## 13th World Sudoku Championship

## Instruction booklet



## Schedule

Monday 5. 11. 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.
5. During team rounds, team members may talk to each other, but should do this with respect to other teams.
6. 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.
7. Competitors or teams who complete a round with more than five minutes in advance, are allowed to leave the competition hall quietly.
8. 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.
9. When a competitor leaves the competition hall for any reason, he/she will be not allowed to continue in that round.
10. 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.
11. 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.
12. 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.
13. 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.
14. 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.
15. 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.
16. 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.
17. 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 1 st 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 7 th 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 4th place competitor. This round will determine the podium places 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 $\mathrm{A}=$ Arrows, Consecutive, Palindromes; set $\mathrm{B}=$ Elimination, Fortress, Greater than; set $\mathrm{C}=$ Clockfaces, Extraregions, Sequences; set D = Multidiagonal, Renban, Thermometers.

## Round 1 - Classic sudoku

30 minutes
345 points

1. Lucca 2006 ..... 20 points
2. Prague 2007 ..... 40 points
3. Goa 2008 20 points
4. Žilina 2009 30 points
5. Philadelphia 2010 ..... 25 points
6. Eger 2011 ..... 25 points
7. Kraljevica 2012 ..... 30 points
8. Beijing 2013 25 points
9. London 2014 20 points
10. Sofia 2015 20 points
11. Senec 2016 25 points
12. Bangalore 2017 35 points
13. Prague 2018 30 points

## 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 |


| 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 |

Prague

## Round 2 - FED alternatives

## 45 minutes

1. Greater than ..... 20 points
2. Consecutive ..... 25 points
3. Diagonal ..... 30 points
4. Quadro ..... 40 points
5. Windoku ..... 45 points
6. Killer 55 points
7. Disjoint groups 70 points
8. Irregular 70 points
9. Jigsaw Killer 70 points
10. Greater than and Killer 90 points
1) Greater than

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


| 6>2>1 | $5>3<8$ | 9>7>4 |
| :---: | :---: | :---: |
| $7<9>5$ | $1<4<6$ | $3<8>2$ |
| -v $2<8+8$ | $\underline{\hat{2}} \times \underline{9}+7$ |  |
| $5<6<7$ | $4>2<9$ | $1<3<8$ |
|  | 人 ${ }^{+}$ |  |
|  |  |  |
| 1<4<8 | $7>5>3$ | 6>2<9 |
| $2>1<6$ | $3<7>4$ | 8<9>5 |
| $4<5<9$ | $8>1<2$ | $7>6>3$ |
| $\stackrel{+}{ }+7>3$ | $\underline{9}>\hat{6}>5$ | -v $2<4>1$ |

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

3) Diagonal

30 points
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 |  |
| 3 |  |  |  |  | 2 |  |  | 4 |
| 3 |  |  | 4 |  | 6 |  |  |  |
|  | 5 |  |  |  |  | 9 |  | 2 |


| 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

40 points
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 |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  | 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 |  |  |  |  |  |  |  |


| 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 |

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


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


| 78 |  |  | 5) 9 \|l ${ }^{3}$ |  | 2 4 | 4. 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 4) 2 | 5 |  | 17 7 |  | 9 |  |
| 3: 6 | 9 |  | 2 2 : 8 |  |  |  |
| 17 |  |  | $8 \cdot 9$ |  |  | 52 |
| 24 | 8. |  | 15 |  | O | 9 |
| 5) 9 | 3 |  | 264 | 7 |  |  |
| 6 |  |  | 4. 2 |  |  |  |
| 3 |  |  | 9 51 |  | 7 | 7.4 |
| 95 |  |  | 3)3 $3^{3}$ |  | 2 | 2. 8 |

## 7) Disjoint groups

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


| 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 |

8) Irregular

70 points
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

70 points
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.


|  | 72 | 8 83 | $1{ }^{1 / 2}$ | + |
| :---: | :---: | :---: | :---: | :---: |
|  | 34 | 651 | 79 | 9 |
| 4 | 9 6 |  | 81 | 11.5 |
| 5 | 68 | 4 | 92 | - |
| \% | 117 | $5: 9$ | 36 | 6. |
|  | 2 5 | 9. 81 |  |  |
|  | 4 | $2{ }^{1} 6$ | 517 |  |
|  | 5 | (3) ${ }^{7}$ | 6 | 820 |
|  | 8 8 | 4) 19 | 215 | 5 7 |

10) Greater than and Killer

90 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.


## Round 3 - Krtek's Cup

## 90 minutes

1180 points

1. WR Classics 20 points
2. WR Classics ..... 30 points
3. XV sudoku ..... 30 points
4. Four pairs ..... 35 points
5. Irregular dots ..... 40 points
6. Sequences 45 points
7. Thermometers ..... 50 points
8. Football 65 points
9. Fortress ..... 65 points
10. Coded pairs 65 points
11. Detection ..... 70 points
12. Elimination ..... 75 points
13. Nonconsecutive spiral ..... 85 points
14. Orthogonal spacing ..... 85 points
15. Clockfaces 90 points
16. Killer 007 110 points
17. Counting neighbours 110 points
18. Number 5 still alive 110 points

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

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 |
| $4 \times 6$ | 1 | 7 | 8 | 9 | 2 | 5 | 3 |  |

4) Four pairs

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

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.


## 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 | 1 | 8 | 9 | 6 | 3 | 2 | 7 | 4 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 4 | 9 | 6 | 7 | 2 | 8 | 5 | 3 | 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 | 1 | 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 |  | 7 |  | 4 | 2 | 9 | 3 | 3 | 8 | 5 | 1 |  | , |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 9 |  |  |  | 8 |  |  | 6 |  | 3 | 9 | 5 | 5 | 1 | 7 | 8 | 2 |  |  |
|  |  |  |  |  |  |  |  |  | 5 |  | 1 | 8 | 4 | 4 | 2 | 6 | 9 | 7 |  | 3 |
|  |  |  |  | 6 |  |  |  |  | 1 |  | 9 | 7 | 3 | 3 | 6 | 5 | 4 | 8 |  | 2 |
| 2 |  |  |  |  |  |  |  | 7 | 2 |  | 8 | 5 | 1 | 1 | 9 | 4 | 3 | 6 |  | 7 |
|  |  |  |  |  |  |  |  |  | 3 |  | 6 | 4 | 7 | 7 | 8 | 2 | 1 | 5 |  | 9 |
|  |  | 3 |  |  |  | 6 |  |  | 8 |  | 5 | 3 | 2 | 2 | 7 | 9 | 6 | 4 |  | 1 |
|  |  |  | 8 |  | 1 |  |  |  | 9 |  | 2 | 6 | 8 |  | 4 | 1 | 7 | 3 |  | 5 |
|  |  |  |  | 5 |  |  |  |  | 4 |  | 7 | 1 | 6 |  | 5 | 3 | 2 | 9 |  |  |

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.


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

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 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 9 |  |  |  |  |  | 2 |
|  |  | 1 |  | , |  | 5 |  | : |
|  |  |  | 8 |  |  |  | 4 | 4 |
|  | 7 |  | 3 |  | 5 |  | 8 | 8 |
|  | 4 |  |  |  | 7 |  |  |  |
|  |  | 2 |  |  |  | 7 |  |  |
| 5 | $5:$ | , |  | $\ldots$ |  | 1 |  |  |
|  |  | , |  | 5 |  |  |  | 9 |


| 4 | 5 | 8 | 2 | 1 | 3 | 9 | 7 | 6 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 7 | 3 | 9 | 5 | 6 | 4 | 8 | 1 | 1 |
| 2 | 6 | 1 | 7 | $8:$ | 9 | 5 | 3 | 2 |
| 1 | 2 | 5 | 8 | 9 | 6 | $3:$ | 4 | 7 |
| 9 | 7 | 6 | 3 | 4 | 5 | 2 | 8 | 1 |
| 8 | 4 | 3 | 1 | 2 | 7 | 6 | 9 | 5 |
| 6 | 9 | 2 | 4 | $3:$ | 1 | 7 | 5 | 8 |
| 5 | 8 | 4 | 9 | 7 | 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.


| $3_{4}$ | 94 | 4 | 6 | 6 | 1 | 8 | 7 | 2 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

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.


| 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

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.


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

## 14) Orthogonal spacing

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

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

110 points
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

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.

| $X^{8}$ | 2 |  |  |  |
| :--- | :--- | :--- | :--- | :--- |
| 0 | 2 |  |  | 0 |
| 0 |  |  | 7 |  |
| 0 | 1 |  |  |  |


| 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 |

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 .


| 3 | 6 | 9 | 7 | 1 | 5 | 8 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 8 | 7 | 9 | 5 | 4 | 6 |$|$

## Round 4 - Arrow style

30 minutes
430 points

1. Arrows 15 points
2. Arrows 40 points
3. Count different 40 points
4. Mean arrows 45 points
5. Skyscrapers on arrows 45 points
6. Product last digit 65 points
7. Morse numbers .80 points
8. Count the odd ones 100 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 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  | 9 |  |  | 8 |
|  |  |  |  |  |  | 6 |  |  |
|  |  | 3 |  |  |  |  | 7 |  |
|  |  |  | 7 |  |  |  |  | 4 |
| 9 |  |  |  | 8 |  |  |  |  |
|  | 1 |  |  |  | 4 |  |  |  |
| 6 |  | 4 |  |  |  |  |  |  |
|  | 5 |  | 9 |  |  |  |  | 7 |


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

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

| 6 |  |  |  |  |  |  | 4 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | 3 |  |  |  |  |  |  |
|  | 3 |  |  |  |  |  |  |
| 4 |  |  |  | 7 |  |  |  |
|  | 7 |  | 3 |  |  |  |  |
|  |  | 1 |  | 2 |  | 8 |  |
|  |  |  |  |  | 5 |  | 7 |
|  |  |  |  | 8 |  |  |  |
| 3 |  |  |  |  |  | 1 |  |
| 1 | 2 |  |  |  |  |  |  |


| 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 | 1 | 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.

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

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 |  | 7 | 5 |  | 3 |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |  |  |
|  |  | 7 |  |  |  | 4 |  |
| 8 |  | 3 |  | 9 |  |  | 1 |
| 2 |  |  |  | 2 |  |  |  |
|  |  | 5 |  | 1 |  |  | 9 |
|  |  |  |  |  | 6 |  |  |
| 4 |  | 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
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
$4=$ OOOOE
$5=00000$
$6=\mathrm{EOOOO}$
7 = EEOOO
8 = EEEOO
9 = EEEEO

8) Count the odd ones

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

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


| 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 | 1 | 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 |

## Round 5 - Growing regions

## 30 minutes

310 points

1. Irregular $6 \times 6$ ..... 15 points
2. Irregular $7 \times 7$ 20 points
3. Irregular $8 \times 8$ ..... 30 points
4. Deficit $6 \times 6$ 15 points
5. Deficit $7 \times 7$ ..... 45 points
6. Deficit $8 \times 8$ 50 points
7. Surplus $6 \times 6$ 35 points
8. Surplus $7 \times 7$ 65 points
9. Surplus $8 \times 8$ 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 exactly once.
N is equal to $6,7,8$ according to grid size.


| 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

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


| 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.


| 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
650 points

1. Offset 40 points
2. Plus minus lines 55 points
3. Antidiagonal 65 points
4. Diagonal pairs 70 points
5. Step by step ..... 75 points
6. Odd even and killer 85 points
7. Makodoku 110 points
8. Cave 150 points
1) Offset

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


| 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 |

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

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


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

## 4) Diagonal pairs

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 |

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

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.


110 points
7) Makodoku

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.


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 |

Round 7 - Flip-flop classics
20 minutes

```
0. no solution
                .0 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 |


Prague 2018

## Round 8 - Killer style

## 40 minutes

450 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.


| 78 |  | 59 | 2 | 4 | 6 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 4 | 5 | 1, 7 , 6 | 8 | 9 | 3 |
| 3', 6 | 9 | 42 | 5 | 1 | 7 |
| 1 | 6 | 3 3: 9 | 4 | 5 | 2 |
| 2 | 8 |  | 3 | 6 | 9 |
| 59 | 3 | $2{ }^{2} 6$ | 17 | 8 |  |
| $6)^{1 / 8} 1$ | 7 | $8{ }^{2} 4$ | 9 | , | 5 |
| $8: 3$ | 2 | 9 9) 5 : 1 | 6 | 7 | 4 |
| 95 | [4] | $6: 3$ | $1 \cdot$ | 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: $21 \ldots 24$ rounds to $20,25 \ldots 29$ rounds to 30 , etc.)

|  |  |  |  |  | 5 | 4 |  |  | 9 |  | 2 | 6 |  |  | 3 | 5 | 4 | 4 | 1 | 7 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1 |  |  | 2 |  |  | 9 |  | 7 |  | 1 | 3 |  | 4 | 2 | 6 | 5 | 5 | 9 | 8 |  |
| 8 |  |  | 1 |  | 9 |  |  |  | 8 |  | 5 | 4 |  | 1 | 7 | 9 | 3 | 3 | 6 | 2 |  |
| 2 |  | 5 |  | 4 |  | 1 |  |  | 2 |  | 7 | 5 |  | 6 | 4 | 3 |  | 1 | 8 | 9 |  |
|  | 6 |  | 7 |  | 1 |  | 3 |  | 4 |  | 6 | 8 |  | 7 | 9 | 1 |  | 2 | 3 | 5 |  |
|  |  | 1 |  | 8 |  | 6 |  | 4 | 3 |  | 9 | 1 |  | 5 | 8 | 2 | 6 | 6 | 7 | 4 |  |
|  |  |  | 2 |  | 8 |  |  |  |  | 1. | 3 | 7 |  | 2 | 5 | 8 | 9 | 9 | 4 |  |  |
|  | 4 |  |  | 6 |  |  | 2 |  | 5 |  | 4 | 9 |  | 3 | 6 | 7 | 8 | 8 | 2 | 1 |  |
|  |  | 2 | 9 |  |  |  |  |  | 6 |  | 8 | 2 |  | 9 |  | 4 |  |  | 5 | 3 |  |

4) Ordered sums

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


| 2 | 5 | 4 | 9 | 8 | 7 | 3 | 6 | 1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 8 | 7 | 6 | . | 5 | 5 | 1 | 2 | 9 |$|$

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)


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

6) Ordering

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).


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


| 9 | 3 | 6 | 2 | 8 | 4 | 1 | 7 | 5 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2 | 05 | 7 | 1 | 6 | 9 | 4 | 8 | 3 |
| 1 | 4 | 8 | 7 | 3 | 5 | 6 | 2 | 9 |
| 8 | 9 | 1 | 6 | 7 | 3 | 2 | 5 | 4 |
| 6 | 7 | 4 | 5 | 9 | 2 | 8 | 3 | 1 |
| 3 | 2 | 5 | 8 | 4 | 1 | 7 | 9 | 6 |
| 7 | 8 | 3 | 4 | 5 | 6 | 9 | 1 | 2 |
| 5 | 6 | 2 | 9 | 1 | 7 | 3 | 4 | 8 |
| 4 | 1 | 9 | 3 | 2 | 8 | 5 | 6 | 7 |

## 8) Different around

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 |  |  |  |  |
|  |  |  |  | $\ldots$ |  | 6 |  |  |
| 3 |  | 4 |  | 1 |  | 2 |  | 8 |
|  |  |  | 3 |  |  |  |  |  |
|  |  |  |  | 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 | 2 | 8 | 4 | 6 | 7 | 3 | 5 |
| 3 | 6 | 4 | 5 | 1 | 7 | 2 | 9 | 8 |
| 5 | 7 | 8 | 3 | 2 | 9 | 4 | 1 | 6 |
| 8 | 3 | 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 |

## Prague <br> Prague 2018

## Round 9 - WPF Grand Prix

55 minutes

1. GP Classics ..... 20 points
2. GP Classics 35 points
3. Next to nine 35 points
4. Between 40 points
5. Scattered irregular 45 points
6. Fives 50 points
7. Renban 55 points
8. Duodoku 65 points
9. Disparity 75 points
10. X ray 85 points
11. Diagonally consecutive 85 points
12. Sum sandwich 90 points
13. Bust 110 points790 points1-2) GP Classic20, 35 points

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 |

3) Next to nine

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

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 | 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

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

7) Renban

55 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 | 3 |  |  |  |  |  | 19 | 9 | 7 | 5 |  | 3 | 6 | 8 | 2 |  | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 4 |  |  |  |  |  |  | -5 |  | 3 | 4 |  | 2 | 1 | 6 | 7 |  |  |
|  |  |  |  |  |  | 1 : |  |  |  | 6:4 | 4 | 2 | 9 | 9 | 7 | 8 | 1 | 5 | 5 |  |
|  | 1 |  |  | 5 |  | -9 | 9 |  | 3 | 31 | 1 | 4 | 8 | 8 | 5 | 7 | 2 | 9 |  |  |
| 7 |  |  | 2 |  |  |  |  | 5 | 7 | 78 | 8 | 6 | 2 | 2 | 4 | 9 | 3 | : 1 |  |  |
|  | 2 |  |  | 6 |  |  | 8 |  | 9 | 2 | 2 | 5 | 1 |  | 6 | 3 | 4 | 8 |  |  |
|  |  | 9 |  |  |  | 7 |  |  |  | 6 |  | 9 | 3 |  | 1 | 2 | 7 | :4 |  |  |
|  |  |  | 6 |  |  |  |  |  |  | 2:7 |  | 8 | 6 | 6 | 9 | 4 | 5 | 3 |  |  |
|  |  |  |  | 8 |  |  |  |  | 4 | 43 | 3 | 1 | 7 | 7 | 8 | 5 | 9 | 6 |  |  |

8) Duodoku

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


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

10) X ray

85 points
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 |  |  |  | 5 |  | 7 |  |  |  |  |  |  |
|  |  |  | 4 |  | 9 |  |  |  |  |  |  |  |  |
| 3 |  |  | 5 | 1 | 4 | 8 | 3 | 7 | 9 | 2 | 6 |  |  |
|  |  | 0 | 3 |  | 6 |  |  |  |  |  |  |  |  |
| 1 |  | 5 |  |  |  | 7 |  | 4 |  |  |  |  |  |
| 2 | 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 |  | 3 |  | 9 |  | 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 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  | 5 |  |  |  |  |  |  |
|  |  |  |  | 2 |  |  |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  | 6 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |  | 4 |  |  |  |  |  |  |
| 8 | 2 | 6 | 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 | 5 | 4 |  | 7 |  | 1 |  | 7 | 2 | 1 | 8 | 9 | 5 | 4 |
| 9 | 5 | 2 | 4 | 6 | 7 | 3 | 1 | 8 |  |  |  |  |  |  |

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.)


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

13) Bust

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 $\mathrm{N}-1$ digits is less or equal to 21 .

|  | 6 | 4 | 4 | 5 | 4 | 6 | 5 | 5 | 4 |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 4 |  | 4 |  |  |  |  |  | 7 |  | 6 | 8 | 4 |  |  |  |  | 17 | 72 |
| 5 | 2 |  | 6 |  |  |  |  |  | 9 | 4 | 2 | 5 | 6 | 1 | 8 | 7 | 43 | 39 |
| 5 |  |  |  | 2 |  | 3 |  | 6 |  | 4 | 1 | 9 | 7 | 2 | 4 | 3 | 56 | 68 |
| 5 |  |  | 8 |  | 9 |  | 7 |  |  | 5 | 4 | 6 | 8 | 3 | 9 | 1 | 72 | 25 |
| 6 |  |  |  | 7 |  | 4 |  |  |  | 3 | 5 | 3 | 1 | 7 | 2 | 4 | 98 | 86 |
|  |  |  |  |  |  |  |  |  |  |  | 9 | 7 | 2 | 6 | 5 | 8 | 31 | 14 |
| 4 |  |  | 2 |  | 5 |  | 3 |  |  | 6 | 7 | 2 | 4 | 8 | 1 | 9 | 65 | 53 |
| 5 |  | 2 |  | 8 |  | 9 |  |  |  | 4 | 3 | 8 | 5 | 4 | 7 | 6 | 29 | 91 |
| 5 | 3 |  |  |  |  |  | 2 |  | 1 | 5 | 6 | 1 | 9 | 5 | 3 | 2 | 84 | 47 |
| 5 |  | 1 |  |  |  |  |  | 4 |  | 5 |  |  |  |  |  |  |  |  |
|  | 4 | 6 | 6 | 4 | 6 | 4 | 5 | 5 |  |  |  |  |  |  |  |  |  |  |

2018

## Round 10 - Czech Grand Prix

## 65 minutes

810 points
1A. Interconnected Classics 40 points
1B. Interconnected Classics 40 points
2. More than consecutive 10 points
3. Half-mosaic ..... 20 points
4. Sudokuro ..... 25 points
5. Quadruples ..... 35 points
6. One-five-nine 40 points
7. 3D sudoku 45 points
8. One bug per line 50 points
9. Little killer 50 points
10. Prague star 55 points
11. Outside consecutive 80 points
12. Full rank 100 points
13. Antiwindoku 100 points
14. Classics $12 \times 12$ 120 points
1A, 1B) Interconnected Classics

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

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 .

3) Half-mosaic

| 1 | 4 | 6 | 2 |  | 5 | 3 |  | 7 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 3 | 2 |  | $\frac{1}{6}$ |  | 1 | 4 |  |  |
|  | 3 |  | 5 |  |  | 7 |  |  |
| 4 | 1 | 5 | 7 |  | 3 | 6 |  | 2 |
|  | 7 | 1 | 3 |  | 2 | 5 |  |  |
|  |  | 2 | 4 |  | 7 | 1 |  | 3 |
| 7 | 5 | 3 | 1 |  | 4 | 2 |  | 6 |

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.


| $5 / 6$ | 9 | $1 / 3$ | 7 | $2 / 8$ | 4 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 8 | $4 / 7$ | 2 | $1 / 6$ | 9 | $3 / 5$ |
| $2 / 4$ | 8 | $5 / 6$ | 3 | $1 / 7$ | 9 |
| 7 | $1 / 3$ | 9 | $2 / 5$ | 4 | $6 / 8$ |
| $3 / 9$ | 2 | $7 / 8$ | 4 | $5 / 6$ | 1 |
| 1 | $5 / 6$ | 4 | $8 / 9$ | 3 | $2 / 7$ |

## 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.



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

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


|  |  |  | 8 |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 71 | 6 | 6 | 5 | 8 |  | $3^{49} 2$ |
|  |  | 4 | 9 | 2 | 3 | 5 |  |  |
| 2 |  | 97 |  | 15 | 8 | 4 | 6 | 6 |
|  |  |  |  | 46 | 9 | 7 |  | 2 |
| 4 |  |  |  |  |  | 9 |  |  |
|  |  |  |  |  |  | 3 |  | 9 |
|  |  |  |  |  | 6 |  |  |  |
|  |  |  |  |  |  |  |  |  |

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 |

7) 3D sudoku

45 points
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 |  |  |  |  |  |  |  |
|  |  | 7 |  | 4 |  | 8 |  |  |
|  | 6 | 9 |  |  |  |  | 9 | 7 |
| 8 | 6 |  |  | 1 | 6 |  | 8 | 3 |
|  | 5 |  |  | 7 |  | 8 | 1 |  |
| 6 |  | 4 | 2 |  |  | 3 |  | 6 |
| 9 |  |  |  |  |  |  |  |  |


| 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.)

10) Prague star


55 points

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

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.

13) Antiwindoku


100 points

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

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

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 |  |  |  |  |  |  |  |  |  |
|  |  |  | 2 | 7 | 1 |  |  |  |  |  | 9 |
| 2 |  |  |  |  |  | 1 | 12 | 10 |  |  |  |
|  |  |  |  |  |  |  |  |  | 2 | 10 | 12 |
|  | 11 |  | 6 | 3 |  | 2 |  |  |  |  | 10 |
|  |  |  | 11 | 9 |  | 10 |  | 4 |  |  |  |
|  | 5 | 2 |  |  |  | 6 |  |  |  | 9 | 1 |
|  | 3 | 9 | 10 |  |  | 5 |  |  |  |  | 6 |


| 5 | 9 | 3 | 1 | 2 | 7 | 4 | 10 | 6 | 8 | 12 | 11 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 4 | 1 | 7 | 12 | 10 | 11 | 8 | 5 | 2 | 9 | 6 | 3 |
| 12 | 2 | 10 | 3 | 8 | 6 | 9 | 11 | 7 | 4 | 1 | 5 |
| 11 | 6 | 8 | 9 | 5 | 4 | 12 | 3 | 1 | 10 | 2 | 7 |
| 6 | 4 | 11 | 5 | 12 | 10 | 3 | 2 | 9 | 1 | 7 | 8 |
| 3 | 10 | 12 | 2 | 7 | 1 | 11 | 4 | 8 | 6 | 5 | 9 |
| 2 | 7 | 5 | 8 | 6 | 9 | 1 | 12 | 10 | 3 | 11 | 4 |
| 9 | 8 | 1 | 4 | 11 | 3 | 7 | 6 | 5 | 2 | 10 | 12 |
| 1 | 11 | 4 | 6 | 3 | 5 | 2 | 9 | 12 | 7 | 8 | 10 |
| 7 | 12 | 6 | 11 | 9 | 8 | 10 | 1 | 4 | 5 | 3 | 2 |
| 10 | 5 | 2 | 7 | 4 | 12 | 6 | 8 | 3 | 11 | 9 | 1 |
| 8 | 3 | 9 | 10 | 1 | 2 | 5 | 7 | 11 | 12 | 4 | 6 |

## Round T1 - Two pairs

## 60 minutes

## 1900 points

1. Count different ..... 100 points
2. Distances ..... 125 points
3. Unique rectangles ..... 150 points
4. Odd-even view ..... 150 points
5. Parity circles ..... 150 points
6. Superconsecutive 250 points
7. Sum by X ..... 100 points
8. Plus minus killer ..... 125 points
9. Emitters ..... 150 points
10. Cross sums 150 points
11. Sum it up ..... 200 points
12. Pyramidal 250 points

## 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: $\mathrm{AB}+\mathrm{CD}->\mathrm{DA}+\mathrm{BC}->\mathrm{CD}+\mathrm{AB}->\mathrm{BC}+\mathrm{DA}->\mathrm{AB}+\mathrm{CD}->\mathrm{DA}+\mathrm{BC}$. 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.

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

2) Distances

125 points

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.


## 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

|  | 8 | 8 | 6 | 4 | 6 | 2 | 2 | 8 | 2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 6 | 5 | 1 | 6 | 4 | 9 | 3 | 2 | 8 | 7 | 7 |
| 8 | 7 | 8 | 4 | 5 | 1 | 2 | 9 | 6 | 3 | 3 |
| 2 | 9 | 2 | 3 | 8 | 6 | 7 | 4 | 1 | 5 | 5 |
| 8 | 8 | 9 | 7 | 6 | 3 | 1 | 5 | 4 | 2 | 5 |
| 6 | 6 | 4 | 2 | 7 | 8 | 5 | 3 | 9 | 1 |  |
| $2$ | 1 | 3 | 5 | 2 | 4 | 9 | 8 | 7 | 6 | 7 |
| 4 | 4 | 5 | 8 | 3 | 7 | 6 | 1 | 2 | 9 | 9 |
| 2 | 2 | 6 | 1 | 9 | 5 | 8 | 7 | 3 | 4 | 3 |
| 2 | 3 | 7 | 9 | 1 | 2 | 4 | 6 | 5 | 8 | 5 |
|  | 3 | 7 |  |  |  |  |  |  |  |  |

150 points

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

6) Superconsecutive

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

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.)



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

125 points
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

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 |  |
|  | 7 |  | 6 |  |  |  |  |
| 5 |  | 9 |  | $Z$ |  |  |  |
|  | 3 |  |  |  | 1 |  | 6 |
| 9 | 8 | 5 |  |  |  |  |  |
|  |  |  |  |  | 2 |  |  |
|  |  | $\boxed{Z}$ |  |  |  | 1 | 5 |


| 1 | 9 | 8 | 2 | 5 | 3 | 7 | 4 | 6 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 7 | 5 | 6 | 9 | 4 | 8 | 3 | 2 | 1 |
| 3 | 4 | 2 | 7 | 1 | 6 | 8 | 5 | 2 |
| 2 | 7 | 1 | 6 | 3 | 9 | 5 | 8 | 4 |
| 5 | 6 | 9 | 4 | 2 | 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 | $\boxed{Z}$ | 3 | 6 | 5 | 1 | 9 | 8 |

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.

11) Sum it up

| 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 |

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.

## 12) Pyramidal

| 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 | 1 | 7 | 5 | 8865 |
| 4 | 7 | 5 | 2 | 3 | 1 | 6 | 8 | 9 | 5157 |
| 1 | 6 | 9 | 8 | 5 | 7 | 4 | 2 | 3 | 2295 |

250 points

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 |  |  |  |  |  |  |  |  |
| 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

1. Just numbers ............................ $5 \times 75$ points
2. Grey cells .............................. $5 \times 75$ points
3. Grey lines ............................. $5 \times 100$ points
4. Ellipses ............................... $5 \times 75$ 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.


1-1) Antiknight
Two cells that are one knight step away from each other cannot contain the same digit.


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


| 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 | 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 |


|  | A | B | C | D | E |
| ---: | :--- | :--- | :--- | :--- | :--- |
| 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.


| 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 |


|  | A | B | C | D | E |
| ---: | :--- | :--- | :--- | ---: | ---: |
| 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 |  |  |  |  |  | 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 |  |  |  | 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 | 1 |
| 3 | 8 | 1 | 4 | 6 | 5 | 7 | 9 | 2 |
| 8 | 3 | 6 | 2 | 7 | 1 | 5 | 4 | 9 |
| 5 | 9 | 2 | 3 | 4 | 6 | 8 | 1 | 7 |
| 7 | 1 | 4 | 5 | 9 | 8 | 2 | 3 | 6 |
| 1 | 7 | 8 | 6 | 5 | 9 | 4 | 2 | 3 |
| 4 | 5 | 9 | 7 | 3 | 2 | 1 | 6 | 8 |
| 2 | 6 | 3 | 1 | 8 | 4 | 9 | 7 | 5 |

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 |


|  | A | B | C | D | E |
| ---: | :--- | :--- | :--- | :--- | :--- |
| 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 | 1 | 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 |  |  |  | 9 |  |  |  |
|  |  | 6 |  | 5 |  |  |  | 1 |
| 5 |  |  | 4 |  | 9 |  |  |  |
| 8 | $\bullet$ |  |  |  | 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 | 7 | 9 | 1 | 5 | 3 |
| 6 |  |  |  |  |  |  |  |  |
| 7 | 3 | 6 | 9 | 5 | 8 | 2 | 4 | 1 |
| 5 | 7 | 3 | 4 | 1 | 9 | 6 | 8 | 2 |
| 8 | 6 | 4 | 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 |  |  | 2 |  |  | 1 |
| 3 | 5 |  |  |  |  |  | 8 |  |
|  |  |  | 4 |  | 3 |  | 5 |  |
|  | 7 |  |  |  |  |  |  | 8 |
|  | 8 | 4 |  | 6 | 5 |  |  |  |
|  |  |  | 1 |  |  | 7 |  | 5 |


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

## 4-4) Greater

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

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


| 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 |
| 5 | 8 | 3 | 6 | 4 | 7 | 2 | 1 | 1 |
| 2 | 3 | 9 |  |  |  |  |  |  |
| 2 | 4 | 1 | 5 | 9 | 8 | 3 | 7 | 6 |
| 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 |  |  |  |  |  | 2 |  | 5 |
|  |  |  | $\bullet$ | 1 | 5 |  |  | 6 |
|  |  | 1 |  | 6 |  |  |  |  |

## Round T3 - Coded

40 minutes
1600 points

```
1. 4\times Classic sudoku ...........................4*50 points
2. 4× Irregular sudoku .......................4×100 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.


|  |  |  | 28 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 9 | 5 | 8 |  |  | 27 | 4 | 4 | 6 | 3 |
| 3 | 21 | 7 | 5 |  | $4{ }^{2} 6$ | 9 | 9 | 2 | 8 |
| 1 | 8 | 5 | 2 | 3 | 34 |  | 6 | 7 | 9 |
| 7 | 34 | 2 | 9 | 6 | 6 | 3 | 3 | 8 | 3 |
| 6 | 3 | 9 | 7 | 8 | 8 |  |  | 4 | 2 |
| 5 | 9 | 1 | 4 | 7 | 7 |  | 8 | 3 | 6 |
| 2 |  | 3 | 6 |  | 1 |  | 5 | 9 | 4 |
|  | 2 6 |  | 3 |  |  |  |  |  |  |

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.)




HOTEL INTERNATIONAL PRAGUE


NTD group a.s.
ataccama


