CHRISTMAS CONTEST

Instructions

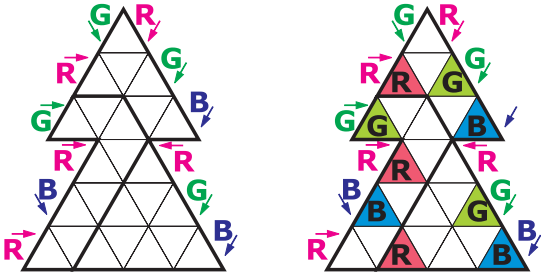
2009, December 26th,
16:00 - 17:40 GMT

Encrypted puzzle file will be available at http://diogen.h1.ru/cgi-bin/contest/contest.pl?id=34 after the 24th of December. Password for the file will appear at the same page when contest starts. Puzzle file will contain instructions and grids, but without examples.
Answers should by sent via submission page http://diogen.h1.ru/cgi-bin/contest/contest.pl?id=34. Submission will be accepted till 17:50 GMT, but solvers will have 15-points penalty for every minute after 17:40.
Questions are welcome at the forum: http://www.forsmarts.com/forum/viewtopic.php?id=224.

1. MERRY CHRISTMAS

Decorate the Christmas Tree with lamps of three colours - paint some triangles with red, green, blue colours so that the painted triangles do not touch each other by a side. There should be exactly seven triangles of each colour. Triangles with the same colour cannot be in one row (of any of three directions) or in one outlined area. Letters outside show the colour of the first visible painted triangle in the corresponding direction.

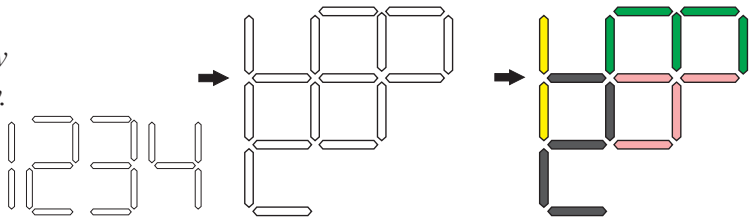
Answer format: *write the order of painted cells for each row from top to bottom. Use R for red cells, G from green cells and B for blue cells. For the given example the answer would be RG,GB,R,BG,RB*



2-3. DIGITAL MESS

Given digits are located in the grid without overlapping each other. Find the position of all digits. Digits may be rotated but not mirrored.

Answer format: *write the content of marked row using corresponding digits for all tiles in the row. For the given example the answer would be 1244.*



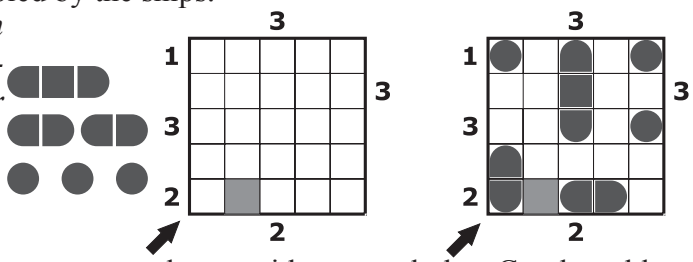
4-8. MATCH MAKER

Your goal is to solve five puzzles. You're given five different grids and six different instructions. Match the grids with the instructions and solve the puzzles. One instruction will be unused. Any grid may have several solutions for any type, but the five puzzles can all be solved only in one way.

A. EASY AS BATTLESHIPS

Place the given battleships fleet (one 4-cells, two 3-cells, three 2-cells and four 1-cells) into the grid. The ships may not touch not even diagonally. The numbers outside the grid show the size of the first visible ship in the corresponding direction. Marked cells cannot be occupied by the ships.

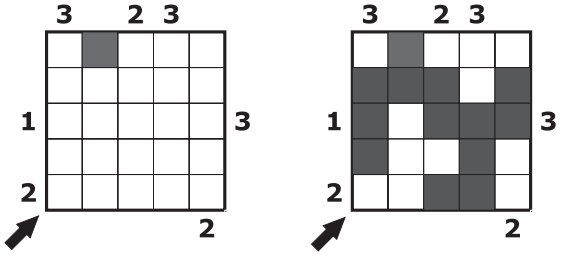
Answer format: *write the content of the diagonal from the bottom left to the top right corner. Use digits corresponding to the ship size and E for empty cells. For the given example the answer would be 2E3E1.*



B. CORAL

Paint some squares black to form a coral. The coral is a connected area without any holes. Coral could not touch itself even by a corner. There cannot be painted squares 2x2. The numbers outside the grid show the length of the first painted block in the corresponding row. Marked cells belong to the coral.

Answer format: *write the content of the diagonal from the bottom left to the top right corner. Use B for occupied cells and E for empty cells. For the given example the answer would be: EEBEE.*



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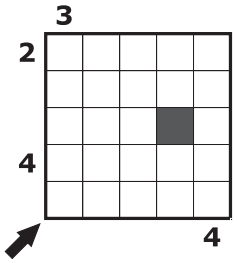
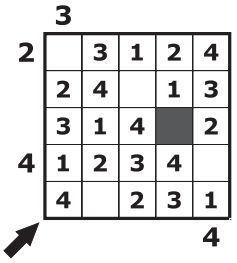
C. SKYSCRAPERS

Fill the grid with digits 1-4 so that each digit appears exactly once in each row and in each column. Each digit inside the grid represents a building with the height of the digit itself. Numbers outside the grid indicate the number of buildings that can be seen by an observer looking into the grid in the corresponding direction, taking into account that higher buildings block the view of lower buildings from the observer. Exactly one cell will remain empty in each row and in each column.

Answer format: *write the content of the diagonal from the bottom left to the top right corner. Use E for empty cells. For the given example the answer would be: 42414.*

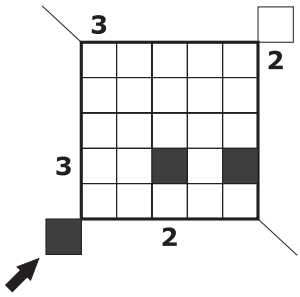


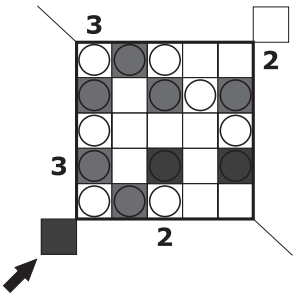


D. STRIPED SNAKE

Draw a snake (a path with one square width which cannot touch itself even diagonally) in the grid. Odd cells of the snake are black, even are white. The numbers at the left and on the bottom of the grid show the number of black cells in the corresponding row, numbers at the right and on the top of the grid show the number of white cells. Head and tail of the snake are marked.

Answer format: *write the content of the diagonal from the bottom left to the top right corner. Use B black cells of the snake, W for white cells and E for empty cells. For the given example the answer would be: WEEWE.*

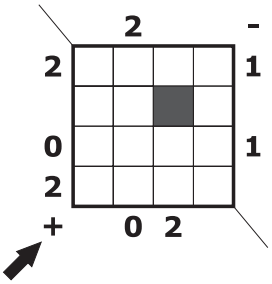


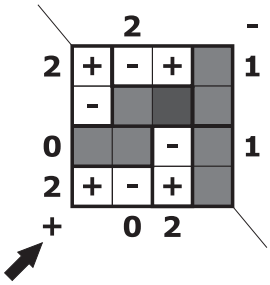


E. MAGNETS

Divide the grid into 1x2 rectangles. Some of them are magnetic (they have a positive (+) and a negative (-) halves). Halves containing the same sign cannot be adjacent. The numbers at the left and on the bottom of the grid indicate the number of positive magnetic halves in the corresponding row, and the numbers at the right and on the top of the grid indicate the number of negative magnetic halves in the corresponding row. Show the positions of the magnetic plates, indicating the symbols in each one of the halves. Marked cells belong to non-magnetic plates.

Answer format: *write the content of the diagonal from the bottom left to the top right corner. Use signs +, - for the magnetic halves and E for nonmagnetic. For the given example the answer would be: +EEEE.*

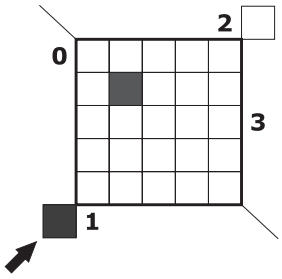


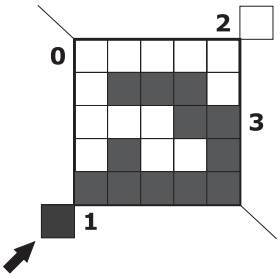


F. TWO AREAS

Divide the grid into two areas - black and white. Each area are connected and do not contain 2x2 squares. The numbers at the left and on the bottom show the number of black cells in corresponding row. The numbers at the right and on the top show the number of white cells. Marked cells are black.

Answer format: *write the content of the diagonal from the bottom left to the top right corner. Use B for black cells, W the white cells. For the given example the answer would be: BBEBE.*





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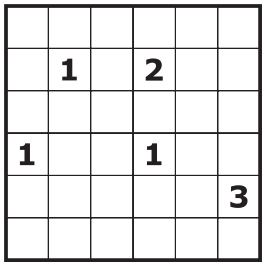
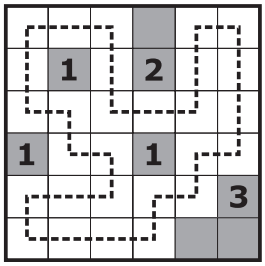
9-10. CRUISE

Place some islands into the grid, Islands can touch each other only diagonally. Each island contains at least one digit which shows the size of the island. Draw single closed path going throw all empty cells. Path goes horizontally or vertically throw the centres of the cells and cannot touch or cross itself.

Answer format: *write the number of turns of the path. For the given example the answer would be: 18.*

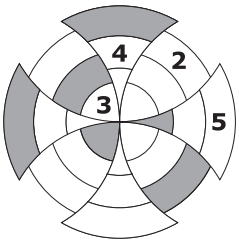


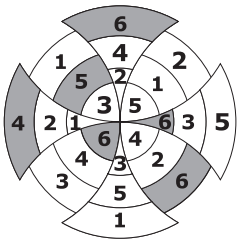


11-12. HEDEF

Place a digit 1 to 6 in each layer of the four groups of six layers. Each group of six layers consists of three couples of layers symmetrical with respect to the center point of the figure and each layer within a group should contain exactly one of each digit 1 to 6. If a number inside a layer is greater than all of the numbers inside its neighbouring layers sharing sides, that area should be shaded; and all shaded layers are given. Neighbouring layers sharing sides cannot contain the same numbers. Identical (same size and shape) layers cannot contain the same numbers.

Answer format: *write the content of horizontal group from left to right. For the given example the answer would be: 421635.*

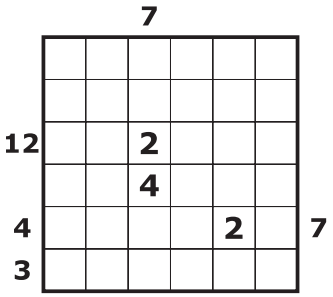


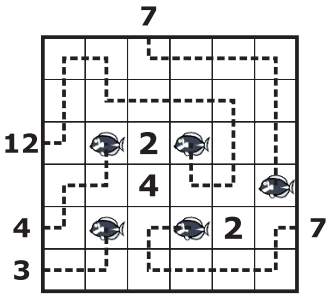


13-14. WINTER FISHING

Fishermen, represented by the numbers, are sitting around the lake. Each of them has the fish on his tackle. Numbers show the length of the line that connects fisherman and his fish. The fish are not visible under the ice. There are some holes in the ice represented by numbers inside the grid. Each number shows the number of fish in eight neighbouring cell. The fish cannot touch each other even diagonally. The lines cannot cross and touch themselves and each other. The lines cannot go through cells with numbers. Fish cannot be in cell with number.

Answer format: *write the number of turns for each line going clockwise and starting from the top left corner. For the given example the answer would be: 2,4,1,3,7*

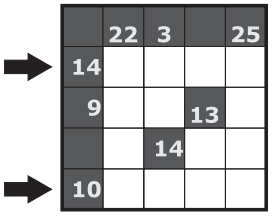


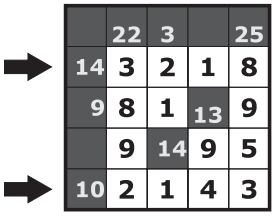


15. KAKURO

Enter a single digit from 1 to 9 in each empty square so that the horizontal sums of the digits will equal the number given on the left, and the vertical sums of the digits will equal the number given above. No digit can be repeated within sums.

Answer format: *write the content of marked rows. For the given example the answer would be: 3218,2143.*





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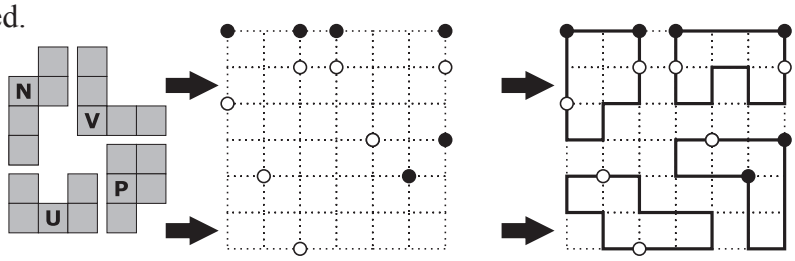
16-17. PENTOMASYU

Draw some closed loops going at the cells edges to form the given set of different pentomino pieces. Loops cannot touch or intersect. The path must turn at every black circle, but can not turn immediately before or after. And the path can not turn at any white, but must turn immediately before and/or after. All circles should be used. Pentomino may be rotated and/or mirrored.

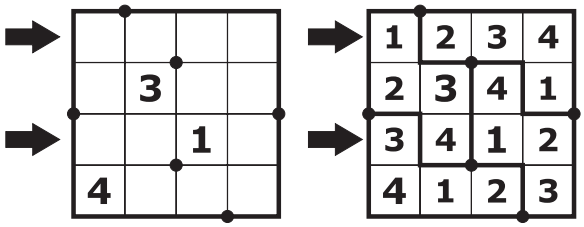
Answer format: *write the content of marked rows using letters for pentominoes and "-" for outside cells. For the given example the answer would be: PP-U-U,-NNN-V*



18-19. TRIPOD SUDOKU

Fill the grid with digits 1-6 and divide the grid into some regions, so that each digit appears exactly once in every row, column and region. All points where three lines meet are given. There are no points where four lines meet.

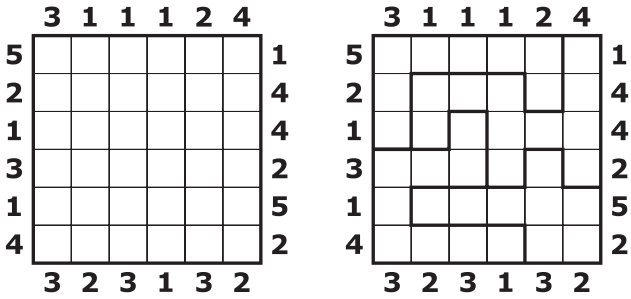
Answer format: *write the content of marked rows. For the given example the answer would be: 1234,3412.*



20-21. COUNTRIES

Divide the grid into areas. Digits outside the grid show the quantity of cells belonging to the area that touches the border in corresponding place. Each area must touch the border of the grid.

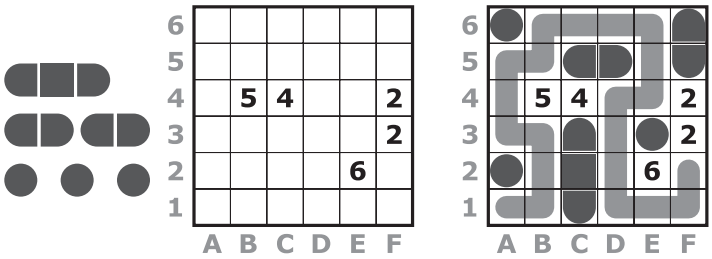
Answer format: *write the areas of all countries in increasing order. For the given example the answer would be: 8,8,9,11.*



22-23. BATTLE SNAKE

Draw a snake (a path with one square width which cannot touch itself even diagonally) in the grid. Digits show the number of neighbouring cells occupied by the snake. All remaining cells (without snake and digits) should form the standard battleships set (one 4-cells, two 3-cells, three 2-cells and four 1-cell). The ships cannot touch each other even diagonally.

Answer format: *write the coordinates of 1-unit ships. For the given example the answer would be: A2,A6,E3.*

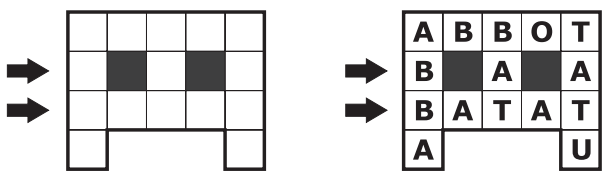


24-25. CROSSWORD

Place all the given words into the crossword grid.

Answer format: *write the content of marked rows. Ignore spaces. For the given example the answer would be: BAA, BATAT.*

BAT
ABBA
TATU
ABBOT
BATAT



Some puzzle ideas are obtained from: Digital Mess - PQRST-10 (Cihan Altay), Match Maker - OAPC-4 (Serkan Yurekli), Two Areas - Moscow Cup 2009 (Andrey Lemesh), Hedef - WPC-2009 (Hasan Yurtoglu), Tripod Sudoku - OAPC-5 (Serkan Yurekli)