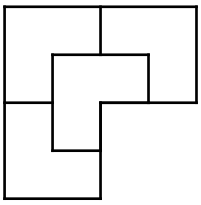
Rep-Tiles

Equipment: polyomino names reference sheet, graph paper, template

A shape is a rep-tile if it can be used to tile a scaled copy of itself.

Example: the bent tromino



1. Find all the rep-tile pattern blocks.

2. Find some rep-tile quadrilaterals.

3. Find some rep-tile polyominoes.

4. Triangles.
   a. You can tile any triangle with four (scaled) copies of itself. Show how with a scalene triangle. Sketch and explain.
   b. What is the scaling factor? How is it related to the number of tiles? (Understanding this may help you solve the remaining parts of this problem.)
   c. Find a special triangle that can be tiled with two scaled copies of itself. Sketch and explain.
   d. Find a special triangle that can be tiled with three scaled copies of itself. Sketch and explain.
   e. Find a special triangle that can be tiled with five scaled copies of itself. Sketch and explain.
   f. Find a special triangle that can be tiled with eight scaled copies of itself. Sketch and explain.

Discussion

A. When a figure is scaled by a factor k, its area is multiplied by ____? Explain.

B. What are the scaling factors in #3c, d, e, f?

Extension

Find triangles that can be tiled with 10, 13, 17, 25, 26, … scaled copies of themselves.