

**UK Sudoku Championship 2019**

**&**

**World Sudoku Championship Qualification**

# **INSTRUCTION BOOKLET**

**Friday 7th June - Monday 10th June**

**2 hours**

**Introduction.** These are the instructions for the 2019 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=2005>.

**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 2019. Additionally, the top two scoring participants will qualify to represent the UK team at the World Sudoku Championships in Kirchheim, Germany. 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. You can register here: <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=49>. It is recommended you download the PDF before you retrieve the password.

The championship will start at **15:00 BST (GMT+1), Friday 7th June 2019**, 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 11th June**; as such it is highly recommended that you retrieve the password and start solving before **23:55 BST (GMT+1), Monday 10th 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=49>. 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.

		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	


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](mailto: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
Odd Sudoku	9	Windoku	33
Even Sudoku	9	Killer Sudoku	62
Deficit Sudoku	22	Non-Consecutive Sudoku	28
Surplus Sudoku	41	Sandwich Sudoku	71
Odd-Even-Big-Small Sudoku	58	Eliminate Sudoku	55
Classic Sudoku	31	Classic Sudoku	39
Classic Sudoku	33	Palindrome Sudoku	51
Diagonal Sudoku	66	Thermo Sudoku	48
Irregular Sudoku	64		
<b>TOTAL:</b>			<b>720</b>

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 Hatice Esra Aydemir, Isabelle Gall, Zuzana Hromcová, Yuhei Kusui, Prasanna Seshadri, Tawan Sunathvanichkul, Tiit Vunk and Jan Zvěřina 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. Odd Sudoku

**9 points**

**Rules:** In each grid, place a number from 1-6 in each empty cell such that each row, column and marked  $3 \times 2$  box contains each number exactly once. Numbers placed in shaded cells must be odd.

4		3			
	2				
1					
					1
				2	
			4		6

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

### 2. Even Sudoku

**9 points**

**Rules:** In each grid, place a number from 1-6 in each empty cell such that each row, column and marked  $3 \times 2$  box contains each number exactly once. Numbers placed in shaded cells must be even.

5		4			
	3				
2					
					2
				3	
			5		1

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

### 3. Deficit 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 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

### 4. 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

## 5. Odd-Even-Big-Small Sudoku

58 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}.

	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

31 points

**Rules:** Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3x3 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

## 7. Classic Sudoku

33 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

## 8. Diagonal Sudoku

66 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

## 9. Irregular Sudoku

64 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				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

## 10. Windoku

33 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



## 11. Killer Sudoku

62 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			10			

20	6	3	9	2	7	17	9	8	1	20	5	4
	4	7	22	8	16	1	6	27	18	3	9	2
8	1	9	5	3	2	4	7	8	11	6		
	7	2	4	6	15	3	9	8	1	5		
12	8	1	3	4	5	2	22	6	7	9		
8	5	30	6	9	8	1	17	2	4	11	3	
	3	11	4	6	5	19	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	

## 12. Non-Consecutive Sudoku

28 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

### 13. Sandwich Sudoku

71 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 clues outside the grid indicate the sum of numbers placed in the cells between those cells containing 1 and 9 in the corresponding direction.

	7	12	22	23	13	23	0	14	30
12									
16									
4									
0									
2				1					
0									
17									
22									
12									

	7	12	22	23	13	23	0	14	30
12	3	8	5	7	9	4	2	6	1
16	7	2	6	1	8	3	5	9	4
4	1	4	9	6	2	5	7	3	8
0	2	6	8	4	3	9	1	5	7
2	5	3	7	8	1	2	9	4	6
0	9	1	4	5	6	7	8	2	3
17	6	7	3	9	5	8	4	1	2
22	8	5	1	2	4	6	3	7	9
12	4	9	2	3	7	1	6	8	5

### 14. Eliminate Sudoku

55 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 be placed in subsequent cells 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		7	1
8	4	1	7	3	2		9	6
			9	5	1		8	2
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		6	8	4			
3	2		1	9	7	4	5	6
4	1		5	2	3	7	9	8

### 15. 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.

	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

### 16. Palindrome Sudoku

51 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.

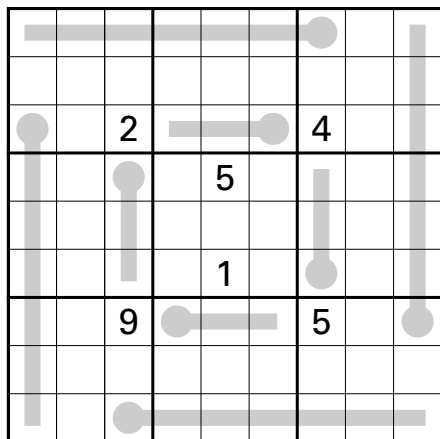
					7	9		
	2	8				7	6	
	6						8	3
			1					8
				4				
3					2			
4	8						9	
	9	3				8	1	
		6	3					

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

## 17. Thermo Sudoku

48 points

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



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