14th WPC
French Qualification

Part III
Innovative

3rd September, 2005
90 minutes
Maximum score: 250 points

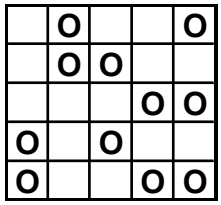
Instruction Booklet

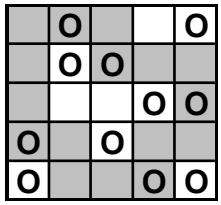
Castle Wall	20 points
Robots	20 points
Rolling Cube	25 points
Village Map	25 points
Magic Minesweeper	15 points
Dominoes End View	10 points
Up & Down Skyscrapers	15 points
Triangles	25 points
Squares Cross Sums	35 points
Torus Sudoku	25 points
Words Spokes	20 points
Billiards	15 points

Problem 1 – 20 points

Castle Wall

Guards are denoted by circles.
The castle wall is a one cell width dark single loop which does not touch itself.
There must be on this wall exactly one guard in every row and column of the grid.
Draw the full castle wall.

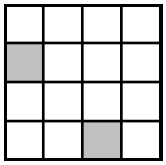


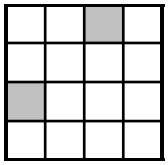


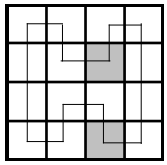
Problem 2 – 20 points

Robots

Robots' positions are denoted by dark cells.
Five robots move clockwise along a closed continuous loop which covers every single cell of the grid.
The top pictures reveal some consecutive positions with the interval of five steps.
Robots move on the neighbor cell during one step.
Draw the full loop into the bottom picture.



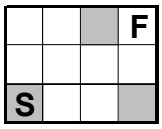


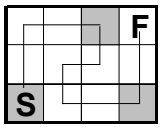


Problem 3 – 25 points

Rolling Cube

One side of a cube is painted.
This cube rolls on every single cell of the grid.
It starts at the left-bottom corner (S) and finishes at the right-top corner (F).
Every cell touched by the painted side of the cube is dark.
Draw the full path of the cube.

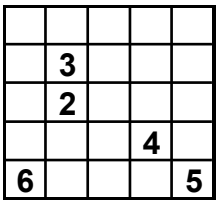


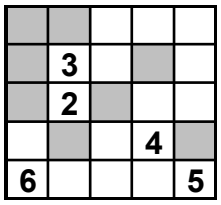


Problem 4 – 25 points

Village Map

On the village map, houses are dark cells and the streets consist of all other cells, including the numbered ones. Splitting the grid with dark cells is not allowed, all streets are connected.
Every number in a cell reveals the quantity of visible cells horizontally and vertically, including the cell itself.
Draw the full village map.



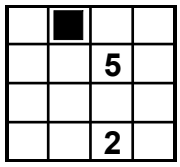


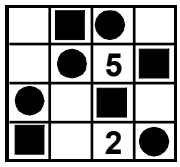
Problem 5 – 15 points

Magic Minesweeper

Place black figures into the grid so that every row and column contain exactly one square, one circle and one triangle.
As in the classical minesweeper, every numbered cell reveals the quantity of figures in the neighboring cells, even diagonally.
Every numbered cell is empty.



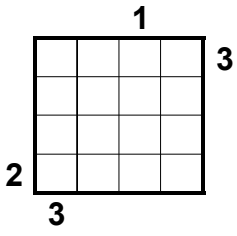


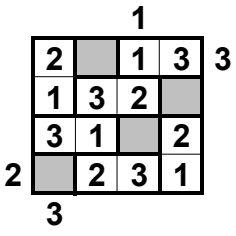


Problem 6 – 10 points

Dominoes End View

Two sets of dominoes with digits from 1 to 4 without doubles are located into the grid so that every row and column contain all digits exactly once.
Some cells are empty.
The numbers outside the grid reveal the first digit encountered in each corresponding direction.
Find place for all dominoes without intersection.

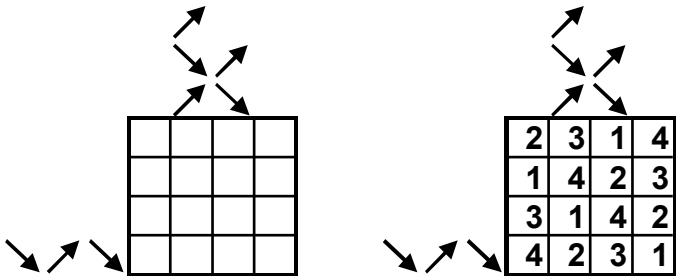




Problem 7 – 15 points

Up & Down Skyscrapers

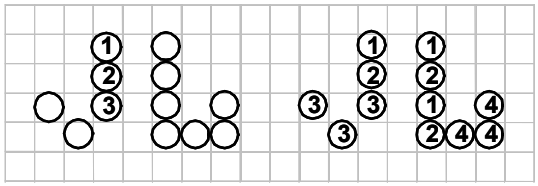
The grid symbolizes a group of skyscrapers.
Every row and column contains all heights from 1 to 5 exactly once.
The arrows outside the grid reveal the oriented slopes encountered in each corresponding direction.
An arrow is valid for consecutive skyscrapers as long as the oriented slope doesn't change.
Fill the heights into the grid.



Problem 8 – 25 points

Triangles

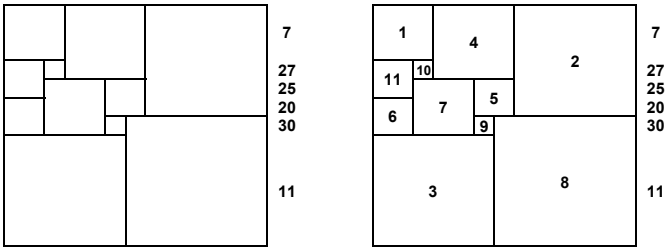
Fill the numbers from 1 to 9 into the circles so that the centers of circles marked by equal number form isosceles right triangle.
Some numbers are given.



Problem 9 – 35 points

Squares Cross Sums

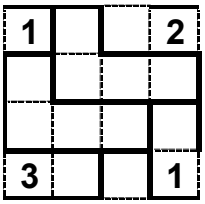
Fill the numbers from 1 to 13 into the squares so that every outside number is equal to the sum of the numbers into the squares encountered in the corresponding line.

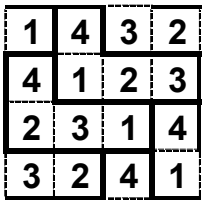


Problem 10 – 25 points

Torus Sudoku

Place the digits 1 through 8 into the empty squares (one per square) so that each digit appears exactly once in each of the following twenty-four regions: the eight rows, the eight columns and the eight outlined regions, some of which wrap between the top and bottom edges and / or the left and right edges of the grid.
Some digits are given.

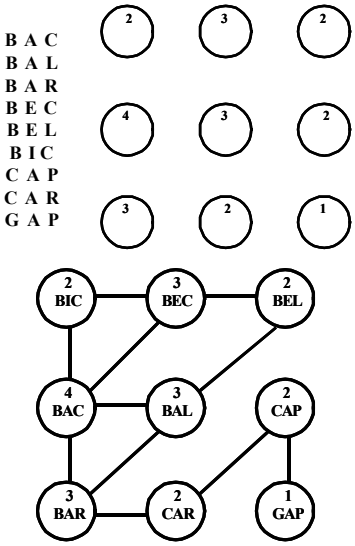




Problem 11 – 20 points

Words Spokes

16 words are given by the left list. Every number into a hub indicates the number of spokes that are connected to this hub.
Two hubs are connected by a spoke if and only if the two words placed into them distinguish in exactly one letter at the same rank.
Spokes cannot intersect, all hubs are connected.
Place all words into the hubs and draw the spokes.



Problem 12 – 15 points

Billiards

Balls are denoted by white circles on the table and baskets by dark corner circles.
Place 7 balls on the billiards as shown by the picture.
Then put them serially into any basket so that each ball touch border different amount of time from 0 to 6 exactly once.
Every movement is on 45° diagonals.
Fill respective digits both into balls and serially from left to right into the template.

