



# 13th World Sudoku Championship

# Instruction booklet







## Schedule

Monday 5.1	.1. 2018	
9:00-9:30	Individual round 1	Classical start
9:45-10:30	Individual round 2	FED Alternatives
10:55-12:25	Individual round 3	Krtek's Cup
14:15-14:45	Individual round 4	Arrow style
15:00-15:30	Individual round 5	Growing regions
15:55-16:45	Individual round 6	FED Variants
17:00-17:20	Individual round 7	Flip-flop classics
17:45-18:45	Team round 1	Two pairs
Tuesday 6.	11. 2018	
9:00-9:40	Individual round 8	Killer style
9:55-10:45	Individual round 9	WPF Grand Prix
11:10-12:15	Individual round 10	Czech Grand Prix
14:00-14:45	Team round 2	Mysterious samurai
15:00-15:40	Team round 3	Coded
16:00-18:00	Individual playoff	
20:00-20:45	Team playoff	

## **Competition rules**

#### Scoring and bonuses

Points will be awarded only for fully and correctly solved puzzles. In general, there is no partial credit unless it is stated otherwise in the round's description.

#### Individual rounds

A bonus of 10 points for each full remaining minute will be awarded to any competitor who correctly solves each puzzle in a round. At the judge's discretion,  $0.6 \times$  bonus will be awarded in the case of a single minor mistake in no more than 1 puzzle. For the avoidance of doubt, a minor mistake is considered at most two incorrectly filled cells in at most one of the puzzles.

#### Team rounds

A bonus of 40 points for each full remaining minute will be awarded to any team who correctly solves all the puzzles in a round. If there are any mistakes, then no bonus will be awarded.

Overall team score is calculated as a sum of 4 individual scores and scores from 3 team rounds.

#### **Competition Hall Rules**

1. Each competitor has to sit at his/her pre-allocated desk in individual rounds. Teams have to work at their pre-allocated desks/areas for team rounds.

2. Prior to the start of each round, competitors must ensure they are at their desks ready for the start of the round. Late arrivals may not be permitted to enter the competition hall to take part in a round (at the discretion of the organizers).

3. Prior to the start of each round, competitors have to clearly write their name, team and reference number on the front of their competition booklet into the allocated space. If this information is not complete, then the organizers reserve the right not to award any points to that competitor for that round. Competitors must not open their booklets before the official start of the round.

4. When the signal for the start of the round has been given, competitors may open their booklets and begin solving the puzzles.

5. During each individual round, competitors have to keep silent, unless declaring completion of a round.

6. During team rounds, team members may talk to each other, but should do this with respect to other teams.

7. To declare a round complete, a competitor must close his/her booklet, clearly state "finished" and raise his/her arm with the booklet. The competitor's arm must be raised until the booklet is collected. The same rules apply for the team competition.

8. Competitors or teams who complete a round with more than five minutes in advance, are allowed to leave the competition hall quietly.

9. Competitors or teams who complete a round with five minutes or less left are not allowed to leave their desks or tables in order to not to cause unnecessary disruption to fellow competitors.

10. When a competitor leaves the competition hall for any reason, he/she will be not allowed to continue in that round.

11. When the signal to finish round is given, competitors have to stop solving immediately, close their booklets, put their pens/pencils down and their hands up with their booklets for collecting.

12. At the end of a round, competitors have to remain seated until all booklets have been collected. The signal to get up and leave will be given by the supervisor.

13. Mobile phones and electronic devices are not permitted to use in the competition hall. The devices have to be turned off and must not be placed on the competitor's desk.

14. Only team captains and official observers equipped with a name tag are allowed to enter the competition hall while either individual or team rounds are taking place. Other non-competing participants may enter the competition hall at the discretion of the organizers.

15. Competitors may not use cameras or other recording devices during rounds. Only official observers may do so, at the discretion of the organizers. They have to respect the competitors and not use flash photography or cameras with excessive sounds.

16. When a competitor believes that there is a problem with a puzzle, they must clearly state that puzzle is wrong by writing "Wrong puzzle" next to it. The competitor must not notify the organizers during the round. This will be investigated upon completion of the round.

17. Puzzles can be completed in any order within a round. The points' value of a puzzle is an indication of its expected difficulty, although individual solving experience may differ. The difficulty of an example puzzle does not necessarily reflect the difficulty of the corresponding competition puzzle.

18. The boxed area below each puzzle is reserved for markers' notes – competitors must not write in this area.

#### **Permitted items**

19. Permitted items which can be used in the competition hall (unless stated otherwise) are: pens, pencils, pencil sharpeners, erasers, rulers, blank papers and instruction booklets annotated with notes regarding puzzle instructions and preparation notes.

20. Drinks and snacks are permitted as long as they do not disturb other competitors with a strong smell or rustling packet.

21. It is strictly forbidden to use electronic devices such as music players and headphones or any type of calculator. Use of such equipment may lead to the disqualification of the competitor.

22. Any other items brought into the hall must be kept in a bag on the floor and placed under the competitor's desk, so as not to block the aisles.

#### **Marking and Queries**

23. When a round has been evaluated, fully marked booklets are returned to a team member equipped with a country tag at a given location in a given time. Country tags will be distributed to each captain prior the start of the championships.

24. In case of any query after a booklet has been evaluated and returned to a competitor, the query must be raised through a team member with country tag to the organizers in the specified time. The schedule for the queries will be published before the competition. The booklet should be left with the organizers for investigation.

25. Puzzles may be photographed during the marking phase in order to prevent subsequent interventions.

26. Team captains are responsible for ensuring that any information given to them related to the competition is effectively relayed to their team.

#### **Breach of Rules**

27. Any breach of these rules may lead to a competitor or team being disqualified from the round or competition.

28. The decision of the WSC tournament director (Jan Novotný) is final.

#### **Final Remarks**

29. In case of a major mistake in one of the rounds, organisers reserve the right to cancel the round, either by removing it from the time schedule, or by not rewarding any points for it to any of the competitors.

30. The official puzzle booklets will contain 1-3 puzzles per page in the individual rounds. The rules of the puzzle and the corresponding points are always written next to it.

31. The official puzzle booklets will not contain puzzle examples. Therefore, we recommend to bring the Instruction Booklet, which contains an example of every puzzle which will be part of the championship.

32. In the team rounds, the official puzzle booklets may not contain the rules of puzzles / examples. It is advised to bring at least one Instruction Booklet for a team for these rounds.

33. In any case of inconsistency between the Instruction Booklet and the official puzzle booklets, e.g. rules or points, the information in the Instruction Booklet will be considered valid.

34. In the competition hall, a timer counting down to the end of the round will be visible for all the competitors.

#### Credits

35. All the sample puzzles in this Instruction Booklet were made by Jan Novotný. They cannot be commercially used. All rights have been reserved.

36. We would like to thank the organizers of previous WSC & WPC, we use parts of the Competition Rules from the Instruction Booklets published in past.

#### Individual playoffs

The top 10 competitors from the individual competition will qualify for the playoffs. In case of any equality between the points of the top competitors, all players with the same score will compete in the corresponding round. (If inevitable at some stage of the playoffs, next tiebreaking criteria are 1) score without time bonuses, 2) score in Round 3, 3) extra puzzle of WR Classics.) Time differences will be calculated proportionally based on the top score and the 10th top score. Maximal difference (between 1st and 10th place) will be 10 minutes.

Finals will be divided into three rounds. The first round will feature competitors who finished in positions 7-10, with staggered starts determined by points' differences. The winner of the first round, 'A', will progress into the second round along with competitors who finished in positions 4-6. 'A' will have a staggered start as determined by the 7th place competitor. The winner of the second round, 'B', will progress into the third round along with competitors who finished in positions 1-3. 'B' will have a staggered start as determined by the 7th place for the 13th World Sudoku Championship.

The time limits for a single round will be 21, 28, 35 minutes respectively. The number of puzzles to be solved will be 3, 4, 5 respectively and their order is fixed and the same for all competitors. These puzzles will be chosen by play-off competitors from the sets of puzzles revealed by organisers on Tuesday morning, all the puzzle types are from individual rounds 1-10. The selection of puzzles for the finals will take place before the corresponding play-off round, when all four competitors from this round are present at their desks.

For each round of finals, 6 (8, 10) different puzzles are prepared. The competitor on the best position in this round will choose one puzzle, which will be solved in this round of the finals (and selects its placement), and one puzzle, which will not be solved at all. The next competitor will choose from the remaining puzzles, one puzzle, which will be solved and one, which will not be solved. And so on until 3 (4, 5) puzzle types are chosen and placed.

#### Solving, Submission, Grading and Ranking

When a play-off competitor completes a puzzle, he/she must raise his/her hand to indicate to a judge to enter the submission period.

The entire puzzle will then be checked over the next minute. After one minute, if the puzzle is correct, the judge will allow the competitor to begin the next puzzle. If the puzzle is incorrect, the judge will return the incorrect puzzle to the competitor. The competitor can resubmit a returned puzzle at any time, and will again enter the submission period.

The first and second round of the play-off stops either with the end of the time limit, or when the first competitor solves correctly all puzzles in the round, whichever is earlier.

The third round of the play-off stops either with the end of the time limit, or when 3 competitors solve correctly all puzzles in the round, whichever is earlier.

The rank for a playoff round is determined by a) number of correctly solved puzzles, b) time of the last correct submission, c) score in preliminary rounds. In playoff rounds 1 and 2 we care only about the winner, other players are ranked according to the score in preliminary rounds. In the big finals all positions 1-4 are determined by playoff results.

#### **Team playoffs**

The top 4 teams after the preliminary rounds will qualify for the playoffs. In case of any equality between the points of the top teams, all teams with the same score will compete in the finals.

The format of the Team Play-off will be the Weakest link, i.e. the members of the team will start solving individually and after they submit their puzzles, they will be allowed to join the team table where a team puzzle will be solved.

The time limit for the whole round is 42 minutes. The team on the best position after the Preliminary Rounds will start solving at 42:00. The team on the worst position after the Preliminary Rounds will start solving at 36:00. Staggered starts of other teams in the team play-off will be calculated according to the team points.

Individual task is to solve two overlapping grids. Classic sudoku rules apply. Moreover, three sets of instructions and three transparent foils (with decorations, e.g. grey lines) are given to a player. Two sets of instructions and the two corresponding foils must be used to solve the puzzle. Foils can be rotated, but not flipped.

Player has to solve correctly the individual task to be allowed to move to the team puzzle. He/she will take with him the unused instructions and foil.

The team task is to solve 5 overlapping grids. Classic sudoku rules apply. The four sets of instructions and the corresponding foils must be assigned to the four corner grids. Foils can be rotated, but not flipped.

Team finals stops either with the end of the time limit, or when 3 teams solve correctly all puzzles in the round, whichever is earlier.

The rank is determined by a) number of correctly solved partial grids (each grid from both individual and team tasks is correct when it corresponds to the overall solution), b) time of submission of the last correct solution, c) score in preliminary rounds.

Puzzle types are: set A = Arrows, Consecutive, Palindromes; set B = Elimination, Fortress, Greater than; set C = Clockfaces, Extraregions, Sequences; set D = Multidiagonal, Renban, Thermometers.





345 points

## Round 1 – Classic sudoku

### 30 minutes

1.	Lucca 200620 pc	oints
2.	Prague 200740 pc	oints
3.	Goa 2008	oints
4.	Žilina 2009	oints
5.	Philadelphia 201025 pc	oints
6.	Eger 201125 pc	oints
7.	Kraljevica 2012	oints
8.	Beijing 201325 pc	oints
9.	London 2014	oints
10.	Sofia 201520 pc	oints
11.	Senec 201625 pc	oints
12.	Bangalore 2017	oints
13.	Prague 2018	oints

#### 1-13) Classic sudoku

Rules: Fill in the grid with digits 1 to 9 so that every row, column and outlined box contains nine different digits.

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

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





515 points

## **Round 2 – FED alternatives**

#### 45 minutes

1.	Greater than20	points
2.	Consecutive	points
3.	Diagonal	points
4.	Quadro40	points
5.	Windoku	points
6.	Killer	points
7.	Disjoint groups70	points
8.	Irregular	points
9.	Jigsaw Killer70	points
10.	Greater than and Killer90	points

#### 1) Greater than

Rules: Follow classic sudoku rules. All digits should follow the given inequality signs.



		-						
6 -~~ -~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	2 9 9 8	->	5×1×	>3 <4 <9	8>6<7	ິ ວ>ກ 5</td <td>&gt;7&gt; -&lt;8 -&gt;1&lt;</td> <td>&gt;4 &gt;2 &gt;2 ≤6</td>	>7> -<8 ->1<	>4 >2 >2 ≤6
5<9 -9 -7	< 6 < > 3 < < 4 <	7>2<8	4 6 7	2< 8 5	9>1<3	1<4<6	<3< <5< 2	8 7 9
2<4<8	> 1 <5 <7	6<9>3	3<8<9	<7 >1 >6	4>2<5	8 7 2	<9 >6 4 4	>5 ->3 ->1

#### 20 points

7

#### 25 points

30 points

## 2) Consecutive

 $Rules: Follow\ classic\ sudoku\ rules.\ All\ pairs\ of\ adjacent\ consecutive\ digits\ are\ marked\ with\ a\ circle.$ 

C	6		C	>	5	}	50	>
		4	7	C	6		(	>
	U	4				Č		>
					$\square$	2	C	
3		>	C	$\left  \right\rangle$	Ĭ	$\mathcal{F}$		þŽ
		>		>		C		>
			C	>				
			2		1		C	>
C	24			C	>		80	>

7<6       3       9<8       2<1       5<4         4       1       8<7       5<6       9       3<2         9       2       5<4       1       3       8<7         1       7       2       6       3       5<4       9         3       8<9       1<2       4       5<6       6
4       1       8<7
9       2       5       4       1       3       8       7         1       7       2       6       3       5       4       9         3       8       9       1       2       4       5       6
1       7       2       6       3       5       4       9         3       8       9       1       2       4       5       6
3 809 102 405060
6 4 4 8 4 7 9 3 4 2 4
2 9 7 504 8 6 1 3
8 3 6 2 9 1 7 40
5 9 4 1 3 6 9 7 2 8 9

#### 3) Diagonal

 $Rules: Follow\ classic\ sudoku\ rules.\ Moreover\ digits\ do\ not\ repeat\ on\ the\ two\ main\ diagonals.$ 

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

0.	_							
9	7	3	6	2	4	8	1	5
5	6	8	1	3	7	4	2	9
4	2	1	5	9	8	7	3	6
6	4	5	8	7	1	2	9	3
1	3	7	2	4	9	6	5	8
2	8	9	3	6	5	1	4	7
7	1	6	9	5	2	3	8	4
3	9	2	4	8	6	5	7	1
8	5	4	7	1	3	9	6	2

## 4) Quadro

 $Rules: Follow\ classic\ sudoku\ rules.\ There\ must\ be\ at\ least\ one\ even\ and\ at\ least\ one\ odd\ digit\ in\ every\ 2\times 2\ adjacent\ cells.$ 

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

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

## 40 points

8

#### 45 points

5) Windoku

Rules: Follow classic sudoku rules. Moreover digits do not repeat in four grey windows.

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

69′	2	_				
		5	3	7	8	4
8 7 2	6	9	4	5	1	3
5 3 4	. 1	7	8	9	6	2
1 5 9	8	4	2	3	7	6
3 4 7	5	1	6	2	9	8
286	9	3	7	4	5	1
7 1 3	4	6	9	8	2	5
4 2 5	7	8	1	6	3	9
968	3	2	5	1	4	7

#### 6) Killer

Rules: Follow classic sudoku rules. There are several cages in the grid with a dashed-line outline. (Several of them are formed by two or three diagonally connected cells.) Sum of all digits in every cage is given. Same digit cannot be repeated in one cage.

	12	6		16 1	5 1		7	
/	·	<u>L</u>	- <u>-</u> -' r:'	1 1 1 1	L F <sub>1/</sub> I	'	<u>ا ہے</u>	<u> </u>
	• _		ı"ı ı ı	· ·	1 <sup>4</sup> 1 1	, '°		
<b>-</b> 4 1		12	· ·	<b>-</b> 10 - 1	1 1 1 1	14	: :	<b>r</b> 91
· ·		<u> </u>	<u>'</u> '	1 I I I	<u></u>		·	1 I
· · ·	L			י י <u>י</u> '		ı" L	   '	1 1 
 -		15 -			<b>F</b> 8 I	,	15	1
<u>                                     </u>	<u> </u>	<u>L</u> ı	- <u>'</u>	<b>F</b> 10 <sup>1</sup>	<u>L</u> F <sub>13</sub> <sup>I</sup>	' 「15	<u>L</u>	' r <sub>6</sub> '
1 <sup>11</sup> 1 1 1	،	!		1 <sup>10</sup> 1 1 1			, , , , , , , , , , , , , , , , , , ,	
	16 1		"17""		<b>r</b> 31 I I		16	
 	, , , ,	<u> </u>		<u></u> r <sub>8</sub> ı	1 1 1 1	<u>'</u>	<u>'</u>	<u></u>
· ·	ו <u>נ</u>	1	'	· ·	'	 		
		10			<b>-</b> 8		לי - ק י י י	



## 7) Disjoint groups

#### 70 points

Rules: Follow classic sudoku rules. There are nine more extraregions formed by cells in the corresponding positions inside all  $3 \times 3$  boxes, each of them contains nine different digits.

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

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

## 55 points

#### 8) Irregular

Rules: Fill in the grid with digits 1 to 9 so that every row, column and boldly outlined region contains nine different digits.

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

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

### 9) Jigsaw Killer

Rules: Follow irregular sudoku rules. There are several cages in the grid with a dashed-line outline. (Several of them are formed by two or three diagonally connected cells.) Sum of all digits in every cage is given. Same digit cannot be repeated in one cage.

	13	10 •	     	F <sub>8</sub> I I I I I	i <sub>6</sub>	I I	13   	
	12		13 1 1		r <sub>4</sub> 1 1 1	16 •		
r <sub>9</sub> 1 1 1		F71 1 - 1 1)		r <sub>6</sub> i       		15		F <sub>8</sub> 1 1 1
	14 1	1	,		i - ', i i	I 11	,	
1 <sub>9</sub> 1 1		12			1 <sub>5</sub>		10	
10	17 1		10	14 1 1	<b>r</b> <sub>11</sub> <b>i</b> <b>i i</b>	i7 I		<b>r</b> <sub>10</sub>
	13		F <sub>5</sub>   		12 12		15	
	14					13		
	· · · ·	i <sub>7</sub>			11 1		· · · ·	,

9	7	2	8	¦°3	<u>'</u> 5	1	<sup>13</sup> 4	6
2	3	4	6	5	<sup>4</sup> 1	<u>'</u> 7	9	8
<u>8</u> 4	9	6	7	[°2]	3	8	1	5
5	<sup>1</sup> 6	8	1	4	[7]	19	2	3
8	1	17	5	9	' <u></u> 2	3	6	4
7	2	5	9	<sup>14</sup> 8	6	<sup>7</sup> 4	3	<sup>10</sup> 1
3	<sup>13</sup> 4	[1]	<sup>°</sup> 2	6	8	5	17	9
	5	9	3	[°7]	4	6	8	2
6	8	<sup>7</sup> 3	4	1	<sup>1</sup> 9	2	5	7

### 10) Greater than and Killer

### 90 points

70 points

Rules: Follow classic sudoku rules. There are several cages in the grid with a dashed-line outline. Sum of all digits in every cage is given. Same digit cannot be repeated in one cage. All digits should follow given inequality signs.



## 70 points





1180 points

## Round 3 - Krtek's Cup

### 90 minutes

1.	WR Classics20	points
2.	WR Classics	points
3.	XV sudoku	points
4.	Four pairs	points
5.	Irregular dots40	points
6.	Sequences45	points
7.	Thermometers	points
8.	Football65	points
9.	Fortress65	points
10.	Coded pairs65	points
11.	Detection	points
12.	Elimination75	points
13.	Nonconsecutive spiral85	points
14.	Orthogonal spacing85	points
15.	Clockfaces	points
16.	Killer 007110	points
17.	Counting neighbours110	points
18.	Number 5 still alive110	points

#### 1-2) Classic sudoku (WR Classics)

20, 30 points

Rules: Fill in the grid with digits 1 to 9 so that every row, column and outlined box contains nine different digits. (Both grids meet conditions for world sudoku record: 27 given digits,  $3 \times 1$ ,  $3 \times 2$ , etc., 3 given digits in a row, column and box.)

#### 3) XV sudoku

#### 30 points

Rules: Follow irregular sudoku rules. If the sum of two neighbouring numbers is equal to 5, the pair of such cells is marked with a letter "V". If the sum of two neighbouring numbers is equal to 10, the pair of such cells is marked with a letter "X". All possible letters are given.



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

#### 4) Four pairs

#### 35 points

Rules: Follow classic sudoku rules. There are two independent groups of eight cells in the grid, marked with a grey shading. Exactly four different digits can be found in each of the groups, each of them exactly twice.

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

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

#### 5) Irregular dots

#### 40 points

Rules: Follow irrregular sudoku rules. Rows and columns are marked with numbers 1 to 9. There is a white dot between two cells if the difference of the digits they contain is equal to the number of a row they are part of. There is a black dot between two cells if the sum of the digits they contain is equal to the number of a row they are part of. The same applies to the columns. All possible dots are drawn.



9	5	1	80	7	3	6	4	2
4	2	7	1	5	8	9	6	3
69	3	2	4	8	9	7	1	5
2	90	5	6	3	4	1	7	8
14	6	4	74	2	5	80	3	9
8	7	3	9	4	6	2	5	1
7	4	8	5	1	2	3	9	6
5	8	6	3	90	21	4	2	7
3	1	9	2	6	7	5	8	4

#### 6) Sequences

## 45 points

Rules: Follow classic sudoku rules. Digits along grey lines follow arithmetic sequences. It means that they go in increasing order from one end to the other and the difference between all pairs of consecutive cells along the line is a constant.

5						
					3	
8			<			
						9
	7					
						6

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

#### 7) Thermometers

#### 50 points

Rules: Follow classic sudoku rules. The digits along every thermomether go in increasing order, starting in the cell with a bulb.

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

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

#### 8) Football

### 65 points

Rules: Follow classic sudoku rules. Grey circles represent 14 football players divided into two teams. Players of each team are marked with numbers from 1 to 7. One team plays with a ball number 8, the other with a ball number 9. Player number 1 has a ball number next to him in a direction of a horizontal, vertical or diagonal pass to the player number 2. And so on up to the pass between players 6 and 7 of each team. No other player stands in the way of every pass.

0			2	Ο			O	
		5		3				
$\bigcirc$	2		9					
7		4						
Ο	8						6	O
		O		O	O	4		1
	Ο				1		3	
				2		6	0	
Ó			Ó		9	O		

3	6	7	2	4	8	1	5	9
9	1	5	7	3	6	8	4	2
4	2	8	9	1	5	3	7	6
7	9	4	1	6	3	2	8	5
2	8	1	5	9	4	7	6	3
5	3	6	8	7	2	4	9	1
6	7	2	4	5	1	9	3	8
8	5	9	3	2	7	6	1	4
$\bigcirc$	4	3	6	8	9	5	2	7

#### 9) Fortress

Rules: Follow classic sudoku rules. If a grey cell and a white cell share an edge, the number in the grey one is higher.

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

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

## 10) Coded pairs

### 65 points

Rules: Follow classic sudoku rules. Two cages with a dashed border are marked by the same letter if they contain the same pair of digits (in arbitrary order).

4				1				
A		9		ів і ів і		     	iD i iD i	2
		1		     		5	     	IE I
			8		F <sub>F</sub>   	   '	4	     
	7		3		5		8	
нв 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4				7			
     		2				7		
5	     	IE I		     		1	r <sub>F</sub> I L	
		I I I I		5				9

4	5	8	2	1	3	<sup>°</sup> 9	7	6
7	3	9	5	6	4	8	<u>"</u> 1	2
2	6	1	7	8	9	5	3	<b>4</b>
1	2	5	8	9	6	3	4	7
9	7	6	3	4	5	2	8	1
8	4	<sup>°</sup> 3	1	2	7	6	9	5
6	'°9	2	4	3	1	7	5	8
5	8	<sup>-</sup> 4	9	<u>[7]</u>	2	1	6	3
3	1	7	6	5	8	4	2	9

## 11) Detection

## 70 points

Rules: Follow classic sudoku rules. An arrow in a cell with digit N points to the direction where another digit N can be found. All possible arrows are drawn.

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

3	9	4	<b>6</b>	1	8	<b>"</b> 7	2	<b>5</b>
5	2	6	9	7	<b>4</b>	1	3	8
1	8	7,	5	2	.3.	9	.6.	4
2	1	5	4	9	7	3	8	6
8	4	3	2	6	1	<b>5</b>	9	7
6	7	.9	8	3	5	4	1	2
7	3	8	1	5	2	6	4	•9
9	5	2	3	4	6	₹8	7	*1
4	6	1	7	•8	₹9	2	⁵5	₹3

65 points

#### 12) Elimination

### 75 points

Rules: Follow classic sudoku rules. If there is a digit N in a cell with an arrow, the digit N cannot apear in a direction the arrow points at.

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

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

#### 13) Nonconsecutive spiral

#### 85 points

Rules: Follow classic sudoku rules. (The classic sudoku regions are marked with the shading not by the bold lines.) Pair of adjacent cells following the spiral way marked by a bold line cannot contain consecutive digits.

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

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

#### 14) Orthogonal spacing

### 85 points

Rules: Follow classic sudoku rules. Let's denote D a number in the marked cell. Let's denote A and B the two neighbouring numbers in the cells marked by arrows. The distance between numbers A and B in an ortogonal row / column (marked by the short grey line) should be equal to D. (It is possible to have two signs in one cell.)

				5			7	
				9			4	
			Ę.		2	8		3
_	-							
	ł							
	8	7		3	5		6	4
4			1			9		
6			8			1		

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

#### 15) Clockfaces

#### 90 points

Rules: Follow classic sudoku rules. Four digits around a white circle are placed in an increasing order starting from one of the four cells and going clockwise. Four digits around a black circle are placed in an increasing order starting from one of the four cells and going anticlockwise. All possible circles are marked.





#### 16) Killer 007

Rules: Fill in the grid with digits 0 to 7 so that every row, column and boldly outlined region contains two zeros and all remaining digits exactly once. Two cells with a zero cannot share an edge. No digit can be repeated in a region with a dashed border. The sum of all digits in every region with a dashed border is given.





#### 17) Counting neighbours

#### 110 points

110 points

Rules: Follow classic sudoku rules. Number in a cell with a circle tells you how many distinct digits you can find in up to 8 neighbouring cells (sharing edge or corner). Number in a cell with a cross tells you how many distinct digits you can find in up to 4 diagonally neighbouring cells (sharing a corner). All possible circles and crosses are drawn.

	X	8						
		X	2				0	
	0		X			7	0	X
	X	1	0				0	
0	0	0		3			X	
X					0	1		
		7			X			0
			0		2	X		
X		X		0		6		

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

#### 18) Number 5 still alive

### 110 points

Rules: Follow classic sudoku rules. No digit can be repeated in a region with a dashed border. The sum of all digits in every region with a dashed border ends with 5.

 		9	 	 1				 , ,
			       	 		6		 
     	2	; ;	3	٦				7
          -			I	  -  -		3		
 - -		 L		1			, , , ,	
		4	7   1	, , , ,	   	1	: : : : : :	
6		; ; 		, - , ,	5		4	
		3	,	; , !	 		 	
	i					8	1 1	

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





430 points

## **Round 4 – Arrow style**

## 30 minutes

1.	Arrows15	points
2.	Arrows	points
3.	Count different40	points
4.	Mean arrows45	points
5.	Skyscrapers on arrows45	points
6.	Product last digit65	points
7.	Morse numbers80	points
8.	Count the odd ones100	points

#### 1-2) Arrows

#### 15, 40 points

 $Rules: Follow\ classic\ sudoku\ rules.\ Number\ in\ a\ circle\ is\ equal\ to\ the\ sum\ of\ all\ digits\ along\ the\ corresponding\ arrow.$ 

4				3			2	1
			1		9			8
$\mathbf{O}$						6		
	$\bigcirc$	3					7	
		$\mathbf{O}$	7					4
9			$\mathbf{O}$	8				
	1			$\bigcirc$	4			
6		4			O			
	5		9			$\bigcirc$	r	7

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

### 3) Count different

## 40 points

Rules: Follow classic sudoku rules. Number in a circle tells how many distinct digits you can find along the corresponding arrow.

6		X					4	3
	3							7
4		$\mathbf{O}$		7	O			
	7	Γ	3				Ο	$\bigcirc$
		1		2		8		
$\bigcirc$	$\mathbf{O}$				5		7	
			Q	8		$\bigcirc$		1
3					J		9	
1	2							8

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

#### 4) Mean arrows

#### 45 points

Rules: Follow classic sudoku rules. Number in a circle is equal to a mean value (average) of all digits along the corresponding arrow.

		4		$\bigcirc$		9		
	З				6			
9				5				7
			4				8	
X		3		$\bigcirc$		1		
	2				5			
1				9				8
			7				4	
	r	6		O		2		

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

#### 5) Skyscrapers on arrows

#### 45 points

Rules: Follow classic sudoku rules. Digits along the arrows represent buildings of the height given by its value. Number in a circle tells you the count of visible buildings along the corresponding arrow, in the direction from the circle to the opposite end of the arrow. Higher building covers all smaller or equal building behind it.

6	3				Q		8	5
7				4				1
			9		5			
$\mathbf{O}$		2				1		
	1						7	
X		9				4		$\bigcirc$
	$\overline{}$		8		6			
1				7				9
9	4		$\bigcirc$				5	6

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

## 6) Product last digit

### 65 points

Rules: Follow classic sudoku rules. Number in a circle is equal to the last digit of a product of all digits along the corresponding arrow.

9		1	5		3	Q		2
			O					
$\mathbf{O}$		7				4		X
8	X		3		9		$\bigcirc$	1
				2				
2	O		8		1			9
X		5				6		$\bigcirc$
					O			
4		$\mathbf{O}$	6		5			7

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

#### 7) Morse numbers

#### 80 points

100 points

Rules: Follow classic sudoku rules. An actual combination of odd and even digits along an arrow implies which number should be placed in the corresponding circle following the Morse coding of numbers. Odd digits stand for dots and even digits for dashes.

1 = OEEEE

- 2 = OOEEE 3 = OOOEE
- 4 = 0000 E
- 4 = 000005 = 00000
- 5 = 000006 = E0000
- 6 = E0000
- 7 = EEOOO
- 8 = EEEOO9 = EEEEO

9	2	$\bigcirc$	➡	0			
3		7	8		$\bigcirc$		
	1					$\bigcirc$	
	3		2				0
				4		5	
7						8	$\bigcirc$
	0			7	5		6
	$\bigcirc$					7	1



## 8) Count the odd ones

Rules: Follow classic sudoku rules. Number in a circle tells you how many odd digits you can find along the corresponding arrow.

	X		Q	8		4	3
O			1		6		9
		4				5	
	8		9				7
	$\overline{}$						
1				2		9	
	2				9		
4		3		6			O
6	1		4	O			

9	6	1	2	5	8	7	4	3
7	5	2	1	4	3	6	8	9
8	3	4	6	7	9	1	5	2
3	8	5	9	6	4	2	1	7
2	9	6	7	8	٦	4	3	5
1	4	7	5	3	2	8	9	6
5	2	8	3	1	7	9	6	4
4	7	3	8	9	6	5	2	1
6	1	9	4	2	5	3	7	8





310 points

## **Round 5 – Growing regions**

## 30 minutes

1	Imperulan (v)
⊥•	irregular 6×6
2.	Irregular 7×720 points
3.	Irregular 8×8
4.	Deficit 6×615 points
5.	Deficit 7×745 points
6.	Deficit 8×8
7.	Surplus 6×6
8.	Surplus 7×765 points
9.	Surplus 8×8

#### 1-3) Irregular

#### 15, 20, 30 points

Rules: Fill in the grid with digits 1 to N so that every row and column contains every digit 1 to N exactly once. Every boldly outlined region contains every digit 1 to N exactly once.

N is equal to 6, 7, 8 according to grid size.

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

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

#### 4-6) Deficit

#### 15, 45, 50 points

Rules: Fill in the grid with digits 1 to N so that every row and column contains every digit 1 to N exactly once. Every boldly outlined region contains every digit 1 to N at most once. N is equal to 6, 7, 8 according to grid size.

s is equal to 6, 7, 8 according to grid size.

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

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

#### 7-9) Surplus

#### 35, 65, 35 points

Rules: Fill in the grid with digits 1 to N so that every row and column contains every digit 1 to N exactly once. Every boldly outlined region contains every digit 1 to N at least once.

N is equal to 6, 7, 8 according to grid size.

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

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





## **Round 6 – FED variants**

## 50 minutes

1.	Offset	points
2.	Plus minus lines55	points
3.	Antidiagonal65	points
4.	Diagonal pairs70	points
5.	Step by step75	points
6.	Odd even and killer85	points
7.	Makodoku110	points
8.	Cave	points

#### 1) Offset

#### 40 points

Rules: Follow classic sudoku rules. Digit to the right from every grey cell tells what the position of the digit in the grey cell is in the next row.

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

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

## 650 points

#### 2) Plus minus lines

## 55 points

Rules: Follow classic sudoku rules. Cell with a horizontal line contains a sum the two neighbouring cells in the particular row. Cell with a vertical line contains a difference the two neighbouring cells in the particular column. All possible lines are given.

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

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

#### 3) Antidiagonal

Rules: Follow classic sudoku rules. Each marked main diagonal contains exactly three different digits.

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

7	5	8	3	4	1	9	2	6
9	3	6	5	2	8	7	4	1
2	4	1	7	6	9	3	5	8
6	2	5	4	9	4	8	3	7
8	9	7	2	3	5	6	1	4
3	1	4	6	8	7	2	9	5
5	8	3	4	7	2	۲	6	9
1	6	9	8	5	3	4	7	2
4	7	2	9	1	6	5	8	3

#### 4) Diagonal pairs

#### 70 points

65 points

Rules: Follow classic sudoku rules. There are exactly 13 pairs of cells in the grid (15 in example) satisfying the following conditions: one cell is grey, one cell is white, both contain the same digit, which is equal to the diagonal distance between the cells. There is no such pair with both cells white or both cells grey. Each digit from 1 to 8 appears at least once in a grey cell. Each cell/digit belongs to at most one pair.

							4
						1	
						6	
			2			7	
	1	8	9	5	3		

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

#### 5) Step by step

## 75 points

Rules: Follow classic sudoku rules. There is exactly one way how to go in a cycle through all grey arrows, every time making that number of steps to the next arrow which is given by the digit in the previous cell with an arrow.

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

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

#### 6) Odd even and killer

### 85 points

Rules: Follow classic sudoku rules. Sum of the two (2-4 in example) digits in marked cages is given. Every pair of blank cells (= cells outside marked cages) sharing an edge have different parity.

25	F <sub>9</sub> I L	   	15 1		I I I	9 1	   '	21
	1	F <sub>17</sub>	   '		F3 - 	, , ,'	i I L	
	F <sub>6</sub> 1 1 1	15 1			15 1	   	r <sub>7</sub> ı ı ı ı ı	
9 9 1 1								12
 	F <sub>11</sub>   			• 15 • •		- <sub>11</sub>	, , '	
r <sub>9</sub> 1 1 1 1 1								14 1
		15		F <sub>9</sub> I I I I I	15 1			
F <sub>9</sub> - 1 1 1 1 1			30	· · ·				<b>r</b> <sub>3</sub> 1 1 1 1 1
	F9		, , , , ,			<b>F</b> 9 <b></b>	,	

253	<u>°</u> 4	5	<sup>1</sup> 8	1	6	<u>°</u> 7	2	<sup>2</sup> 9
6	7	8	9	4	2	1	5	້ 3
9	<sup>°</sup> 1	<sup>1</sup> 2	7	5	<sup>1</sup> 3	8	6	4
8	5	6	3	2	9	4	1	127
1	12	9	6	7	4	3	8	5
[°7]	3	4	1	8	5	2	9	6
2	6	17	5	່ 3	<sup>15</sup> 1	9	4	8
<sup>°</sup> 4	9	3	<sup>°</sup> 2	6	8	5	7	<sup>3</sup> 1
5	°8	1	4	9	7	°6	3	2

### 7) Makodoku

#### 110 points

Rules: Follow classic sudoku rules. All pairs of adjacent cells with a product less than 10 are marked with a cross sign. All pairs of adjacent cells with a sum less than 10 are marked with a plus sign. If both signs are possible, a cross is drawn. All possible signs are given.

,	<	< 		-	-		-*-	•
>	<u>\$</u> 3-			9		>	ڊ Ĵ،	 ¢ 
				-	^     	¢	^	Ŧ
			Ç,	<b>`</b> ``				
٩	-5,	[^] ( ) [ ]		7			2.	•
			•		2	( ) L		-
	-			-			;	
<b></b> ,	<b>4</b>		_ <b>v</b> _	8		 	-6	
	•	>	<```	< 4			-	

9	<b>د 1</b> ،	•5	8	2-	-7	6	4-	-3
2×	· Ŝ·	-4-	-5	9	6	8,	ָר <u></u> ן א	7
8	7	6	4	- 3,		5	<u>9</u>	2
6	9	3,	{Ŷ,	Ęĵ,	4	7	5	8
4	-5,	· ] }	ŝ	7	8	9	2.	-6
7	8	2	6	5	9	[],	<b>·</b> 3·	-4
5	-2	9	7	6	-3-	4	8,	ξĵ
17	· 4	7	9	8	2	• 3 •	-6	5
3	•6	8	[1]	4	-5	2.	-7	9

#### 8) Cave

### 150 points

Rules: Follow classic sudoku rules. Symbols around the grid describe in correct order all increasing and decreasing sequences of length 3 or more that exist in the corresponding row/column. Sharp end of each symbol points where the small numbers are, open end is where the big numbers are. Number inside a symbol gives the length of a sequence.



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





120 points

## **Round 7 – Flip-flop classics**

## 20 minutes

0.	no solution0 points
1.	one side80 points
2.	both sides120 points

#### 1-2) Flip-flop classics

#### 0/80/120 points

Classic sudoku rules apply: Fill in the grid with digits 1 to 9 so that every row, column and outlined box contains nine different digits. There are two grids to be solved on two sides of the paper. There are 12 extra squares along the grid edge. You have to bend each of those extra squares (independently) to the one or the other side to form two classic sudokus of the standard size. You should solve them after that. One completed side is worth 80 points, both sides completed is worth 120 points.

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

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

Α			6			6		8			Ţ			В	
			Ζ			4		7			4				
			9	Ţ	7				2	8	6				
6	2	1	3	7	5				4	1	6	8	9	4	
		9	1			3		9			8	1			
		7	6			4		5			9	2			
1	5			2	1		5		2	7			2	7	
						3		1							
<u> </u>	3			3	8		4		9	1			6	8	
		3	8			7		4			1	4			
		4	6			1		6			9	5			
5	6	8	2	4					2	5	7	6	1	7	
			3	9	4				4	L	S				
			2			4		3			9				
D			8			Ţ		9			Ţ			С	
В			Ţ			3		4			S			Α	
			8			S		6			T				
			6	9	4				9	L	3				
8	9	6	1	2	4				6	2	1	1	5	7	
		4	9			8		2							
						<b>•</b>		_			9	3			
		1	8			4		9			9 7	3 6			
	7	1	8	2	6	4	8	9	3	1	9 7	3 6	3	1	
1	7	1	8	2	6	4	8	2 9 7	3	1	9 7	6	3	1	
1	7	1	8	2	6	4	8	9	3	1	9 7	6	3	1	
1	7 9	1	8	2	6 7	4 5 3	8	2 9 7 1	3	1	9 7 8	3 6 2	3	1	
1	7 9	1	8	2	6 7	4 5 3 4	8	2 9 7 1 6	3 7	1	9 7 8 3	3627	3	1 2	
1 2 1	7 9 9	1 5 2 7	8 4 6 7	2 8 1	6 7 5	4 5 3 4	8	2 9 7 1 6	3 7 6	1 5 5	9 7 8 3 4	3 6 2 7 8	3 8 4	1 2 6	
1 2 1	7 9 9	1 5 2 7	8 4 6 7	2 8 1 5	6 7 5 T	4 5 3 4	8	2 9 7 1 6	3 7 6 9	1 5 5 8	9 7 8 3 4 7	3 6 2 7 8	3 8 4	1 2 6	
1 2 1	7 9 9	1 5 2 7	8 4 6 7 6 7	2 8 1 5	6 7 5	4 5 3 4 1	8	2 9 7 1 6 2	3 7 6 9	1 5 5 8	9 7 8 3 4 7 4	3 6 2 7 8	3 8 4	1 2 6	





450 points

## Round 8 – Killer style

## 40 minutes

1.	Killer	points
2.	Killer	points
3.	Round off	points
4.	Ordered sums	points
5.	Multiples	points
6.	Ordering	points
7.	Odd Even Sum	points
8.	Different around125	points

#### 1-2) Killer

#### 15, 45 points

Rules: Follow classic sudoku rules. There are several cages in the grid with a dashed-line outline. Sum of all digits in every cage is given. Same digit cannot be repeated in one cage.

		F <sub>6</sub>   	· · · ·	16 1 1	r <sub>5</sub> I I			
	13		5	· · ·	14 14	18		
<b>-</b> 4 - 1 1 1				<b>1</b> 0 <b>1</b> 10 <b></b>				F <sub>9</sub> ı I I
	13 1					9	   	
6 -	, , ,'	15 1			F <sub>8</sub> I I		15 15	
F <sub>11</sub>   	<b>r</b> <sub>12</sub>			<b>r</b> <sub>10</sub> i i i		15 	,	F <sub>6</sub> I I I
	16		17 17	· · ·	F <sub>3</sub> I I I		16	
				<b>F</b> <sub>8</sub> <b>-</b> -1 1 1		, , ,	, , , , , , , , , , , , , , , , , , ,	
		10 1	, ,		F <sub>8</sub> I L	·, ,		

				-				
7	8	<sup>6</sup> 1	5	19	<u>5</u> 3	2	4	6
4	2	5	'⁵ <b>1</b> '	7	6	18	9	3
¦³3	6	9	4	2	8	5	1	<u>י</u> ז"
1	<u>'</u> 7	6	3	8	9	<u>°</u> 4	5	2
<u></u>	4	8	7	1	<u>[</u> *5	3	6	9
5	<sup>1</sup> 9	3	2	6	4	17	8	<b>°1</b>
6	¦°1¦	7	8	4	32	9	3	5
8	3	2	9	[ <sup>8</sup> 5]	1	6	7	4
9	5	<sup>10</sup> 4	6	3	[87	1	2	8

### 3) Round off

## 30 points

Rules: Follow classic sudoku rules. Moreover, a rounded value of a two-digit number in every cage is given. (Standard mathematical rules apply: 21...24 rounds to 20, 25...29 rounds to 30, etc.)

		70	' '		5	4		
	1			2			9	
8			1		9			30
2		5		4		1		 
	6		7		1		3	
30		1		8		6		4
			2		8			6
	4			6			2	
		2	9		<b>F</b> 50 <b>-</b> -	, , ,'		

				-				-
9	2	6	8	3	5	4	1	7
7	1	3	4	2	6	5	9	8
8	5	4	1	7	9	3	6	<sup>3</sup> 2
2	7	5	6	4	3	1	8	9
4	6	8	7	9	1	2	3	5
ື່3	9	1	5	8	2	6	7	4
1	3	7	2	5	8	9	4	6
5	4	9	3	6	7	8	2	1
6	8	2	9	1	504	7	5	3

#### 4) Ordered sums

#### 50 points

 $Rules: Follow \ classic \ sudoku \ rules. \ Let's \ denote \ S_1, S_2, ..., S_{12} \ the \ sums \ of \ pairs \ of \ digits \ in \ cages \ marked \ with \ 1, 2, ..., 12. \ The \ sums \ are \ ordered, \ i.e. \ S_n < S_n + 1 \ for \ every \ n \ from \ 1 \ to \ 11.$ 

	5						6	
8	-10 		<b>F</b> 5   		r <sub>1</sub> L	·, , ,'	<b>-</b> <sub>11</sub>	4
			2		4		· · ·	
	 '	1		3		4	12 12	
	<b>F</b> 91 1 1 1 1		4		6		' ' ' '	
		9		7		6	<b>F</b> <sub>2</sub> <b>- - i</b> <b>i i</b>	
	r <sub>3</sub> 1 1 1		8		5		 '	
4		F <sub>8</sub>	·      '	r <sub>7</sub> I L		6 -	, , , , ,'	8
	9						4	



### 5) Multiples

### 50 points

Rules: Follow classic sudoku rules. A two-digit number in every cage (read from left to right or from top to bottom) must be a multiple of number 13. (12 and 21 in example)

	12	21				4		
	 			F <sub>12</sub> - I I I I I	21 1		1	
6							12 12	<sup>21</sup>
	4				9			
		1		6		2		
12	21		8				3	
 '			12 12	<sup>21</sup>				5
	7			· · ·		12 12	<b>F</b> <sub>21</sub> - I I I	
		9						

3	<sup>12</sup> <b>1</b>	<sup>2</sup> 8	5	9	2	4	7	6
9	2	4	7	8	<sup>2</sup> 6	5	1	3
6	5	7	1	4	3	8	<sup>1</sup> 9	<sup>21</sup> 2
8	4	3	2	5	9	7	6	1
7	9	1	3	6	4	2	5	8
2	<sup>2</sup> 6	5	8	7	1	9	3	4
4	3	6	9	22	7	1	8	5
5	7	2	6	1	8	3	<sup>21</sup> 4	9
1	8	9	4	3	5	6	2	7

### 6) Ordering

## 65 points

Rules: Follow classic sudoku rules. There is a set of 16 (40 in example) different two-digit numbers in the marked cages. Their order from the lowest to the highest is given by small numbers from 1 to 16(1 to 40 in example).

6	33		13	15	!	38	24	!
i i	L		i i	L		i i	L	
: :	10	!		23	39		<b>-</b> 71	<b>F</b> 1 I
	Ľ.		i _ i			E j		
<b>r</b> 21	<b>F</b> 22 - I	<b>-</b> 36 -	1	1 1		<b>-</b> 12 -	1 1	
	l: '		'					
	· · ·	34	<b>-</b> i	<b>-</b> 9	,		27	
	l: :		1 <sup>-</sup> 1	1		: :	1	:
<b>r</b>		1 1		<u></u>	'	,	 F <sub>10</sub>	'
14		!!!	!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!		19	1	10	
<u></u>	<u>'</u>			F1	<u> </u>	<u>'</u>	<u> </u>	<u>'</u>
26	·4	i	· 37	·31 ·	• 18 •	i	·8 ·	·21
<u> </u>	L	!	ı ı	ı ı	<u> </u>	<u> </u>	I I	1 1
ii	29		· ·	· ·	25		· ·	i i
<u></u> '	<u>L</u>	'	<u>'</u> '	<u>''</u>	L	'	<u> </u>	<u></u>
17	'	5	28		11 -		40	
<u> </u>	<u> </u>	i i	L	'	L		L	
35	!		20	!	32	!	30	
	L'	<u> </u>		'	L		L	

<sup>°</sup> 2	<u>`</u> 38	6	3	<sup>15</sup> 4	1	<sup>3</sup> 9	<sup>24</sup> 5	7
7	<u>3</u>	4	8	5	[ <sup>3</sup> 9]	6	2	1
<sup>2</sup> 1	25	<sup>3</sup> 9	2	6	7	3	8	4
5	4	8	<sup>3</sup> 1	<u>8</u>	2	7	<sup>27</sup> 6	9
ŝ	9	7	6	8	5	1	<sup>16</sup> 4	2
26	<sup>4</sup> 2	1	<sup>3</sup> 9	[ <sup>3</sup> 7]	<u>18</u>	8	[°3]	25
8	297	5	4	9	<sup>2</sup> 6	2	1	3
174	6	<sup>5</sup> 2	287	1	3	5	<sup>4</sup> 9	8
3	1	3	205	2	<sup>32</sup> 8	4	<u>'</u> "7	6

#### 7) Odd Even Sum

#### 70 points

Rules: Follow classic sudoku rules. Moreover, the sum of two digits in every cage marked with "O" is odd and the sum of two digits in every cage marked with "E" is even.

9	3		2		4		7	
2		F <sub>E</sub> ! !		6	<b>r</b> o   		F <sub>E</sub> - 1 1 1	3
			r <sub>o</sub>  		F <sub>E</sub>   			
8	F <sub>E</sub> I 	   					ı ı '	4
	7		5		2		З	
3	r <sub>o</sub> ! !	   '	r <sub>e</sub> , , , , ,		• • •	E	ı ı	6
	F <sub>E</sub> - I I I I I						• •	
5			'	1	r <sub>e</sub>   			8
	1		3		8		6	7

9	3	6	2	8	4	1	7	5
2	[°5]	<u>-</u> 7	1	6	<u>°</u> 9	4	-8	3
1	4	8	<sup>°</sup> 7	3	5	6	2	9
8	⁼9	1	6	7	3	<u>°</u> 2	5	4
6	7	4	5	9	2	8	3	1
3	<u>°</u> 2	5	8	4	<u>'</u> 1	<u>7</u>	9	6
7	-8	3	4	5	6	9	'°1	2
5	6	<u>°</u> 2	9	1	<u>-</u> 7	3	4	8
4	1	9	3	2	8	5	6	7

#### 8) Different around

#### 125 points

Rules: Follow classic sudoku rules. Moreover, the small number in a cage tells you how many different digits you can find around the cage. Up to 10 cells touching the two-cell cage from outside by side or by corner should be inspected.

1		3		5			4	
	8		2					3
7				6				
			'		6			
3		4		1		2		8
			3		<b>F</b> 5 I <b>I</b>	· , , ,'		
		7 I I I I		9				4
2					5		6	
	5			3		8		9

1	2	3	9	5	8	6	4	7
6	8	9	2	7	4	· 1	5	3
7	4	5	1	6	3	9	8	2
9	1	<sup>4</sup> 2	8	4	6	7	3	5
3	6	4	5	1	7	2	9	8
5	7	8	3	2	<sup>5</sup> 9	4	1	6
8	3	<sup>7</sup> 1	6	9	2	5	7	4
2	9	7	4	8	5	3	6	1
4	5	6	7	3	1	8	2	9





790 points

## **Round 9 – WPF Grand Prix**

### 55 minutes

1.	GP Classics20	points
2.	GP Classics	points
3.	Next to nine	points
4.	Between	points
5.	Scattered irregular45	points
6.	Fives	points
7.	Renban	points
8.	Duodoku65	points
9.	Disparity75	points
10.	X ray85	points
11.	Diagonally consecutive85	points
12.	Sum sandwich90	points
13.	Bust	points

#### 1-2) GP Classic

Rules: Follow classic sudoku rules.

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

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

## 20, 35 points

#### 3) Next to nine

#### 35 points

Rules: Follow classic sudoku rules. All digits that are directly next to the digit nine are given for every row and column.



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

#### 4) Between

#### 40 points

Rules: Follow classic sudoku rules. If there are exactly two given digits in a row / column, the following condition must be fulfilled: All digits that lay in blank cells between the two given ones must be higher than the smaller given digit and smaller than the higher given digit.

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

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

#### 5) Scattered irregular

## 45 points

Rules: Fill in the grid with digits 1 to 9 so that every row, column and boldly outlined region contains nine different digits. Nine grey cells also contain nine different digits.

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

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

#### 6) Fives

## 50 points

Rules: Follow classic sudoku rules. All pairs of adjacent digits with a sum or difference equal to five are marked with a small circle.

				C	>		C	2
						C		
		3¢	2	Ŭ		79	$\sim$	
	Ċ	> <		Ċ	>		>	
				5			¢	>
Š	>						<u> </u>	
		9				Ĭ	$\mathbf{r}$	
				Č	> {	}		
		4	}					

6	9	8	7	30	2	5	14	24
7	1	2	6	4	5	89	3	9
4	5	3	8	9	1	79	2	6
9	69	<b>)</b> 1	4	29	7	30	8	5
8	4	7	3	5	9	2	69	21
29	3	5	1	8	6	49	20	7
3	7	9	5	6	8	14	4	2
5	8	6	2	10	4	9	7	3
1	2	4	9	7	3	6	5	8
	-	-						

### 7) Renban

55 points

65 points

Rules: Follow classic sudoku rules. Every marked cage contains a set of consecutive digits in arbitrary order. (E.g. 6-2-5-3-4)

				3				
			4		1	 - 		
		2			   	1		
	1			5			9	
7			2		9			5
	2	I I I I		6			8	
		9	r , L			7		
			6		4	; , , ,		
				8				

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

#### 8) Duodoku

Rules: Follow classic sudoku rules. This puzzle consists of two overlapping grids of classic sudoku.



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

#### 9) Disparity

## 75 points

Rules: Follow irregular sudoku rules. Every two adjacent cells from two different regions (= sharing a bold edge) have different parity (contain one odd and one even digit).

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

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

#### 10) X ray

Rules: Follow classic sudoku rules. The digit in a circle appears exactly one more time on every marked diagonal going through the circle.

5		4		3		9		6
	9						8	
2		8	O			5		7
			4		9	O		
3	$\mathbf{X}$		$\mathbf{X}$	5			$\mathbf{X}$	9
		$\bigcirc$	3		6			
1		5	$\mathbf{X}$		O	7		4
	2			$\mathbf{X}$			3	
8		3		9		1		2

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

#### 11) Diagonally consecutive

85 points Rules: Follow classic sudoku rules. All pairs of consecutive digits that are in the cells sharing just a corner are marked with a grey line.

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

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

## 85 points

#### 12) Sum sandwich

#### 90 points

 $Rules: Follow \ classic \ sudoku \ rules. \ Number \ N \ written \ outside \ the \ grid \ means \ that \ two \ digits \ with \ a \ total \ of \ N \ lays \ in \ the \ two \ cells \ next \ to \ N \ in \ that \ particular \ row / \ column. \ All \ possible \ numbers \ that \ fulfill \ such \ a \ condition \ are \ given. \ (\times \ sign \ means \ that \ there \ is \ no \ number \ to \ give.)$ 



#### 13) Bust

#### 110 points

Rules: Follow classic sudoku rules. Each number "N" outside the grid says in which cell from the edge the total of 21 is exceeded in the particular row / column, i. e. sum of the first N digits from edge is strictly greater than 21 while sum of N-1 digits is less or equal to 21.



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





810 points

## **Round 10 – Czech Grand Prix**

## 65 minutes

1A.	Interconnected Classics40	points
1B.	Interconnected Classics40	points
2.	More than consecutive10	points
3.	Half-mosaic20	points
4.	Sudokuro	points
5.	Quadruples	points
6.	One-five-nine40	points
7.	3D sudoku45	points
8.	One bug per line50	points
9.	Little killer	points
10.	Prague star	points
11.	Outside consecutive80	points
12.	Full rank	points
13.	Antiwindoku	points
14.	Classics 12×12120	points

#### 1A, 1B) Interconnected Classics

#### 40+40 points

 $Rules: Follow\ classic\ sudoku\ rules.\ Grey\ cells\ contain\ the\ same\ digits\ as\ the\ corresponding\ grey\ cells\ in\ the\ other\ puzzle.$ 

		6		1	
2					
				2	
	3				
					4
	6		3		

		3		5	
1					
				2	
	6				
					2
	4		3		

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

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

#### 2) More than consecutive

## 10 points

Rules: Follow irregular sudoku rules (digits 1 to 7). All adjacent consecutive pairs are marked with inequality signs. The digits must follow the given inequality signs. If there is no sign given, the difference between neighbouring digits is more than 1.



1	4	6	2	5	3	7
3	2	7>	6	1	4	5
2	3	4	5	6	7	1
4	1	5	7	3	6	2
6	< 7	1	3	2	5	4
5	6	2	4	7	1	3
7	5	3	1	4	2	6

#### 3) Half-mosaic

#### 20 points

Rules: Fill in the grid with digits 1 to 9 so that every row, column and outlined box contains nine different digits. If there are two digits in one cell, the smaller one should be to the left from the higher one.





#### 4) Sudokuro

#### 25 points

Rules: Place digits from 1 to 7 (6 in example), they don't repeat in rows, columns and marked regions. Given numbers represent sums of all digits between two grey cells.





## 35 points

## 5) Quadruples

Rules: Follow classic sudoku rules. Four given digits should be placed in the four nearest cells in any order.

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

<sup>3</sup> 9
° <mark>2</mark>
1
3
8
5
6
4
7

#### 6) One-five-nine

### 40 points

Rules: Follow classic sudoku rules. Digits in the first column say in which column you can find number 1 in the respective row. Digits in the fifth column say in which column you can find number 5. Digits in the nineth column say in which column you can find number 9.

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

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

### 7) 3D sudoku

Rules: Place digits from 1 to 8, they don't repeat in marked regions and rows of eight cells in three principal directions.



### 8) One bug per line

## 50 points

Rules: Follow classic sudoku rules. Exactly one given digit in every row, every column and every box is wrong and should be replaced by other digit in the correct solution.

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

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

#### 9) Little killer

#### 50 points

Rules: Follow diagonal sudoku rules. Sum of all digits on several diagonals marked by arrow is given. (Digits can repeat in these sums.)



Rules: Place digits from 1 to 9, they don't repeat in marked triangles and rows of cells in three principal directions (of any length, e.g. 4+5).



#### 11) Outside consecutive

#### 80 points

 $Rules: Follow\ classic\ sudoku\ rules.\ Numbers\ outside\ the\ grid\ tells\ the\ count\ of\ consecutive\ adjacent\ pairs\ in\ the\ particular\ row\ /\ column.$ 



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

#### 12) Full rank

#### 100 points

100 points

Rules: Follow classic sudoku rules. Full rows/columns (read left-right, right-left, top-bottom, bottom-top) form 36 distinct 9-digit numbers. Their rank from the lowest is given.



	2	26	30	24	6	14	11	19	36	
4	1	7	8	6	2	4	3	5	9	34
16	4	3	2	9	5	1	8	7	6	21
23	6	9	5	7	3	8	2	1	4	13
9	3	4	7	5	9	6	1	2	8	29
32	8	5	6	1	7	2	4	9	3	12
33	9	2	1	8	4	3	7	6	5	18
17	5	1	9	3	8	7	6	4	2	5
27	7	8	4	2	6	9	5	3	1	1
7	2	6	3	4	1	5	9	8	7	28
	8	22	10	15	3	20	35	31	25	•

#### 13) Antiwindoku

Rules: Follow classic sudoku rules. Moreover, there are exactly four different digits in every grey box.

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

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

#### 14) Classics 12×12

Rules: Follow classic sudoku rules. (Place digits from 1 to 12, they don't repeat in rows, columns and marked boxes.)

5					7			6	8	12													
4	1				11				9	6													
			3		6		11	7															
11					4		3	1		2													
6	4	11										5	9	3	1	2	7	4	10	6	8	12	11
	· ·			7								4	1	7	12	10	11	8	5	2	9	6	3
			2	1	1						9	12	2	10	3	8	6	9	11	7	4	1	5
2						1	12	10				11	6	8	9	5	4	12	3	1	10	2	7
_						-				10	40	6	4	11	5	12	10	3	2	9	1	7	8
									Ζ	10	12	3	10	12	2	7	1	11	4	8	6	5	9
	11		6	3		2					10	2	7	5	8	6	9	1	12	10	3	11	4
						40						9	8	1	4	11	3	7	6	5	2	10	12
			11	9		10		4				1	11	4	6	3	5	2	9	12	7	8	10
	5	2				6				9	1	7	12	6	11	9	8	10	1	4	5	3	2
			4.0			۲, The second s				<u> </u>		10	5	2	7	4	12	6	8	3	11	9	1
	3	9	10			5					6	8	3	9	10	1	2	5	7	11	12	4	6

120 points





## Round T1 – Two pairs

### 60 minutes

## 1900 points

1.	Count different100	points
2.	Distances125	points
3.	Unique rectangles150	points
4.	Odd-even view150	points
5.	Parity circles150	points
6.	Superconsecutive	points
7.	Sum by X100	points
8.	Plus minus killer125	points
9.	Emitters	points
L0.	Cross sums	points
11.	Sum it up	points
12.	Pyramidal	points
		Potnos

#### Team round 1 - Two pairs

There are two team tables in this round, table 1 and table 2, both with two chairs. There are six puzzles at each table (1-6 and 7-12). There are two players at each table during the round. Each pair of players is solving together, at most one puzzle at the same time. They can switch between the puzzles from their table freely if not breaking the rule: one puzzle at one time.

The round will last 60 minutes divided in six intervals by 10 minutes. Players switch places after each 10 minutes in a rotational scheme:  $AB+CD \rightarrow DA+BC \rightarrow CD+AB \rightarrow BC+DA \rightarrow AB+CD \rightarrow DA+BC$ . Teams can freely decide on the initial distribution of players, they must follow the scheme after that.

The two pairs can talk to each other about the strategy but cannot cooperate with solving.

## 1) Counting different

#### 100 points

150 points

Rules: Follow classic sudoku rules. Numbers outside the grid say how many different digits you can find in the corresponding diagonal.



#### 2) Distances

Rules: Follow classic sudoku rules. Two digits given next to the grid should be placed into the corresponding row / column in the given order and with the given distance between them.

	1		4			8		6	75=2
3	4				7				89=2
					2				91=2
5				4					37=2
			3			9			42=2
	8	2						7	15=3
8				1			7		34=3
						3	8	4	92=3
4					5		1		63=2
19=2	27=2	54=2	98=2	67=2	84=3	74=3	25=3	38=2	-

2	1	7	4	5	3	8	9	6	75=2
3	4	8	6	9	7	5	2	1	89=2
6	9	5	1	8	2	7	4	3	91=2
5	3	9	7	4	8	1	6	2	37=2
7	6	4	3	2	1	9	5	8	42=2
1	8	2	5	6	9	4	3	7	15=3
8	2	3	9	1	4	6	7	5	34=3
9	5	1	2	7	6	3	8	4	92=3
4	7	6	8	3	5	2	1	9	63=2
19=2	27=2	54=2	98=2	67=2	84=3	74=3	25=3	38=2	-

#### 3) Unique rectangles

Rules: Follow classic sudoku rules. If any four cells in the grid lays in exactly two rows and two columns, there should be more than two different digits in them.

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

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

#### 4) Odd-even view

## 150 points

Rules: Follow classic sudoku rules. Odd number next to a row / column says which is the closest odd number in that direction. Even number next to a row / column says which is the closest even number in that direction.



#### 5) Parity circles

Rules: Follow classic sudoku rules. If there is an odd number O in a circle, there are exactly O odd numbers around it. If there is an even number E in a circle, there are exactly E even numbers around it. All possible circles are given.

5			$\bigcirc$	3		4		0
			1		5			
3						$\bigcirc$		6
	8	0	9		7	$\bigcirc$	5	
		9				6		
	7	O	3		2		8	
2		$\bigcirc$						5
			7		4			
		4		8				2

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

#### 6) Superconsecutive

#### 250 points

Rules: Follow classic sudoku rules. There is one circled number N in every box. If any number of that particular box has a neighbour sharing an edge which is differing exactly by N there is a dot between them. (All possible dots are marked.)



7	8	4	210	25	6	20	9	3
5	9	1	4	3	2	8	7	6
2	6	3	27	8	94	25	1	4
4	$\overline{0}$	8	ğ	6	1	23	5	2
3	1	5	8	2	>4	9	6	7
6	29	9	59	7	3	1	4	8
1	39	7	2	40	<u>ک</u>	69	8	9
9	4	6	ž	(1)	8	7	2	5
8	5	2{	6	9	7	4	30	21

## 7) Sum by X

#### 100 points

Rules: Follow classic sudoku rules. Sum of several digits from edge is given, it is written in the nearest grey cell how many digits should be summed up.



#### 8) Plus minus killer

Rules: Follow irregular sudoku rules (digits 1 to 7). No digit can be repeated in a region with a dashed border. The sum of all digits in every region with a dashed border is given while digits in grey cells are counted as negative ones.





#### 9) Emitters

#### 150 points

Rules: Follow classic sudoku rules. Several cells are marked with a star. In all four directions, maximal possible length is given until the sum of the digits is higher than the value of an emitter.

1				5		7		
			9		8	3		
		2		1		8		$\bowtie$
	7		6					
5		9		$\bowtie$				
	3				1		6	
9	8	5						2
					2			5
		$\bowtie$				1	9	

19825374675694832134271685 $)$ 2716395845694 $)$ 721383452196798517463261389247542 $)$ 365198		_	_						
75694832134271685 $\checkmark$ 2716395845694 $\checkmark$ 721383452196798517463261389247542 $\checkmark$ 365198	1	9	8	2	5	3	7	4	6
3       4       2       7       1       6       8       5       X         2       7       1       6       3       9       5       8       4         5       6       9       4       X       7       2       1       3         8       3       4       5       2       1       9       6       7         9       8       5       1       7       4       6       3       2         6       1       3       8       9       2       4       7       5         4       2       X       3       6       5       1       9       8	7	5	6	9	4	8	3	2	1
2       7       1       6       3       9       5       8       4         5       6       9       4       3       7       2       1       3         8       3       4       5       2       1       9       6       7         9       8       5       1       7       4       6       3       2         6       1       3       8       9       2       4       7       5         4       2       3       6       5       1       9       8	3	4	2	7	1	6	8	5	X
5       6       9       4       ×       7       2       1       3         8       3       4       5       2       1       9       6       7         9       8       5       1       7       4       6       3       2         6       1       3       8       9       2       4       7       5         4       2       ×       3       6       5       1       9       8	2	7	1	6	3	9	5	8	4
8       3       4       5       2       1       9       6       7         9       8       5       1       7       4       6       3       2         6       1       3       8       9       2       4       7       5         4       2       X       3       6       5       1       9       8	5	6	9	4	X	7	2	1	3
9       8       5       1       7       4       6       3       2         6       1       3       8       9       2       4       7       5         4       2       1       3       6       5       1       9       8	8	3	4	5	2	1	9	6	7
6       1       3       8       9       2       4       7       5         4       2       X       3       6       5       1       9       8	9	8	5	1	7	4	6	3	2
4 2 🔀 3 6 5 1 9 8	6	1	3	8	9	2	4	7	5
	4	2	$\mathbf{X}$	3	6	5	1	9	8

#### 10) Cross sums

#### 150 points

Rules: Follow classic sudoku rules. There are four cells marked by a cross several times in the grid. Both diagonal pairs in them have the same sum.

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

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

#### 11) Sum it up

#### 200 points

Rules: Follow diagonal sudoku rules. Each row and both diagonals can be interpreted as a sequence of three numbers, a 4-digit, 3-digit (in grey cells) and 2-digit one. The total of those numbers is given.



									2121
7	4	1	3	6	9	2	5	8	8163
9	5	3	1	2	8	7	4	6	9864
2	8	6	5	7	4	3	9	1	3699
3	1	7	4	8	5	9	6	2	4095
6	2	8	7	9	3	5	1	4	7236
5	9	4	6	1	2	8	3	7	6111
8	3	2	9	4	6	٩,	7	5	8865
4	7	5	2	3	1	6	8	9	5157
1	6	9	8	5	7	4	2	3	2295
									, osco
								25	0 points

## 12) Pyramidal

Rules: Follow classic sudoku rules. The following condition holds for all digits in grey cells: every number is equal to the sum or difference of two nearest digits (in grey cells) one level bellow it.

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

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





## **Round T2 – Mysterious samurai**

### 45 minutes

#### 1625 points

1.	Just numbers5×75	points
2.	Grey cells5×75	points
3.	Grey lines5×100	points
4.	Ellipses5×75	points

#### Team round 2 – Mysterious samurai

There are four independent puzzles in this round. Whole team is solving together at most one puzzle at the same time. You can switch between the four puzzles (four A3 papers) freely if not breaking the rule: one puzzle at one time. Each puzzle consists of five interconnected grids. Classic sudoku rules apply. There are moreover five sets of instructions. You have to assign each set of instructions to one of the grids and solve the whole puzzle then.

You will get points for every partial grid if the solution is consistent with a correct solution of the whole puzzle.

	А	В	С	D	Е
Antiknight					
Disjoint groups					
Nonconsecutive					
Queens					
Untouchable					

#### 1-1) Antiknight

Two cells that are one knight step away from each other cannot contain the same digit.

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

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

### 1-2) Disjoint groups

Nine cells that are in the same position inside an outlined  $3 \times 3$  box contain nine different digits.

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

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

### 1-3) Nonconsecutive

Two adjacent cells cannot contain two consecutive digits.

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

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

#### 1-4) Queens

Digits 9 play role of chess queens, they don't attack each other, i.e. they don't lay on the same diagonal.

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

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

### 1-5) Untouchable

Two cells with the same digit cannot share a corner.

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

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

	Α	В	С	D	Е
Distance to 5					
Even					
Extraregion					
Fortress					
Same sum					

#### 2-1) Distance to 5

Nine grey cells are uniquely paired to nine occurances of digit 5, the distance (vertical, horizontal or diagonal) from grey cell to digit 5 is given in the grey cell. Digit 5 cannot be placed in a grey cell.

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

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

## 2-2) Even

All grey cells contain even digits.

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

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

#### 2-3) Extraregion

Nine grey cells contain nine different digits.

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

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

#### 2-4) Fortress

If a grey cell and a white cell share an edge the number in the grey one is higher.

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

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

#### 2-5) Same sum

The sum of four cells adjacent to a grey one is the same in the whole grid.

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

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

	А	В	С	D	Е
Fuzzy arrows					
Palindromes					
Same parity					
Sequences					
Up and down					

## 3-1) Fuzzy arrows

Place a circle somewhere on the grey line and one/two arrows to the unused end(s) of it. The digit in a circle is then a sum of all digits along every arrow that starts in it.

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

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

### 3-2) Palindromes

The sequence of digits along a grey line is the same when read from both ends.

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

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

## 3-3) Same parity

All digits along one grey line have the same parity.

	3		8	9				
			2			7		3
		2					8	
					2			6
4		9	$\overline{\ }$			1		5
1			7					
	6					2		
7		8			5			
				3	8		9	

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

#### 3-4) Sequences

Digits along grey lines follow arithmetic sequences. It means that they go in increasing order from one end to the other and the difference between all pairs of consecutive cells along the line is a constant.

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

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

## 3-5) Up and down

The digits along a grey line goes alternately up and down while the difference between the two neighbouring digits is at least 4.

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

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

	Α	В	С	D	Е
Count different					
Count odd					
Difference					
Greater					
Product 1st digit					

#### 4-1) Count different

Number in a circle tells the count of different digits in up to 10 cells touching the pair of cells with the circle.

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

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

### 4-2) Count odd

Number in a circle tells the count of odd digits in up to 10 cells touching the pair of cells with the circle.

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

2	5	1	3	4	6	8	9	7
4	9	8	2	70	₽1	5	3	6
7	3	6	9	5	8	2	4	1
5	7	3	4	1	9	6	8	2
8	6	<b>4</b>	5	2	3	1	7	9
9	1	2	8	6	7	4	5	3
3	4	9	1	8	2	7	6	5
6	2	5	7	3	4	9	1	8
1	8	7	6	9	5	3	2	4

#### 4-3) Difference

Number in a circle tells the difference between the two adjacent numbers.

		8		4				
				1		9	6	
6							3	
		3)		3	2			1
3	5	Ċ	ŧ)				8	
			4		3		5	
	7							8
	8	4		6	5			
			1			7		5

#### 4-4) Greater

Number in a circle tells the greater one of the two adjacent numbers.

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

7	9	8	3	4	6	5	1	2
5	2	3	8	1	7	9	6	4
6	4	1	2	5	9	8	3	7
4	<b>6</b>	9	5	° 8	2	3	7	1
3	5	2	₽6	7	1	4	8	9
8	1	7	4	9	3	2	5	6
1	7	5	9	3	4	6	2	8
2	8	4	7	6	5	1	9	3
9	3	6	1	2	8	7	4	5

1       3       9       4       7       5       6       2       8         4       6       2       9       8       3       7       5       1         8       5       7       2       6       1       9       3       4         9       2       8       7       1       4       5       6       3         6       1       5       3       2       9       8       4       7         3       7       4       8       5       6       1       9       2	1 C			-					
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1	3	9	4	7	5	6	2	8
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	4	6	2	9	8	3	7	5	1
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	8	5	7	2	6	1	9	3	4
6       1       5       3       2       9       8       4       7         3       7       4       8       5       6       1       9       2	9	2	8	7	1	4	5	6	3
3 7 4 8 5 6 1 9 2	6	1	5	3	2	9	8	4	7
	3	7	4	8	5	6	1	9	2
5 8 <sup>®</sup> 3 6 4 7 2 <sup>2</sup> 1 9	5	8	<b>3</b>	6	4	7	2	21	9
2 4 1 5 9 8 3 7 6	2	4	1	5	9	8	3	7	6
7 9 6 1 3 2 4 8 5	7	9	6	1	3	2	4	8	5

#### 4-5) Product 1st digit

Number in a circle tells the first digit of a two-digit product of the two adjacent numbers.

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

9	3	5	6	7	2	4	8	1
7	1	6	9	8	4	3	5	2
2	8	4	3	5	1	9	6	7
8	9	2	1	3	6	5	7	4
1	4	7	5	2	9	<u>)</u> 6	3	8
5	6	3	8	4	7	1	2	9
6	7	8	4	9	3	2	1	5
3	2	90	7ھ	1	5	8	4	6
4	5	1	2	6	8	7	9	3





1600 points

## Round T3 – Coded

### 40 minutes

1.	4×	Classic sudoku4×50 points
2.	4×	Irregular sudoku4×100 points
3.	4×	Differences4×125 points
4.	4×	Skyscrapers4×125 points

#### Team round 3 - Coded

There are four independent puzzles in this round. Whole team is solving together at most one puzzle at the same time. You can switch between the four puzzles (four A3 papers) freely if not breaking the rule: one puzzle (paper) at one time. Each puzzle consists of four grids of the same type. Some digits in those grids are replaced with letters. The same letter codes the same digit in all four partial grids, different letter code different digit.

You will get points for every partial grid if the solution is consistent with a correct solution of the whole puzzle.

#### 1) Classic sudoku

Rules: Follow classic sudoku rules.

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

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

## 2) Irregular sudoku

Rules: Follow irregular sudoku rules.

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

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

#### 3) Differences

Rules: Follow classic sudoku rules. A value of difference is given for some pairs of adjacent digits.

		2		6			4	
			Ċ	D	7			3
	2)				2)	9		8
		3)	$\odot$		4	Ċ	þ	9
		2		6		3	(:	3)
6		5	7					
5		1		3)	3			3)
2			6	Ģ	$\mathcal{D}$	3		
	2)		Ċ	2)	Ģ	$\mathcal{O}$		

4	2	<b>6</b>	28	90	93	7	<b>5</b>	₽1
9	5	8	<b>1</b> 9	2	7	4	6	3
<b>3</b>	21	7	5	4	96	9	2	8
1	<b>8</b>	95	2	3	4	6	D <b>7</b>	9
<b>7</b>	24	2	9	6	1	3	<b>8</b>	5
6	3	9	7	8	5	10	<b>3</b> 4	2
5	9	1	4	97	2	8	<b>3</b>	<b>9</b> 6
2	7	3	6	10	<b>8</b>	5	9	4
<b>8</b>	96	4	<b>3</b>	25	9	2	1	7

#### 4) Skyscrapers

Rules: Follow classic sudoku rules. Digits represent buildings of height given by itself. Count of visible buildings is given for every row and column. (Higher buildings block a visibility of all smaller behind them.)



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







NTD group a.s.

SCIO

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HOTEL INTERNATIONAL PRAGUE

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