



UK Sudoku Championship 2013

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World Sudoku Championship Qualification

2 hours

10th-13th May 2013

INSTRUCTION BOOKLET

Introduction. These are the instructions for the 2013 UK Sudoku Championship, hosted and organised by the UK Puzzle Association. This is an online Sudoku competition to be printed out and solved against the clock. Any questions related to these instructions should be raised and discussed in the competition discussion thread: <http://forum.ukpuzzles.org/viewtopic.php?f=8&t=846>.

UK Sudoku Championship. Results of participants eligible for a British passport will be considered for the UK Sudoku Championship. The highest scoring British participant will be the UK Sudoku Champion for 2013. Additionally, the top three scoring participants will qualify to represent the UK team at the World Sudoku Championships in Beijing, China. For more information on the qualifying process, see <http://forum.ukpuzzles.org/viewtopic.php?f=8&t=835>.

International participation is warmly welcomed.

WPF Sudoku Grand Prix 2013. This competition will also act as the UK leg of the World Puzzle Federation's Sudoku Grand Prix. Results will only be considered for the Sudoku Grand Prix for those participants already registered with the WPF. For information about how to register, and more, see <http://www.worldpuzzle.org/sudokugp/>.

Registration. To participate in the championship, you will need to registered online at the UKPA forums if you haven't already done so: <http://forum.ukpuzzles.org/ucp.php?mode=register>. During the registration process, you will be required to enter your real name and your nationality.

Schedule. Shortly before the championship starts, the password protected PDF file will be made available at <http://www.ukpuzzles.org/contests.php?contestid=30>. It is recommended you download the PDF before you retrieve the password.

The championship will start at **12:00 BST (GMT+1), Friday 10th May 2013**, when the password for the PDF will be made available. Upon retrieving the password, you will have **two hours** to solve the puzzles and submit your answers via the entry page. You will not be able to submit any answers after your two hours are up. The championship will end at **00:00 BST (GMT+1), Tuesday 14th May**; as such it is highly recommended that you retrieve the password and start solving before **22:00 BST (GMT+1), Monday 13th May**.

Answer Entry & Submission. To submit your answers, you will need to go to the answer submission page: <http://www.ukpuzzles.org/answers.php?contestid=30>. This is a form with entries corresponding to each puzzle. In each puzzle there are two rows and/or columns indicated by arrows labelled "A" and "B". The answer key is given by the contents of A, then the contents of B, separated by a comma with no spaces. Rows should be read from left to right, and columns from top to bottom.

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

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

The correct key for this solved puzzle is: **724156398,786145329**.

Participation is anticipated to be very high and appeals will only be upheld in exceptional circumstances. Therefore it is **VERY IMPORTANT** that you check that each answer key submitted is correct. 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.

Urgent matters arising during the contest should be directed towards chairman@ukpuzzles.org. In the event of the web hosting service failing during your participation, e-mail your answer keys before your two hours is completed. Answers submitted this way will only be accepted if a hosting failure, or equivalent, has occurred.

Scoring and Bonuses. Points for successfully solved puzzles will be awarded according to the following table.

Puzzle	Points	Puzzle	Points
Linked 6×6 Sudoku	18	Killer Sudoku	79
Classic Sudoku	22	Irregular Sudoku	44
Surplus Sudoku	20	XV Sudoku	60
Deficit Sudoku	17	Consecutive Sudoku	47
Odd-Even-Big-Small Sudoku	39	Thermo Sudoku	65
Classic Sudoku	43	Arrow Sudoku	63
Diagonal Sudoku	35	Extra Regions Sudoku	43
Odd Sudoku	37	Palindrome Sudoku	88
		TOTAL:	720

Participants who submit error free entries to all of the puzzles before the allotted 2 hours are up will be awarded **6 points** for each minute saved, as recorded by the last submission time to the server. Late submissions will not be accepted, so it is recommended that answers are submitted as you solve, rather than waiting until time is running out.

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.

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.

It is strictly forbidden to discuss any details of the championship puzzles, or make their contents known to others via any medium whilst the contest is live.

The championship organisers reserve the right to disqualify any participant judged to have acted with improper conduct. The decisions made by the organisers are final.

Acknowledgements. The championship has been organised, coordinated and authored by Tom Collyer. Example puzzles have been provided by Tom Collyer and Gareth Moore. We thank Nick Baxter, Deb Mohanty, Liane Robinson and Thomas Snyder for helping to test the puzzles.

Rules and Example Puzzles

N.B. The example puzzles are a true reflection in quantity, grid dimension and format of the corresponding competition puzzles. The competition puzzles will appear significantly large at one per page. The difficulty of an example puzzle may not be reflective of the difficulty of the corresponding competition puzzle.

It is recommended that both example and competition puzzles are printed from a PDF viewer, and not directly from a web browser.

1. Linked 6×6 Sudoku

18 points

Rules: In each grid, place a number from 1-6 in each empty cell such that each row, column and marked 3×2 box contains each number exactly once. The number placed in a cell in the left grid must be different from the number placed in the corresponding cell in the right grid.

			4		
		6		2	
	1				5
3				1	
	6		2		
		4			

				6	1
			2		4
		4		2	
	2		3		
2		6			
5	4				

1	2	3	4	5	6
4	5	6	1	2	3
6	1	2	3	4	5
3	4	5	6	1	2
5	6	1	2	3	4
2	3	4	5	6	1

4	3	2	5	6	1
1	6	5	2	3	4
3	5	4	1	2	6
6	2	1	3	4	5
2	1	6	4	5	3
5	4	3	6	1	2

2. Classic Sudoku

20 points

Rules: Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once.

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

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

3. Surplus Sudoku

22 points

Rules: Place a number from 1-7 in each empty cell in the grid such that each row and column contains each number exactly once, and each marked 8-cell region contains each number at least once.

			3				
	3	6	2	5	4		
	5				7		
4	2				6	3	
	1				3		
	4	1	6	3	5		
			5				

1	6	4	3	7	2	5	
7	3	6	2	5	4	1	
3	5	2	1	6	7	4	
4	2	5	7	1	6	3	
5	1	7	4	2	3	6	
2	4	1	6	3	5	7	
6	7	3	5	4	1	2	

4. Deficit Sudoku

17 points

Rules: Place a number from 1-7 in each empty cell in the grid such that each row and column contains each number exactly once, and each marked 6-cell region contains each number at most once.

	1	2	5	6	4		
	5				7		
	7				3		
	4				2		
	6	3	4	2	5		

4	3	6	7	5	1	2	
7	1	2	5	6	4	3	
2	5	4	3	1	7	6	
6	7	1	2	4	3	5	
3	4	5	6	7	2	1	
1	6	3	4	2	5	7	
5	2	7	1	3	6	4	

5. Odd-Even-Big-Small Sudoku

39 points

Rules: Place a number from 1-8 in each empty cell in the grid such that each row, column and marked 4×2 box contains each number exactly once. The clues outside the grid indicate that the first two cells in the corresponding direction must contain numbers matching the description. Odd = {1,3,5,7}; Even = {2,4,6,8}; Big = {5,6,7,8}; Small = {1,2,3,4}.

	1			8			
小 small		2					
			3				小 small
偶 even				4			
					5		大 big
		7				6	
	偶 even	小 small		奇 odd	小 small		

	2	8	3	7	5	6	4	1	
	5	1	4	6	7	8	2	3	
小 small	1	4	2	8	6	3	7	5	
	7	5	6	3	8	4	1	2	小 small
偶 even	8	6	5	2	4	1	3	7	
	3	7	1	4	2	5	8	6	大 big
	4	3	7	5	1	2	6	8	
	6	2	8	1	3	7	5	4	
	偶 even	小 small		奇 odd	小 small				

6. Classic Sudoku

43 points

Rules: Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once.

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

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

7. Diagonal Sudoku

35 points

Rules: Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once. Each marked diagonal must also contain each number from 1-9 exactly once.

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

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

8. Odd Sudoku

37 points

Rules: Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once. Numbers placed in shaded cells must be odd.

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

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

9. Killer Sudoku

79 points

Rules: Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once. The numbers placed in each marked cage must sum to the total given in its top-left. Numbers must not repeat in cages.

20		9		17	9		20	
		22	16		27	18		
8								11
				15				
12						22		
8	30				17			11
	11			19		16		
24								17
		16						

20	6	3	9	2	7	17	9	8	1	20	5	4
	4	7	22	8	1	16	6	27	5	18	9	2
8	1	9	5	3	2	4	7	8			11	6
	7	2	4	6	3	15	9	8	1			5
12	8	1	3	4	5	2	22	6	7			9
8	5	30	6	9	8	1	17	7	2	4	11	3
	3	11	4	6	5	7	1	16	9	2		8
24	9	8	1	2	4	3	5	17	6			7
	2	5	16	7	9	8	10	6	4	3		1

10. Irregular Sudoku

44 points

Rules: Place a number from 1-9 in each empty cell in the grid such that each row, column and marked region contains each number exactly once.

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

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

11. XV Sudoku

60 points

Rules: Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once. Adjacent cells containing numbers summing to 5 are marked with a “V”; adjacent cells containing numbers summing to 10 are marked with an “X”. Adjacent cells with no marking must not contain numbers summing to 5 or 10.

	x 3		1	x	x		v	
	v	x 2				x		x
	v 2		9					
			x					
	v				2 x	9		v
			v	x	x	9		8 x
			v			x 3		x
				x				
			v					

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

12. Consecutive Sudoku

47 points

Rules: Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once. Adjacent cells containing consecutive numbers are marked. Adjacent cells with no marking must not contain consecutive numbers.

7								
			3					8
							2	
	2							
8			9					
								7

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

13. Thermo Sudoku

65 points

Rules: Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once. Starting at the “bulb,” numbers placed along each marked thermometer must form a strictly increasing sequence.

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

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

14. Arrow Sudoku

63 points

Rules: Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once. The number placed in a cell with a circle must be the sum of the numbers placed in cells the adjoining arrow passes through. Numbers may repeat on arrows.

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

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

15. Extra Regions Sudoku

43 points

Rules: Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once. Each of the shaded regions must also contain each number from 1-9 exactly once.

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

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

16. Palindrome Sudoku

88 points

Rules: Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once. Numbers placed along marked lines must form a palindromic sequence, e.g. 1234321.

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

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