

What is Sudoku?

Sudoku is a Japanese mind-game which consists of a 9×9 grid which is subdivided into nine 3×3 grids known as *regions*.

The Sudoku grid is partially filled with numbers known as *givens*. The aim of the puzzle is to fill up each of the remaining cells with a number from 1 to 9, ensuring that any number does not repeat in a row, column, or region. All numbers from 1 through 9 have to be used in each row, column, and region.

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

How to Play?

Although Sudoku involves numbers, it does not involve the use of mathematics. Sudoku rules are simple but the puzzle needs to be solved using appropriate strategy and reasoning. The placement of the given numbers could make the puzzle more challenging than it appears. Since a number cannot be repeated in a row, column, or region, you can narrow down on its placement cell(s).

- ✓ Examine a region for placement of givens and identify missing digits.
- ✓ Consider a number that is missing from a region.
- ✓ Eliminate rows and columns from the region that already contain the number in question.
- ✓ Identify and mark cells which can possibly hold the missing number. Marking involves writing the number in subscript notation in a cell.
- ✓ Eliminate marked cells using a similar strategy for other regions till you are left with just one choice.

The Sudoku-Solver

The Sudoku-Solver has some unique features that assist users in solving challenging Sudoku puzzles with ease. One of the highlights of the Sudoku-Solver is the different playing options and guidance available to the user.

- **Starting a New Puzzle**

Click the New menu and choose to solve an Easy, Medium, or Difficult puzzle. The difficulty level of a puzzle depends on the *placement of the givens* and *not the number of givens*.

Entering numbers: Click a cell to enter a number. You can also enter numbers using the

mouse by clicking the **Enable Mouse Entry Mode** button  on the toolbar. In this mode, all you need to do is click a number on the toolbar and then click the cell in which you think the number should be placed. This is a toggle mode. To enter numbers using the keyboard, click this button once again.

Pencil Marks: You may mark cells by typing possible entries known as *pencil marks*, within a cell. Each cell contains 8 smaller cells where you can enter pencil marks. Pencil marks can later be accepted or rejected.

2	4	6
8		

The timer displayed next to the menu shows the time you take to solve a puzzle.

- **Puzzle Options (Puzzle menu)**

The following options are available on the Puzzle menu:

1. **Check Progress:** You can use Check Progress on the Puzzle menu, or click the **Check Progress** button  on the toolbar to submit your solution, or check the correctness of entries made to this point. When you click this option, correct entries are displayed in green. Incorrect entries are displayed in red and the correct answer appears in subscript notation within the cell. To continue solving the puzzle, you need to click this option again.
2. **Hint:** Hint helps you check whether an entry is correct. Click a cell you want to verify and then click this option. A correct entry is indicated by a message and an incorrect entry is replaced with a correct number for that cell. Alternatively, you can click the **Hint** button  on the toolbar to verify your entry.
3. **New Branch:** You can start a new branch with temporary entries if you are not sure of the value to be entered in a cell. The **New Branch** button  on the toolbar can also be used to start a new branch. Entries in a branch appear in a different color. You may later accept or reject entries in a branch.
4. **Accept Branch:** Click this option on the menu or click the **Accept Branch** button  on the toolbar to accept all entries made through the current branch.
5. **Reject Branch:** Click this option on the menu or click the **Reject Branch** button  on the toolbar to reject and erase all entries made through the current branch.
6. **Reset puzzle:** This option reloads the same puzzle after erasing all entries, and resets the timer.

7. **Show Solution:** You can use this option to view the solution of the current puzzle.
8. **Reset Timer:** Use this option to reset the timer.

- **Playing Options (Options menu)**

The following playing options are available on the Options menu:

1. **Help Mode:** In this mode, entries are checked on the spot and only the correct entry is accepted in a cell. Incorrect entries are automatically rejected and erased by the Sudoku-Solver. You can also activate this mode by clicking the **Help Mode** button  displayed on the toolbar.
2. **Valid Entry Mode:** This mode does not allow you to enter numbers that are repeated in a row, column, or region. Repeated entries are automatically erased. You may activate this mode by clicking the **Valid Entry Mode** button  on the toolbar.
3. **Hide Pencil Marks:** You can use this option to show or hide pencil marks you have entered. Click the **Hide Pencil Marks** button  on the toolbar to access this option.
4. **Automatic Pencil Marks:** You can enter pencil marks manually or use the Automatic Pencil Marks feature to automatically generate pencil marks. Automatic pencil marks overwrite all manually entered pencil marks. You may use the **Automatic Pencil Marks** button  on the toolbar to generate pencil marks.
5. **Clear Pencil Marks:** This option clears all pencil marks. You can also click the **Clear Pencil Marks** button  on the toolbar to erase pencil marks. You cannot clear pencil marks in Automatic Pencil Marks mode.
6. **Accept Pencil Marks on Click:** When this option is active, a pencil mark is accepted as an entry when you click once.
7. **Delete on Double-click:** When this option is active, pencil marks or cell entries are deleted on double-click.

- **Getting Help on the Sudoku-Solver (Help menu)**

The following options are available on the Help menu:

1. **Shortcut Keys:** This option displays a list of keyboard shortcuts for various actions.
2. **Help:** Displays the help document for the Sudoku-Solver.