

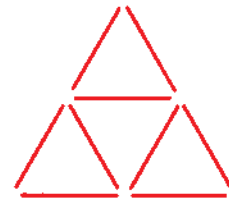
Troublesome Toothpicks

Problem-of-the-Week

The Problem

For this problem you actually will be solving several problems by rearranging toothpicks into different configurations with given properties. Good Luck!

1. In the figure shown, 13 toothpicks have made a shape with 6 equal areas. Use 12 toothpicks to create a shape that also has 6 regions of equal area.
 - a. Using the shape you formed above, remove 4 toothpicks to make 3 triangles.
2. With 9 toothpicks, make the figure at the right.
 - a. Remove 3 toothpicks to make 1 triangle.
 - b. Remove 6 toothpicks to make 1 triangle.
 - c. Remove 2 toothpicks to make 3 triangles.
 - d. Remove 3 toothpicks to make 2 triangles.
 - e. Remove 2 toothpicks to make 2 triangles.
 - f. Remove 4 toothpicks to make 2 triangles.
3. With 12 toothpicks, make 5 squares in such a way that you can do the following.
 - a. Remove 4 toothpicks to make 1 square.
 - b. Remove 4 toothpicks to make 2 squares.
 - c. Remove 2 toothpicks to make 3 squares.
 - d. Remove 1 toothpicks to make 3 squares and 1 rectangle.
 - e. Remove 2 toothpicks to make 1 square and 2 rectangles.
4. With 6 toothpicks, make 4 equilateral triangles.



Strategies and Hints

1. Use actual toothpicks to solve the problems.
2. Find other 5-square arrangements.
3. Consider different-sized squares.