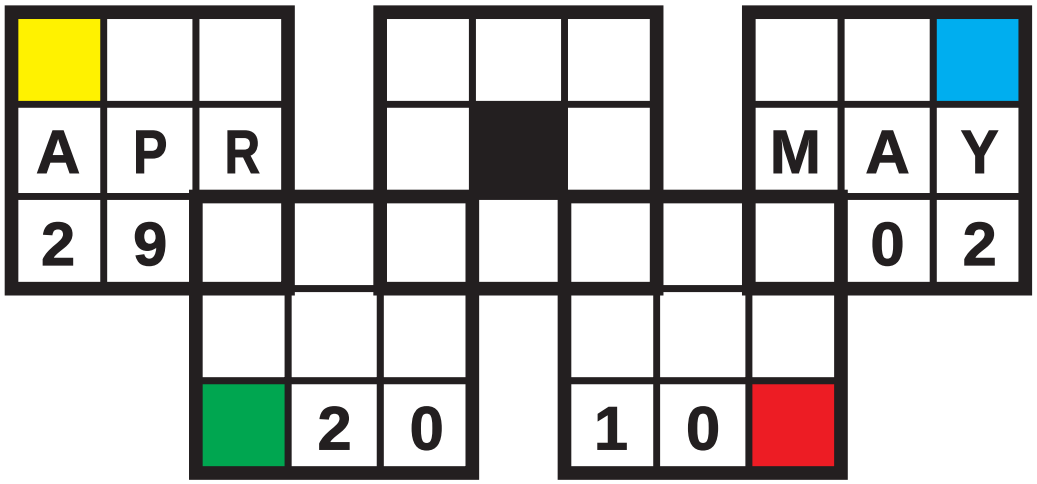
5th WORLD SUDOKU CHAMPIONSHIP PHILADELPHIA



Competition Rules

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Competition Schedule
(as of 4/25)

Thursday 4/29

1-6 pm, 10-11:30 pm	Registration
6:30 pm	Optional transport to Visitor Center
7 – 10:00 pm	Reception at Visitor Center
9:00 pm	Optional transport back to hotel
9:30 – 10:30 pm	Q&A for puzzles and rules

Friday 4/30

8 – 10 am	Breakfast
9 – 1 pm	Self-guided tourism and lunch
1:15 – 5 pm	Individual rounds, breaks • 1: 100 Meters (20 min) • 2: Long Jump (40 min) • 3: Shot Put (40 min) • 4: High Jump (35 min) • 5: 400 Meters (35 min)
5 – 5:15 pm	Room closed for team round setup
5:15 – 6:45 pm	Team rounds, breaks • 1: Weakest Link (40 min) • 2: Number Place (42 min)
7:30 – 8:30 pm	Dinner
8:30 – 10 pm	Game Night

Saturday 5/1

7 – 9 am	Breakfast
8:30 – 12:30 pm	Individual rounds, breaks • 6: 110 Meter Hurdles (20 min) • 7: Discus (35 min) • 8: Pole Vault (40 min) • 9: Javelin (45 min) • 10: 1500 Meters (35 min)
12:30 – 1:30 pm	Lunch
2:00 – 4:30 pm	Team rounds, breaks • 3: Jigsaw Sudoku (30 min) • 4: Track & Field Relay (40 min) • 5: Pentathlon (40 min)
5 pm	Individual scoring protest deadline
4:30 – 5:30 pm	Room change for finals
5:30 – 6:45 pm	Individual Finals
7 pm	Team scoring protest deadline
7:30 – 10:30 pm	Dinner and awards

Sunday 5/2

Morning	Breakfast
All Day	Departure

Competition Rules

5th World Sudoku Championship

The rules this year introduce some new scoring techniques and procedures. All competitors, regardless of WSC experience, should read these rules carefully. In particular, we are introducing new notions for

- Partial Credit
- Round Bonus
- Variable Length Team Rounds

Individual Competition

The individual rounds are thematically inspired by the Olympic Decathlon. There are five rounds each on two consecutive days. The first day is focused on speed and "left-brain" skills such as arithmetic; the second day is focused on endurance and "right-brain" skills such as geometric relationships. The four "track" events are represented by standard Sudoku; the main variance is in difficulty and length. The six "field" events are represented by Sudoku variants. The overall winner of the Olympic Decathlon is known as the "World's Greatest Athlete"; accordingly, we might call the winner of the individual competition to be the "World's Greatest Sudoku Solver"!

Individual score is the total points for all puzzles in each of the 10 rounds, including bonuses. No partial credit is given for any puzzle in the individual rounds.

Individual Finals – the SUper DOKUthlon

The top four competitors from the Decathlon will participate in a playoff to determine their final ranking. In case of a tie, the following tiebreaking rules will be used in order to determine the finalists:

- Highest total score for first puzzle in each of the 10 rounds
- Highest score for Round 5,
- First to solve a special tie-breaking puzzle using final round rules.

The Super DOKUthlon will include one puzzle style from each of the 10 Decathlon rounds. The puzzle types are listed in the Puzzles section below.

The final round will be 60 minutes. The top qualifier will get the full 60 minutes; the other competitors will get proportionately less time, based on their total Decathlon (Individual Competition) points.

If a competitor finishes the final puzzle before 60 minutes, then the round will end when his or her final puzzle is judged as correct.

The ranking for the SUper DOKUthlon is based on the following tiebreaking rules:

- Earliest to finish all puzzles correctly
- Number of puzzles solved correctly
- Number of correct digits placed in the current, incomplete puzzle
- Tie declared.

During the round, the puzzles are solved and judged in order. When a competitor solves a puzzle, he or she will submit the puzzle their grader and can immediately start working on the next puzzle. The grader will check the puzzle for correctness.

If there is any mistake in the solution, the grader will return the puzzle (with one mistake noted, see below) and enforce a 30-second penalty, where the competitor is not allowed to look at any

puzzle or do any writing. After the penalty period, the competitor may continue working on another puzzle, or immediately correct the mistake. However, the contestant must still submit puzzles to the grader in the correct order. For each subsequent mistake on the same puzzle, the time penalty goes up by 30 seconds. The grader can also return a puzzle with no time penalty with the question "what is this?" if the competitor's writing is illegible, or with the comment "too many answers" for the Just One Cell Sudoku.

When returning a puzzle with a mistake, the grader will indicate the first empty cell. If there is no empty cell, the first filled-in cell with an incorrect number will be indicated (looking at rows from top to bottom, then left to right within the row).

The layout of the playoff room is not determined at this time. Finalists might be given a booklet or loose sheets to solve sitting at a desk, or might solve standing up with puzzles mounted on an easel, or some other presentation not yet determined.

Team Competition
The team score is the total points for all team rounds and the individual rounds of the team members, plus all bonuses. There are no playoffs for teams, and individual finals do not affect team score.

Round Bonus
For individual and team rounds, a competitor or team can earn a bonus if they complete all the puzzles in the round before the time limit. The competitor declares by raising his or her hand to get the attention of a floor judge, who will write the time on the scoring cover sheet.

For individual rounds, the full bonus is 5 points for each full minute early (for example, 50 seconds early would not get any bonus). For team rounds, the full bonus is 25 points for each full minute early.

To get the full bonus, all puzzles must be perfectly solved.

If, in the opinion of the judge, the individual or team intended to submit a perfect round, but there is a small number of errors, the round could be considered "near-perfect" and the individual or team would be awarded 60% of the full bonus. In general, a round would be near-perfect if each puzzle in the round was at least 95% correct, in the opinion of the judge.

Motivation: It is possible that, despite the best intentions of the puzzle authors, a competitor may finish a round significantly early. It would be unfair for a competitor who finishes all puzzles significantly early to have the same score as a competitor who barely finishes all the puzzles. Hence, the scoring for bonus time is approximately equal to the points the competitor might have gotten if there were more puzzles in the round.

It is also unfair for a competitor who has made a slight mistake (such as a digit transposition or leaving a cell blank) to finish early, thinking he has a perfect score, and lose the time bonus. A small mistake should not be a very significant score penalty beyond the loss of the points the puzzle is worth.

We also do not want to motivate competitors to focus too much on precision; checking solutions should not be an extremely important component of Sudoku solving skill. Therefore, awarding some time bonus to a competitor who turns in early even if he does not have a perfect score is reasonable. Unfortunately, there is no way to draw a clean line between a competitor who has made an honest mistake versus a competitor who is trying to abuse the system by getting just good enough to be "near-perfect," so we will leave it up to the judge's decision.

Round Duration for Team Rounds
Team rounds will have a variable time limit to try to ensure that some teams are able to complete each of these rounds.

With 5 minutes left in the round, if no team has completed the round (perfectly or "near perfect") then the clock will hold at 5 minutes. The clock will restart when one of the following happens:

- Any team completes the round and has been judged perfect or "near perfect."
- The maximum time limit has been reached (as determined by overall WSC schedule constraints or similar conditions), which is no more than 15 minutes beyond the original time. This time will be announced before the round. We do not expect the maximum time limit will ever be reached.

Motivation: It is possible that the puzzle authors have made a mistake and have designed a round that is too hard. In the past, such rounds have ended too early, having the effect of interesting puzzles just not being solved, and sometimes subverting the intention of the round. Although this system is complex, one can see that it reasonably protects against such a scenario, while also minimizing the chance that competitors can subvert the system by turning in their papers early, or that the system might be broken if one puzzle is insanely hard or unsolvable.

General Judging
In general, a puzzle must be completely solved in order to get credit for a correct answer. However, partial credit is given for some team rounds. For individual rounds, a Scoring Area is used, which allows full credit even if the grid is not completely filled. Both are described below.

If, in the opinion of the judge, the entry in a cell is unreadable or ambiguous (such as only two candidates of roughly equal emphasis), the entry will be considered incorrect. A special case is the Just One Cell Sudoku, where you are to place a single correct digit into a grid. If, for example, your intended answer is written with the same size and emphasis as another digit in the grid, your answer will be marked wrong, even if it is the correct answer. To avoid such judging mishaps, you are strongly advised to use the Scoring Area described below.

Partial Credit
Each puzzle is worth the number of points indicated on the round scoring summary page. Partial credit is available for the all team rounds except Number Place. See the Puzzles section below for more information.

Scoring Area
Judging for the Decathlon rounds will be performed using a method similar to the SudokuCup, US Puzzle Championship, and other on-line competitions where only a portion of the entire puzzle grid is judged, but with some significant improvements for both contestants and judges.

After solving a puzzle, the contestant will copy the two indicated rows (or the equivalent) of the grid into the *Scoring Area* at the bottom on the page. Only the entry in the Scoring Area will be judged for 100% accuracy. Even if the grid is not completely filled in (at least 90% correct), you will still get full credit for a correct answer.

To get full credit for a puzzle, one of the following must be true:

- The Scoring Area is correct and the grid is filled at least 90% correctly; or
- The Scoring Area is empty, and the grid is 100% correct.

If the Scoring Area is correct but less than 90% of the grid is filled, you will get full credit if the judge believes that you made an honest attempt to solve the puzzle and fill the grid sufficiently.

Motivation: The advantage of this system is that grading can be fast and efficient. Additionally, a contestant who completes a grid but makes a trivial error (such as leaving a cell blank, or leaving

two candidates instead of placing the correct digit) deserves some sort of partial credit. This system gives the solver FULL credit in these cases.

Grading Sudoku can be very difficult when candidates, other notations, and final digits all appear in the same cell. This can lead to incorrect or impossible grading, costing contestants points they believe they have earned. This system helps ensure that the contestant's intended answer is clear for the judges, eliminating this problem.

This will allow us to perform faster grading with fewer ambiguities that lead to mistakes. However, the scoring area is not meant to encourage you not to completely solve a puzzle, and so it is expected that the grid itself will contain a complete (or nearly complete) solution. This guideline especially applies for solvers who sometimes solve on scratch paper, who must still fill in the original grid as well as the Scoring Area, since a mostly blank grid with a correct Scoring Area would be indistinguishable from the paper of someone who found a way to cheat and copy those rows against the rules of the competition.

Code of Conduct
All competitors must solve puzzles honestly and fairly, with no outside help, and may not intentionally disrupt fellow competitors.

Competitors may use writing implements, eraser, and scratch paper. No other materials or outside help of any kind is permitted. During competition, desks should be clear of all nonessential items.

You may make notes to clarify the puzzle instructions (such as in the Instruction Book) and consult those notes during competition. However, notes that may help solving a puzzle (such as a list of which digits contain the letter "T" in their English spelling) are not permitted.

Teammates may communicate, but only when permitted during the following rounds:

- Weakest Link, only during the team part
- Jigsaw Sudoku
- Track & Field Relay, only between two people solving a field puzzle
- Pentathlon

At the discretion of the judge, the penalty for violating the code of conduct will be disqualification for those puzzles or rounds in which the improper conduct occurred.

General
The maximum number of competitors from any one country is six, each competing individually.

Official teams must have three individual competitors from the same country, named in advance of the competition; the deadline is by the end of the Thursday night rules meeting. A country may have two official teams, but only one team per country will appear in the official results.

If there are one or two extra competitors not assigned to a country team, they may join with competitors from another country to form an unofficial team. All teams will be scored and reported, but unofficial teams will not appear in the official published results.

Captains
Each country has one captain, to represent the interests of the country's competitors and team(s) in all matters. A captain may also be a participating competitor. A captain:

- Ensures that the country's contestants understand the competition rules and instructions
- Represents individuals and teams in a judging protest
- May be asked to serve on a jury in the case of extreme judging situations
- Attend the Rules Meeting
- Should be present at the beginning of each morning and afternoon session to hear any important announcements, such as regarding the competition and schedules.

Noncompeting captains may not communicate with competitors or teams during the rounds of competition.

Protests
If a competitor or team believes that a puzzle has been scored incorrectly or there is some other error, then the captain must bring this to the attention of the head judge before the protest deadline. The judge will make a decision and give a reasonable explanation if the protest is denied.

In case of extreme dissatisfaction with the ruling of the judge, the captain can request a hearing with a committee of five captains, organized by the WPF board, where both the captain and judge will present their opinions and the committee will render a final decision. In all other cases, the decisions of the head judge are final.

Puzzles
Instructions and examples for all puzzles appear in the Instruction Booklet or linked from the PuzzleWiki page for WSC5: http://www.worldpuzzle.org/wiki/index.php/Fifth_World_Sudoku_Championship. The following is a summary of each round.

Individual Rounds
Round 1. 100m (20 minutes; 100 points) – This is a round of classic Sudoku, of easy difficulty. All puzzles can be solved with basic techniques, such as Hidden Single, Hidden Pair, Pointing Pair, and Box-Line Reduction.

- Classic Sudoku (11 points)
- Classic Sudoku (11 points)
- Classic Sudoku (12 points)
- Classic Sudoku (12 points)
- Classic Sudoku (13 points)
- Classic Sudoku (13 points)
- Classic Sudoku (14 points)
- Classic Sudoku (14 points)

Round 2. Long Jump (40 minutes; 200 points) – Sudoku Variants that require the solver to use arithmetic operations.

- Killer Sudoku (22 points)
- Integer Division Sudoku (6x6 grid, 14 points)
- Arrow Sudoku (20 points)
- Color Sum Sudoku (24 points)
- Little Killer Sudoku (29 points)
- 1234+567+89 (43 points)
- Product Last-digit Arrow Sudoku (48 points)

Round 3. Shot Put (40 minutes; 190 points) – Sudoku Variants that change the rules on how many numbers can be in a region, or how many numbers can be in a cell, or how many regions a cell belongs to.

- 0-9 Sudoku (43 points)
- Surplus Sudoku (5x5 grid, 4 points)
- Countdown Sudoku (6x6 grid, 5 points)
- Tight Fit Sudoku (13 points)
- Deficit Sudoku (5x5 grid, 14 points)
- Parquet Sudoku (30 points)
- Altered Sudoku (6x6 grid, 34 points)
- Double Cairo Sudoku (47 points)

Round 4. High Jump (35 minutes; 155 points) – Sudoku Variants that require the solver to use relational, comparative, and set-theoretic properties of 1-9.

- Consecutive Sudoku (22 points)
- Skyscrapers Sudoku (6x6 grid, 7 points)
- Comparative Sudoku (22 points)
- Thermometer Sudoku (22 points)
- Odd-Even-Big-Small Sudoku (8x8 grid, 22points)
- Outside Sudoku (27 points)
- Fortress Sudoku (33 points)

Round 5. 400 meters (35 minutes; 155 points) – This round has standard Sudoku puzzles that may need less-common heuristics, such as Naked Single, Naked Pair/Triple, Hidden Triple, and X-Wing.

- Classic Sudoku (14 points)
- Classic Sudoku (15 points)
- Classic Sudoku (16 points)
- Classic Sudoku (19 points)
- Classic Sudoku (20 points)
- Classic Sudoku (21 points)
- Classic Sudoku (24 points)
- Classic Sudoku (26 points)

Round 6. 110 meter hurdles (20 minutes; 110 points) – This round has only Just One Cell Sudoku puzzles.

- Composition "W" (4 points)
- Composition "S" (4 points)
- Composition "C" (4 points)
- Composition "5" (4 points)
- Composition (4 points)
- Composition (4 points)
- Composition (4 points)
- Composition (4 points)
- Composition (4 points)
- Composition (4 points)
- Basic Study (6 points)
- Basic Study (6 points)
- Basic Study (6 points)
- Basic Study (6 points)
- Basic Study (6 points)
- Advanced Study (8 points)
- Advanced Study (8 points)
- Advanced Study (8 points)
- Advanced Study (8 points)
- Advanced Study (8 points)

Round 7. Discus (35 minutes; 155 points) – Sudoku Variants that add additional regions.

- Diagonal Sudoku (20 points)
- Double Irregular Sudoku (6x6 grid, 12 points)
- Windoku (15 points)
- Hexagon Sudoku (22 points)
- Double-Diagonal Sudoku (23 points)
- Dragon Sudoku (26 points)
- Musketry Sudoku (37 points)

Round 8. Pole Vault (40 minutes; 200 points) – Sudoku Variants that use different representations or features of the 1-9 list.

- Digital Sudoku (6x6 grid, 20 points)
- Dice Pip Sudoku (6x6 grid, 13 points)
- Morse Sudoku (6x6 grid, 14 points)
- S as in Sudoku (25 points)
- Roman Numeral Sudoku (32 points)
- Trinary Sudoku (41 points)
- Inverse-Digital Letter Sudoku (9x9 grid, 55 points)

Round 9. Javelin (45 minutes; 225 points) – Sudoku Variants that use different geometries and line connections.

- Irregular Sudoku (40 points)
- Weave Sudoku (6x6 grid, 10 points)
- Sudo-Kurve (12 points)
- Isometric Sudoku (14 points)
- Primrose Sudoku (35 points)
- Ten-Box Sudoku (54 points)
- Penrose-2 Sudoku (60 points)

Round 10. 1500 meters (35 minutes; 310 points) – This round has standard Sudoku puzzles that require very difficult techniques, including Y-Wing, Simple Coloring, Swordfish, and even more advanced ones than demonstrated here. Most solvers will probably end up using bifurcation on these puzzles.

- Classic Sudoku (25 points)
- Classic Sudoku (27 points)
- Classic Sudoku (29 points)
- Classic Sudoku (31 points)
- Classic Sudoku (33 points)
- Classic Sudoku (35 points)
- Classic Sudoku (40 points)
- Classic Sudoku (40 points)
- Classic Sudoku (50 points)

Individual Finals: SUper DOKUthalon (60 minutes), one puzzle in the style of each of the Decathlon rounds:

- 100 meters: Standard Sudoku, easy difficulty
- Long Jump: Killer Sudoku
- Shot Put: 0-9 Sudoku
- High Jump: Consecutive Sudoku
- 400 meters: Standard Sudoku, medium difficulty
- 110 meter hurdles: Just One Cell Sudoku - "Basic Study"
- Discus: Diagonal Sudoku
- Pole Vault: Digital Sudoku
- Javelin: Irregular Sudoku
- 1500 meters: Standard Sudoku, hard difficulty

Team Rounds
The team rounds will cover themes that are not as well-covered in the individual rounds.

Team Round 1. Weakest Link (40 minutes)
This round features classic Sudoku with shared regions between the puzzles. The round starts with each team member solving the same puzzle alone. When this puzzle is judged as correct, the individual competitor is allowed to transition to the team area and will receive additional puzzles depending on how many team members are already at the team area. If an individual's puzzle is twice judged as incorrect, then that individual is excluded from the team area.

The individual puzzle is a Triple-Double Sudoku (two linked grids). The team puzzle is a Triple-Quadruple Sudoku, with four mutually linked grids. The first team member to complete the individual part gets two of the linked puzzles at the team desk; each subsequent member gets one more.

Scoring:

- For each individual grid, 25 points if solved correctly, otherwise 0 points.
- For each team grid, 200 points if solved correctly; otherwise partial credit is minus 20 points (from 200) for each cell that is incorrect or empty, but not less than 0 points.

Total: 950 points (six individual grids plus four team grid).

Team Round 2. Number Place (42 minutes)
In this round, the team must work together to solve six standard Sudoku puzzles without any writing implements to make notes or any methods to erase.

Each player will sit at an individual desk and may not communicate with the other team members. Each desk will have a puzzle on it. Each team member will be supplied with a sheet of colored stickers bearing the numbers from 1 to 9, with different colors for each solver. The puzzles will also have three regions shaded in the same colors as the stickers. Team members must only place digits/stickers in the regions belonging to their color and cannot remove stickers but can, if necessary, place a sticker over another one of the same color in an appropriate region. Each player will have only one extra sticker for each digit (9 total extra stickers for the entire round), so the opportunity to correct mistakes is very limited. Partial credit will be given for incomplete grids.

The round will start with three puzzles, one in front of each individual solver. After 90 seconds, an announcement/sound will indicate that the puzzle should be passed to the next team member on the right. This continues until a puzzle is declared finished and turned in. Whenever a puzzle is turned in, a new puzzle will be given to the solver at that desk to begin on, for a total of six puzzles in the round.

Scoring:

- Puzzle Blue: 250 if solved correctly, otherwise 4 points per correct sticker.
- Puzzle Green: 100 if solved correctly, otherwise 1 point per correct sticker.
- Puzzle Red: 100 if solved correctly, otherwise 1 point per correct sticker.
- Puzzle 4: 200 if solved correctly, otherwise 3 points per correct sticker.
- Puzzle 5: 150 if solved correctly, otherwise 2 points per correct sticker.
- Puzzle 6: 200 if solved correctly, otherwise 3 points per correct sticker.

Total: 1000 points.

Team Round 3. Jigsaw Sudoku (30 minutes)
Teams are given a set of 36 colored nonominos: 32 as physical jigsaw pieces, and four pre-printed on separate 9x9 grids. The team must place the jigsaw pieces to construct four valid Irregular Sudoku puzzles, and then solve them.

Scoring: For each grid:

- 50 points for each grid assembled correctly, otherwise 0 points.
- 150 points for each Irregular Sudoku grid solved correctly; otherwise partial credit is minus 20 points (from 150) for each cell that is incorrect or empty, but not less than 0 points.

Total: 800 points.

Team Round 4. Track and Field Relay (40 minutes)
One team member starts alone at the table with a track puzzle, an easy-moderate standard Sudoku. The other two team members sit together with a field puzzle: a 9x9 puzzle from one of the Field Rounds. The Field puzzles (which are represented by 6x6 versions in the individual rounds)

are Integer Division Sudoku, Countdown Sudoku, Skyscrapers Sudoku, Double Irregular Sudoku, Morse Sudoku, Weave Sudoku.

At the start of the round, both the individual and pair set to work on their puzzles. When both puzzles are finished, the two puzzles are turned in and a proctor will deliver the next track puzzle and the next field puzzle to the respective desks. Individuals will change positions by moving one chair to the right to change roles. During a total of six stages of the relay, each team member will have worked alone on a Track puzzle two times and on a Field puzzle with another team member four times.

Scoring: For each stage:

- 160 points if both puzzles are correct; otherwise partial credit is minus 20 points (from 160) for each cell that is incorrect or empty, but not less than 0 points.

Total: 960 points.

Team Round 5. Pentathlon (40 minutes)
A "Relay" page shows 24 cells, labeled A-Z (except for I and O). These labels represent links between Sudoku grids: wherever a label appears in a Sudoku grid, that cell must contain the linking digit.

Four puzzles are given, each having 4 cells linked to each of the other three grids, making 12 linked cells per grid, and 24 total links among the four grids. Solve the four puzzles and enter the linking values on the Relay page. Each puzzle can be solved with no outside information, but are made easier by taking advantage of the links.

The four puzzles types used are:

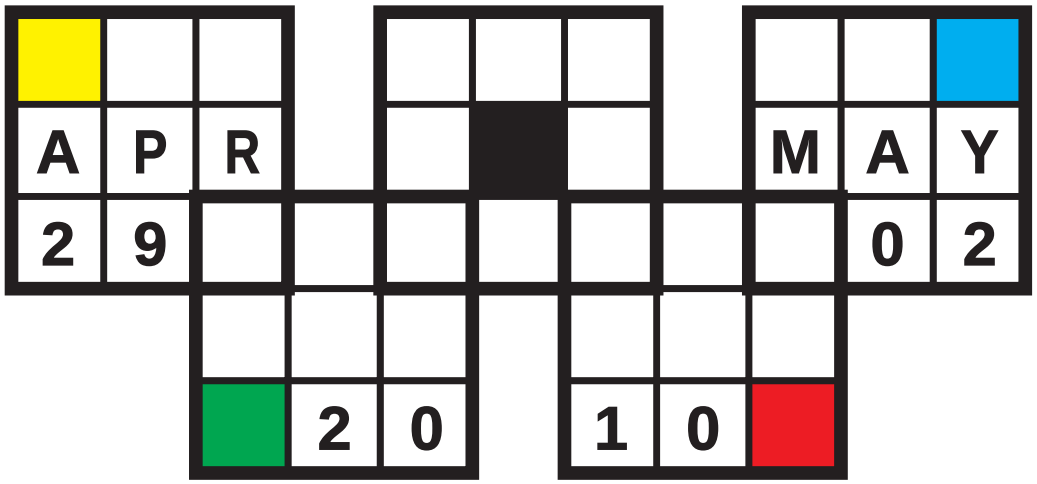
- Deficit Sudoku
- Consecutive Sudoku
- Thermometer Sudoku
- S as in Sudoku (using numbers from 9 different languages)

Scoring:

- 200 points if all 24 numbers on the Relay sheet are correct; otherwise partial credit is 5 points per correct number, minus 10 points per incorrect number, but not less than 0 points.
- 200 for each Sudoku grid solved correctly; otherwise partial credit is minus 20 points (from 200) for each cell that is incorrect or empty, but not less than 0 points.

Total: 1000 points.

5th WORLD SUDOKU CHAMPIONSHIP PHILADELPHIA



Puzzle Examples

from http://www.worldpuzzle.org/wiki/

Classic Sudoku

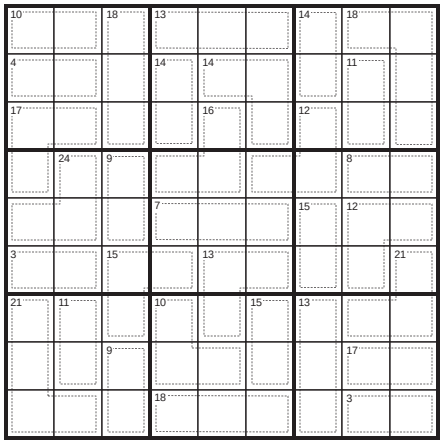
Place the digits 1 through 9 into the empty cells in the grid (a single digit per cell) so that each digit appears exactly once in each of the following regions: the nine rows, the nine columns, and the nine outlined 3×3 regions.

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

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

Killer Sudoku

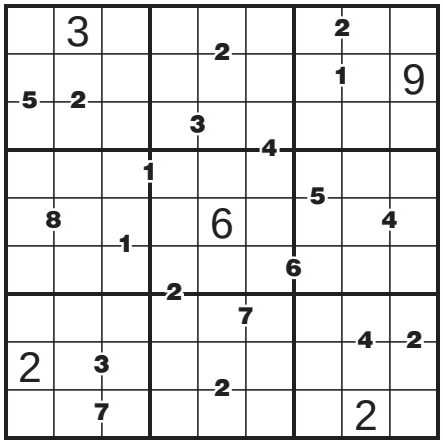
Follow Sudoku Rules. In addition, the digits in each region delineated by dotted lines must sum to the value given in that region. Digits can repeat within a caged region, provided they don't violate other sudoku rules.



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

Integer Division Sudoku

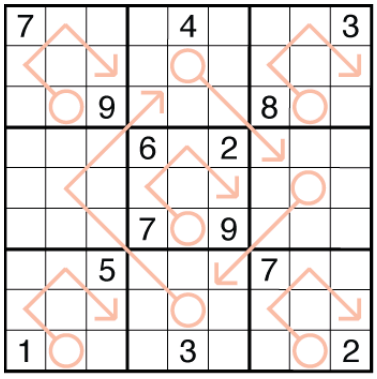
Follow Sudoku Rules. Some edges between cells are marked with a number. The number denotes the quotient received when the bigger number is divided by the smaller number, with any remainder discarded. For example, the number between a 3 and a 7, if marked, would be marked with a 2, since 7 divided by 3 is 2 (with a remainder of 1).

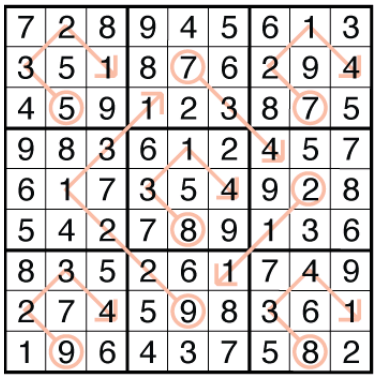


7	3	2	6	5	9	4	8	1
1	8	6	7	2	4	3	5	9
5	4	9	1	3	8	2	6	7
3	6	5	1	9	8	2	1	7
8	1	7	4	6	3	5	9	2
9	2	4	5	7	1	6	3	8
6	5	8	2	1	7	9	4	3
2	9	3	8	4	5	7	1	6
4	7	1	3	9	6	8	2	5

Arrow Sudoku

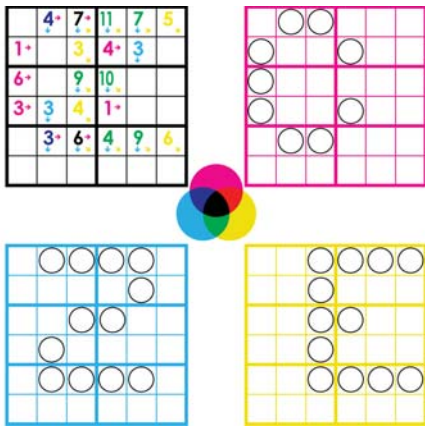
Follow Sudoku Rules. In addition, the digits in each circled cell must equal the sum of all the digits along the arrow's path; digits can repeat within an arrow.

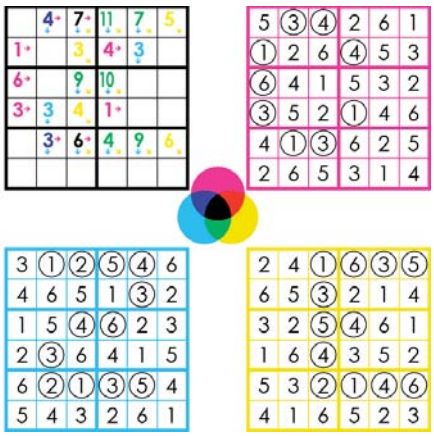




Color Sum Sudoku

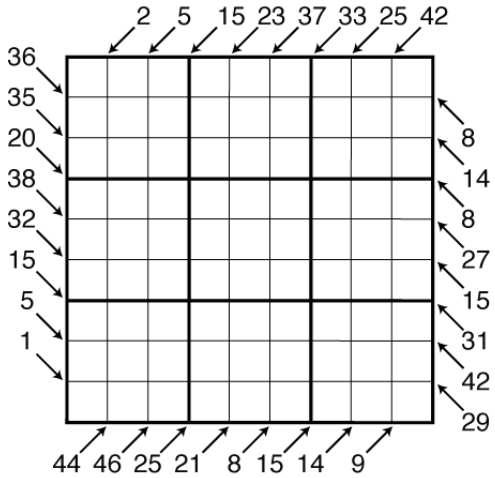
Follow Sudoku Rules. There are three 6x6 Sudoku grids to solve that are colored **magenta**/**cyan**/**yellow**. Clues are provided on a fourth grid, where a clue in a primary color (**magenta**/**cyan**/**yellow**) indicates a clue in those grids, a clue in a secondary color (**red** = **M**+**Y**, **green** = **C**+**Y**, **blue** = **C**+**M**) equals the sum of the digits in the two grids that make up that color, and a clue in **black** equals the sum of the digits in all three grids. The circles and arrows give an equivalent indication of which digits in the colored grids contribute to the sums in the clue grid. Numbers (circled or not) do not repeat in the same cell in 2 puzzles; as a result, a clue such as a **green 4** can be a **yellow 1** + **cyan 3** but cannot be a **yellow 2** + **cyan 2**.

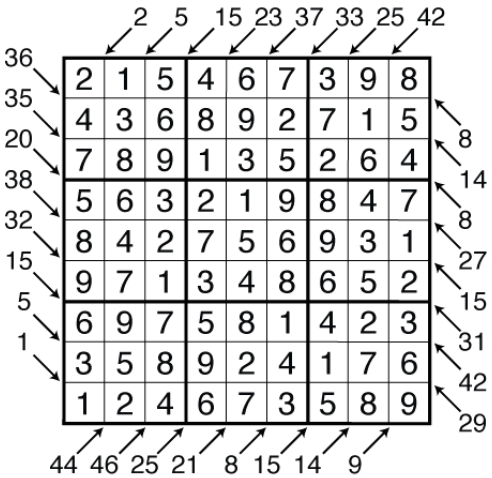




Little Killer Sudoku

Follow Sudoku Rules. In addition, the sums of the digits in the indicated diagonals is given on the outside of the grid; digits can repeat in these diagonals provided they don't violate other sudoku rules. (The main diagonals may repeat digits.)





1234+567+89 Sudoku

Follow Sudoku Rules. Additionally, for the indicated rows, the sum of the 4-digit number, the 3-digit number, and the 2-digit number will equal the given total.

8		7				5		6	
			6	+	5	+		=	2232
				+	7	+		=	3393
			1	+		4	+	=	4464
		2		+		3	+	=	6696
		5			7				
				+	1	+		=	4500
			2	+	8	+		=	6633
7		3				2		1	

8	9	7	3	2	1	5	4	6	
1	3	4	6	+	8	5	9	+	2	7	=	2232
2	5	6	9	+	7	4	1	+	8	3	=	3393
3	7	8	1	+	6	2	4	+	5	9	=	4464
6	1	2	5	+	4	9	3	+	7	8	=	6696
9	4	5	8	3	7	6	1	2			
4	2	9	7	+	1	3	8	+	6	5	=	4500
5	6	1	2	+	9	8	7	+	3	4	=	6633
7	8	3	4	5	6	2	9	1			

Product Last-Digit Arrow Sudoku

Follow Sudoku rules. Additionally, for each arrow, multiply the numbers along that arrow. The last digit of the product is in the cell pointed to by that arrow. Digits can repeat within an arrow, and may also repeat with the cell pointed to by the arrow.

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

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

0-9 Sudoku

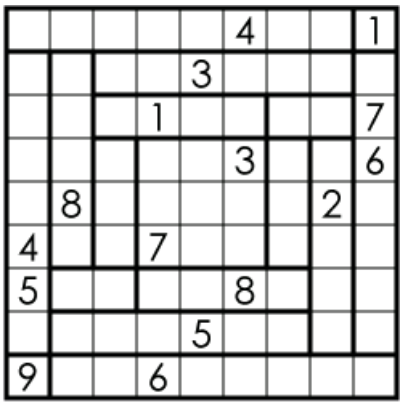
Follow Sudoku Rules, except that the ten numbers from 0-9 will be used instead of the nine numbers 1-9. Two numbers will go into each of the cells containing slashes (in any order).

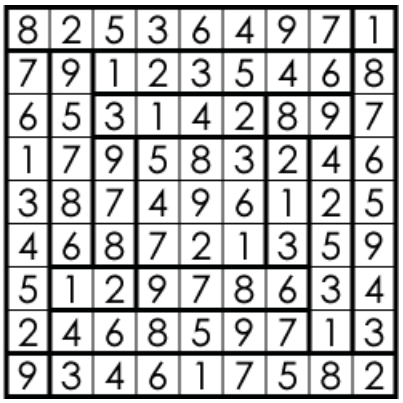
		8	5/6				4	
	7/0			3			2	
5					0			8/
		7	3			/		6
1				8/4				5
4		/			7	3		
/2			8					0
	3			2			7/9	
	5				1/4	6		

3	1	8	5/6	9	2	0	4	7
9	7/0	6	4	3	8	5	2	1
5	2	4	7	1	0	9	6	8/3
0	8	7	3	5	9	2/4	1	6
1	9	3	2	8/4	6	7	0	5
4	6	5/2	1	0	7	3	8	9
7/2	4	9	8	6	3	1	5	0
6	3	1	0	2	5	8	7/9	4
8	5	0	9	7	1/4	6	3	2

Countdown Sudoku

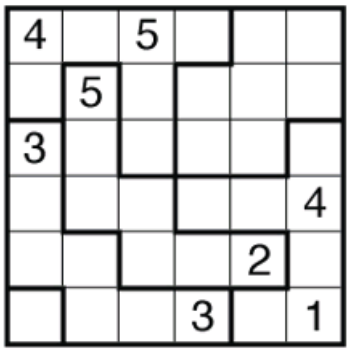
Follow Sudoku Rules, with the following changes: the regions are of varied size and must contain exactly the numbers from one of the following sets: 9, 98, 987, 9876, 98765, 987654, 9876543, 98765432, 987654321, 87654321, 7654321, 654321, 54321, 4321, 321, 21, 1. (The range changes accordingly for grid size.) Each set is used by exactly one region.

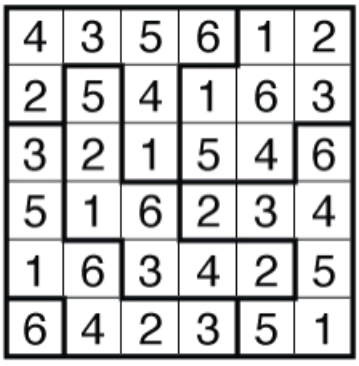




Surplus Sudoku

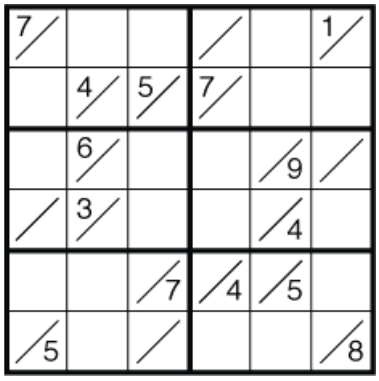
Standard Sudoku rules apply, with the following changes: each number appears at least once in each region (except for the single-celled region).

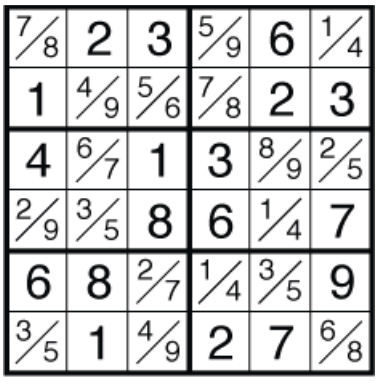




Tight Fit Sudoku

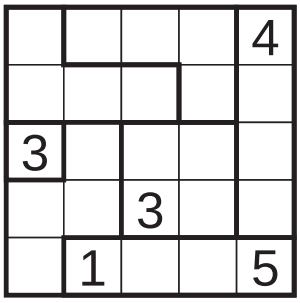
Follow Sudoku Rules. In the grid there are some cells with slashes. Two numbers go into these cells, and the smaller number must always be entered above the larger number.





Deficit Sudoku

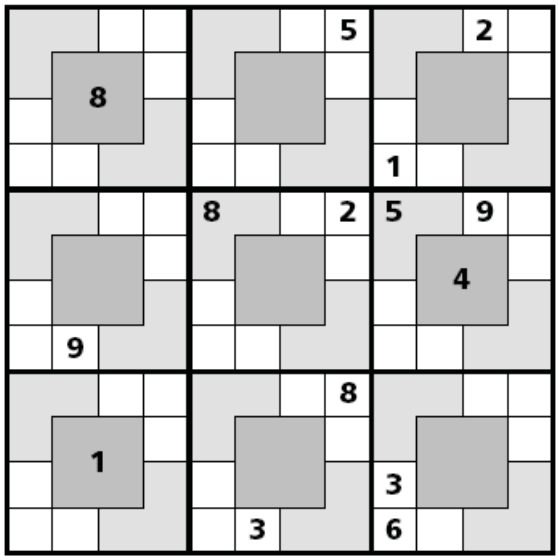
Standard Sudoku rules apply, with the following changes: each number appears at most once in each region but might not appear in all regions.

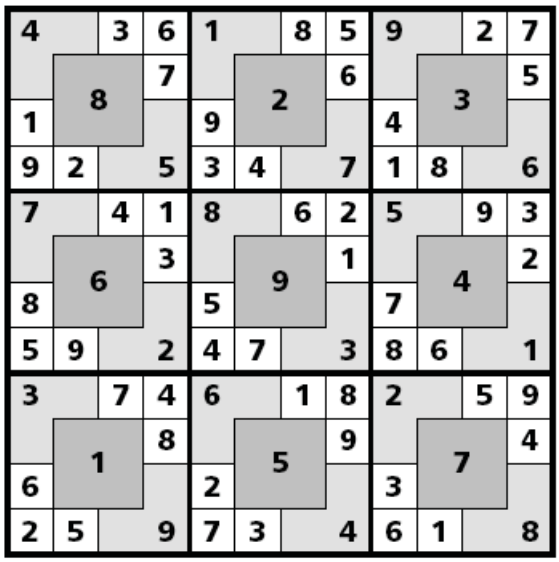


5	3	2	1	4
4	2	1	5	3
3	4	5	2	1
1	5	3	4	2
2	1	4	3	5

Parquet Sudoku

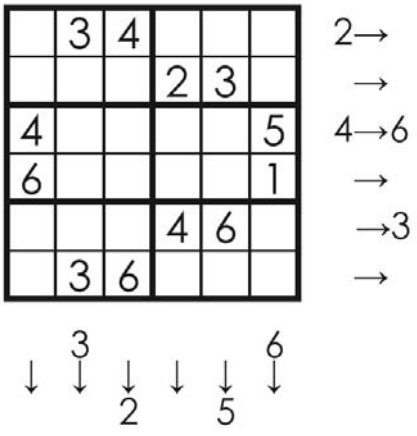
Follow Sudoku Rules, except some cells are larger than others and belong in multiple rows and/or columns (for example, the dark grey squares each belong to 2 rows and 2 columns). No digits will repeat in any of the 12 rows, 12 columns, and 9 outlined 4×4 regions.

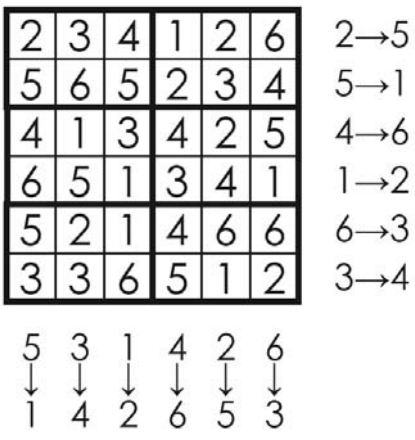




Altered Sudoku

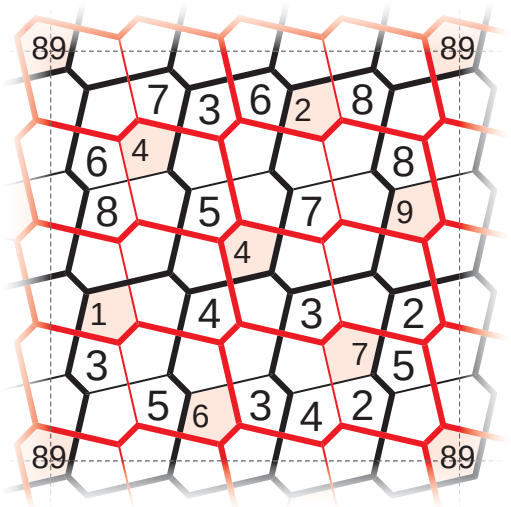
Fill in the cells such that six special cells can be "altered" to turn the grid into a solved standard Sudoku. The six special cells must contain six distinct numbers, and there must be exactly one special cell in each row, column, and region. Each special cell, when altered, must turn into a different number than the original, and all six special cells turn into different numbers. The arrowed indicators to the right and below the grid describe how the special cell in that row (or column) must be altered.

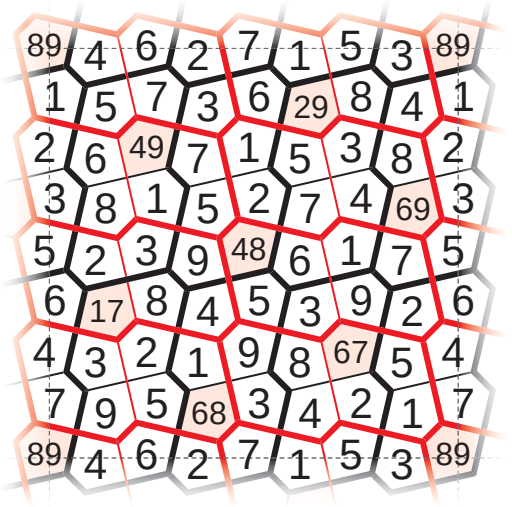




Double Cairo Sudoku

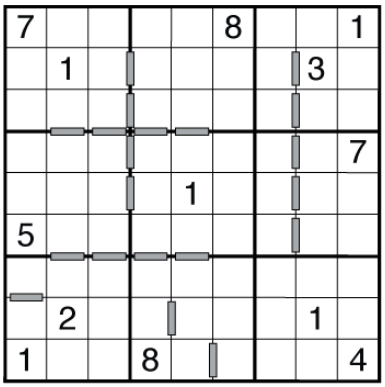
Standard Sudoku rules apply, with the following changes: Some cells contain two digits; those cells are shaded in light red. The outside rows and columns "wrap around" and are duplicated on both sides of the diagram. There are 16 regions of 8 cells each, outlined in thick red and black lines.

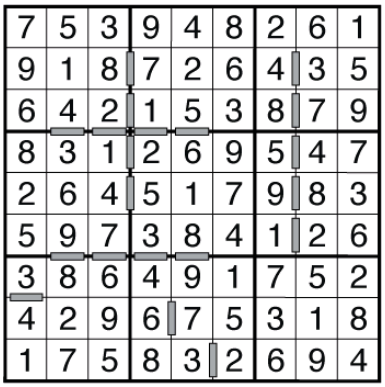




Consecutive Sudoku

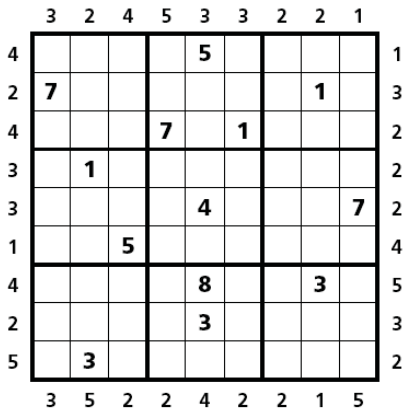
Follow Sudoku Rules. If a bar is given between two (orthogonally) adjacent cells, then the two numbers put in those cells must be consecutive (differing by one, such as 3 and 4). If a bar is not given, the two digits cannot be consecutive.

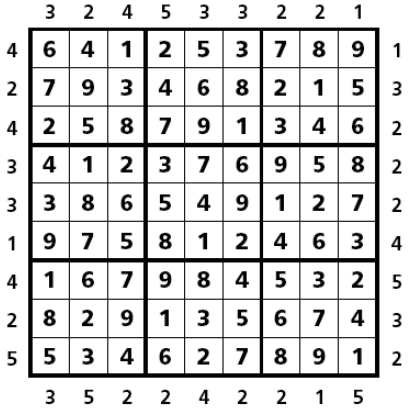




Skyscrapers Sudoku

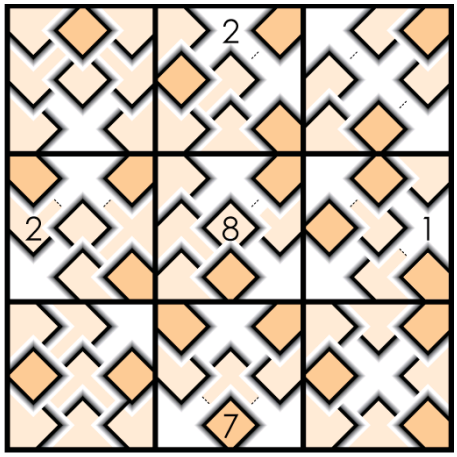
Follow Sudoku Rules, but use numbers 1-6 instead of 1-9. Consider each number to be the height of a building. The numbers outside the grid indicate how many buildings can be seen when looking in that direction (taller buildings conceal smaller buildings behind them).

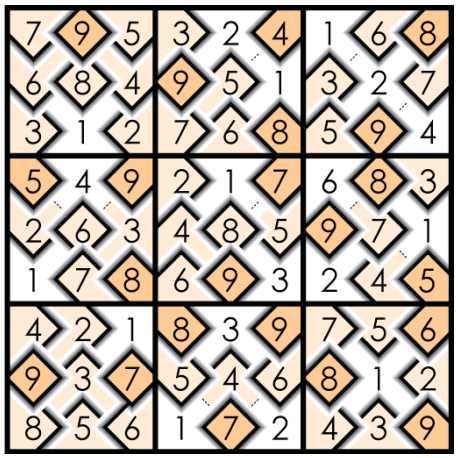




Comparative Sudoku

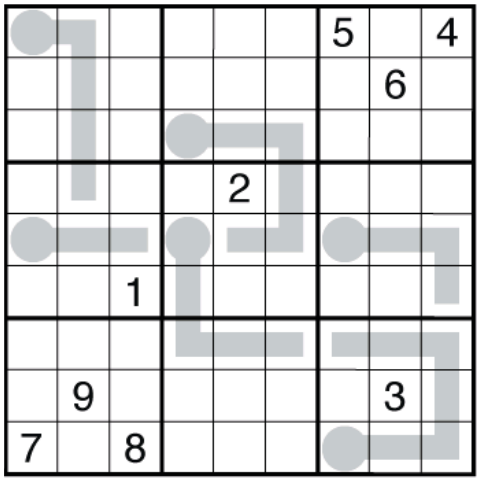
Follow Sudoku Rules. Adjacent cells in the same region have a “<” or “>” sign between them, indicating which cell is larger or smaller. The cells which are bigger than all their neighbors in the same box have a deep color; the cells that are smaller have no color.





Thermometer Sudoku

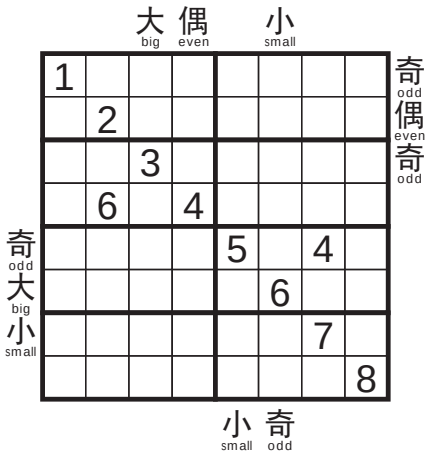
Follow Sudoku Rules. In addition, the digits in each "thermometer"-shaped region must be strictly increasing from the circular bulb to the end.

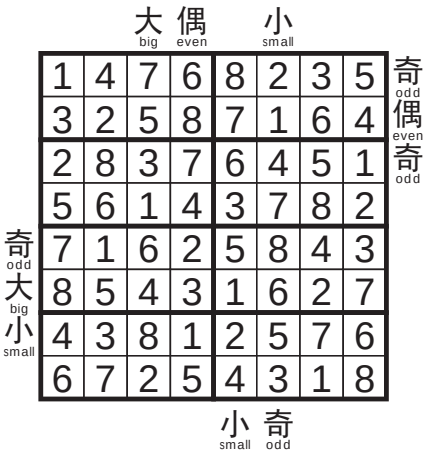


1	2	3	8	6	9	5	7	4
8	4	9	5	7	1	3	6	2
6	5	7	2	3	4	8	9	1
9	8	4	6	2	5	7	1	3
2	3	6	1	9	7	4	5	8
5	7	1	3	4	8	6	2	9
3	1	2	4	5	6	9	8	7
4	9	5	7	8	2	1	3	6
7	6	8	9	1	3	2	4	5

Odd-Even-Big-Small Sudoku

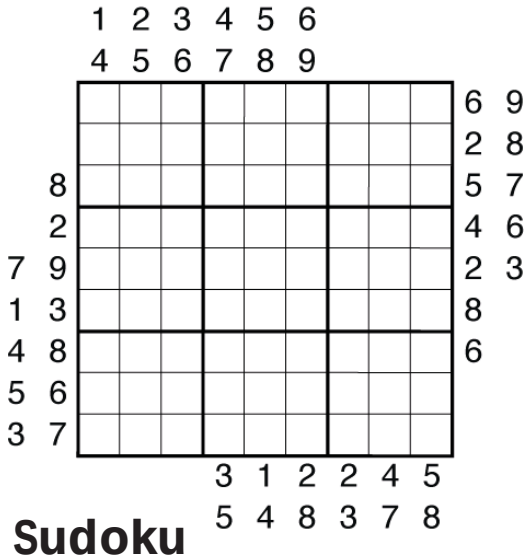
Follow Sudoku Rules, with the following changes: the indicator symbol on the outside says that the first two numbers along that row or column are either odd/奇 (1,3,5,7), even/偶 (2,4,6,8), big/大 (5,6,7,8), or small/小 (1,2,3,4).





Outside Sudoku

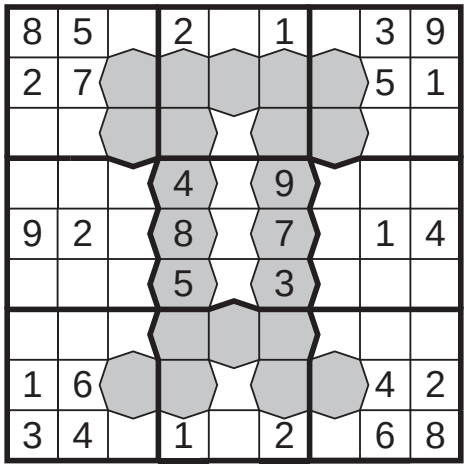
Follow Sudoku Rules. Digits are given outside of the grid, and each digit must appear in the first region (three cells) in that row/column.



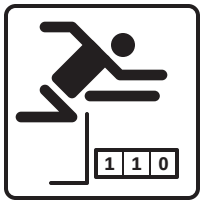
4	5	7	2	8	1	6	9	3
1	9	3	7	5	6	8	2	4
8	2	6	4	3	9	7	5	1
5	8	2	1	7	3	4	6	9
9	7	4	8	6	5	1	3	2
3	6	1	9	2	4	5	8	7
2	4	8	5	9	7	3	1	6
6	1	5	3	4	2	9	7	8
7	3	9	6	1	8	2	4	5

Fortress Sudoku

Follow Sudoku Rules. The digits in the gray cells must be larger than all digits in horizontally or vertically adjacent white cells.

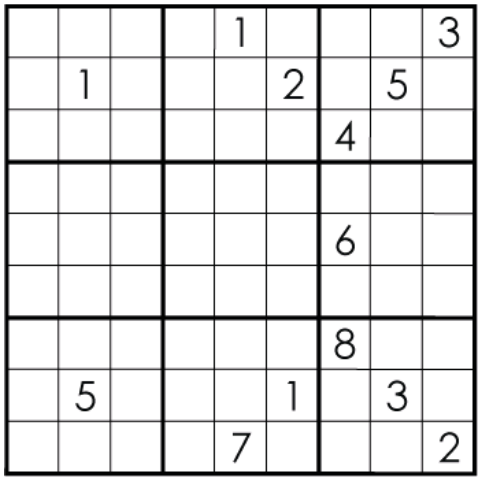


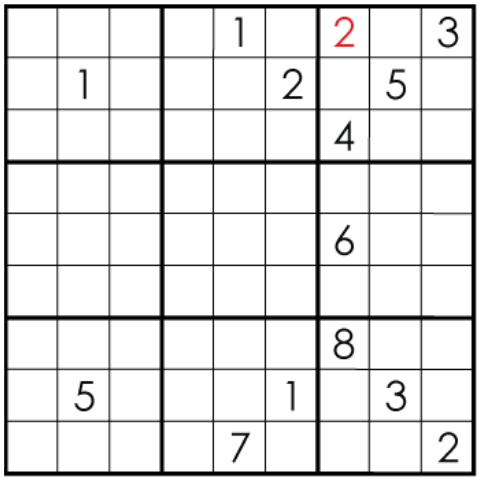
8	5	6	2	7	1	4	3	9
2	7	9	3	8	4	6	5	1
4	1	3	9	5	6	8	2	7
6	3	1	4	2	9	7	8	5
9	2	5	8	6	7	3	1	4
7	8	4	5	1	3	2	9	6
5	9	2	6	4	8	1	7	3
1	6	8	7	3	5	9	4	2
3	4	7	1	9	2	5	6	8



Just One Cell Sudoku - Composition, Basic Study

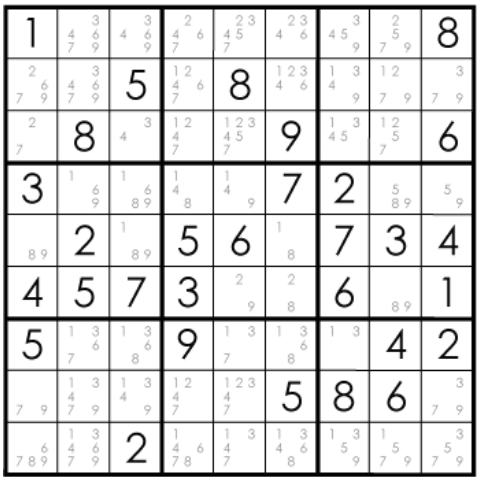
Follow Sudoku Rules. This puzzle has multiple solutions for the entire grid, but there is at least one empty cell that will contain the same digit for all solutions. You are to locate and clearly identify just one digit that can be placed into the grid with absolute certainty.





Just One Cell Sudoku - Advanced Study

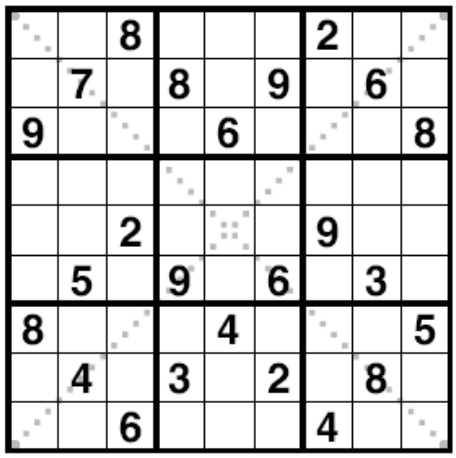
Follow Sudoku Rules. This puzzle has multiple solutions for the entire grid, but there is at least one empty cell that will contain the same digit for all solutions. You are to locate and clearly identify just one digit that can be placed into the grid with absolute certainty. For your convenience, candidates are given. Candidates have been removed only if they were in the same row, column or box as one of the given digits.



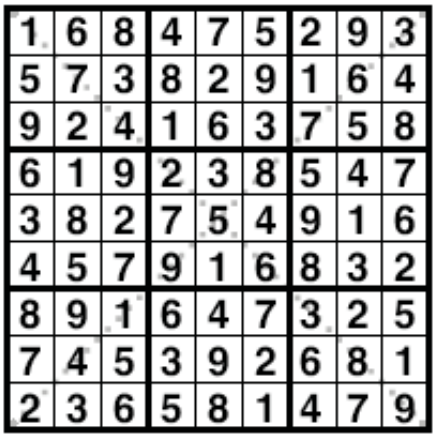
1								8
		5		8				
	8				9			6
3					7	2		
	2		5	6	1	7	3	4
4	5	7	3			6		1
5			9				4	2
					5	8	6	
		2						

Diagonal Sudoku

Follow Sudoku Rules. Additionally, the digits 1 to 9 appear exactly once in each of the two main diagonals.



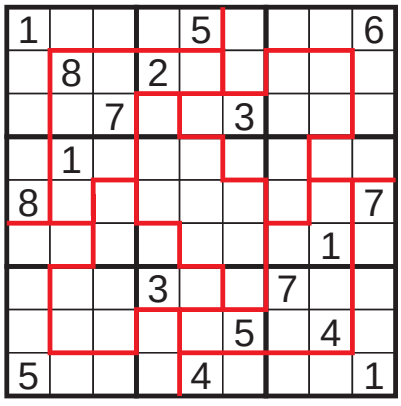
		8				2		
	7		8		9		6	
9				6				8
		2				9		
	5		9		6		3	
8				4				5
	4		3		2		8	
		6				4		



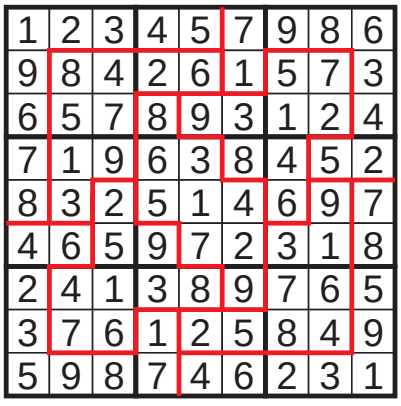
1	6	8	4	7	5	2	9	3
5	7	3	8	2	9	1	6	4
9	2	4	1	6	3	7	5	8
6	1	9	2	3	8	5	4	7
3	8	2	7	5	4	9	1	6
4	5	7	9	1	6	8	3	2
8	9	1	6	4	7	3	2	5
7	4	5	3	9	2	6	8	1
2	3	6	5	8	1	4	7	9

Double Irregular Sudoku

Follow Sudoku Rules. In addition, there are also six regions denoted by red lines; each number must appear exactly once in each of these regions.



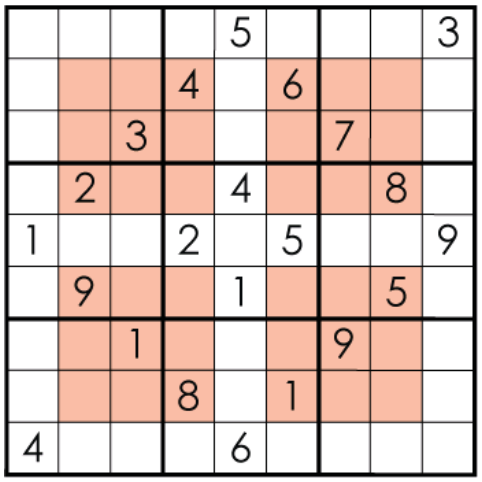
1				5				6
	8		2					
		7			3			
	1							
8								7
							1	
			3			7		
					5		4	
5				4				1



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

Windoku

Follow Sudoku Rules. In addition, there are also four shaded 3×3 regions; each region must contain each number from 1 to 9 exactly once.

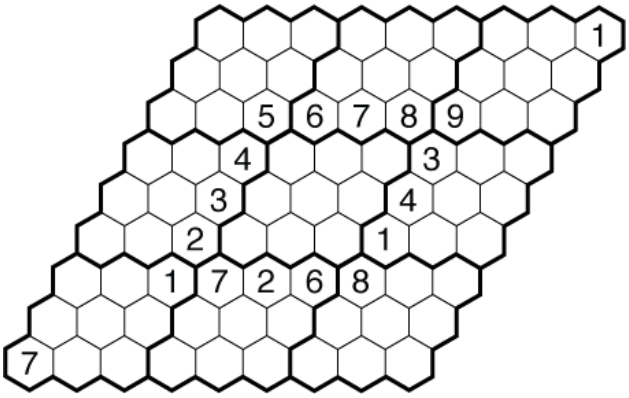


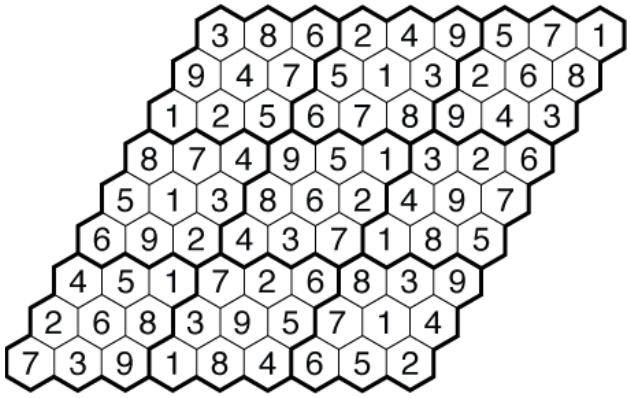
				5				3
			4		6			
		3				7		
	2			4			8	
1			2		5			9
	9			1			5	
		1				9		
			8		1			
4				6				

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

Hexagon Sudoku

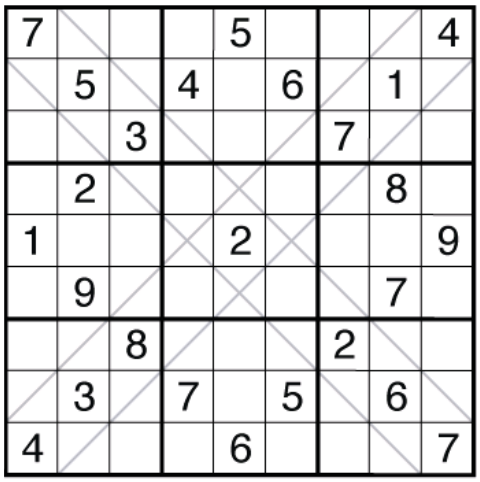
Follow Sudoku Rules. Digits do not repeat along any of the three directions in which the hexagonal cells share edges.





Double Diagonal Sudoku

Follow Sudoku Rules. Additionally the digits 1 to 9 cannot repeat in any of the four eight-cell diagonals drawn on the grid.

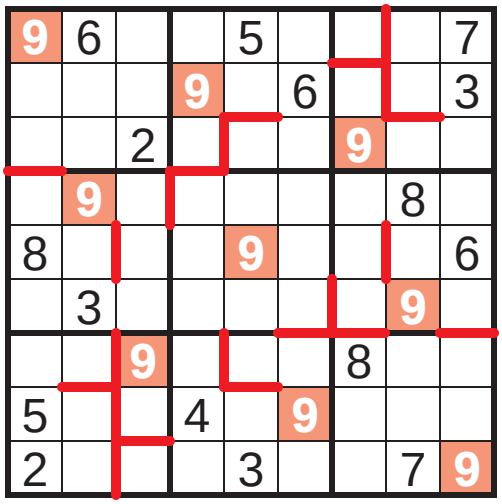


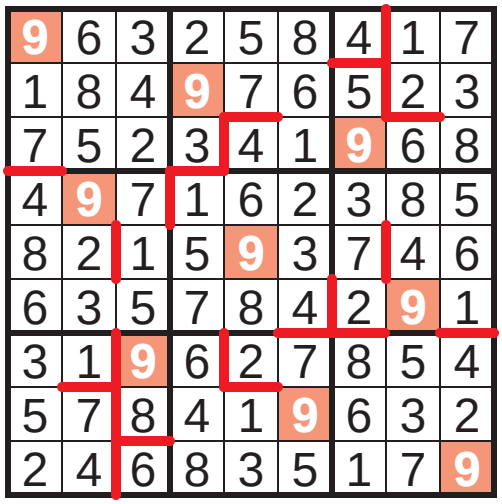
7				5				4
	5		4		6		1	
		3				7		
	2						8	
1				2				9
	9						7	
		8				2		
	3		7		5		6	
4				6				7

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

Dragon Sudoku

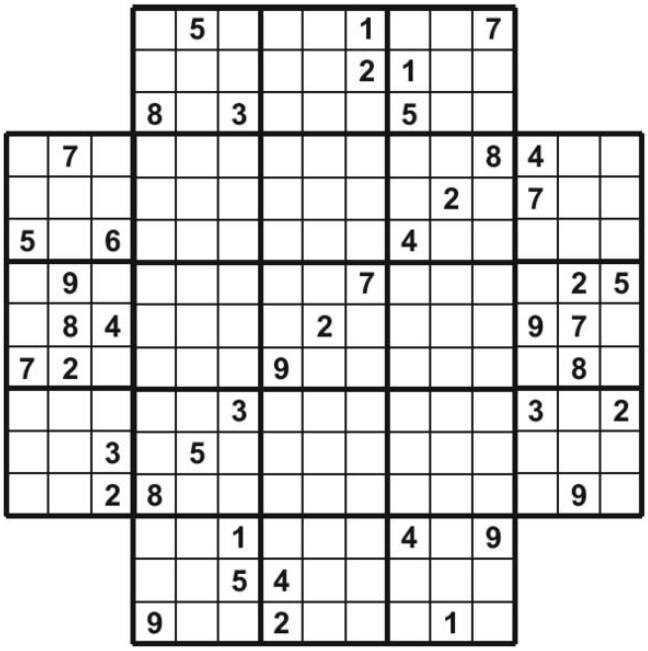
Standard Sudoku rules apply, with the following changes: Each 9 “sees” exactly 8 other distinct numbers. They see in all four directions until they hit a wall.

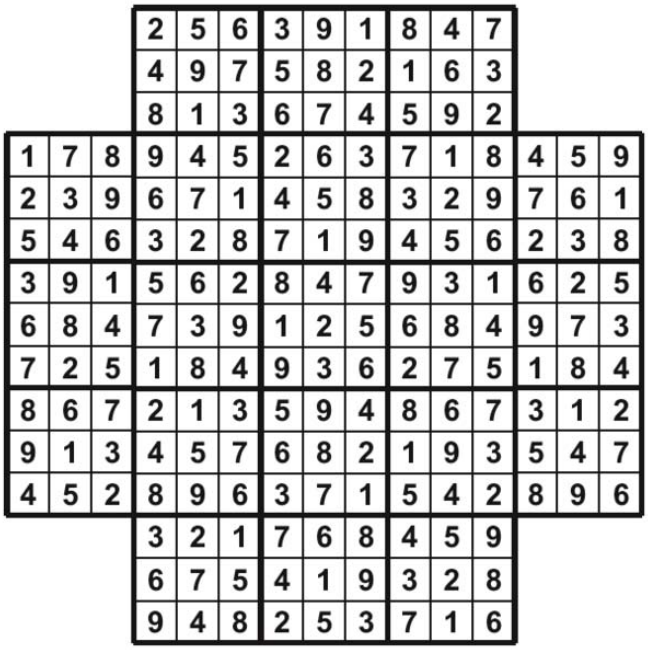




Musketry Sudoku

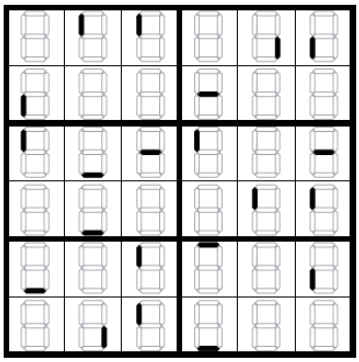
Follow Sudoku Rules. There are 5 overlapping standard sudoku grids which each obey standard sudoku rules.

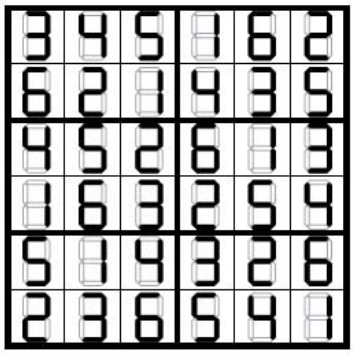




Digital Sudoku

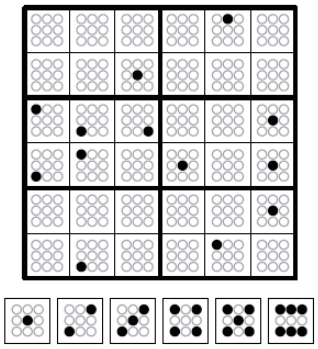
Follow Sudoku Rules, except the digits 1 to 6 appear in each row, column, and region. Clues are given in the form of lit segments of an LED. Only digits that contain those lit segments can appear in a given cell.

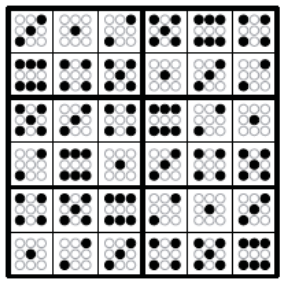




Dice Pip Sudoku

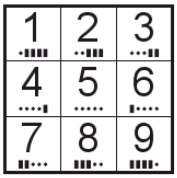
Follow Sudoku Rules, except only 1 to 6 will appear in each row, column, and region. Clues are given in the forms of pips, as on dice; only digits that contain a pip in the indicated spot can be filled into a cell. Please submit your answer using either shaded pips or numbers (but not both).

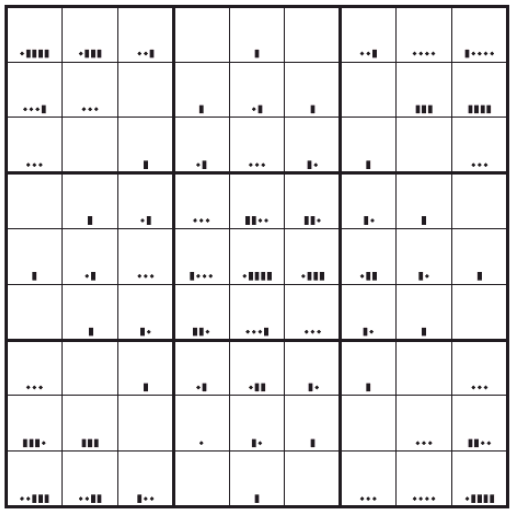


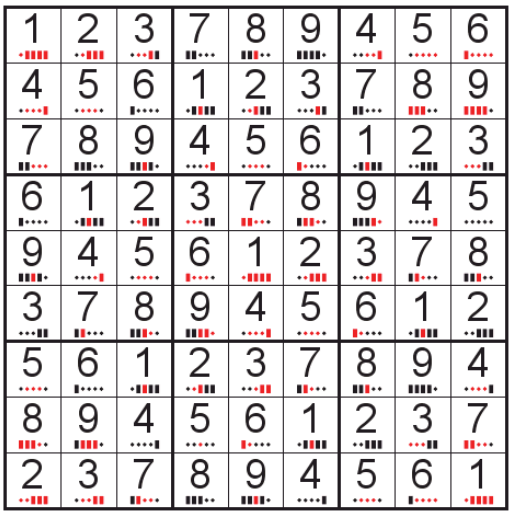


Morse Sudoku

Follow Sudoku rules, using numbers 1-6 instead of 1-9. Clues are given in the forms of dots and dashes. A number can only be entered into a cell if it contains the exact pattern of dots and dashes somewhere in its encoding.







S as in Sudoku

Follow Sudoku Rules. In the grid are some letters; only numbers that contain that letter in their English spelling can be entered into those cells. For example, an S clue can only be a 6 or a 7 as SIX and SEVEN have an S in their spelling but no other number does.

1 - ONE
2 - TWO
3 - THREE
4 - FOUR
5 - FIVE
6 - SIX
7 - SEVEN
8 - EIGHT
9 - NINE

O N E								
		T	W	O				
				T	H	R	E	E
					F	O	U	R
F	I	V	E					
		S	I	X				
				S	E	V	E	N
E	I	G	H	T				
N	I	N	E				9	

O 1	N 7	E 9	4	5	6	2	3	8
8	4	T 3	W 2	O 1	7	6	5	9
5	2	6	9	T 8	H 3	R 4	E 1	E 7
6	8	2	7	9	F 5	O 1	U 4	R 3
F 4	I 9	V 5	E 1	3	2	8	7	6
3	1	S 7	I 8	X 6	4	9	2	5
2	3	4	6	S 7	E 9	V 5	E 8	N 1
E 9	I 5	G 8	H 3	T 2	1	7	6	4
N 7	I 6	N 1	E 5	4	8	3	9	2

Roman Numeral Sudoku

Follow Sudoku Rules. Only numbers that contain the given clues as presented in their Roman Numeral form can be entered in a cell. For example, a V clue could be a 4, 5, 6, 7, or 8. Please submit your solution with standard numbers or Roman Numerals, but not both.

II	V	VII	II	III		I	V	I
I	II	VI	V	I	I	I	III	X
I	IX	V	I	VI	II	I	VII	I
V	II		III	I	VIII	V	V	VI
III	I	III	II	II	IV		I	V
VII	I	V	IX	V	V	III	III	II
IX	II	II	IV	III	V	I	VI	II
IV	V	I	VI	I	II	VII	IX	VII
V	II	III	VI		I	V	I	V

I 1
II 2
III 3
IV 4
V 5
VI 6
VII 7
VIII 8
IX 9

II 2	IV 4	VII 7	VIII 8	III 3	IX 9	VI 6	V 5	I 1
I 1	VIII 8	VI 6	V 5	IV 4	VII 7	II 2	III 3	IX 9
III 3	IX 9	V 5	I 1	VI 6	II 2	IV 4	VII 7	VIII 8
V 5	II 2	IX 9	III 3	I 1	VIII 8	VII 7	IV 4	VI 6
VIII 8	VI 6	III 3	II 2	VII 7	IV 4	IX 9	I 1	V 5
VII 7	I 1	IV 4	IX 9	V 5	VI 6	III 3	VIII 8	II 2
IX 9	VII 7	II 2	IV 4	VIII 8	V 5	I 1	VI 6	III 3
IV 4	V 5	I 1	VI 6	II 2	III 3	VIII 8	IX 9	VII 7
VI 6	III 3	VIII 8	VII 7	IX 9	I 1	V 5	II 2	IV 4

Trinary Sudoku

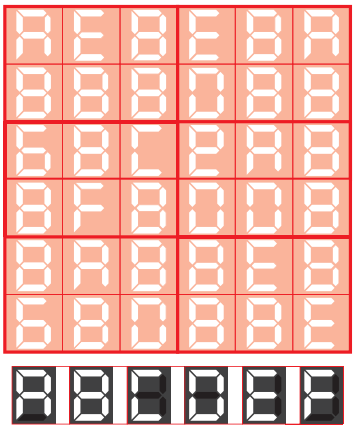
Follow Sudoku rules, except that the digits 0-8 in trinary (00, 01, 02, 10, 11, 12, 20, 21, 22) will be used instead of the numbers 1-9. Givens may be the first, second or both digits of the final number. When only one digit is given, it should be clear which digit (the first or second) is the one given.

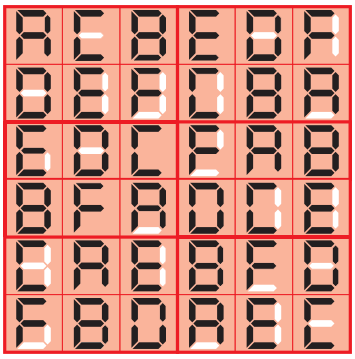
11				0		0	0	
		0		10		0		1
	0	01					1	1
			22		12			
2	02			20			01	0
			02		00			
0	0					02	1	
0		1		12		1		
	1	1		0				20

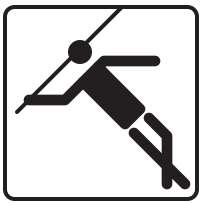
11	21	02	12	00	01	20	10	22
12	22	20	11	10	21	00	02	01
10	00	01	20	22	02	12	21	11
01	10	00	22	11	12	21	20	02
22	02	12	21	20	10	11	01	00
20	11	21	02	01	00	22	12	10
00	01	22	10	21	20	02	11	12
02	20	11	01	12	22	10	00	21
21	12	10	00	02	11	01	22	20

Inverse-Digital Letter Sudoku

Follow Sudoku rules, except that the letters A through I are used instead of the numbers 1 throught 9. Clues are given in the form of segments of an LED. Only letters that contain some subset of those segments can appear in a given cell.

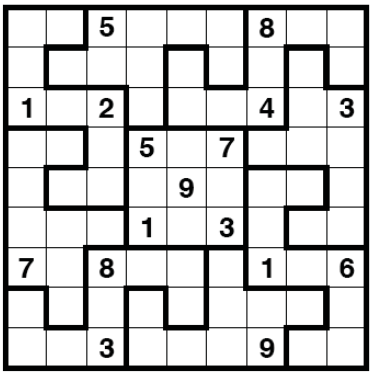






Irregular Sudoku

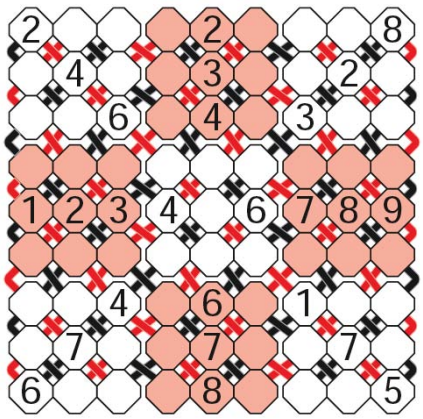
Follow Sudoku Rules, except the regions are not uniform 3×3 boxes but instead have irregular shapes.

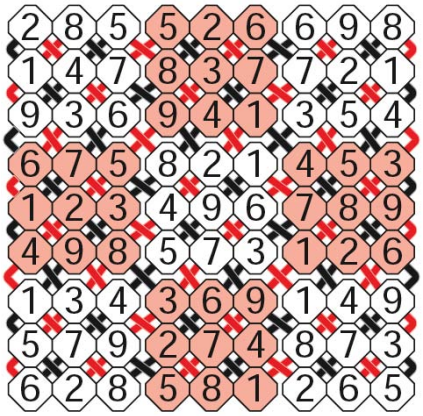


6	9	5	3	4	2	8	1	7
8	7	9	6	3	1	5	4	2
1	5	2	8	6	9	4	7	3
3	1	4	5	2	7	6	9	8
5	3	7	4	9	6	2	8	1
9	4	6	1	8	3	7	2	5
7	2	8	9	5	4	1	3	6
4	8	1	2	7	5	3	6	9
2	6	3	7	1	8	9	5	4

Weave Sudoku

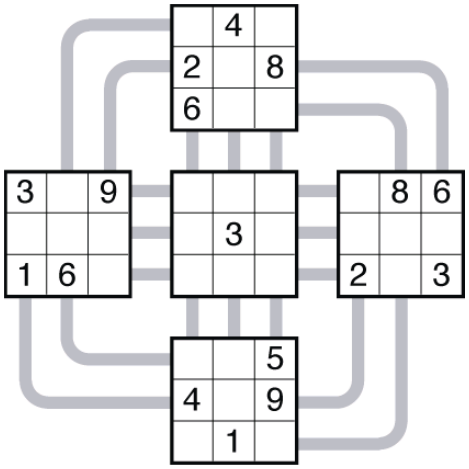
Standard Sudoku rules apply, with the following changes: the rows and column have been replaced with the "weaving" diagonals that go down the grid, bouncing at the edges of the grid, as indicated by the black and red lines. The digits 1 to N appear once in each of the following 3N regions: the N red diagonals, the N black diagonals, and the N boxes (shaded in white and red).

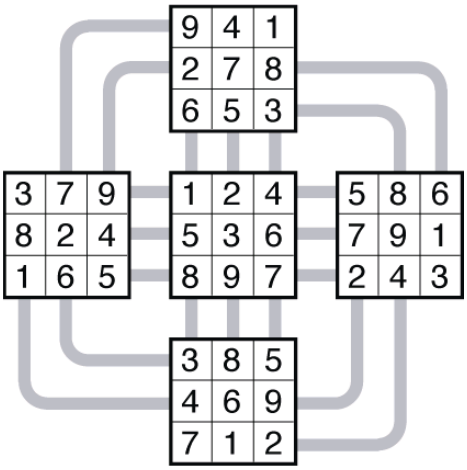




Sudo-Kurve

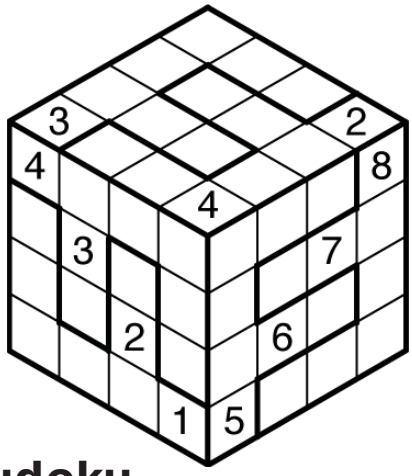
Follow Sudoku Rules. The digits 1-9 appear once in each of the six 3×3 boxes and 12 bent "rows" (indicated by light curved lines). All "rows" contain exactly 9 cells.

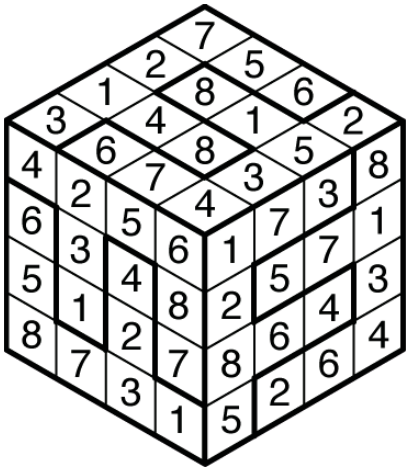




Isometric Sudoku

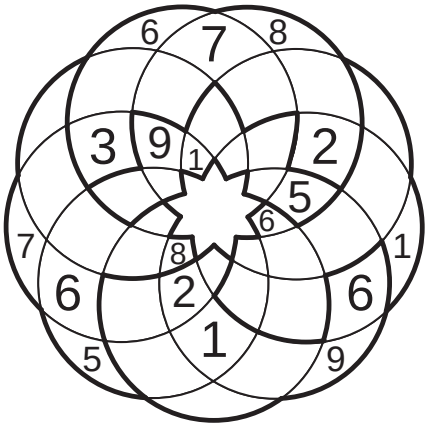
Follow Sudoku Rules. The digits 1-8 appear once in each of the 6 irregular regions and 12 "rows". A "row" follows the opposite, parallel sides of each quadrilateral.

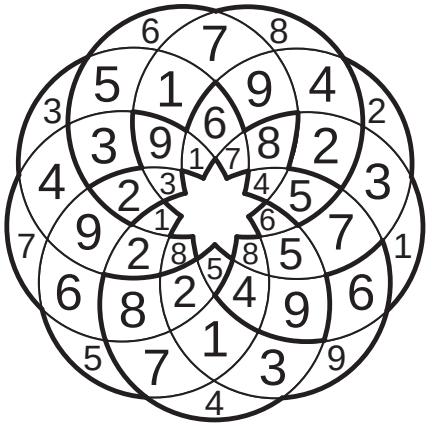




Primrose Sudoku

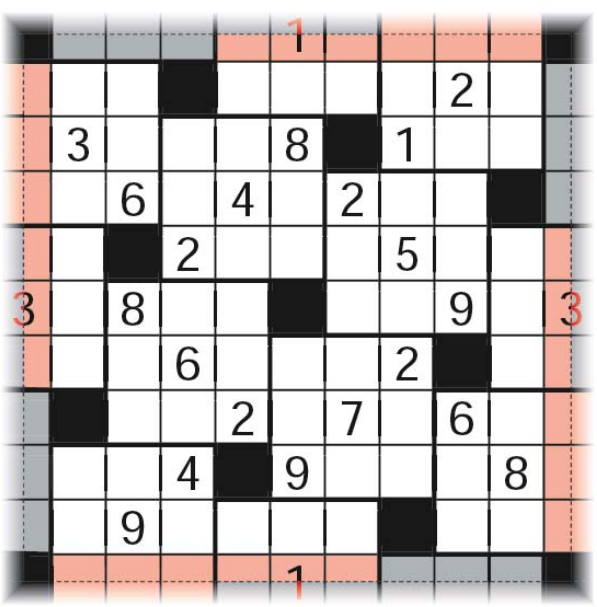
Follow Sudoku rules. The digits 1-9 appear once in each of the 9 circular "rows" and each of the 6 outlined regions. A "row" is the nine cells touching the inside edge of one of the nine circles.

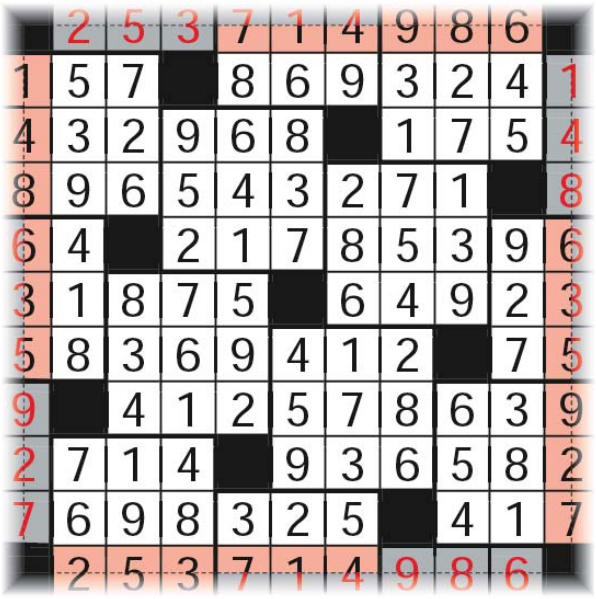




Ten-Box Sudoku

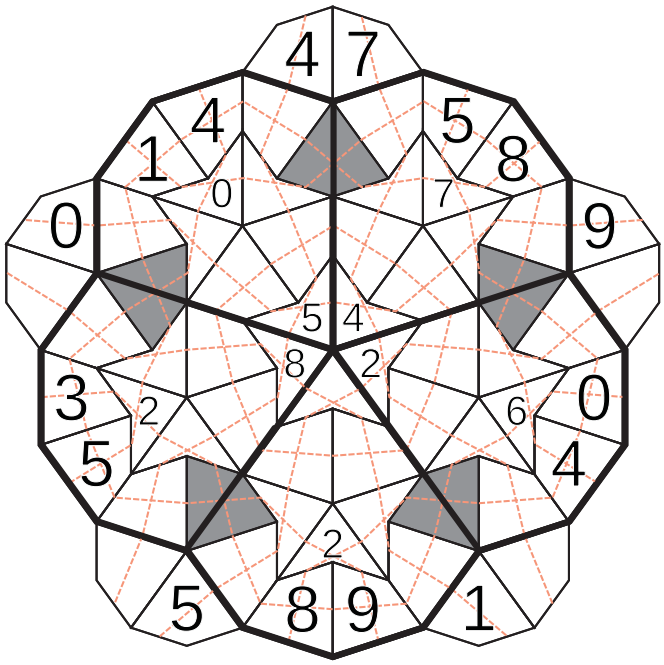
Follow Sudoku rules. The puzzle is toroidal and the left/right and top/bottom edges of the grid map to each other. The digits 1 to 9 will appear once in each of the 10 rows, 10 columns, and 10 3×3 regions. The outer-edge of the grid (where the repeat occurs) is colored pink/gray to help identify the wrapping. Note that the grid contains some black squares which will not contain any numbers.

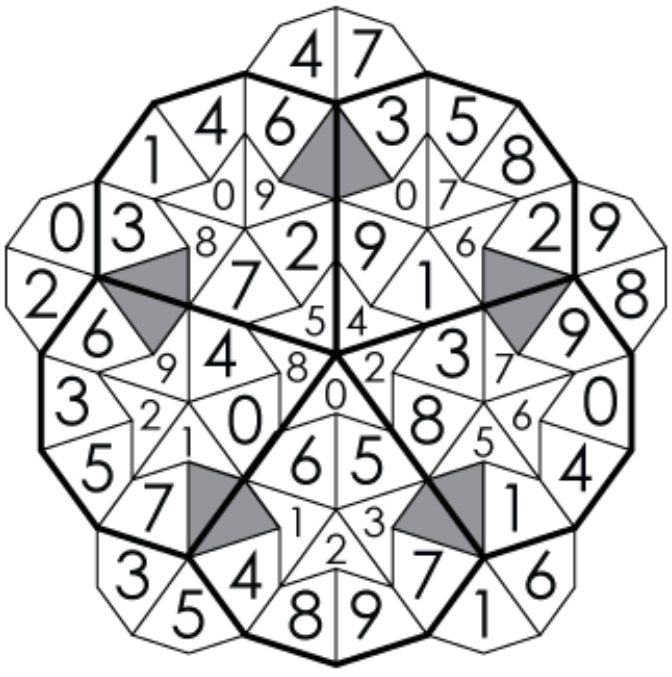


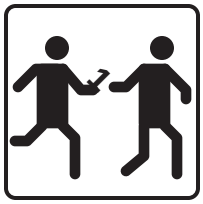


Penrose-2 Sudoku

Follow Sudoku rules. The digits 0-9 appear once in each of the 5 outlined regions and each of the 10 “rows.” A “row” follows the opposite side of each quadrilateral, and are also indicated by the dotted pink lines.







Triple-Double Sudoku

Follow Sudoku Rules. There are two grids provided, each with three shaded regions. An exact correspondence of digits between these shaded regions will occur in the two puzzles, although which regions match up must be determined.

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

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

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

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

Jigsaw Sudoku

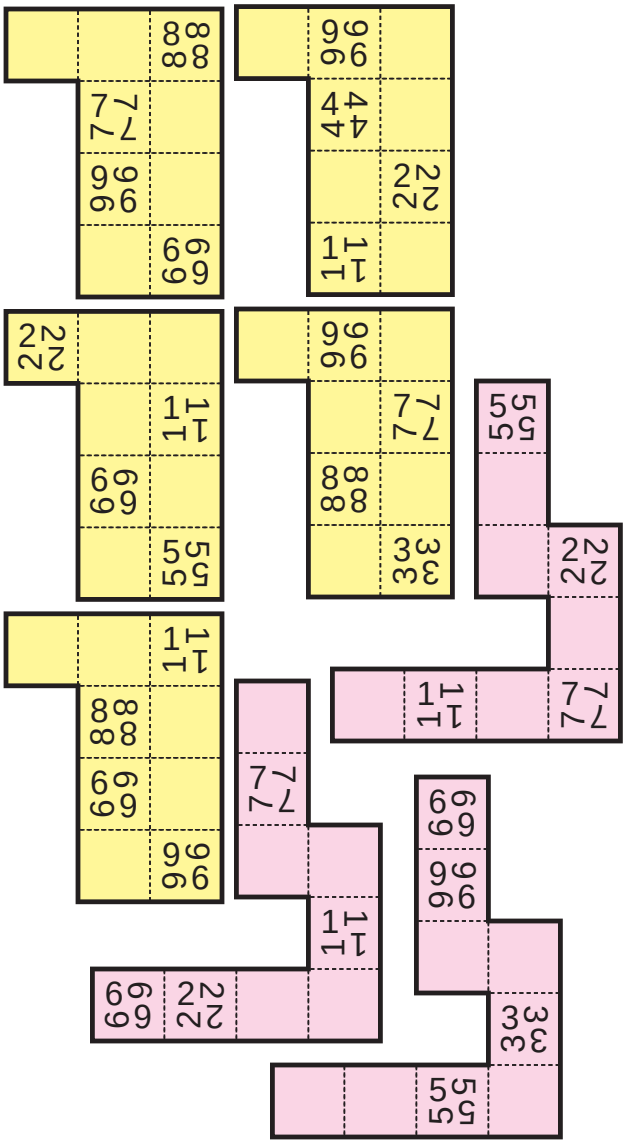
See Instruction Booklet for detailed instructions.

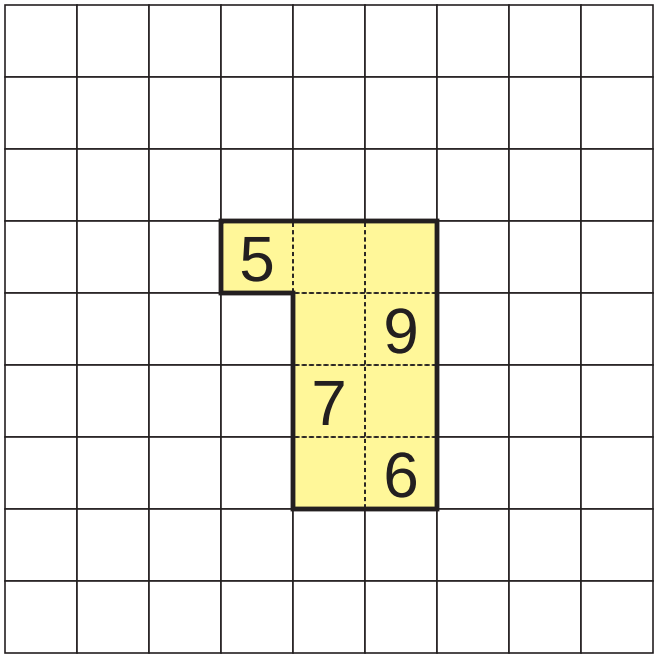
Place the 32 physical pieces (8 per grid) onto the grid so that no nonominoes overlap and the resulting grids form a valid 9x9 Irregular Sudoku.

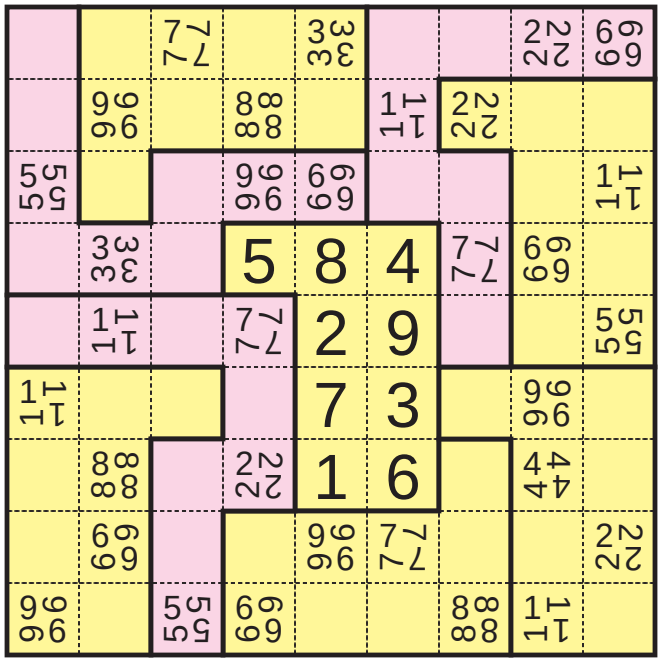
- Only two colors (two types of nonomino) are used in any grid.
- One of the grids must have a rotationally symmetric arrangement of nonomino shapes (but the numbers will not be symmetric).

After you have determined where all the pieces go, solve the Irregular Sudoku.

Example uses only one grid.





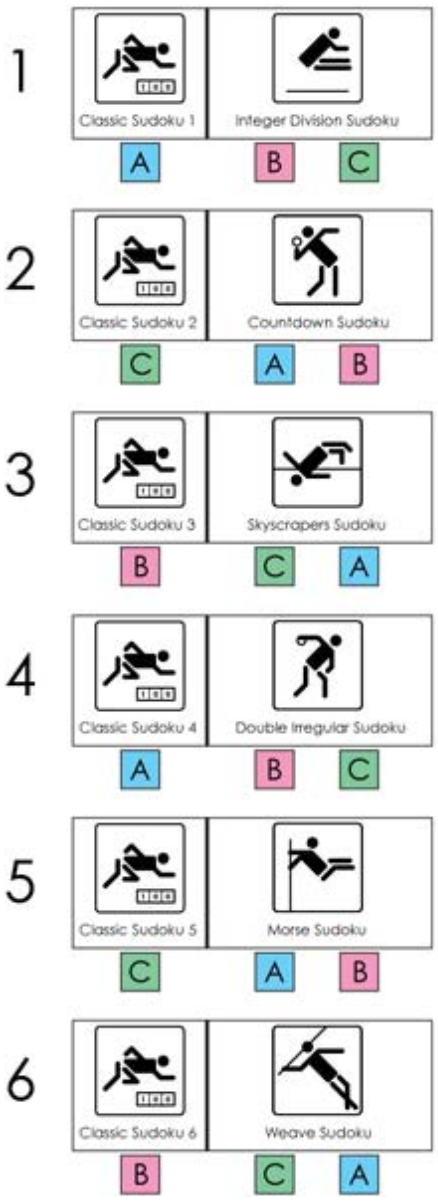


Track and Field Relay

One team member starts alone at the table with a track puzzle, an easy-moderate standard sudoku. The other two team members sit together with a field puzzle: a 9x9 puzzle from one of the Field Rounds.

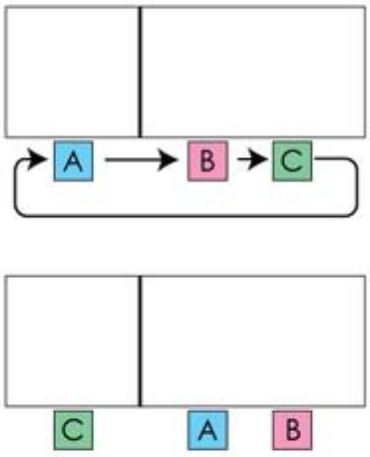
At the start of the round, both the individual and pair set to work on their puzzles. When both puzzles are finished, the two grids are turned in and the proctors will deliver a new track puzzle and the next field puzzle to the respective desks. Individuals will change positions by moving one chair to the right to alternate roles. Across all 6 stages of the relay, a team member will have worked alone on a Track puzzle 2 times and on a Field puzzle with another team member 4 times.

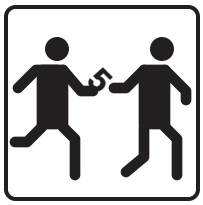
The following diagram shows how the round order and position swapping will occur.



Both puzzles in each round must be turned in to advance to next round

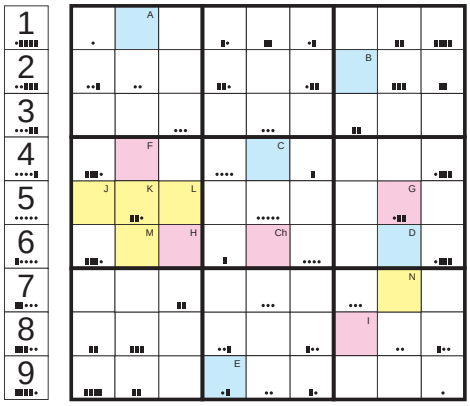
Solvers rotate to the right after each round as shown below

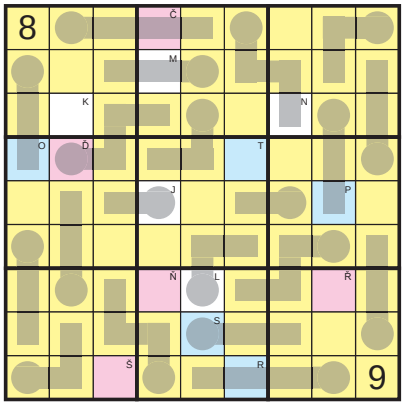




Pentathlon Relay

The other four puzzles in this round are all harder forms of variants seen in the Individual rounds. Each pair of puzzles has four lettered cells in common, as indicated on this page. Fill in the common cells on this page. (Each puzzle has a unique solution, even ignoring the connections on this page.)





Donut Sudoku appeared in Czech 2009 championship, will not appear in WSC5

Rules: Follow Sudoku Rules. Numbers may not repeat within a "donut" but the "donut hole" may match a number within the donut.