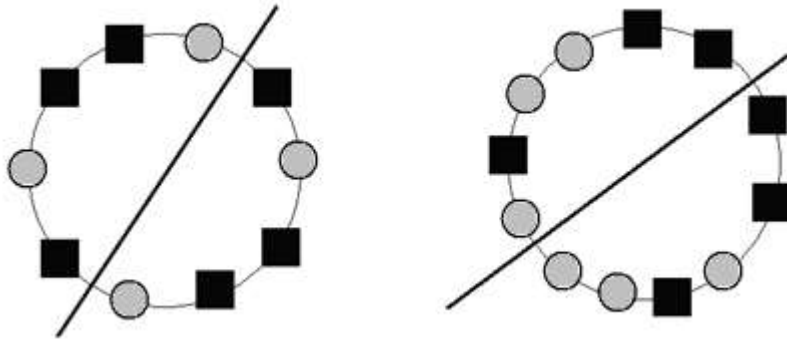


# WITHOUT WORDS

*Mathematical Puzzles to Confound and Delight*

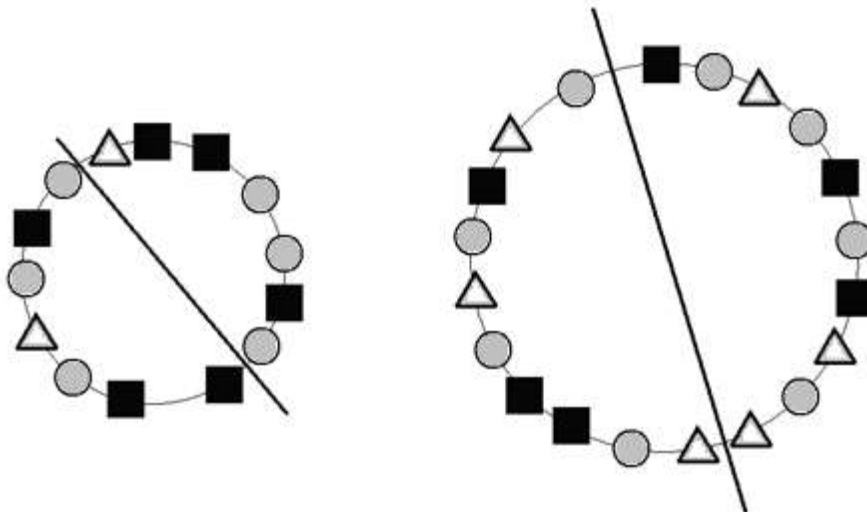


## WW 8: SOLUTION



Here each line splits the necklace into two parts, with an equal number of square beads and an equal number of round beads in each half.

Mathematicians have proven that if even number of square beads and an equal (even) number of round beads are evenly spaced about a circular bracelet, but in random order, there is always sure to be a single straight line that divides the bracelet into two parts with equal number of beads of each type in each half. (See chapter 22 of *SOLVE THIS! Math Activities for Students and Clubs*, available at <http://www.maa.org/publications/ebooks/solve-this> .)



Mathematicians have also proven that if a bracelet has an equal even number of round beads, square beads, and triangular beads randomly placed about it, it is always possible to cut the bracelet in four places to make four pieces that can be re-glued to make two bracelets of half the size, and do this in such a way that each of the two smaller bracelets contains exactly half the beads of each type!