WPC French
Name
Qualifier 2010
Part I

1. Battleships
2. No Four in a Row
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4. Meanders
5. ABCD Connection
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17. Number Crossword

20 points
$20+20$ points
$25+25$ points
20 points
10+20 points
$20+80$ points
25 points
25 points
30 points
30+35 points
30 points
25 points
30 points
30 points
25 points
50 points
80 points

Total: 675 points + time bonus ( $5 \mathrm{pts} /$ minute)


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## 1. Battleships

(20 points)
Locate the position of the 10 -ship fleet in the grid. The fleet is shown below: one 4 -unit battleship, two 3 -unit cruisers, three 2-unit destroyers, and four 1-unit submarines. Each segment of a ship occupies a single cell. Ships are oriented either horizontally or vertically, and they do not touch each other, not even diagonally. The numbers on the left and bottom edges of the grid reveal the total number of ship segments that appear in each respective row or column.



## 2. No Four in a Row ( $20+20$ points)

Fill in the grid with O and X so that four consecutive identical symbols never appear in any row, column, or diagonal.

| O |  |  |  |  | X |  | X |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | X | X |  |  | O |  |  |
|  |  | X |  | O |  |  |  |
|  | X |  |  |  |  | O |  |
|  |  |  | O |  |  | O | X |
| O | O |  |  | O |  |  |  |
|  |  | X | X |  |  |  |  |
|  |  |  | O |  | O |  | X |


|  |  | O |  |  | X | X |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |  |  |
|  | O |  | X |  |  | X |  |
| O |  |  | X | X |  |  | X |
| O |  | X |  |  |  | O | X |
|  | O |  |  | O |  | O |  |
|  | X | X |  |  | O |  |  |


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## 3. Skyscrapers ( $25+25$ points)

The grid represents a group of skyscrapers. Each row and column contains skyscrapers of different heights from 1 to 6 . The numbers outside the grid indicate how many skyscrapers are visible from that direction (a building located behind a taller one in the same row is completely hidden).


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## 4. Meanders (20 points)

Find a route starting in the top left square and ending in the bottom right square. The route meanders horizontally or vertically, and the numbers outside the grid indicate the number of occupied squares in that row or column.


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## 5. ABCD Connection (10+20 points)

Connect each pair of identical letters with an unbroken line. The lines do not intersect or overlap, and pass through the centers of consecutive squares. Every square must be traversed.

|  |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | F |  |  |  |  |  | E |  |  |
|  |  |  |  |  | D |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  | C | G |  |  |  |  |  |  |  |
|  |  |  | A | B |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | F | B |  |  |
|  | A |  |  | D | E |  |  |  |  |
|  |  | C |  |  |  |  |  |  |  |


|  | D |  |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |  |  |  |  | F |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | C |  |  |  |  |  |  |  |
|  |  |  |  |  | A | D |  |  |  |  |  |
|  |  |  |  |  | F | A |  | B |  |  |  |
|  |  |  | B |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| E |  |  |  |  |  |  |  |  |  |  |  |
|  | C |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  | E |


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## 6. Crack It On (20+80 points)

For each puzzle: enter all the given words into the two grids in such a way that each area contains exactly one letter. The words should read across and down in every row and column of each grid.


AGAT
PLOT
TATA
ALTA
SLAG
TATI
GNOI
SLAM
ZALT
IATO
SMIT
ZATA
IOTA
SPAZ ZLAT
MOLI PLAN SPIT ZMIA SZAG


AKAT
KOTA
OTKO
AKTA KOTO OTOK
AKTO KTOK TAKO
AOKA OKOA TAKT ATAK OKTA TOKA KAKA OKTO TOTO KAKO OTAK

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## 7. Loop Finder (25 points)

Draw a continuous loop formed by straight line segments connecting the centers of adjacent squares. The loop must not cross or overlap itself, and must visit all squares. Some parts of the loop are already given.



## 8. Masyu Fences <br> ( 25 points)

Draw a single closed loop by connecting neighboring points horizontally or vertically. A numbered square indicates exactly how many of its four edges are used by the loop. The path passes through all the circles. When passing through a black circle, the path must make a $90^{\circ}$ turn, but cannot turn immediately before or after. When passing through a white circle, the path must go straight and make a $90^{\circ}$ turn immediately before and/or after.


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## 9. Star Battle

(30 points)
Place two stars in each column, each row, and each black-edged region of the grid. The stars do not touch each other, not even diagonally.


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## 10. Dominos (30+35 points)

A complete domino set ( 28 dominos from 0-0 to 6-6) has been placed in the grid. The edges of the dominos have been erased and the dots replaced by numbers. Draw the edges of the dominos in the grid.






## 11. Alternate Corners

(30 points)
Draw a continuous loop in such a way that every second corner point should be in a square containing a circle. The loop crosses each square exactly once and must not intersect or overlap itself anywhere. The loop must turn when it passes through a square containing a circle.



## 12. WARSAW Partitioner

## (25 points)

Divide the grid into six-cell regions such that each region contains exactly the letters of the word "WARSAW".

| $S$ | $W$ | $A$ | $A$ | $W$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- |


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## 13. Figure Cut <br> (30 points)

Cut the figure into 7 identical pieces. The pieces may be rotated, but cannot be reflected.


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## 14. Islands (30 points)

The grid consists of white areas (islands), separated by blackened cells which are linked together to form a continuous sea. Each island should contain exactly one of the given numbers, which is equal to its area. The islands may touch each other only diagonally. The sea cannot form any $2 \times 2$ square.

|  |  |  |  |  |  |  | 6 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |  |  |
| 2 |  |  |  | 5 |  |  |  |
|  |  |  | 2 |  | 6 |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | 6 |
|  |  |  |  |  |  |  |  |
|  |  | 5 |  |  |  |  |  |



## 15. Rolling Block Maze

(25 points)
Stand a 1x1x2 block vertically on the Start square (S) of the grid. Roll the block on its edges so that it ends up standing vertically on the Finish square (F). The block may not roll so that any part of it is outside the grid or lying on one of the black squares.

Rolling on an edge means that the axis of rotation is one of the four edges touching the grid, and the block turns 90 degrees about that axis, resulting on a new face lying on the grid.

Find the shortest path from Start to Finish. Mark in the grid the successive positions of the squares on which the block stands vertically, numbered in the order they occur along the path from Start to Finish.


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## 16. Coral Finder

(50 points)
Blacken a connected set of squares (the coral) that does not touch itself, not even diagonally, and does not form any closed loops. The numbers outside the grid indicate the lengths of the consecutive parts of the coral in the given row or column. However, the numbers are given in increasing order, not in the order in which they actually appear in the grid. No $2 \times 2$ area may be covered by the coral.

|  |  |  |  |  |  |  |  |  |  |  |  | 1 | 1 | 2 | 5 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  | 1 | 1 | 1 | 3 |
|  |  |  |  |  |  |  |  |  |  |  |  | 1 | 1 | 6 |  |
|  |  |  |  |  |  |  |  |  |  |  |  | 1 | 1 | 1 | 5 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 1 | 1 | 12 |
|  |  |  |  |  |  |  |  |  |  |  |  | 2 | 2 |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  | 1 | 1 | 1 | 4 |
|  |  |  |  |  |  |  |  |  |  |  |  | 2 | 2 | 3 |  |
|  |  |  |  |  |  |  |  |  |  |  |  | 1 | 1 | 1 | 2 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 1 | 1 | 13 |
|  |  |  |  |  |  |  |  |  |  |  |  | 3 | 3 | 4 |  |
|  |  |  |  |  |  |  |  |  |  |  |  | 1 |  | 1 |  |
| 1 | 1 | 1 | 2 | 1 | 1 | 5 | 1 | 1 | 2 | 1 | 5 |  |  |  |  |
| 1 | 7 | 2 | 4 | 3 | 1 | 5 | 1 | 1 | 3 | 1 | 6 |  |  |  |  |
| 2 |  | 2 |  | 4 | 1 |  | 1 | 1 | 3 | 1 |  |  |  |  |  |
| 5 |  |  |  |  |  |  | 1 | 1 |  | 1 |  |  |  |  |  |
|  |  |  |  |  |  |  | 2 |  |  |  |  |  |  |  |  |


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## 17. Number Crossword <br> (80 points)

Enter digits into the grid (one per square) so that the digits in each series of white squares add up to the number given in the gray-colored cell at the top or to the left. A number above a diagonal bar refers to the digits to be filled in to the right of that cell. A number under a diagonal refers to the digits to be filled in below that cell. The digit 0 is not used, and no digit is ever repeated in a group.


