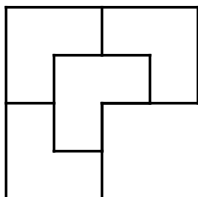


## Rep-Tiles

**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 some rep-tile polyominoes.
2. Find all the rep-tile pattern blocks.
3. 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.
4. What quadrilaterals are rep-tiles? 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.