

# Solving a KenKen Puzzle

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- **Propositions**

- A puzzle always has the same number of rows as columns.
- A  $n \times n$  puzzle will have  $n$  numbers available per row/column.
- Each number can only be used once within the same row, and once within the same column.
- The squares in each cage must sum to the required sum given in the top left corner of that cage.

- **Step 1**

- For cages with only a single square, the answer is the same as the cage's required sum.
  - This solve square A,C and C,A of puzzle #1.

- **Step 2**

- Because all  $n$  numbers must be used to fill each row and column, answers can be deduced from the remaining  $n$  numbers, so begin by attempting to solve rows or columns with the most single-square cages.
- Also look for the smallest required sums, because they will have the least possible answers. For example, a required sum of 4 can only possibly be 3+1, because 2 cannot be used twice.
  - I realized later that this was incorrect; in a 3-square cage (like the 7+ cage in puzzle #1), all squares may not be in the same row or column, so the number 2 could actually be used twice within that cage. A better trick would be to find cages where all squares are in the same row or column.
- Write the possible answers for each square in small numbers at the bottom of the squares, leaving room for other possible answers.

- **Step 3**

- Once a row has been solved, solve another column or row. If a number in a previously solved row or column conflicts, try the other possible numbers you recorded in the conflicting square. Repeat step 2 and 3 until the puzzle is solved.

Based on puzzle #1 of handout.