1st UKPA Sudoku Championship

INSTRUCTION BOOKLET

Saturday 6th – Sunday 7th November 2010

Competition Rules & General Information

Registration

To participate in the championship, you will need to register online at the UKPA forums – http://forums.ukpuzzles.org. During the registration process, you will be required to enter your real name, and your nationality.

Preparation

In order to participate in the championship, you will need access to a printer to print out the puzzle booklet. To solve the puzzles you will need a pen or a pencil, and possibly an eraser.

Competition Schedule

- **Friday 5th November 2010**.
  The password protected puzzle booklet will be made available online at http://www.ukpuzzles.org. It is recommended that you download this pdf before you start solving.

- **Saturday 6th and Sunday 7th November 2010**.
  This is when the championship occurs. At **00.00 GMT** on the Saturday, the password to the pdf will be made available. Upon retrieving the pdf, you will have **2 hours** to solve the puzzles, and submit your answers via the entry page. You will be able to submit answers until **23.59 GMT** on the Sunday; as such it is highly recommended that you retrieve the password and start solving before **21.59 GMT**.

- **Monday 8th November 2010**.
  Results will be publicly announced at http://www.ukpuzzles.org. The highest scoring British participant will be declared the inaugural UKPA Sudoku Champion!

Entering & Submitting Answers (??)

To submit your answers, you will need to go to the answer entry page found at http://www.ukpuzzles.org. Here, for each puzzle, you will be required to enter the relevant answer keys into the form on the page. The answers keys are generally rows and/or columns of the completed puzzle. The answer keys are marked clearly in the puzzle booklet, and the form will also the detail the relevant information.

Upon hitting the submit button, your answers will be sent to the server. You may submit answers as many times as you like, but only the last received keys will be subject to scoring.

Scoring & Bonuses

The puzzle types and the points attached to them are detailed below.

#1 - Classic Sudoku (×4)	20pts	#8 - No Touch Sudoku	15pts
#2 - Diagonal Sudoku	10pts	#9 - Toroidal Sudoku	15pts
#3 - Irregular Sudoku	10pts	#10 - Sudoku Islands	20pts
#4 - Non-consecutive Sudoku	10pts	#11 - Touchy Sudoku	20pts
#5 - Surplus Sudoku	10pts	#12 - Sudokurve	25pts
#6 - Tens Sudoku	10pts	#13 - Killer Sudoku	30pts
#7 - No Tens Sudoku	15pts	#14 - Arrow Sudoku	30pts
		Total:	**240pts**

Participants who submit error free entries to all of the puzzles before the allotted two hours are up will be awarded 2 points for each complete minute saved, as recorded by the last submission time to the server.

N.B. – although the points allocated to a particular puzzle are a general indication of its difficulty and the time expected to solve it, it is possible that your individual experience may vary greatly.

Results

Results will be made available at http://www.ukpuzzles.org after the championship is finished.

Code Of Conduct

All participants are expected to solve the puzzles honestly and fairly. You are not permitted to use any external solving aids of any form or receive assistance from any other individual.

The Championship organisers reserve the right to disqualify any participant judged to have acted with improper conduct.

Puzzle Examples

The remainder of this instruction booklet gives example puzzle types. The examples are the work of Tom Collyer; many have appeared previously at http://blogs.warwick.ac.uk/tcollyer/, and all rights have been reserved.

#1A-D: Classic Sudoku (×4)

[20 points]

Place a digit from 1-9 in each cell such that each digit appears exactly once in each row, column and marked 3×3 box. **Points will only be awarded for correct solutions to all four puzzles: 1a, 1b, 1c and 1d.**

Example:

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

Solution:

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

#2 Diagonal Sudoku

[10 points]

Place a digit from 1-9 in each cell such that each digit appears exactly once in each row, column and marked 3×3 box. Additionally, the digits 1-9 appear in each of the marked main diagonals.

Example:

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

Solution:

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

#3 Irregular Sudoku

[10 points]

Place a digit from 1-9 in each cell such that each digit appears exactly once in each row, column and marked 9-cell region.

Example:

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

Solution:

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

#4 Non-consecutive Sudoku

[10 points]

Place a digit from 1-9 in each cell in each cell such that each digit appears exactly once in each row, column and marked 3×3 box. Cells sharing a common edge may not contain consecutive digits.

Example:

	4							
6							1	
			1		7	9		
		2				3		
				2				
		1				2		
		4	6		3			
	6							4
							3	

Solution:

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

#5 Surplus Sudoku

[10 points]

Place a digit from 1-9 in each cell such that each digit appears exactly once in each row and column, and at least once in each of the 8 marked 10-cell regions.

N.B. example is a 5x5 puzzle.

Example:

1			2	
5				
				1
	4			5

Solution:

1	3	5	2	4
5	2	4	1	3
4	1	3	5	2
3	5	2	4	1
2	4	1	3	5

#6 Tens Sudoku

[10 points]

Place a digit from 1-9 in each cell such that each digit appears exactly once in each row, column and marked 3×3 box. Where a pair of cells with a common edge contain digits summing to 10, both cells are shaded. If a cell is not shaded, then the sum of its digit and any digit contained in any other cell with an adjacent edge is not equal to 10.

Example:

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

Solution:

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

#7 No Tens Sudoku

[15 points]

Place a digit from 1-9 in each cell such that each digit appears exactly once in each row, column and marked 3×3 box. Digits in cells with a common edge may not sum to 10.

Example:

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

Solution:

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

#8 No Touch Sudoku

[15 points]

Place a digit from 1-9 in each cell such that each digit appears exactly once in each row, column and marked 3×3 box. Digits in cells that touch diagonally are not equal.

Example:

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

Solution:

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

#9 Toroidal Sudoku **[15 points]**

Place a digit from 1-9 in each cell such that each digit appears exactly once in each row, column and marked 9 cell region. Additionally, some of the outlined regions will wrap between the top and bottom edges, and/or the left and right edges of the grid.

Example:

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

Solution:

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

#10 SUDOKU ISLANDS **[20 points]**

Place the digits 1-5 in the grid such that each digit appears exactly once in each row, column and marked 3×3 box. The remaining cells should be shaded to form islands. Each island consists of one numbered grey cell, already given, which represents the size of the island. The unshaded cells form a connected region, i.e. you can travel from any unshaded cell to any other by moving vertically or horizontally using only other unshaded cells. There are no 2×2 blocks of unshaded cells.

N.B. example is a 6x6 puzzle using digits 1-4.

Example:

1			1		1
3	1		2		
					1
4					
		3		2	1
1		4			3

Solution:

1	4	2	1	3	1
3	1	1	2	2	4
1	2	3		4	1
4			3	1	2
2	3	3	4	2	1
1	1	4	2		3

Example answer key:

The 5 digits (4 in the example) in the 3rd Row.

Correct answer key:

1234

#11 Touchy Sudoku

[20 points]

Place a digit from 1-9 in the grid such that each digit appears exactly once in each row, column and marked 3×3 box. Each digit in the grid must have its cell share a common edge with at least one cell containing a consecutive digit.

Example:

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

Solution:

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

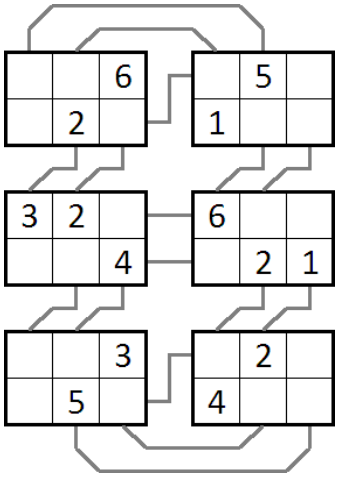
#12 Sudokurve

[25 points]

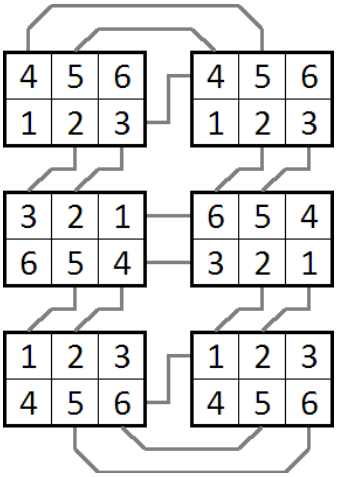
Place a digit from 1-9 in each cell such that each digit appears exactly once in each of the 3×3 boxes and 18 generalised "rows". The generalised rows are marked by light curved lines.

N.B. example uses digits 1-6, and has 10 generalised rows.

Example:



Solution:

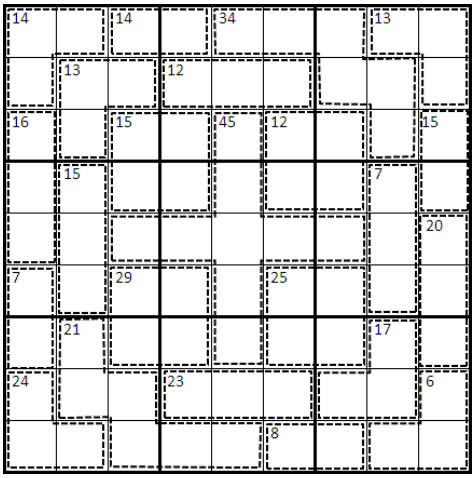


#13 Killer Sudoku

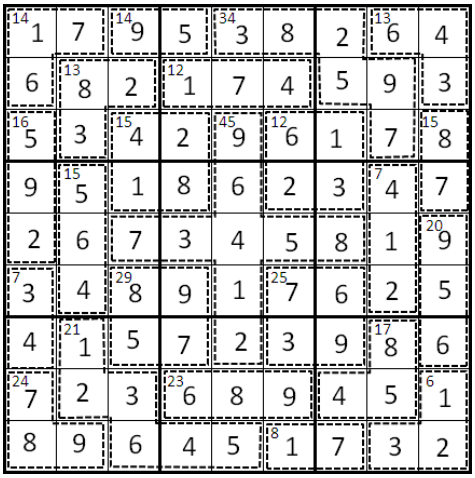
[30 points]

Place a digit from 1-9 in each cell such that each digit appears exactly once in each row, column and marked 3×3 box. Additional cages are marked with the total sum of the digits they contain. Digits may not repeat within cages.

Example:



Solution:

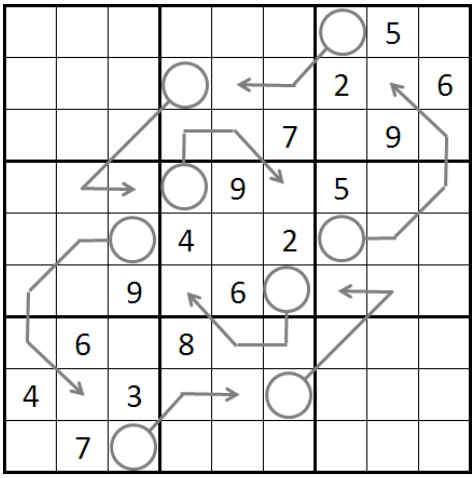


#14 Arrow Sudoku

[30 points]

Place a digit from 1-9 in each cell such that each digit appears exactly once in each row, column and marked 3×3 box. Digits in the circled cells are the sum of the digits in the cells on the arrow leading out from it. Digits may repeat on these arrows.

Example:



Solution:

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