UK Puzzle Association SUDOKU Championship 2012
All puzzles by Gareth Moore

Duration: 2 hours

Start any time from Friday 17/8/12 12:00 to Monday 20/8/12 22:00 BST (GMT+1)

Instructions

You may start the round at any time of your choosing within the time window shown above. Download the contest PDF in advance of pressing 'START NOW' - this will then provide a password to let you view and print the round. You then have up to 2 hours to complete the championship, or as much of it as you are able.

For each puzzle enter the two given key rows/columns, separated by a comma in the form "A,B", into the online form. For examples see puzzles 1 and 12. You must submit a puzzle's key before time is up in order to receive any credit for a puzzle. Keys must be 100% correct in order to guarantee full credit for a puzzle. In exceptional circumstances allowances may be given for obvious key entry errors; unless it is clear beyond doubt that you solved the puzzle correctly these will be awarded at 50% of the original point value of a puzzle. You may submit as often as you like. Your last submission of a key will be taken as definitive.

10 bonus points per full minute remaining will be awarded if you complete the championship early with all puzzles scored at full points. If you complete early but with errors then a bonus of 5 points per full minute will be awarded if no more than 2 puzzles are incorrect or penalised, so long as any incorrect keys are plausible solution attempts.

The competition booklet will only contain the puzzles. There is one puzzle of each type, with two puzzles per page. There will be no cover page or instructions.

The examples may differ in difficulty to the competition puzzles; the example solutions are at the back. The points value of a puzzle indicates their relative difficulty, in our estimation.

Thank Yous

Thank you to Thomas Snyder and Liane Robinson for test-solving all puzzles, plus thanks to Alan O'Donnell for additional test solving.

1. SUDOKU

☐ Place 1-9 once each into every row, column and bold-lined 3×3 box.

B ▼

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

A ► (points to row 4)

20 points

Key:
For all puzzles enter row/column A followed by row/column B into the relevant row of the submission form, separated by a comma.

For example for this puzzle enter **729836451,975123864**

Also see puzzle 12 for a special note.

2. ODD-EVEN LITTLE KILLER

☐ Place 1-9 once each into every row, column and bold-lined 3×3 box.
☐ The sum of some diagonals is given, with an arrow pointing to the diagonal the sum applies to.
☐ All shaded cells contain even digits.
☐ All unshaded cells contain odd digits.

Top diagonals: 45, 33, 25, 26, 18, 14, 11, 8

30 points

Left side: 7, 7, 10, 24, 27, 36, 24, 32

Right side: 42, 44, 23, 20, 21, 18, 7, 5

Bottom: 9, 5, 11, 30, 26, 20, 40, 38

3. QUAD PENCILMARK SUDOKU

☐ Place 1-9 once each into every row, column and bold-lined 3×3 box.
☐ Wherever four digits are given on the intersection of four cells then these four digits must be placed into those four cells in the given distribution. It is up to you to work out which digit goes into which cell.

40 points

```
4589  2689
              1359
      5678        1478
                        1368
              3568
        1469 1236     1267
                          3456
```

4. ARROW SUDOKU

☐ Place 1-9 once each into every row, column and bold-lined 3×3 box.
☐ Digits in circled cells must be equal to the sum of the digits along their attached arrows.

40 points

```
        O           5
      7   O       2         O
      5       7         6
5
        8         7
      O               5
      9       8     4
  O   6       O   9
        4           O
```

5. SUDOKU XV

- Place 1-9 once each into every row, column and bold-lined 3×3 box.
- *All* pairs of adjacent cells where the sum of the values in both cells is equal to 5 are marked with a '**v**'.
- *All* pairs of adjacent cells where the sum of the values in both cells is equal to 10 are marked with an '**x**'.

40 points

6. SUM SKYSCRAPER SUDOKU

- Place 1-9 once each into every row, column and 3×3 box.
- Each number inside the completed grid represents a building of that many storeys. Place the buildings in such a way that each given clue outside the grid represents the *sum of the heights of the buildings* that can be seen from that point, looking only at that clue's row or column.
- A building with a higher value always obscures a building with a lower value, while a building with a lower value never obscures a building with a higher value.

60 points

7. SNAKE SUDOKU

- Place 1-9 once each into every row, column and bold-lined 3×3 box.
- Each pair of touching linked cells along the length of a snake is consecutive. 'Consecutive' means that the two cells have a numerical difference of 1, so for example 3&4 or 8&7 are consecutive but 5&7 are not..

60 points

							5	
	4							
			8		6			
			7		1			
							3	
	2							

8. KING OF ARGYLE SUDOKU

- Place 1-9 once each into every row, column and bold-lined 3×3 box.
- No digit can be repeated along any marked diagonal line (argyle sudoku).
- No two identical digits can touch diagonally ('anti-king' sudoku).

60 points

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

9. THERMOMETER SUDOKU

☐ Place 1-9 once each into every row, column and bold-lined 3×3 box.
☐ The value of the digits along each shaded thermometer must increase cell by cell from the bulb (lowest value) to the head (highest value). This also means that digits cannot be repeated in a thermometer.
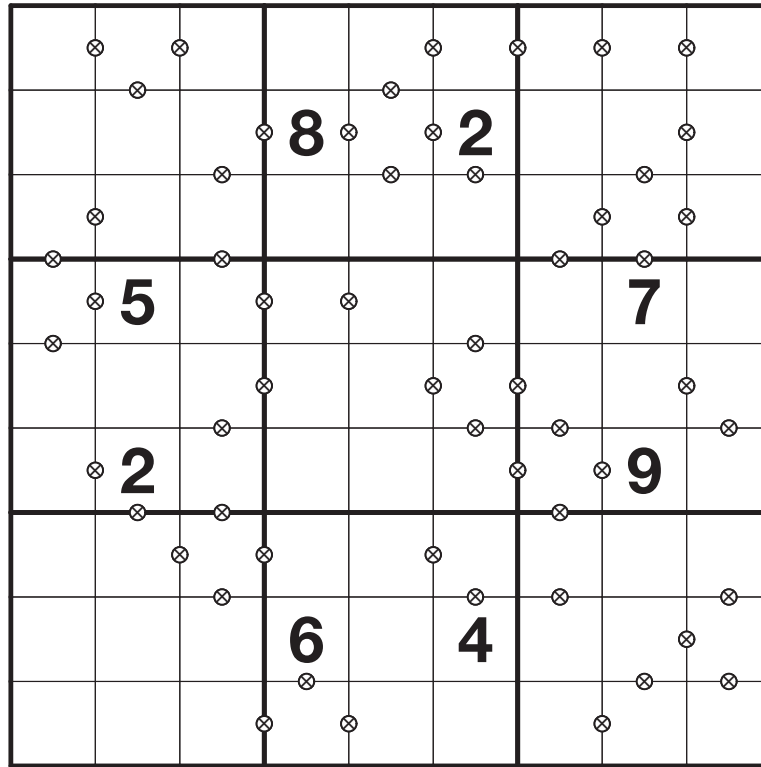
60 points

10. QUAD MAX SUDOKU

☐ Place 1-9 once each into every row, column and bold-lined 3×3 box.
☐ Arrows in cell corners indicate where the value in a cell is greater than all three touching cells that the arrow is nearest to. All possible arrows are given.

70 points

11. MULTIPLE SUDOKU

- Place 1-9 once each into every row, column and bold-lined 3×3 box.
- *All* pairs of adjacent cells where the value in one cell is equal to the value in the other cell multiplied by an integer number are marked with a circled multiplication symbol.

70 points

12. BLACKOUT JIGSAW SUDOKU

- Place eight different digits from the range 1-9 into every row, column and bold-lined jigsaw shape.
- Do not place any digits on blacked-out (shaded) cells.
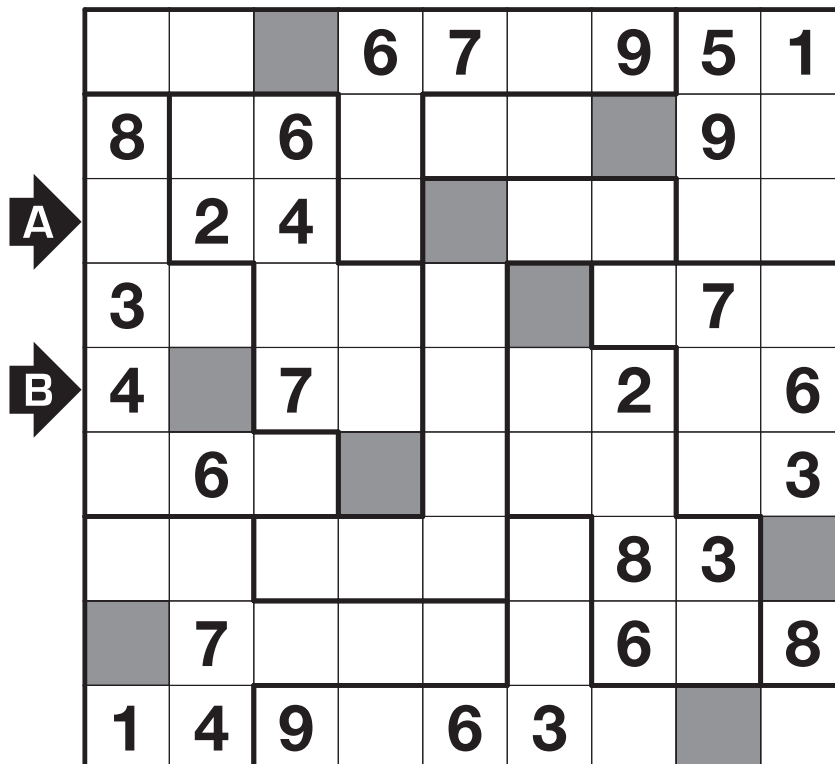
70 points

Key:
For this puzzle enter 0 for any shaded square. So for this example the key would be:
924506387,407395216

13. MYSTERY KILLER ZERO SUDOKU

- Place 1-9 once each into every row, column and 3×3 box.
- No digit may be repeated in any dashed-line cage, and each dashed-line cage must result in the given value when a particular operation is applied between all of the digits in that cage. That operation may be addition, subtraction, multiplication or division – it is up to you to work out which.
- For subtraction and division operations, start with the highest digit in the cage and then subtract or divide by the other digits in that cage.
- There may be multiple operations that result in the correct value.

100 points

28?		0?				10?		
12?			224?					
		25?				72?	32?	
13?				8?		28?		
							11?	
		192?						
210?			3?				13?	
36?	26?			23?		0?		

14. NON-CONSECUTIVE CORNER SUDOKU

- Place 1-9 once each into every row, column and bold-lined 3×3 box.
- No two diagonally-touching cells may contain consecutive digits. 'Consecutive' means that the two cells have a numerical difference of 1, so for example 3&4 or 8&7 are consecutive and therefore may not be diagonally touching, but 5&7 are non-consecutive and so can touch.

110 points

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

SOLUTIONS

Grid 1

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

Grid 2

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

Grid 3

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

Grid 4

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

Grid 5

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

Grid 6

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

Grid 7

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

Grid 8

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

Grid 9

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

Grid 10

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

Grid 11

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

Grid 12

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

Grid 13

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

Grid 14

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

For more examples of some of these variants check the author's puzzle websites:

www.puzzlemix.com
www.sudokuxtra.com
www.garethmoore.co.uk