

1067-P1-886

Philip Cobb* (phcobb@prodigy.net), 41-31 210 Street, Bayside, NY 11361. *The minimal number of entries of a solvable Ken Ken.*

What is the minimum number of given digits needed to guarantee that a Sudoku puzzle has a unique solution? This remains unsolved; it is known only that it is at most 17.

The same question may be asked of the related puzzle Ken Ken. Like Sudoku, Ken Ken consists of a *Latin Square*, usually 4×4 or 6×6 , in which each digit appears once and only once in each row and column. It is divided into regions, not necessarily squares, but any connected shape. Each region is given a numerical result, either a sum, difference, product, or quotient, and the operation sign. We may then ask for the minimum number of given numbers needed to solve the puzzle. Can the minimum be lowered if some regions have no numerical result?

The partition of the Latin Square into regions for a minimal solution can be done in essentially one way if the regions are connected. Other types of minimal puzzles can be constructed if the connected hypothesis is weakened. Although published puzzles are generally no larger than six by six, a Ken Ken with minimal givens exists for any size square. (Received September 16, 2010)