18 MOSCOW PUZZLE

INSTRUCTION BOOKLET

Part 1

1. TENTS	14 pt
2. BETWEEN THE MIRRORS	52 pt
3. FENCES	47 pt
4. FENCES WITH HALVES	29 pt
5. HEXA-SUMS	14 pt
6. ARITHMETIC	28 pt
7. SNAKE	33 pt
8. WITHOUT SIGNS	47 pt
9. WITHOUT FISH	17 pt
10. SUDOKU WITHOUT AREAS	55 pt
11. SUDOKU WITHOUT BARRIERS	45 pt
12. SUDOKU WITHOUT SUMS	67 pt
13. OFF-ROAD	32 pt
TOTAL	480 pt

TIME 80 minutes

Part 2

1. SUDOKU	20 pt
2. ARROWS	46 pt
3. CIRCLES	32 pt
4. SCRABBLE	32 pt
5. PENTOMINOES	34 pt
6. PAINTING A MAZE	66 pt
7. TENTS	42 pt
8. BATTLESHIPS	42 pt
9. EASY AS 1234	42 pt
10. PENTOMINOES	42 pt
11. SKYSCRAPERS SUDOKU	42 pt
12-16. FINAL	5*48 pt
TOTAL	680 pt

TIME 114 minutes

BONUS 6 points per each saved minute if all the puzzles are solved correctly

Puzzles by Riad Khanmagomedov

Thanks to Andrey Bogdanov, James McGowan and Prasanna Seshadri

Part 1

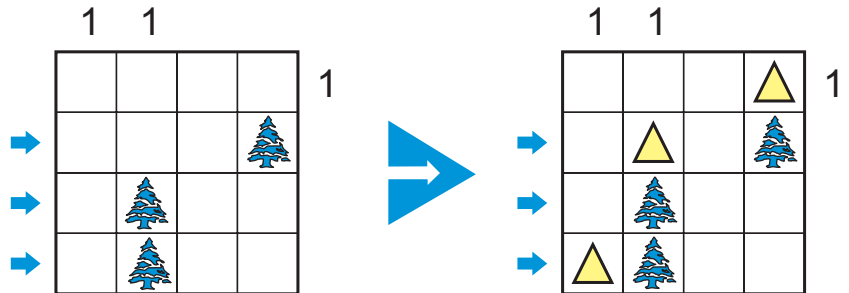## TENTS   14 pt

Attach a tent to each tree, in a horizontally or vertically adjacent cell. The number of trees and tents is 18 (3 in the example). Cells with tents do not touch each other, not even diagonally. Digits outside the grid indicate the number of tents in that row or column.

Answer: Enter the number of tents in each marked row from top to bottom.
Example Answer: 101.

BETWEEN THE MIRRORS   52 pt

Enter the letters A, B, C (A, B in the example) into the grid so that each row and column contains each letter exactly once. Place a mirror (diagonal segment) in each empty cell. Digits outside the grid denote how many times the corresponding letter is encountered on the way, taking into account the reflections of mirrors. If the digit is in a circle, then the corresponding letter is the first letter found in the corresponding row or column from that direction. If the digit is not in a circle, then the corresponding letter is not the first encountered.
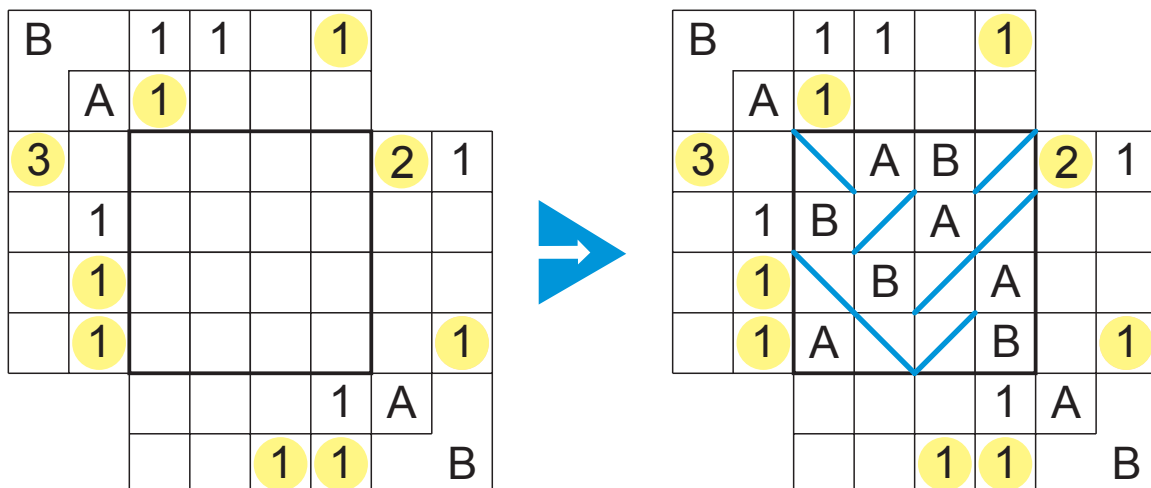
Answer: Enter the contents of the main diagonals from top to bottom: first from the upper left corner to the lower right, then from the upper right to the lower left. Use the letters N and Z for mirrors.

Example Answer: NZZB, ZABA.

FENCES

Draw a loop along the lines of the grid. The loop may not touch or cross itself. Each digit shows the number of sides of the cell used by the loop.
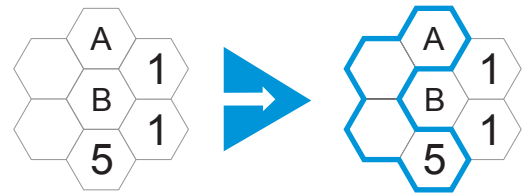
Answer: Enter the numerical values of the letters.

Example Answer: 54.

FENCES WITH HALVES

29 pt

The grid is divided into unit cells. Draw a loop, consisting of horizontal and vertical segments and turning only at the dots. The loop may not touch or cross itself and does not intersect the circles with numbers. Each number in the cell shows the sum of the lengths of the fence segments around it.
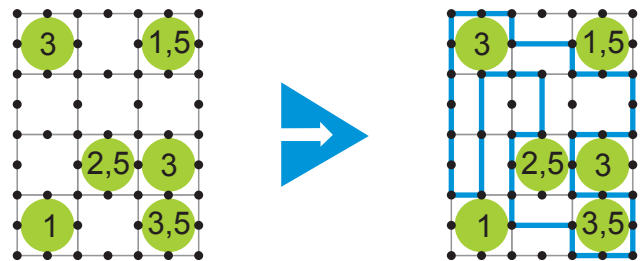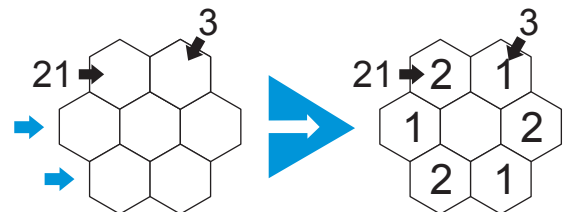
Answer: Enter the number of turns of the loop.

Example Answer: 20.

HEXA-SUMS

14 pt

Enter the digits 1, 2, 3 (2 in the example) in the cells so that in each row and diagonal they appear exactly once. Adjacent digits form multi-digit numbers. In some directions, the sum of the numbers are given outside the grid. Some sums relate to each of the two directions.

Answer: Enter the contents of the marked rows from left to right, using "-" for an empty cell.

Example Answer: 1-2, 21.

ARITHMETIC

28 pt

Enter each digit from 0 to 9 (3 in the example) in the cells. In some diagonals and rows, equations are formed. "+" and "-" are used. It is necessary to look at the equation from the furthest cell from the "=". For example, 0 - 1 in a row is 1 if the "=" is to the left of zero, and -1 if it is to the right of one.
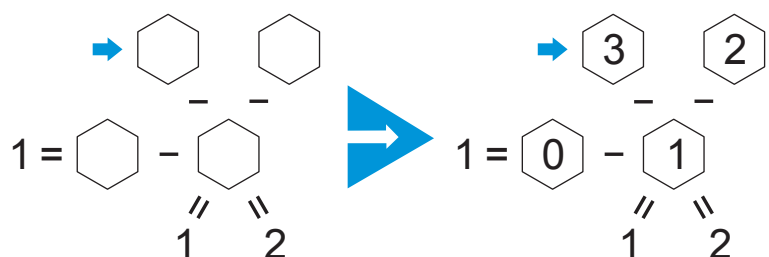
Answer: Enter the digits in the cells of marked row from left to right.
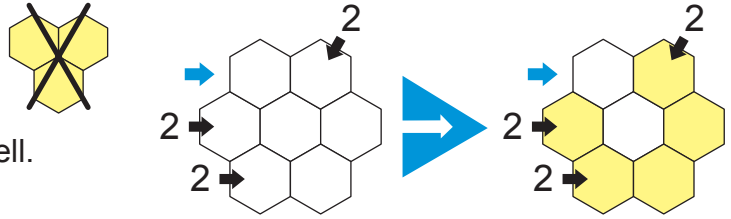
Example Answer: 32.

SNAKE   33 pt

Draw a snake, 18 cells long (5 in the example), that travels horizontally and vertically without touching itself. Its head and tail are not marked. Digit outside the grid indicate the amount of snake segments in the direction marked by each arrow.

Answer: Enter the content of marked row from left to right. Use "S" for cells which occupied by the snake, "-" for each other cell.
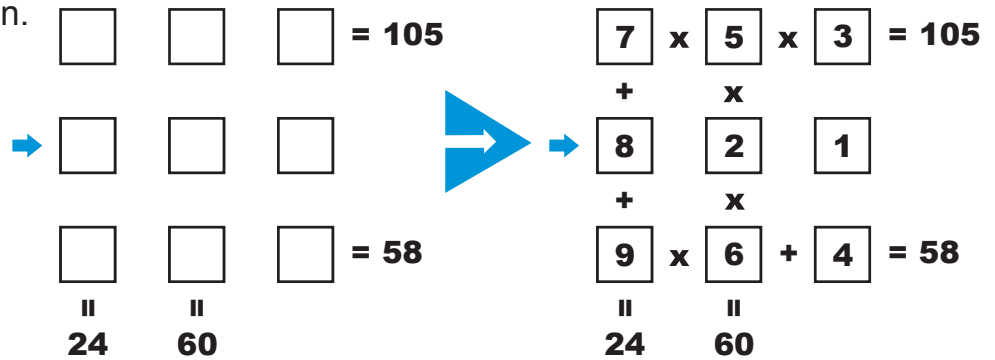Example Answer: -S.

WITHOUT SIGNS   47 pt

Place the digits from 1 to 9 exactly once in the cells, and between them the arithmetic signs (+, -, x, /) so that the correct equalities are formed along the horizontals and verticals. The priority of operations is standard: first multiplication and division, then addition and subtraction.

$$7 \times 5 \times 3 = 105$$
$$8 \quad 2 \quad 1$$
$$9 \times 6 + 4 = 58$$

= 105

= 58

|| 24 || 60

|| 24 || 60

Answer: Enter the digits in the cells of marked row from left to right.
Example Answer: 821.

WITHOUT FISH   17 pt

Draw the holes so that there is exactly one hole in each row and each column. The cells with holes should not touch each other, not even diagonally. The digits outside the grid symbolize anglers. Each of them is connected with its own hole. The digit corresponds to the length of the fishing line connecting the angler with the hole. Fishing lines are passing through the centers of cells and consisting of horizontal and vertical segments. They should not touch themselves or intersect with each other. Draw all the lines.
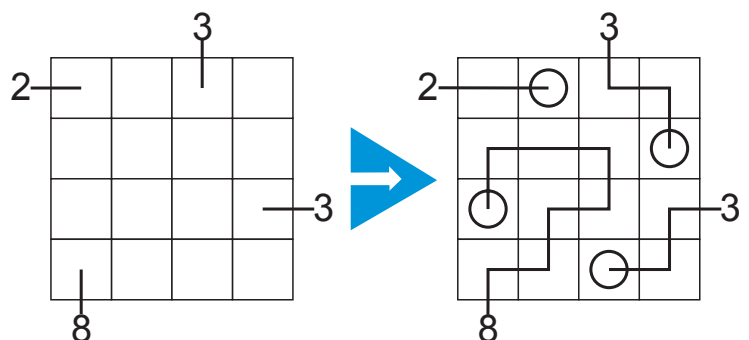
Answer: Enter the number of turns on the all lines.
Example Answer: 10.

SUDOKU WITHOUT AREAS   55 pt

Place wall segments in the grid creating 6-cell (4-cell in the example) areas and solve the Sudoku. Fill the grid with digits from 1 to 6 (4 in the example). Digits cannot repeat in rows, columns and areas. Wall segments must lie along gridlines. Digits outside the grid show lengths (from top to bottom, or left to right) of all wall segments in the corresponding direction. There should be at least 1 empty space between two wall segments.
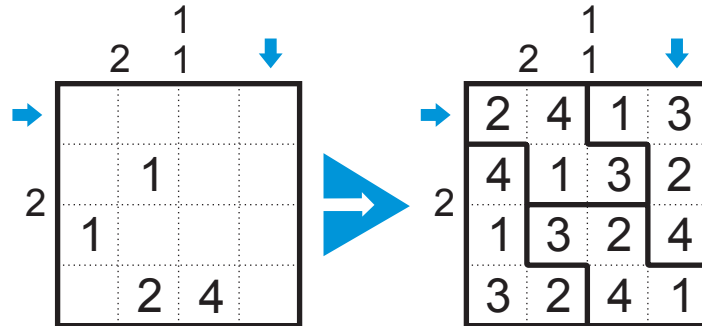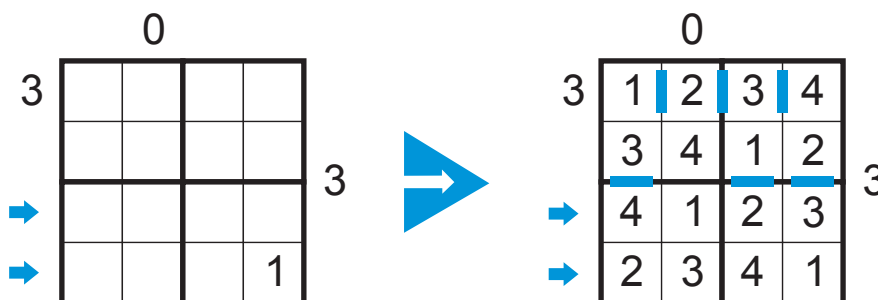

Answer: Enter the content of marked row from left to right and column from top to bottom.

Example Answer: 2413, 3241.

SUDOKU WITHOUT BARRIERS   45 pt

Fill the grid with digits from 1 to 6 (4 in the example). Digits must be different in rows, columns and 3x2 boxes (2x2 in the example). A barrier must be placed between two vertically or horizontally adjacent cells if they contain consecutive digits. Each digit outside the grid shows how many barriers are placed in the corresponding direction. Clues on the top and right count horizontal barriers. Clues on the left and bottom count vertical barriers.
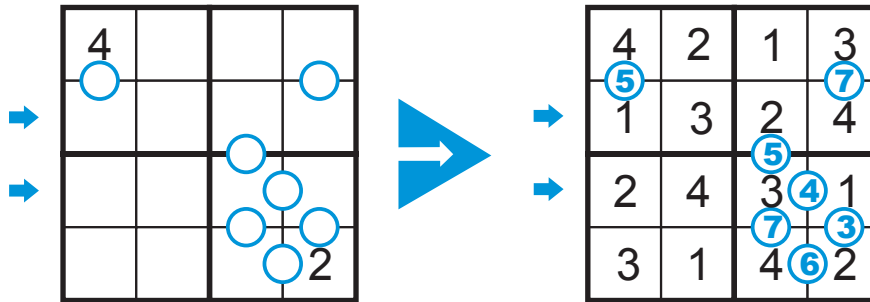

Answer: Enter the content of marked rows from left to right.

Example Answer: 4123, 2341.

SUDOKU WITHOUT SUMS

67 pt

Fill the grid with digits from 1 to 6 (4 in the example). Digits must be different in rows, columns and outlined boxes. In each circle write the sum of the digits in the two cells touching the circle. The sums in circles cannot be repeated on any shown line or in any 3x2 box (2x2 in the example). Circles on bold lines are considered to be part of two 3x2s at the same time. For repeating of sums in circles, the rows and columns of the Sudoku don't matter, just circles along lines.


Answer: Enter the content of marked rows from left to right.

Example Answer: 1324, 2431.

OFF-ROAD

32 pt

Draw a non-touching loop consisting of horizontal and vertical segments, determining which nodes it will pass through. The digits outside the grid indicate how many consecutive nodes are involved in the corresponding row or column. Some digits are replaced with the sign "?", they need to be determined. The given digits follow in order.
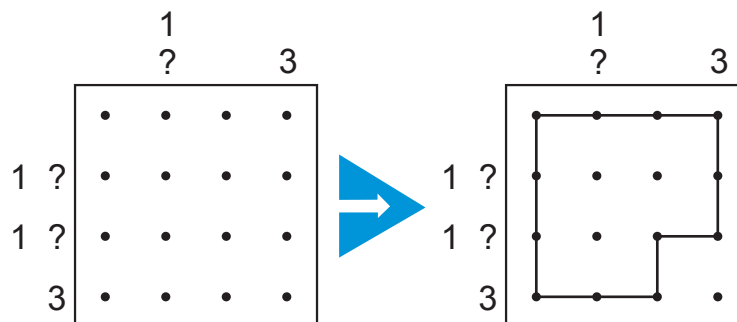
Answer: Enter the number of turns of the loop.
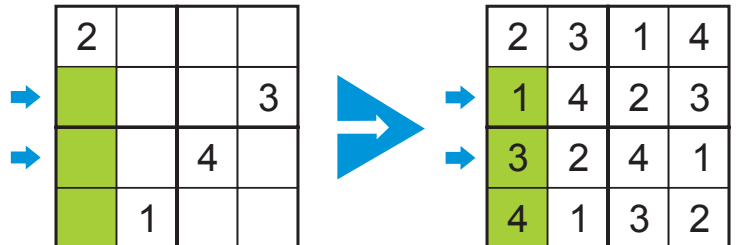
Example Answer: 6.

Part 2

The first six puzzles (SUDOKU, ARROWS, CIRCLES, SCRABBLE, PENTOMINOES, PAINTING A MAZE) should be solved according to the principle of the conveyor.

SUDOKU   20 pt

Fill the grid with digits from 1 to 9 (4 in the example). Digits must be different in rows, columns and outlined areas.

Move the contents of the green fragment exactly to the empty white part of the "Arrows" puzzle.

Answer: Enter the content of marked rows from left to right.

Example Answer: 1423, 3241.

ARROWS   46 pt

Draw a horizontal, vertical or diagonal arrow into each yellow cell. All arrows should point inside the grid and each digit inside the grid shows the number of arrows pointing to the cell with that digit.

Move the arrows from the cells with a bold blue border to the corresponding cells of the "Circles" puzzle.
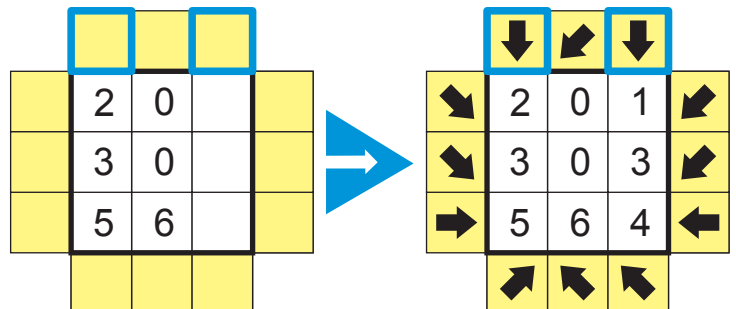
Answer: Enter the number of horizontal arrows, then the number of vertical arrows.

Example Answer: 2, 2.

CIRCLES   32 pt

Draw 18 circles (4 in the example) in the grid so that the white cells with them do not touch each other, not even diagonally. There should be exactly 3 circles (2 in the example) in the direction from each arrow.

Move all the circles (each symbolizing the letter O) to the same positions in the Scrabble.
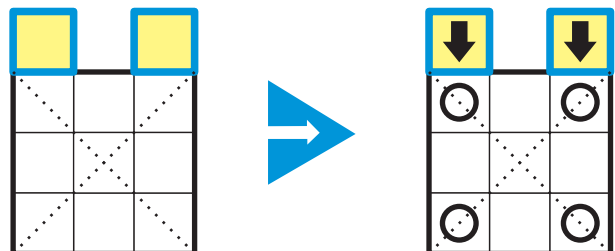
Answer: Enter the total number of circles on the two marked diagonals.

Example Answer: 4.

SCRABBLE

32 pt

All the letters O are already given. Write all 22 given words (3 in the example) into the grid to form a connected crossword. The words should be read from top to bottom or from left to right. There cannot be other words in the grid.

Move all the letters B, I, L, N, U, V, X to the next grid at the same positions.

ORO
OXO
REX

PENTOMINOES

34 pt

Place pentominoes in the grid, from the 7 belonging to the given bank. Pentominoes cannot overlap each other. Pentominoes may be rotated and mirrored. The letters in the grid belong to figures with the same letters. Two pentominoes with the same letter cannot touch each other, not even diagonally. Blacken unused cells.

Move all the black cells in the next grid to the same positions.
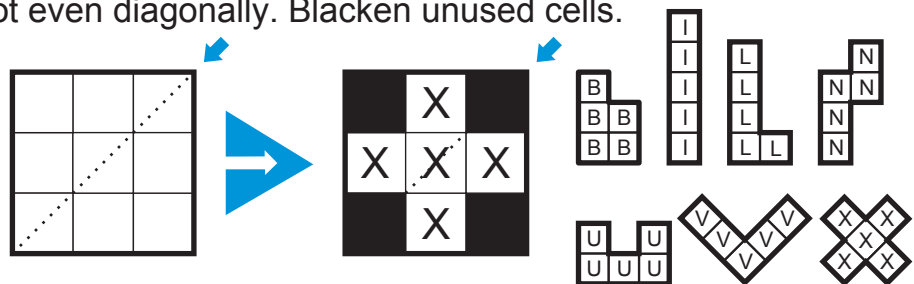
PAINTING A MAZE

66 pt

Black out some cells so that the white area is connected. The digits outside the grid show the length of the black block in the corresponding row or column. Some digits are marked with "?". The order of the digits in the rows and columns also needs to be determined. Groups of black cells are separated by at least 1 white cell. There should not be 2x2 squares of cells of the same color.
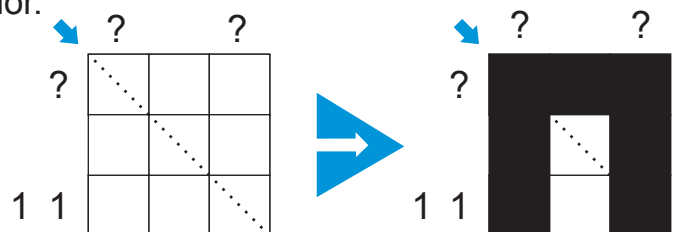
? ? / ? / 1 1

Another example
(more visual)
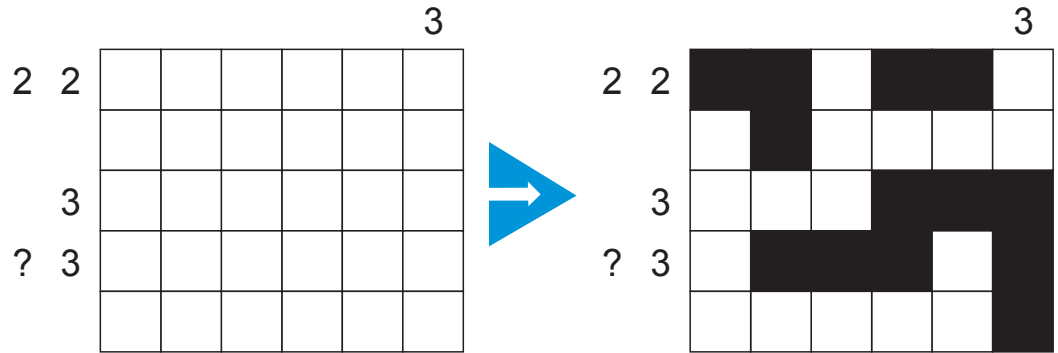
Also solve 5 related puzzles: TENTS (grid A), BATTLESHIPS (B), EASY AS 1234 (C), PENTOMINOES (D), SKYSCRAPERS SUDOKU (E). The digits in the yellow circles of each grid adjacent to the neighboring grid will be given for this neighboring puzzle.

TENTS   42 pt

Attach 1, 2, or 3 tents to each tree (as circles), in a horizontally or vertically adjacent cell. Two tents have already been drawn. Digits in yellow circles outside the grid indicate the number of tents in the corresponding direction.Cells with tents tied to different trees do not touch each other, not even diagonally. If there is 1 tent at the tree, enter one in the circle, if 2 – enter a two in each, if 3 – a three.

Answer: Enter the content of diagonal indicated by the arrow A. Use "-" for cell without digit.

Example Answer: -1- --.

BATTLESHIPS   42 pt

Place the given set of numbered ships into the white cells.Three of its round fragments have already been drawn, but you have to determine the digits corresponding to them. Ships cannot touch each other, not even diagonally. Clues in yellow circles outside the grid show the number of cells occupied by ships in the corresponding direction. Ignore the coloured cell while solving.

Answer: Enter the content of diagonal indicated by the arrow B. Use "-" for cell without digit.

Example Answer: 1-3 -1.

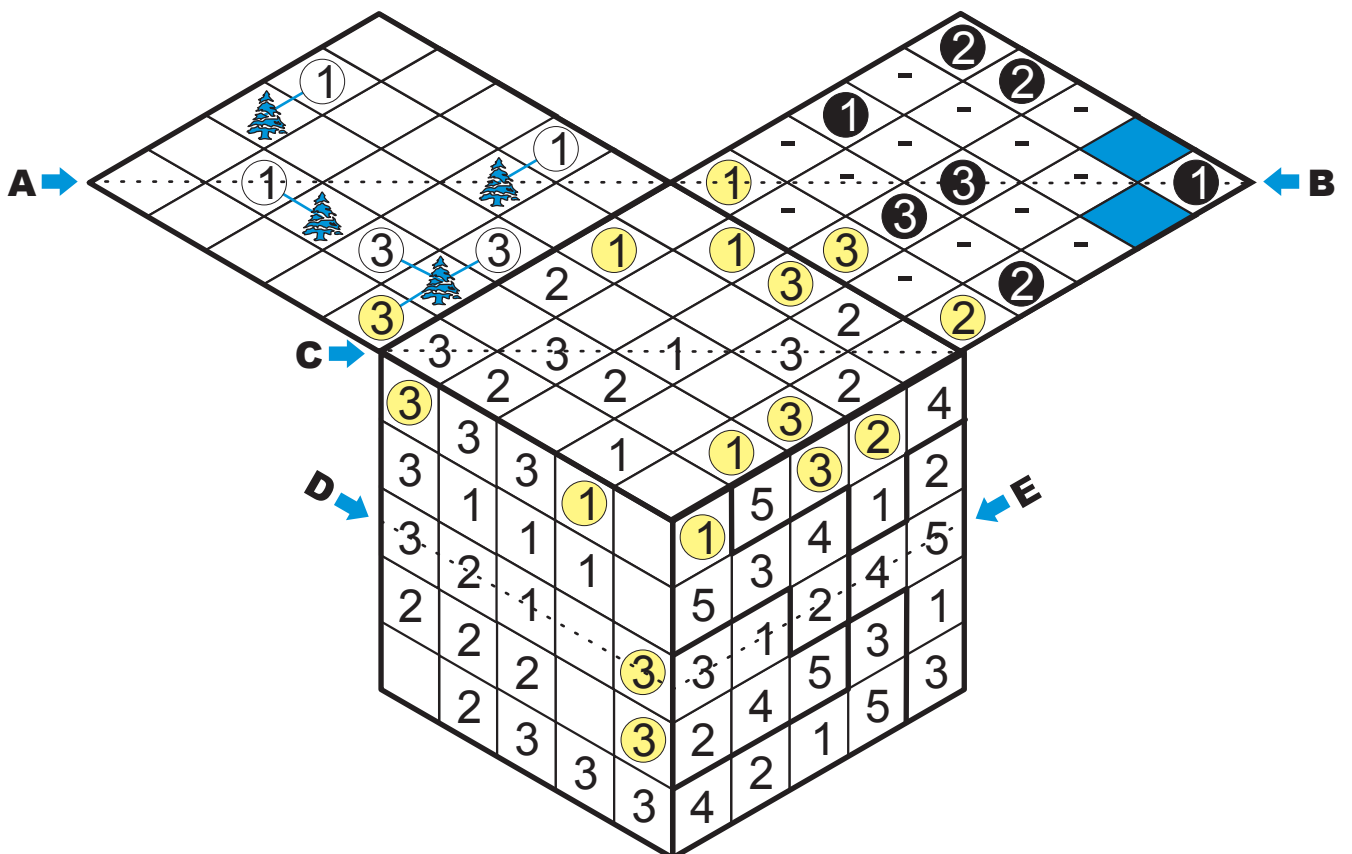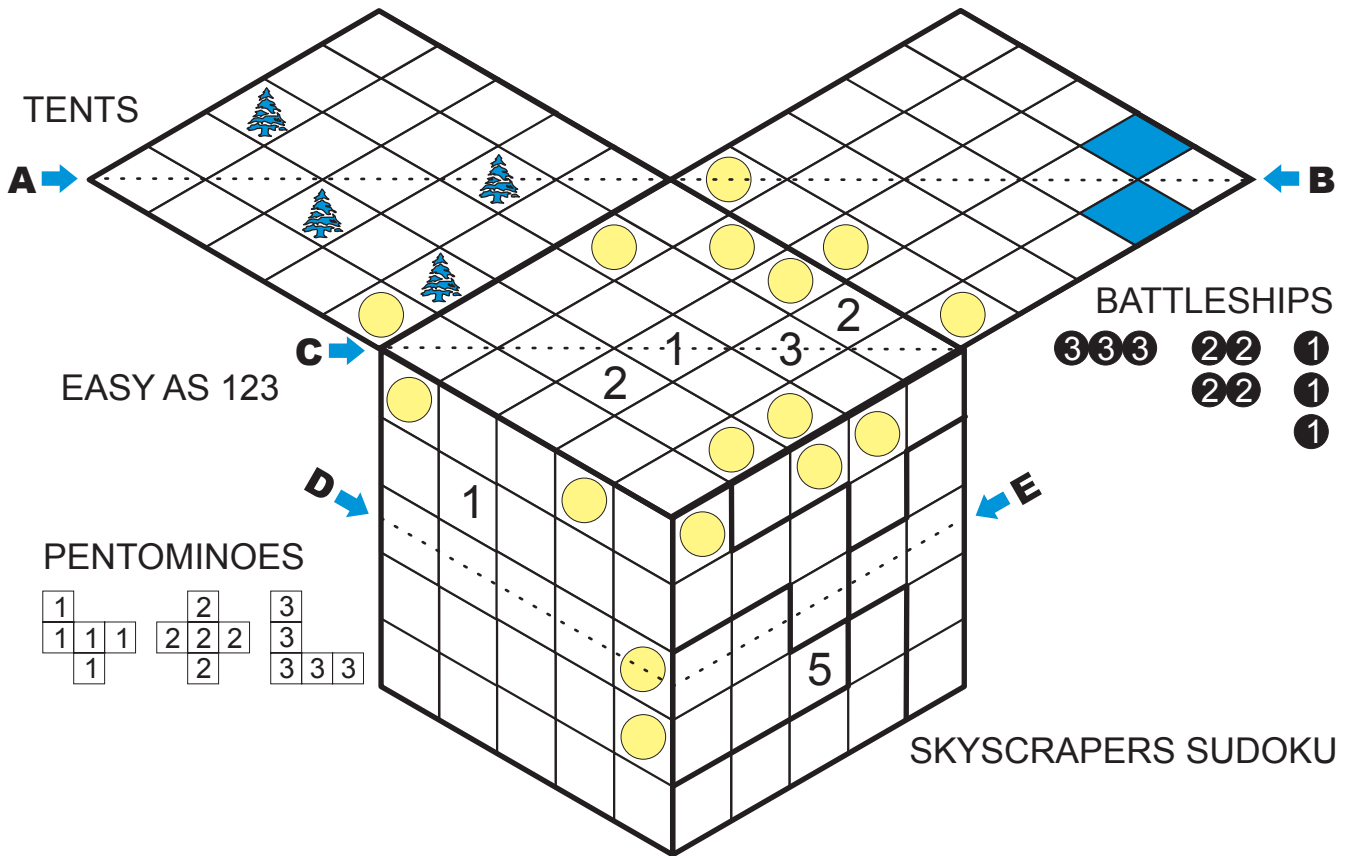## EASY AS 1234   42 pt

Enter the digits from 1 to 4 (3 in the example) into the grid so that each row and column contains each digits exactly once. Some cells will remain empty. Digits in the yellow circles outside the grid denote the first digit found in the corresponding row or column from that direction.

Answer: Enter the content of diagonal indicated by the arrow C. Use "-" for cell without digit.

Example Answer: 3313 -.

TENTS

EASY AS 123

PENTOMINOES

BATTLESHIPS

SKYSCRAPERS SUDOKU

18-й открытый Кубок Москвы по пазлспорту

PENTOMINOES   42 pt

Place in the grid the seven given types of numbered pentominoes (3 in the example) without overlapping each other. Each type must be used in the grid at least once. Pentominoes may be rotated and mirrored. All the cells with yellow circles belong to pentominoes.Two pentominoes with the same digit cannot touch each other, not even diagonally.

Answer: Enter the content of row indicated by the arrow D. Use "-" for cell without digit.
Example Answer: 321-3.

SKYSCRAPERS SUDOKU   42 pt

Fill the grid with digits from 1 to 7 (5 in the example), so that each digit occurs exactly once in every row, column and outlined area. Consider each number inside the grid to be the height of a building. The digits in yellow cells outside the grid indicate how many buildings can be seen when looking in the corresponding direction. A building is visible from outside the grid if and only if all buildings between it and the viewing point are lower in height.

Answer: Enter the content of row indicated by the arrow E.
Example Answer: 54213.

FINAL   48 + 48 + 48 + 48 + 48 pt

There will be 5 types of puzzles from among those found in this booklet. Each given digit from 2 to 6 in all five puzzles was replaced with its own letter. In other words, there are different digits behind the letters F, I, N, A, L. Set matches and solve puzzles.