UK Sudoku Championship 2017

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World Sudoku Championship Qualification

INSTRUCTION BOOKLET

Friday 9th June - Monday 12th June

2 hours

Introduction. These are the instructions for the 2017 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=5&t=1680*.

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 2017. Additionally, the top two scoring participants will qualify to represent the UK team at the World Sudoku Championships in Bangalore, India. For more information on the qualifying process, see *http://www.ukpuzzles.org/qualification.php*.

International participation is warmly welcomed.

Registration. To participate in the championship, you will need to be 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=42*. It is recommended you download the PDF before you retrieve the password.

The championship will start at **12:00 BST (GMT+1), Friday 9th June 2017**, when the password for the PDF will be made available. Upon retrieving the password, you will have **2 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 **01:55 BST (GMT+1), Tuesday 13th June**; as such it is highly recommended that you retrieve the password and start solving before **23:55 BST (GMT+1), Monday 12th June**.

Answer Entry & Submission. To submit your answers, you will need to go to the answer submission page: *http://www.ukpuzzles.org/answers.php?contestid=42*. 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.

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 2 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	35	Windoku	49
Deficit Sudoku	45	Killer Sudoku	63
Surplus Sudoku	41	Non-Consecutive Sudoku	43
Odd-Even-Big-Small Sudoku	33	Arrow Sudoku	38
Classic Sudoku	21	Classic Sudoku	29
Classic Sudoku	25	Classic Sudoku	39
Diagonal Sudoku	86	Palindrome Sudoku	78
Irregular Sudoku	50	Eliminate Sudoku	45
		TOTAL:	**720**

Participants who submit correct answer keys for 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.

A partial bonus of **2 points** for each minute saved will apply if all but one submitted answer keys are correct.

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 Esra Aydemir, Agnieszka Buczma, Shiyu Chen, Isabelle Gall, Prasanna Seshadri, Tawan Sunathvanichkul, Tiit Vunk, MingYi Wang, Jason Zuffranieri and Jan Zverina 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 at a significantly larger size - 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   35 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. Deficit Sudoku   45 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

3. Surplus Sudoku   **41 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.
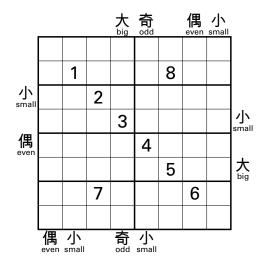
			3			
	3	6	2	5	4	
	5					7
4	2				6	3
	1				3	
	4	1	6	3	5	
			5			

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. Odd-Even-Big-Small Sudoku   **33 points**

Rules: Place a number from 1-8 in each empty cell in the grid such that each row, column and marked 8-cell 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}.

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

5. Classic Sudoku   21 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

6. Classic Sudoku   25 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   **86 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.

8. Irregular Sudoku   **50 points**

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

9. Windoku   **49 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 four shaded 3×3 regions must also contain each number from 1-9 exactly once.

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

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

10. Killer 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 numbers placed in each marked cage must sum to the total given in its top-left. Numbers must not repeat in cages.

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

11. Non-Consecutive 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. Numbers placed in adjacent cells must not be consecutive.

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

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

12. Arrow Sudoku   38 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. A 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.

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

13. Classic Sudoku   29 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.

Puzzle:

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

Solution:

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

14. Classic Sudoku   39 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.

Puzzle:

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

Solution:

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

15. Palindrome Sudoku   78 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.
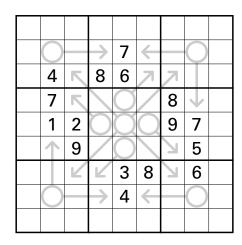
					7	9		
	2	8				7	6	
	6						8	3
			1					8
				4				
3					2			
4	8						9	
	9	3				8	1	
		6	3					

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

16. Eliminate Sudoku   45 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 cells with arrows must not repeat in the corresponding direction.

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

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