

74G4G7

an exchange gift
presented by Michael Tanoff (tanoff@kzoo.edu) at
Gathering for Gardner Seven
March 16–19, 2006
Atlanta, Georgia, USA

Directions:

1. Cut-out the seven hexagon pairs appearing on the next page.
2. Fold each pair along the dotted line, and glue back-to-back.
3. The object of the puzzle is to arrange the seven double-sided hexagons in the hexagonal pattern shown below, so that all meeting corners match (i.e., when corners meet, they must all have a **red** dot or they must all *not* have a **red** dot) on both sides of the arrangement simultaneously. The puzzle has two very closely related solutions.



Background:

This puzzle is derived from the brief note, “Dominoes numbered in the corners,” written by C. Dudley Langford and appearing in the May 1959 issue of *The Mathematical Gazette* (Vol. 43, No. 344, pp. 120–2). If one considers the set of regular hexagons whose corners are either blank or labeled with a single dot, fourteen distinct labelings exist. Each of these fourteen labelings appears once in the **74G4G7** puzzle. Jacques Haubrich, of Eindhoven, The Netherlands, verified the number of solutions for several different sets of two-sided pieces.

A Plexiglas version of this puzzle, “Hex-A-Hexa-Plexigon,” was presented as an exchange gift at the 23rd International Puzzle Party, Chicago, Illinois, USA, in 2003.

74G4G7's designer first learned about edge-matching and corner matching puzzles from Martin Gardner's article, “The 24 Color Squares and the 30 Color Cubes,” which appeared as chapter sixteen of Mr. Gardner's *New Mathematical Diversions from Scientific American*, originally published by Simon and Schuster (New York) in 1966. The designer was in the seventh grade when he acquired a copy of this book.

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Puzzle Pieces

