Indian Puzzle Championship 2010 Instruction Booklet

12th September 2010

Logic Masters India
(www.logicmastersindia.com)

IPC 2010 Points Table

Sudokus	S1	Classic Sudoku	40
	S2	Killer Sudoku	80
	S3	Irregular Sudoku	140
	S4	Equal to Sudoku	90
	S5	Divisible by 3 Sudoku	160
Basics	B1	Kakuro	70
	B2	Hitori	35
	B3	Fence	110
	B4	Arrows	105
	B5	Battleships	50
Observation	O1	Spot the Differences	75
	O2	Word Search	95
	O3	LMI Fill	80
	O4	SFINKS Cut	60
	O5	Paint By Numbers	110
Polish	P1	Trimino Clubs	45
	P2	Shield	55
	P3	Box 321	80
	P4	Poplotek	120
	P5	More More	65
Variants	V1	Dominos	150
	V2	ABC connection	30
	V3	Skyscrapers	90
	V4	Easy as ABCD	20
	V5	Bridges	55
		Total	**2010**

Classic Sudoku (40 points)

Place a digit from 1 to 9 into each of the empty squares so that each digit appears exactly once in each of the rows, columns and the nine 3x3 regions.

9			2				6
	3	8	1	6	4	9	5
	2						1
	4		9		7		
5	6	2		3		8	9
	8		4		3		
	7					9	
5	2	4	3	9	8	6	
6			8				3

9	1	5	3	2	8	7	4	6
7	3	8	1	6	4	9	5	2
4	2	6	9	7	5	3	1	8
3	4	1	8	9	6	2	7	5
5	6	7	2	1	3	4	8	9
2	8	9	5	4	7	6	3	1
8	7	3	6	5	2	1	9	4
1	5	2	4	3	9	8	6	7
6	9	4	7	8	1	5	2	3

Answer Key 1: Enter the digits in the 5th row from left to right. For the example the answer is 567213489,

Answer Key 2: Enter the digits in the 8th column from top to bottom. For the example the answer is 451783962.

Killer Sudoku (80 points)

Fill the grid with the digits 1 to 9. Each row, column and 3x3-box will have exactly one of each digit. The numbers tell you the sums of the marked cages. In cages the same digits cannot be repeated.

6	7	3	1	2	4	5	8	9
2	4	5	7	8	9	6	1	3
8	9	1	3	5	6	2	4	7
7	1	4	6	3	2	8	9	5
3	2	8	4	9	5	7	6	1
5	6	9	8	1	7	3	2	4
4	3	2	5	6	1	9	7	8
9	5	7	2	4	8	1	3	6
1	8	6	9	7	3	4	5	2

Answer Key 1: Enter the digits in the 5th row from left to right. For the example the answer is 328495761.

Answer Key 2: Enter the digits in the 1st column from top to bottom. For the example the answer is 628735491.

Irregular Sudoku (140 points)

Place a digit from 1 to 9 into each of the empty squares so that each digit appears exactly once in each of the rows, columns and the nine outlined irregular regions.

6		5		3		7		8
	3		1		7		6	
		6		8		2		
	2		9		1		8	
		1		9		5		
	9		5		8		7	
		7		2		9		
	5		3		4		9	
4		9		1		3		7

6	4	5	2	3	9	7	1	8
9	3	8	1	5	7	4	6	2
3	1	6	7	8	5	2	4	9
5	2	4	9	7	1	6	8	3
8	7	1	6	9	3	5	2	4
2	9	3	5	4	8	1	7	6
1	8	7	4	2	6	9	3	5
7	5	2	3	6	4	8	9	1
4	6	9	8	1	2	3	5	7

Answer Key 1: Enter the digits in the 1st row from left to right. For the example the answer is 645239718.

Answer Key 2: Enter the digits in the 8th row from left to right. For the example the answer is 752364891.

Divisible by 3 Sudoku (160 points)

Place a digit from 1 to 9 into each of the empty squares so that each digit appears exactly once in each of the rows, columns and the nine 3x3 regions. In each 3x3 box, the number created by three horizontally or vertically adjacent digits must be divisible by 3.

|								
				3	2	9		
			9					4
4		5						9
	1				6	4	5	
3		7						6
			8					5
			5	6	4			

9	5	4	6	2	1	8	3	7
8	7	6	5	4	3	2	9	1
1	3	2	7	9	8	5	6	4
4	6	5	1	3	2	7	8	9
2	1	9	8	7	6	4	5	3
3	8	7	9	5	4	1	2	6
6	2	1	4	8	9	3	7	5
7	9	8	3	1	5	6	4	2
5	4	3	2	6	7	9	1	8

Answer Key 1: Enter the digits in the 4th row from left to right. For the example the answer is 465132789.

Answer Key 2: Enter the digits in the 7th row from left to right. For the example the answer is 621489375.

Equal to Sudoku (90 points)

Place a digit from 1 to 9 into each of the empty squares so that each digit appears exactly once in each of the rows, columns and the nine 3x3 regions. Digits in cells, which are connected by means of diagonal lines, must be equal.
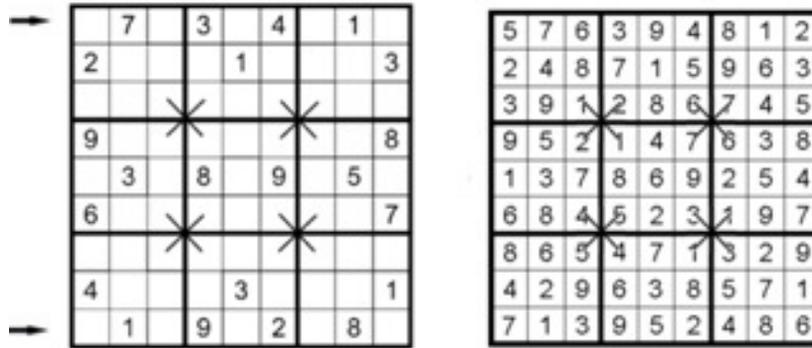

Answer Key 1: Enter the digits in the 1st row from left to right. For the example the answer is 576394812.

Answer Key 2: Enter the digits in the 9th row from left to right. For the example the answer is 713952486 .

Kakuro (70 points)

Place one digit from 1 to 9 in each empty box so that the sum of the digits in each set of consecutive white boxes(horizontal or vertical) is the number appearing to the left of a set or above the set. No number may appear more than once in any set of consecutive white boxes
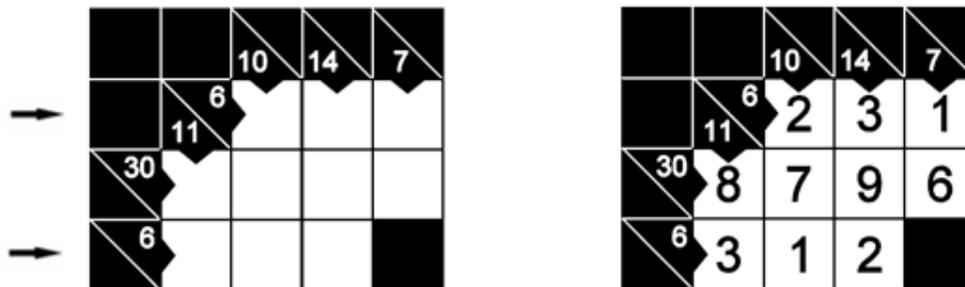
Answer Key 1: Enter the digits from left to right in the upper marked row. For the example the answer is 231.

Answer Key2: Enter the digits from left to right in the lower marked row. For the example the answer is 312.

Hitori (35 points)

Black out some of the digits in the grid so that each row and each column contain only different digits. Black cells must not touch horizontally or vertically and all non black cells must remain interconnected.

4	5	9	3	2
1	9	9	2	2
7	2	9	1	4
7	3	2	5	3
2	1	5	4	5

4	5	9	3	2
1	9	9	2	2
7	2	9	1	4
7	3	2	5	3
2	1	5	4	5
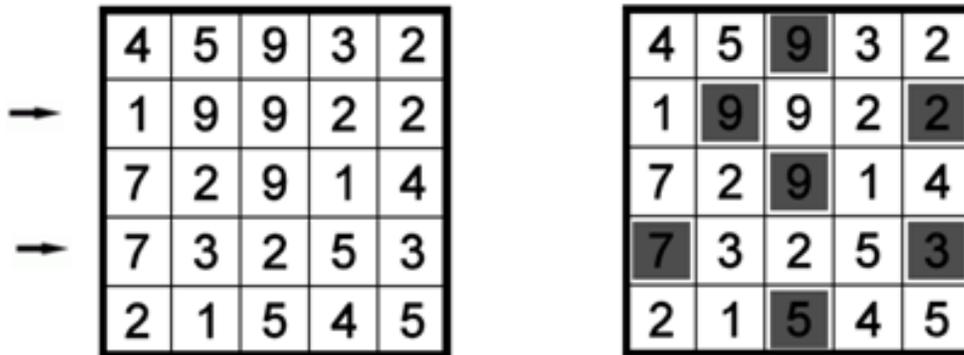
Answer Key: Enter the number black cells in each of the marked rows from top to bottom. For the example the answer is 22.

Fence (110 points)

Draw a single continuous loop along the dotted vertical or horizontal line segments. Crossovers or branches are not allowed. Numbers given inside the cell indicate the count of line segments surrounding that cell.
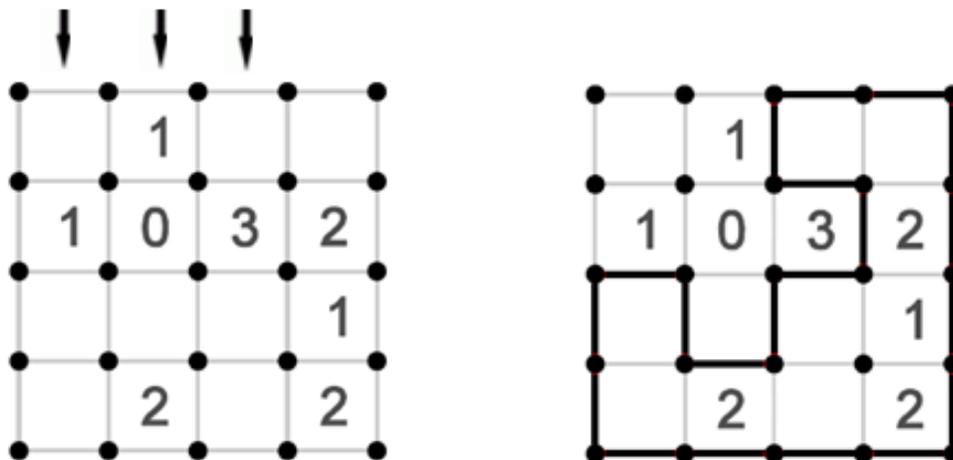
Answer Key: Enter the number of cells outside the loop in the marked columns from left to right. For the example the answer is 231.

Arrows (105 points)

Draw arrows in the squares around the large square. Each square has one arrow. Each arrow points to at least one number. The numbers show the total number of arrows pointing towards them.
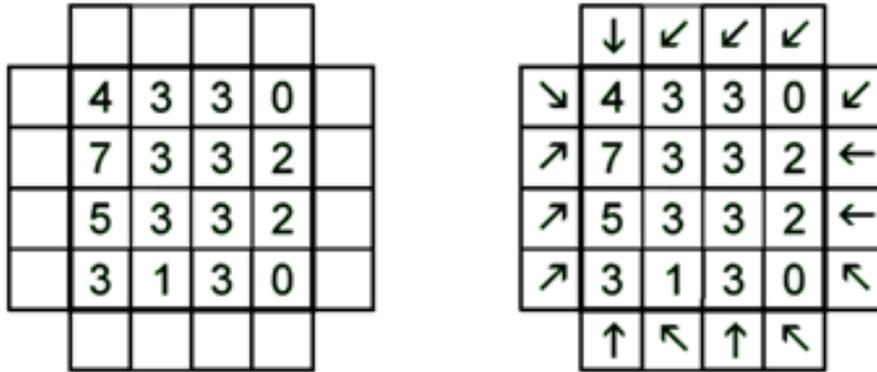
Answer Key1: Enter the number of horizontal arrows. For the example the answer is 2.

Answer Key 2: Enter the number of vertical arrows. For the example the answer is 3.

Battleships (50 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 ship segment 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 right and bottom edges of the grid reveal the total number of ship segments that appear in each respective row or column.
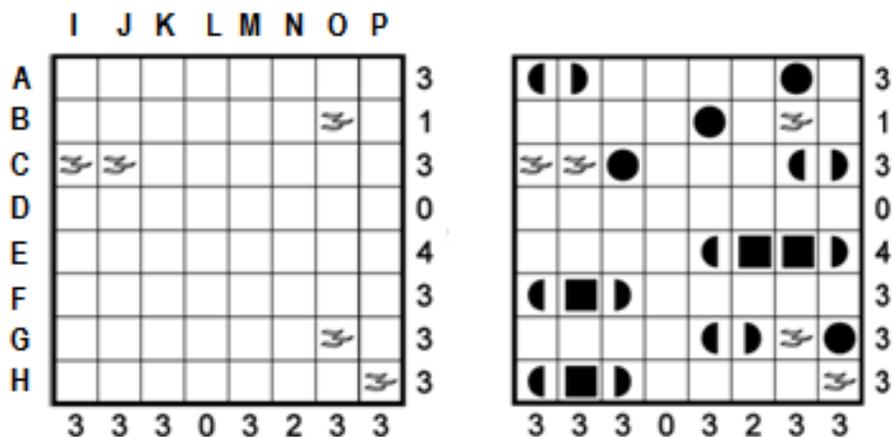
Answer Key: Enter the coordinates of the 1 unit submarines in alphabetic order. For the example the answer is AO, BM, CK, GP.

Spot the Differences (75 points)

Spot 4 of the 5 differences in the two mirror images below
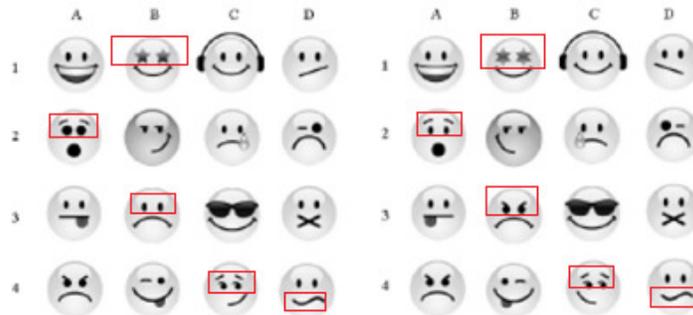
Answer Key: Enter the coordinates of any 4 of the cells in which you find a difference in alphabetic order. For example the answer is any 4 of A2, B1, B3, C4, D4.

Word Search (95 points)

16 of the 20 Polish city names (vowel words in example) in the list have been placed in the grid. Find the four city names (2 vowel words in example)in the list which have not been placed in the grid.

T	T	H	O	U	S	E	M	A	I	D	P	A
E	F	N	N	L	C	D	Q	L	B	C	T	U
G	L	O	N	R	M	U	V	D	K	I	N	R
A	H	I	G	O	D	C	F	N	C	T	P	I
R	E	T	B	D	I	A	L	O	G	U	E	F
U	Q	A	N	O	I	T	A	U	C	A	V	E
O	U	R	T	Y	M	I	U	S	X	N	R	R
C	A	U	H	R	S	O	T	A	B	O	P	O
S	T	S	S	S	T	N	T	D	C	R	Y	U
I	I	N	O	I	T	A	L	U	G	E	R	S
D	O	E	J	K	S	P	R	N	A	A	R	D
H	N	M	S	U	O	I	R	A	C	E	R	P
A	U	T	H	O	R	I	Z	E	M	J	S	S
Z	C	C	N	T	R	V	T	R	L	Z	F	R

Missing Words AUCTIONED   FAVOURITE

AERONAUTIC	AUTOMOBILE	EQUATION	MENSURATION
AUCTIONED	DIALOGUE	EVACUATION	PRECARIOUS
AURIFEROUS	DISCOURAGE	FAVOURITE	PRECAUTION
AUTHORIZE	EDUCATION	HOUSEMAID	REGULATION

Answer Key: Enter the names of the four Polish cities which have not been placed in the grid in alphabetic order and separated by commas. For the example the answer is AUCTIONED , FAVOURITE.

LMI Fill (80 points)

Enter words into the crisscross grid across and down. Two words will not be used.

ANVIL
EPOXY
KELPY
SHAKY
SKATE
SPARK
YODEL

| S	P	A	R	K
K				E
A	N	V	I	L
T				P
E	P	O	X	Y

Answer Key: Enter the two words which have not been used in the crisscross grid in alphabetic order and separated by commas. For the example the answer is SHAKY, YODEL.

SFINKS Cut (60 points)

The image is made up of the sphinx image on the right. Identify the way in which the image is split into the sphinx shapes. The shapes can be rotated as well as mirrored.
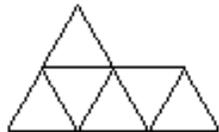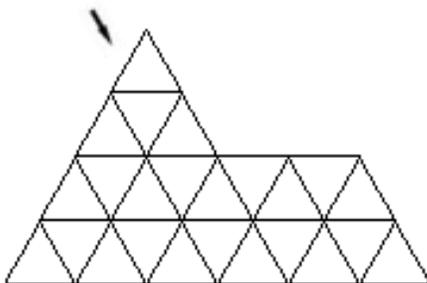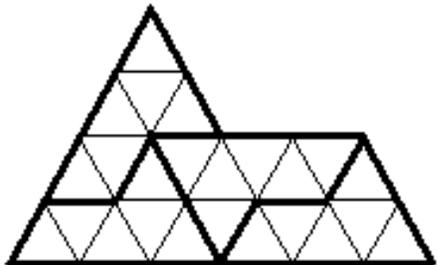
Answer Key: Enter the number of triangles in each sphinx shape in the marked diagonal from top left to bottom right. For the example the answer is 331.

Paint by Numbers (110 points)

Blacken some of the cells to find out the hidden figure. The numbers on the sides of the grid give the number of black cells in each black stretch in a certain row or column. The black regions are separated by one or more empty cells.
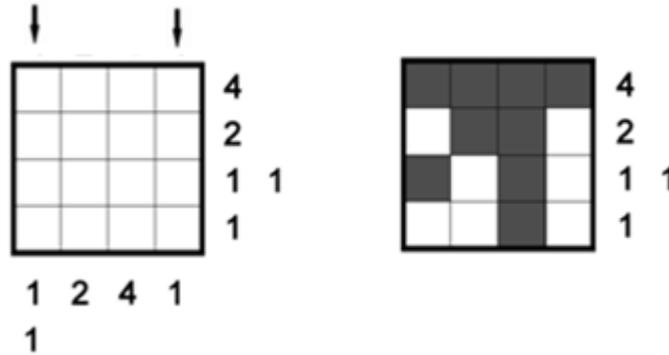
Answer Key 1: Enter from top to bottom, 1 for each white cell and 0 for each black cell in the first marked column. For the example the answer is 0101.

Answer Key 2: Enter from top to bottom, 1 for each white cell and 0 for each black cell in the first marked column. For the example the answer is 0111.

Trimino Clubs (45 points)

The diagram consists of two types of trimino's, a 3X1 trimino and an L shaped trimino. The 3X1 trimino has circles in its two extreme fields, while the L shaped trimino has circles in its central field. Fill in the diagram with these two types of trimino's. The trimino's can be rotated as well as reflected.
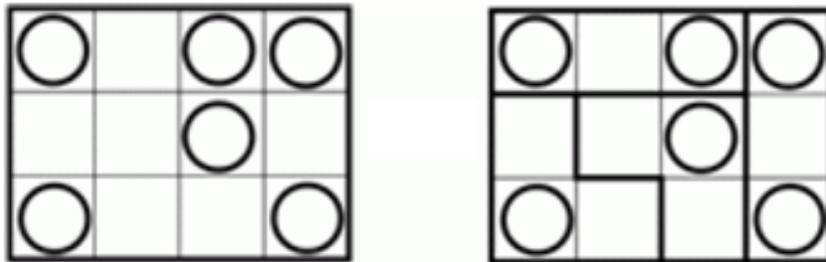
Answer Key 1: Enter the number of horizontal 3 X 1 triminos. For the example the answer is 1.

Answer Key 2: Enter the number of vertical 3 X 1 trimino's. For the example the answer is 1.

Shield (55 points)

Enter numbers from 0 to 9 in the 10 circles, one for each circle. Each number on the outside of the ring is equal to the sum of digits in circles adjacent to that circle. Each number inside the ring is equal to difference of numbers in the circles adjacent to that circle. The digits in adjacent circles cannot be consecutive and the biggest difference in the numbers in adjacent wheels is 8.
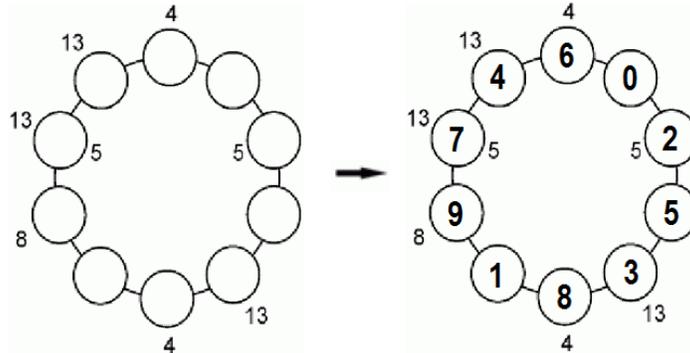
Answer Key: Starting with zero enter the digits in clockwise order. For the example the answer is 0253819746.

Box 321 (80 points)

Complete the diagram with numbers from 1 to 3 so that the same numbers were not in orthogonally adjacent fields. The diagram is divided into 12 "1 X 3" rectangles (6 vertical and 6 horizontal). The order of the digits in all vertical rectangles and the order of digits in all horizontal rectangles must be different. The diagram already includes some parts of the sides of the rectangles.
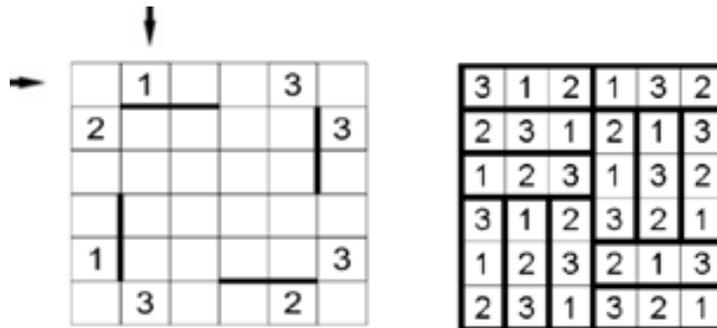

Answer Key 1: Enter the digits in the 1st row from left to right. For the example the answer is 312132.

Answer Key 2: Enter the digits in 2nd column from top to bottom. For example the answer is 132123.

Poplotek (120 points)

Construct a closed loop fence, which does not intersect or touch itself along the lines in the diagram. Figures on the left and at the bottom indicate how many corners are there on the line. The numbers on the right and top of the diagram indicates the total number of fence sides on the line.
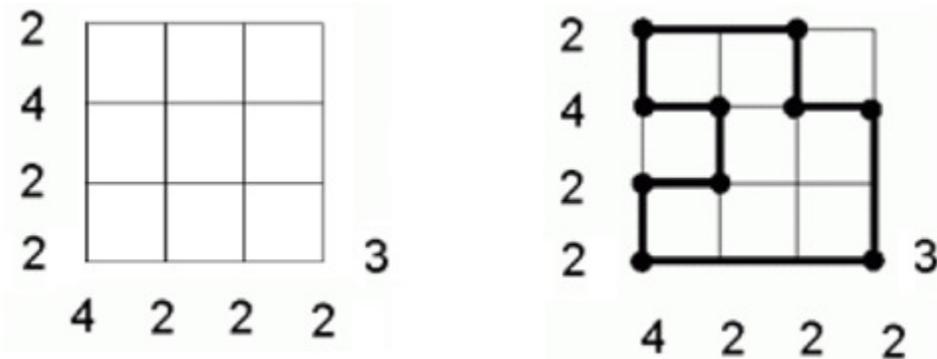
Answer Key: Starting from the top row enter the number of cells outside the loop for each row. For example the answer is 110.

More More (65 points)

Fill the diagram with numbers from 1 to 5, so that in each row and in each column, each digit occurs exactly once. If two digits are vertically adjacent then the digit in the upper cell has to be larger than the digit in the lower cell. Two cells will remain blank in each row and column.
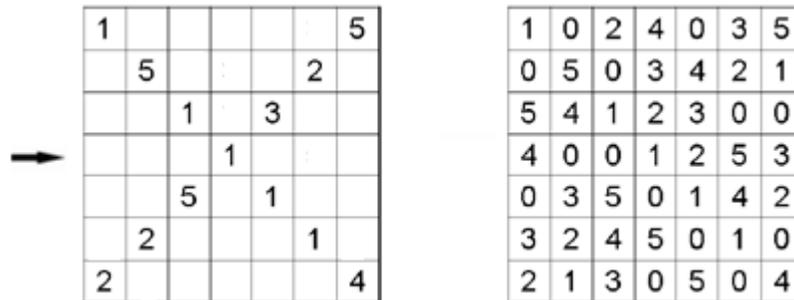

Answer Key: Enter the digits in the marked row from left to right; marking 0's for blank spaces. For the example the answer is 4001253.

Dominos (150 points)

The grid contains a set of 45 dominoes (28 in example), using all combinations of zero through eight (zero to six in example). The layout is shown with the domino edges removed. Reconstruct the missing edges.
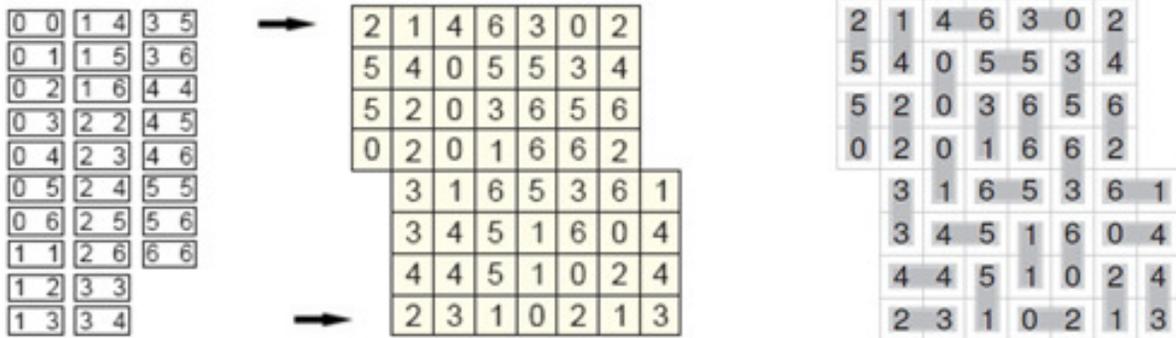

Answer Key 1: Enter the number of horizontal dominos in the upper marked row. For the example the answer is 2.

Answer Key 2: Enter the number of horizontal dominos in the lower marked row. For the example the answer is 2.

ABC connectors (30 points)

Connect identical letters in the grid with line segments running either in horizontal or vertical direction and passing through centers of cells. No connectors cross or overlap themselves or any another connector.
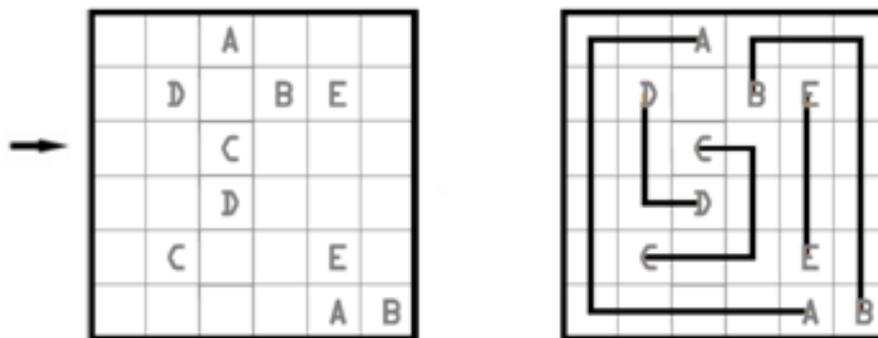
Answer Key: Enter the alphabet corresponding to the connector in each cell going from left to right in the marked row. For the example the answer is ADCCEB.

Skyscrapers (90 points)

Fill in the grid in such a way that every row and every column contains numbers from (1~5) exactly once. One cell will remain empty in each row and column. The numbers inside the grid represent the height of the building in the corresponding cell. The numbers outside the grid represent the number of buildings visible from that direction.
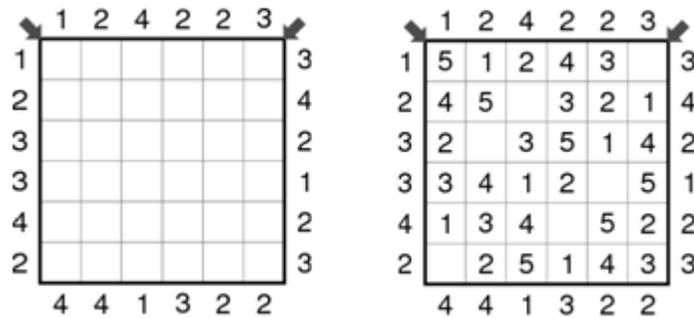

Answer Key 1: Enter the digits in the diagonal going from top left to bottom right, entering 0 for the blank cells. For the example the answer is 553253

Answer Key 2: Enter the digits in the diagonal going from top right to bottom left, entering 0 for the blank cells. For the example the answer is 025130.

Easy as ABCD (20 points)

Enter the letters A~D (A~C in the example), each letter exactly once in all the rows and columns. One cell will remain empty in each row and column. The letters outside the grid show which letter you come across first from that direction.
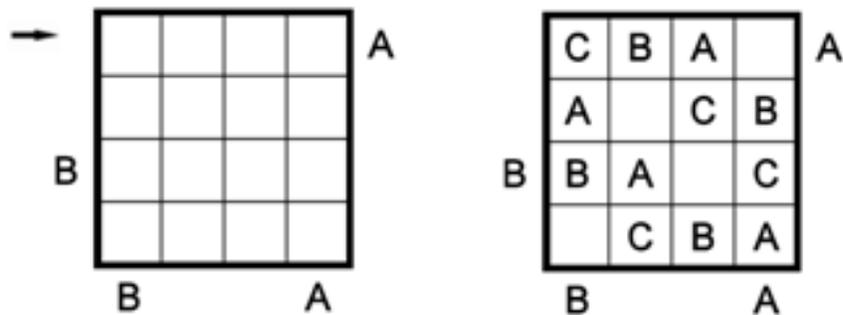
Answer Key: Enter the alphabets in the marked row, from left to right. For the example the answer is CBAX.

Bridges (55 points)

Each circle in the grid represents an island. Draw horizontal / vertical bridges between islands such that all islands are connected to each other. Bridges don't cross each other. Bridges don't cross islands, i.e. when they reach an island, they must stop. The number inside each circle represents the number of bridges connected to it. No more than 2 direct bridges exist between 2 islands.
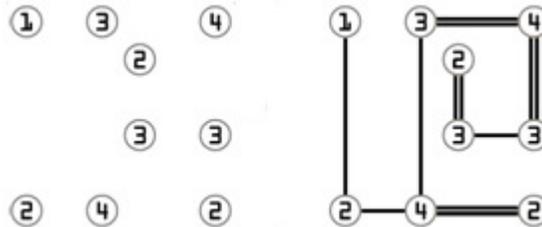
Answer Key: Enter the number of double bridges (2 parallel bridges across the same pair of islands) in the network of bridges. For the example the answer is 4.

About answer keys

1. Answer keys are always to be entered from left to right or top to bottom
2. Don't enter any separator unless specified in the answer key
3. If one row and one column is marked, enter the row first and then the column
4. If multiple rows are marked, enter from top to bottom marked rows
5. If multiple columns are marked, enter from left to right for marked columns
6. If horizontal and vertical keys are needed, first enter the horizontal and then the vertical
7. Case of answer key does not matter
8. Characters other than alphabets, numbers and comma will be removed while checking the answer
9. Some answer keys require the entry of coordinates in a grid, or missing words. In both cases, sort the answers in alphabetic order.

Example Puzzle Credits

1. Examples puzzles for Trimino Clubs, Shield, Box 321, Poplotek, More More, Equal To Sudoku are used from Polish Puzzle Championship 2010
2. Example for Divisible By 3 Sudoku is used from Jan Mrozowski's blog
3. Example and concept for SFINKS Cut has been borrowed from http://www.geoaustralia.com/italian/Sphinx/Guide.html