Épreuve de section européenne

1 General knowledge

Explain the principle of mathematical induction. Give a few examples of statements or properties you might prove using this principle.

2 Document

Sudoku, also known as Number Place, is a logic-based placement puzzle. The aim of the puzzle is to enter a numerical digit from 1 through 9 in each cell of a 9×9 grid made up of 3×3 subgrids (called "regions"), starting with various digits given in some cells (the "givens") ; each row, column, and region must contain only one instance of each numeral. Completing the puzzle requires patience and logical ability.

Although the puzzle was first published in a U.S. puzzle magazine in 1979, it initially caught on in Japan in 1986 and attained international popularity in 2005. It was created by Howard Garns, a 74-year old retired architect. In April 1984, Japan's puzzle group Nikoli discovered the Number Place puzzle and presented it for a Japanese audience in the pages of puzzle paper Monthly Nikolist. Originally named Suuji Wa Dokushin Ni Kagiru, ("the numbers must be single") the puzzle became very popular. Kaji Maki, the president of Nikoli, abbreviated it to Sudoku (Su = number, Doku = single), and trademarked the name. As its popularity grew, competing companies stayed with the non-trademarked name Number Place. Even today, many Japanese puzzle magazines spell out "Number Place" in English. In the United States and elsewhere, it's called Sudoku. Thus, Japanese-speakers use the English, and English-speakers use the Japanese.

The minimum known number of givens leading to a unique solution is 17.

Adapted from *Wikipedia*, the free encyclopedia,
and a *www.maa.org* article by Ed Pegg Jr.

3 Questions

1. Explain the rules of the Sudoku.
2. Who created this problem, and how did it become popular ?
3. What is the origin of the name Sudoku ? Is it the original name of this game ? Is this name used worldwide ?
4. Try to solve the Sudoku given in the annex.