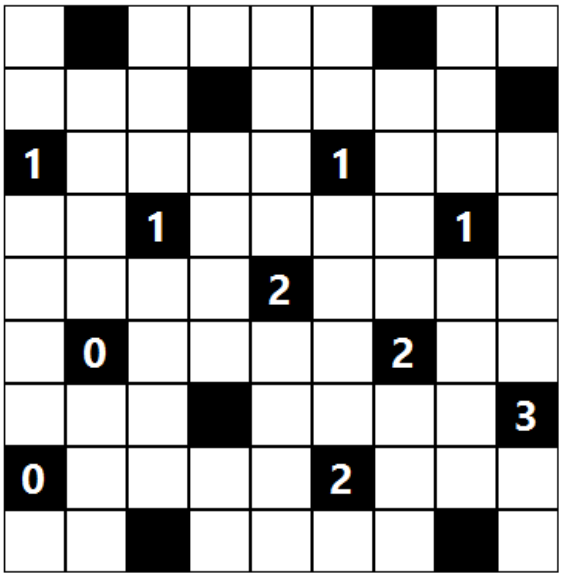
q8



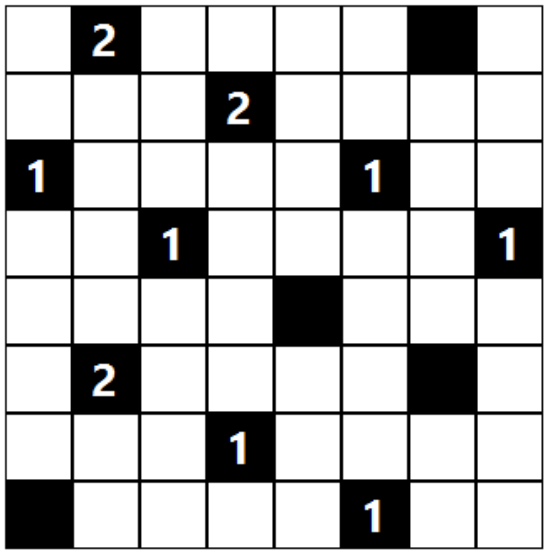
q9



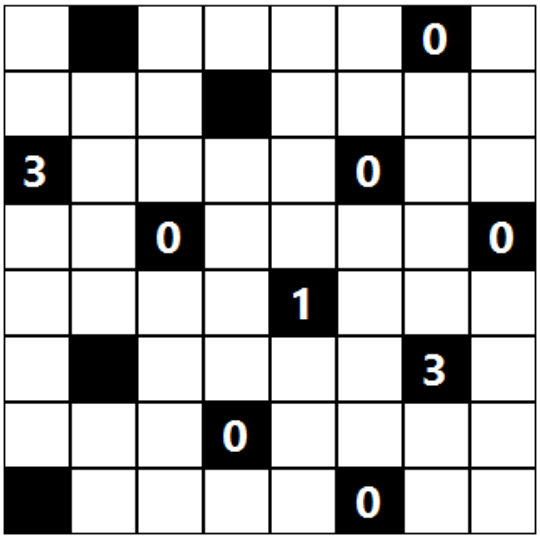
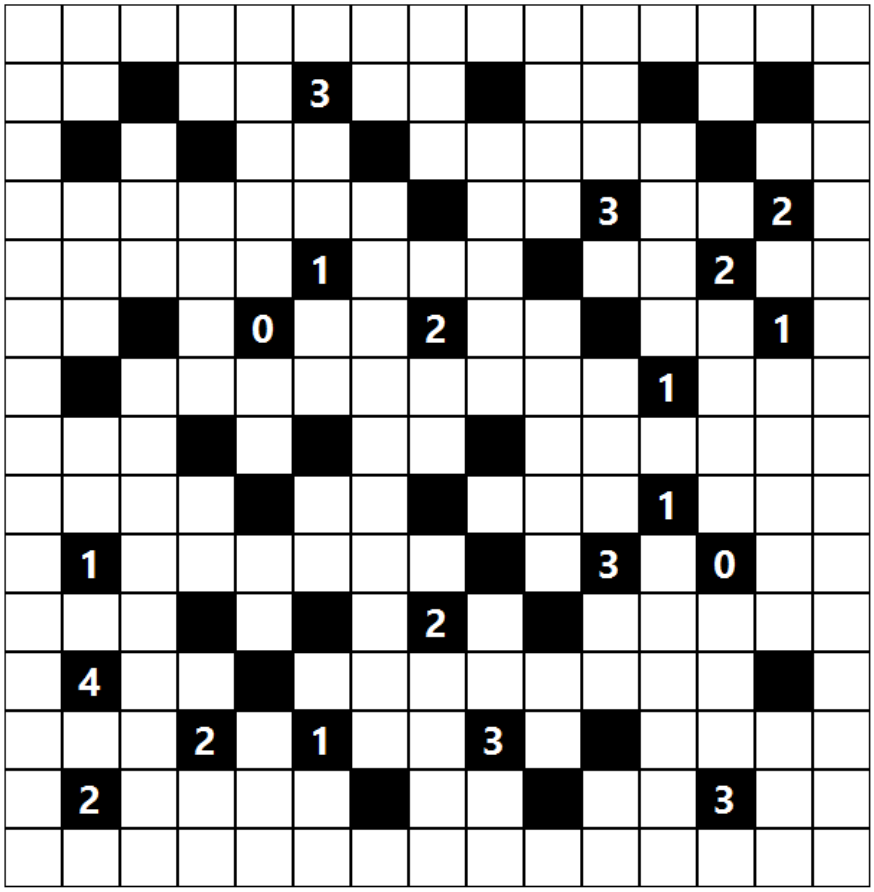
q10



q11



q12



s1