# SWISS LOGIC PUZZLE FEDERATION

# INSTRUCTION BOOKLET

Swiss Qualification Tournament
for the
28th World Puzzle Championship

April 26 – 29, 2019

# Tournament Details

The tournament will take place on the website of Logic Masters, the German representation of the World Puzzle Federation:

https://logic-masters.de/Wettbewerbe/CE/wettbewerb.php?id=119

The tournament will be open from **Friday, April 26, 12:00 CEST** to **Monday, April 29, 23:59 CEST**.

To start the tournament, follow the indications on the website. There are two PDF documents involved:

- one is the instruction booklet that you are reading now which contains the rules and examples of the different variants of puzzles appearing in the tournament.

- the second document is an encrypted PDF file of 18 pages containing the actual tournament puzzles. This document will be available for download just before the tournament. Starting the tournament will give the player the password to decrypt the PDF file.

Answer codes:

- Once you start the tournament, you will be given **120 minutes** to submit the answer codes. It is therefore recommended to start not later than on Monday April 29 at 21:59 CEST in order to make it before the end of the tournament time window.

- Answer codes differ between the puzzle types. They are explained next to each puzzle type. It is recommended to study the answer codes carefully before starting the competition.

- The answer codes can be changed and/or entered multiple times without penalty during these 120 minutes.

For each correctly solved puzzle you will be awarded the marked points. For a wrong answer you will get 5 points minus. For not solved puzzles you won't get minus points.
The answers are only stored when clicking the submit button. They are **not** submitted automatically when the time is over. You can submit as often as wished in the time limit.

The tournament is destined to evaluate the admission of Swiss players to the World Puzzle Championship 2019. Players from all nations are kindly welcome to compete, too.

The puzzles in this tournament have been created by Roger Kohler. For **questions**, feel free to contact Roger Kohler (email: ropeko@yahoo.de, phone: +41798134273).

International test solvers helped to make sure the puzzles are valid and to synthesize an adapted number of points per puzzle. The number of points gives an indication of the difficulty of the puzzle.

Special thanks to Hatice Esra Aydemir for providing three puzzles to the contest and to the test solvers:

Tiit Vunk, Yuhei Kusui,  Hatice Esra Aydemir, Robert Vollmert

# List of Puzzles

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# 1 Slant

Draw exactly one diagonal line in each cell. The numbers in some intersections of the grid lines indicate how many diagonal lines end at the intersection. The lines must not form a closed loop.

**Answer:** For each designated row/column, enter the lengths (number of cells) of equal diagonal lines, from left to right (or top to bottom). Use only the last digit for two digit numbers; e.g., use '0' for 10 equal diagonal lines.

**Example:**



Answer code:
1211
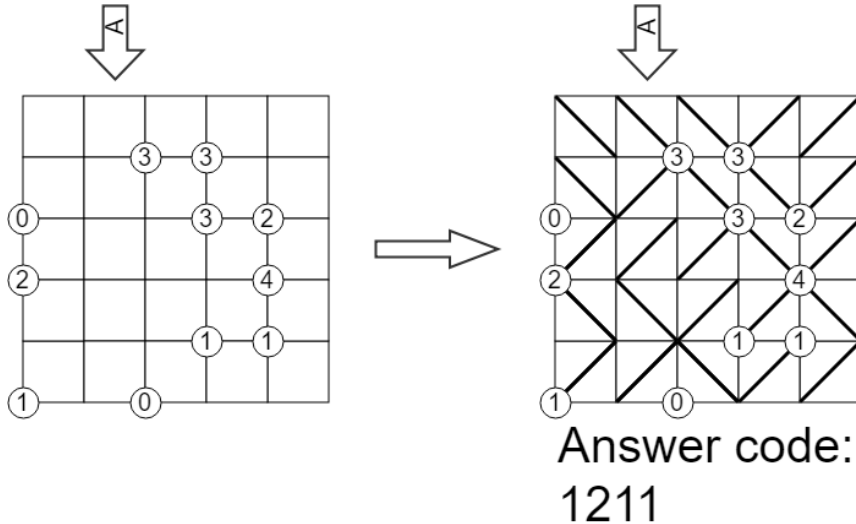
# 2 Dosun Fuwari

Place balloons, i.e. white circles and iron balls, i.e. black circles into some empty cells of the grid so that each thickly outlined region contains one balloon and one iron ball. Balloons are light and float, and thus must be placed at the top of the grid, immediately under shaded cells, or under other balloons. Iron balls are heavy and sink, and thus must be placed at the bottom of the grid, immediately above shaded cells, or above other iron balls.

**Answer:** For each row from top to bottom, enter the number of iron balls (black circles). If there are no iron balls in a row, enter the single digit '0'. Use only the last digit for two-digit numbers; e.g. use '0' for 10 iron balls.

**Example:**



Answer code:
11112
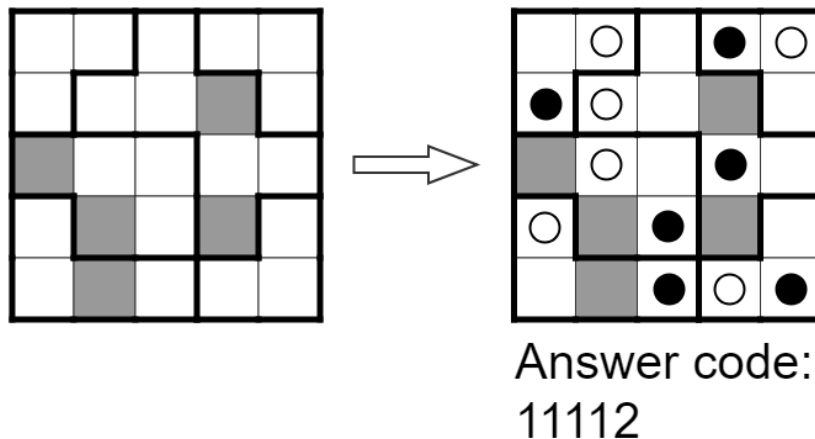
# 3 Elastic Bands

Fill in each circle with a letter so that the two networks are identical; that is, if two letters have a line connecting them in one network, then those two letters have a line connecting them in the other network, and vice versa.

**Answer:** Enter all the letters in the second network, starting at the top node (as pointed at by an arrow) and proceeding clockwise (ignoring connecting lines) around the rough shape formed by the nodes. Include all given letters in your answer.

**Example:**



Answer code:
CEBDAF
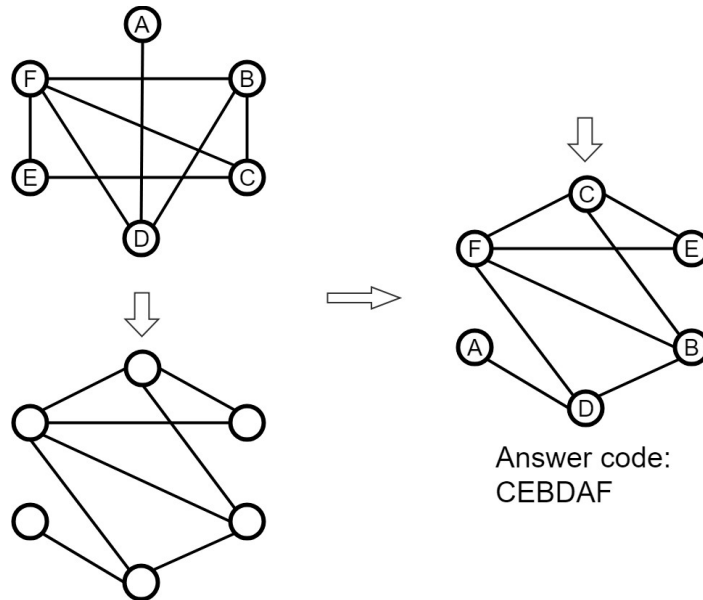
# 4 Bimaru-Minesweeper [by Hatice Esra Aydemir]

Locate the indicated fleet in the grid. Each piece of a ship occupies a single cell. A cell that does not contain a ship piece is considered "sea". Ships can be rotated. Ships do not touch each other, not even diagonally (that is, if two ship pieces are in adjacent cells, they must be part of the same ship). The contents of some cells may be given for you.

The numbers inside the grid indicate the number of cells occupied by a ship segment in the surrounding 8 cells. Ship segments can not be placed on cells with numbers.

*The numbers on the far top of the diagram are for answer purposes only.*

**Answer:** For each row from top to bottom enter the number of the first column from left where a ship piece appears (the numbers on top of that column). Use only the last digit for two-digit numbers; e.g., use '0' if the first ship piece appears in column 10. If there are no ship pieces in a row, enter the single digit '0'.

**Example:**



Answer code:
33131
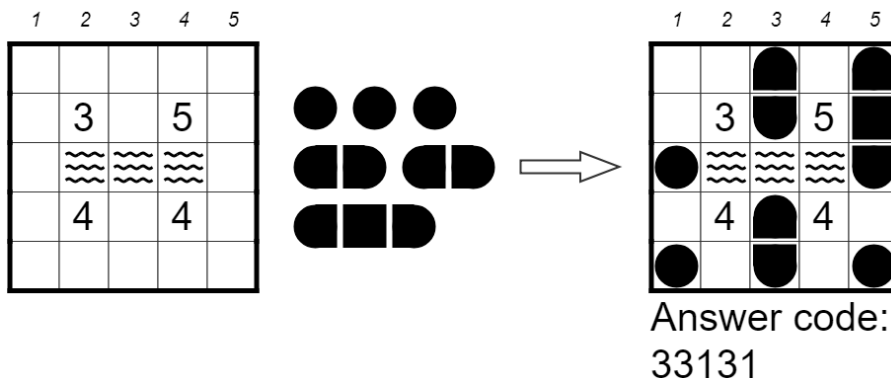
# 5 Meandering Numbers

Place a number into each empty cell so that each cell has exactly one number and cells that contain the same number do not touch each other, not even diagonally. Each outlined area must contain the numbers from 1 to N (where N is the size of the outlined area in cells) such that consecutive numbers within an outlined area are orthogonally adjacent. (In other words, for each region it must be possible to draw a path that starts at 1 and ends at N, going through each other cell exactly once and in numerically increasing order.)

**Answer:** For each designated row/column, enter its contents, from left to right (or top to bottom). Use only the last digit for two-digit numbers; e.g., use '0' for a cell containing the number 10.

**Example:**



Answer code:
15241

# 6 Gaps

Blacken some cells in the grid such that each row and each column contains exactly two blackened cells. The numbers to the left of (or above) the grid indicate the number of unblackened cells between the blackened cells in that row (or column). Blackened cells may not touch each other, not even diagonally.

*The numbers on the far top of the diagram are for answer purposes only.*

**Answer:** For each row from top to bottom, enter the number of the first column from the left where a blackened cell appears (the number on the far top of that column). Use only the last digit for two-digit numbers; e.g., use '0' if the first blackened cell appears in column 10.

**Example:**



Answer code: 3525162617

# 7 Cave

Shade some cells to leave behind a single orthogonally-connected group - the cave - with no enclosed shaded cells. In other words, all shaded cells must be connected edge-wise by other shaded cells to an edge of the grid. All numbered cells must be a part of the cave, with each number indicating the total count of cells connected in line vertically and horizontally to the numbered cell including the cell itself.

**Answer:** For each designated row, enter the length in cells of each of the cave segments (not the shaded cells outside the cave), from left to right (or top to bottom). Use only the last digit for two digit numbers; e.g., use '0' for a segment of length 10. If there are no cells belonging to the cave in the row/column, enter a single digit '0'.

**Example:**



Answer code: 31 11

# 8 Nurikabe Pento

Create white areas, surrounded with blackened cells which are linked to a continuous wall. All the white areas form pentominoes. The letters in the grid indicate the shapes of the corresponding white areas. Each area contains exactly one letter. The wall cannot form any 2×2 square. White areas may touch each other only diagonally.

**Answer:** For each designated row/column, enter the contents of each cell, from left to right (or top to bottom). For each cell, its contents are the letter of the pentomino occupying that cell. If the cell is shaded enter a 'A'.

**Example:**



Answer code:
APAUU
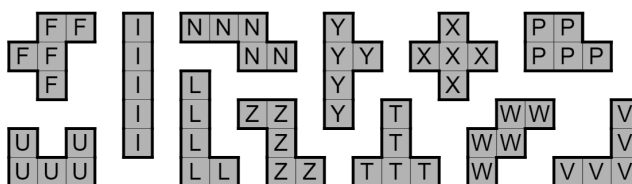
# 9 Railroad Tracks

Draw a loop passing through centres of cells horizontally or vertically, passing through all cells. The loop must cross itself, but only in cells with a given '+'. The loop must pass straight through 'stations', i.e. numbered cells, and must travel in order from 1 to 2 and so on till N, where N is the highest number that will be placed in the grid, and then back to 1. No numbers and crosses can be placed in the grid.

**Answer:** For each designated row/column, enter the letter for each cell, from left to right (or top to bottom). The letter for a cell is 'I' if the path goes straight through the cell, 'L' if the path turns in the cell and 'X' if the loop crosses itself.

**Example:**
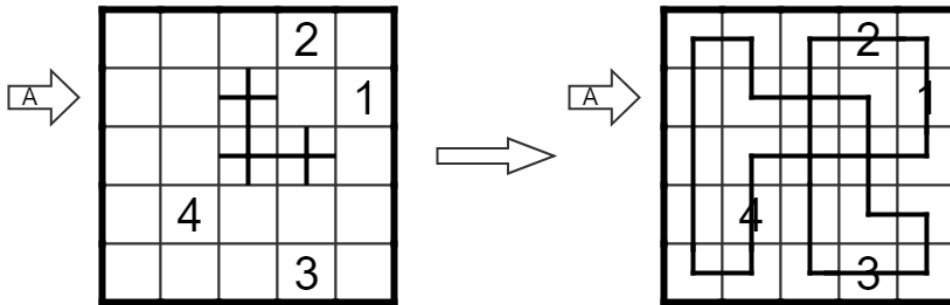


Answer code:
ILXLI

# 10 Inverse LITSO

Shade exactly four connected cells in each outlined region to form a tetromino, so that the following conditions are true: (1) All unshaded cells are connected into one large shape along their edges; (2) No 2×2 group of cells can be entirely unshaded; (3) When two tetrominoes share an edge, they must not be of the same shape, regardless of rotations or reflections.

**Answer:** For each designated row/column, enter the contents of each cell, from left to right (or top to bottom). For each cell, its contents are the letter of the tetromino occupying that cell ('I', 'L', 'T', 'O' or 'S'). Enter 'X' for unshaded cells.

**Example:**
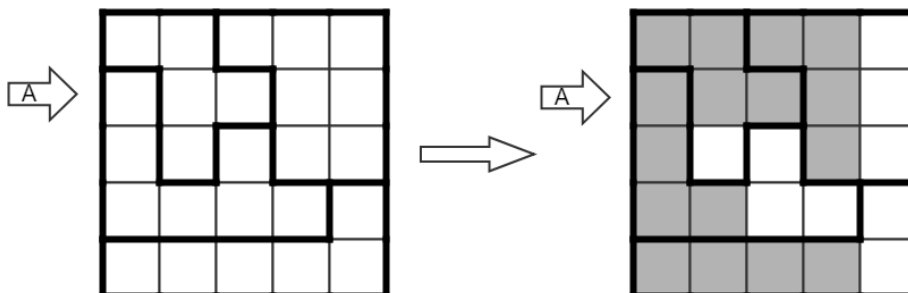


Answer code:
LSSLX
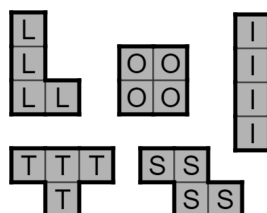
# 11 Compass

Divide the grid along the dotted lines into regions (groups of cells that are connected north-south or east-west, where north is towards the top of the page). Each cell must be in exactly one region, and each region must contain exactly one clue. For each clue, the number in the north part indicates how many cells of that clue's region are located north of the clue cell (irrespective of their east-west location). Analogously, numbers in the west, east, and south part indicate how many cells of that region are located west, east and south of the clue cell.

**Answer:** For each designated row/column, enter the length in cells of each of the region segments, from left to right (or top to bottom). Use only the last digit for two digit numbers; e.g., use '0' for a segment of length 10.

**Example:**
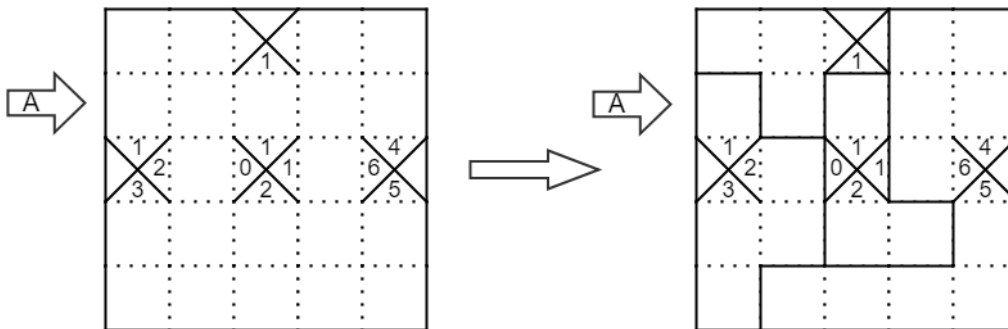


Answer code:
1112

# 12 Word Search

Locate the list of words in the grid. Words always appear in a line in one of the eight standard directions.

**Answer:** For each row from top to bottom, enter the number of unused letters. If there are no unused letters in a row, enter the single digit '0'. Use only the last digit for two-digit numbers; e.g. use '0' for 10 unused letters.

**Example:**



HEY
HOI
CIAO
HUHU
HALLO
HELLO
SALUT

Answer code:
12000

# 13 Kuromasu [by Hatice Esra Aydemir]

Shade some empty cells black so that each number indicates the total count of white cells connected vertically and horizontally to that number including the numbered cell itself. Black cells cannot share an edge, and all white cells must belong to a single connected group.

**Answer:** For each row from top to bottom the number of shaded cells. If there are no shaded cells in the row, enter the single digit '0'. Use only the last digit for two-digit numbers; e.g. use '0' for 10 shaded cells.

**Example:**
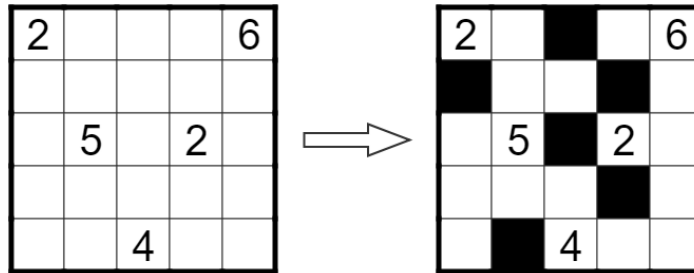


Answer code:
12111

# 14 Skyscrapers

Place a number from 1 to X (integers only) into each cell so that each number appears exactly once in each row and column. (X is the number of cells in each row.) Each number represents a skyscraper of its respective height. The numbers outside the grid indicate how many skyscrapers can be seen in the respective row or column from the respective direction; smaller skyscrapers are hidden behind higher ones. Some numbers may already be filled in for you.

**Answer:** For each designated row/column, enter its contents, from left to right (or top to bottom). Do not include any numbers outside the grid.

**Example:**
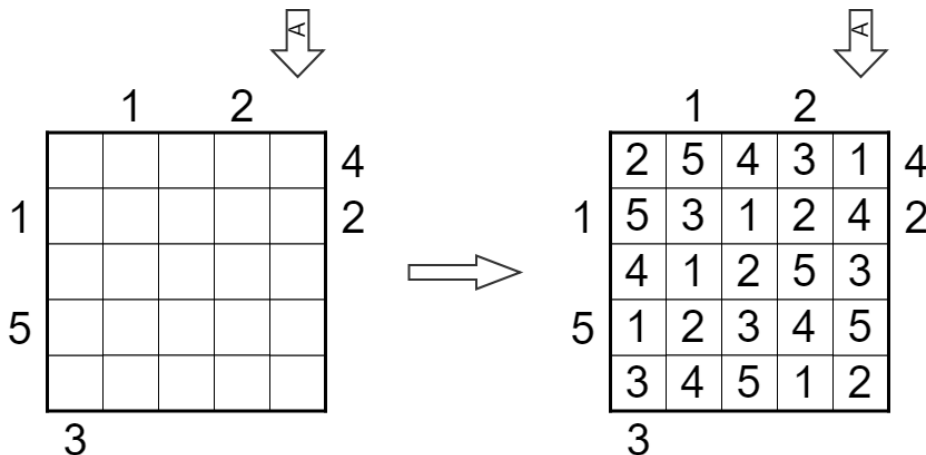


Answer code:
14352

# 15 Elimination Tapa [by Hatice Esra Aydemir]

Shade some empty cells black; cells with numbers cannot be shaded. All black cells connect along edges to create a single connected region. (It is permissible for the region to touch itself at a corner, but touching at a corner does not connect the region.) No 2×2 group of squares can be entirely shaded black.

Numbers in a cell indicate the lengths of contiguous black cell groups along the "ring" of (up to) 8 cells touching that cell. (If there is more than one number in a cell, then there must be at least one white (unshaded) cell between the black cell groups.) The numbers are given in no particular order. As a special case, if the number given in a cell is a zero (0), it means that none of the cells around that cell may be shaded black.

In addition, every clue contains one extra number, which must be ignored when solving.

**Answer:** For each designated row/column, enter the length in cells of each of the shaded segments, from left to right (or top to bottom). Use only the last digit for two digit numbers; e.g., use '0' for a segment of length 10. If there are no shaded cells in the row/column, enter a single digit '0'.

**Example:**



Answer code:
111 3
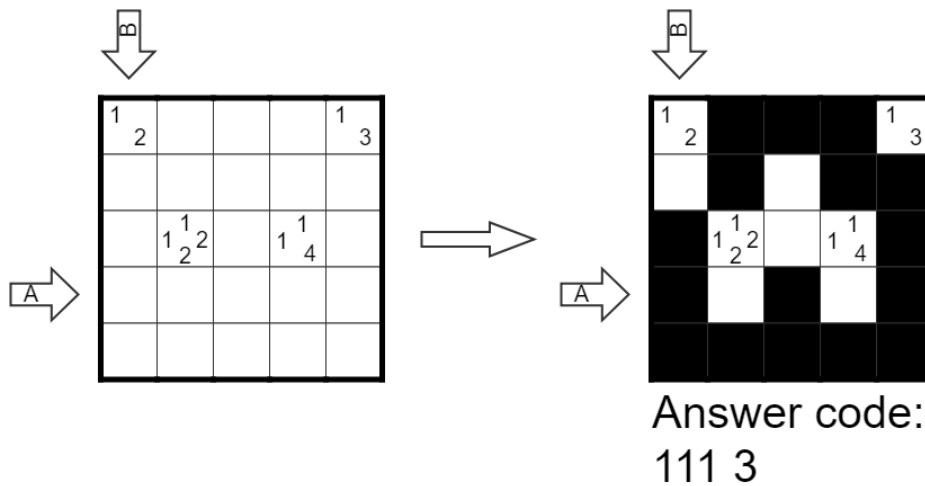
# 16 Cross Loop

Draw a single closed loop through all the given cells. Loop segments join vertically, horizontally or diagonally adjacent cells. Loop segments can cross each other. The numbers in the cells indicate the angle between the two loop segments in a cell, as a multiple of 45°. The numbers indicate the below angles:

1 – Acute angle (45°)
2 – Right angle (90°)
3 – Obtuse angle (135°)
4 – Straight angle (180°)

**Answer:** Enter the lengths of loop segments in the marked rows/columns/diagonals, along the marked direction. A loop segment connecting the center of two cells immediately neighboring each other vertically/horizontally/diagonally is considered to be 1-length segment. Use only the last digit for two digit numbers; e.g., use '0' for a segment of length 10. If there are no line segments along the marked direction, enter the single digit '0'.
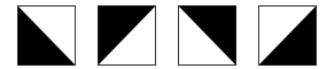
**Example:**



Answer code: 1 2
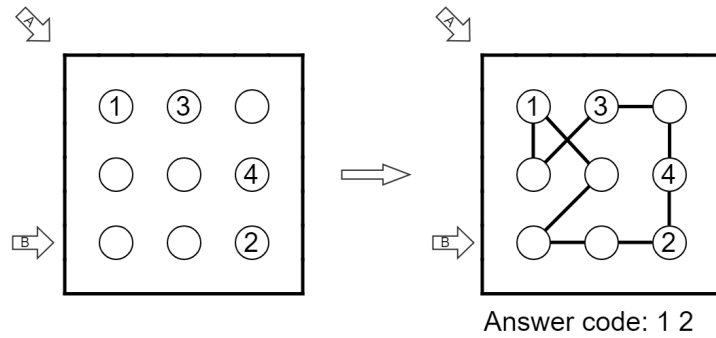
# 17 Shakashaka

Place "black triangles" in some cells in the grid. You cannot place black triangles in the black squares. The parts of the grid that remain white (uncovered by black triangles) always form a rectangle or a square. The numbers indicate how many black triangles are around it, vertically and horizontally.

There are four kinds of black triangles you can put in the squares: 

**Answer:** For each row from top to bottom enter the number of triangles. Use only the last digit for two-digit numbers; e.g. '0' for 10 triangles. If there are no triangles in a row, enter the single digit '0'.

**Example:**



Answer code:
44244
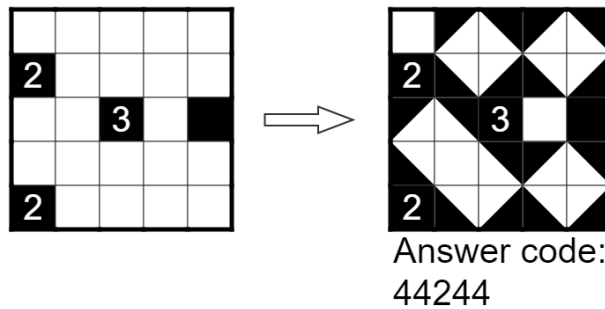
# 18 Sternenhimmel

Fill in stars into the diagram, in a way that every arrow points to at least one star, and on every star at least one arrow is pointing. The arrows can point through other arrows and stars. The numbers at the borders give the number of stars in the corresponding row or column.

*The numbers on the far top of the diagram are for answer purposes only.*

**Answer:** For each row from top to bottom, enter the number of the first column from the left where a cell with a star appears (the number on the far top of that column). Use only the last digit for two-digit numbers; e.g., use '0' if the first cell with a star appears in column 10. If there are no stars in a row, enter the single digit '0'.

**Example:**



Answer code:
02120
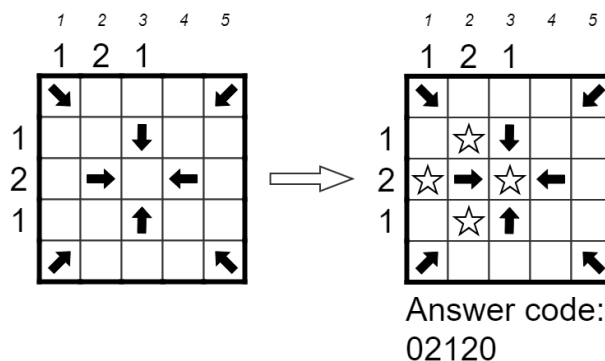
# 19 Different Neighbors

Place a digit from 1-4 into each cell, exactly one digit per cell. Adjacent cells (including diagonally-adjacent cells) must not contain the same digit. Some digits are already given for you.

**Answer:** For each designated row/column, enter its contents, from left to right (or top to bottom).

**Example:**



Answer code:
1312

# 20 Infection

Fill some cells with a number from 1 to 4. All numbered cells must be orthogonally connected. Orthogonally adjacent cells cannot contain the same number. Each number must indicate the number of orthogonally adjacent numbered cells. Some numbers are given to you. Cells with a given 'X' can not have a number.

**Answer:** For each designated row/column, enter its contents, from left to right (or top to bottom). If the cell is empty, enter a 'X'.

**Example:**



Answer code:
X2X23

# 21 Polygraph

Draw a single closed loop along the grid lines. The numbers that are outside the loop indicate the number of cell sides used by the loop. The numbers that are inside the loop indicate the number of the cell sides unused by the loop.

**Answer:** For each designated row/column, enter the lengths (number of cells) of each segment of cells inside the loop, from left to right (or top to bottom). Use only the last digit for two digit numbers; e.g., use '0' for a segment of length 10. If there are no cells inside the loop in a row/column, enter the single digit '0'.

**Example:**



Answer code:
12 11

# 22 Shikaku

Divide the grid into rectangles along the grid lines such that each cell is in exactly one rectangle and each rectangle contains exactly one given number. The number must equal the area of the rectangle (in cells).

*The dots in cells are only used for entering your answers.*

**Answer:** Enter the numbers of all cells with a dot, reading from left to right. Use only the last digit for two-digit numbers; e.g. '0' for a cell with the number 10.

**Example:**



Answer code:
4326

# 23 Snail on Snake

Draw a snake in the grid passing through all the numbered cells. Head and tail of the snake are marked with darker background. The snake goes from cell to cell vertically or horizontally, but not diagonally. The snake does not touch itself, not even diagonally. The numbers around the grid indicate the number of cells occupied by the snake in the corresponding row/column.

Some of the snake cells are numbered. The numbers follow the sequence 123123123… from head to tail (1212.. in the example). Each row and column contains each number exactly once. Head and tail can not contain numbers.

*The numbers on the far top of the diagram are for answer purposes only.*

**Answer:** For each row from top to bottom, enter the number of the first column from the left where a snake cell with a digit appears (the number on the far top of that column). Use only the last digit for two-digit numbers; e.g., use '0' if the first snake cell with a digit appears in column 10.

**Example:**



Answer code:
531512

# 24 Diagonal Fillomino

Enter a number into each cell so that the numbers divide the grid into areas. An area consists of diagonally connected cells with the same number. Each number must equal the size of the area it belongs to. No two areas of the same size touch each other, not even diagonally. Areas can cross other areas of different size. An area may contain zero, one, or more of the given numbers. (It is possible to have a „hidden" area: an area without any of the given numbers. „Hidden" areas may have an area, including a value not present in the starting grid, such as 6 in a puzzle with only clues numbered 1-5).

*The dots in cells are only used for entering your answers.*

**Answer:** Enter the numbers of all cells with a dot, reading from left to right. Use only the last digit for two-digit numbers; e.g. '0' for a cell with the number 10.

**Example:**



Answer code: 544