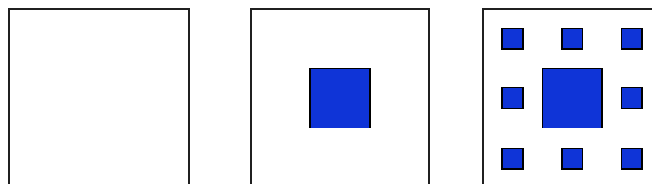


FRACTALS: DRAWING YOUR OWN FRACTALS

All you need to design and draw your own fractals is a simple rule which can be repeated. You can start with any regular polygon or symmetric shape, and you can remove (colour in) shapes, add a shape to a side, or add a shape to a vertex. Here are some examples:

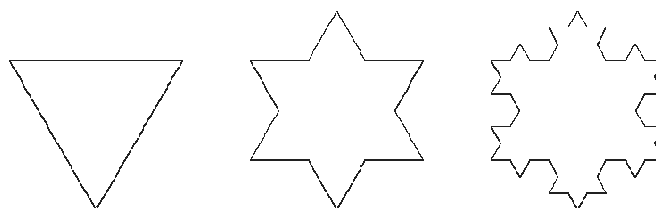
Rule:

1. Draw a square.
2. Divide it into 9 and remove the central square.
3. Repeat for all squares.



Rule:

1. Draw an equilateral triangle.
2. Insert an equilateral triangle onto each external side of the previous triangle.

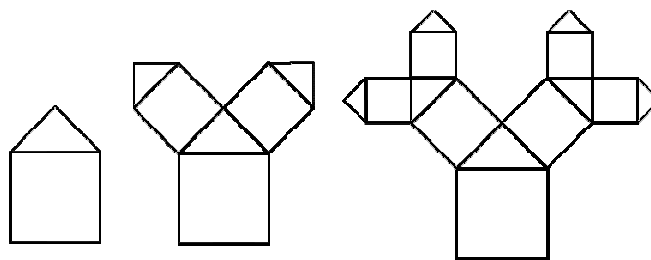


What is the scale factor for the side lengths of the triangles?

What is the scale factor for the areas of the triangles?

Rule:

1. Draw a 'house' shape.
2. Add the 'house' shape to the sides of the 'roof'.



What is the scale factor for the areas of the squares?

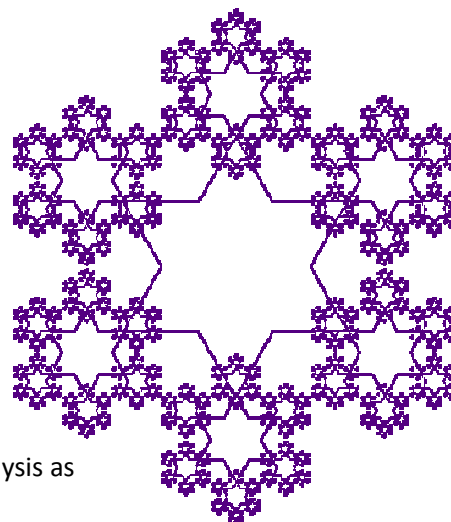
What is the scale factor for the lengths of the squares?

This appears more complex but still has a simple rule:

Rule:

1. Draw a 6-pointed star.
2. Put a 6-pointed star on each vertex.

What is the scale factor for the lengths of the sides of the stars?



Design and investigate your own fractal, using the Sierpinski Gasket analysis as a guide.

Suggestions:

- Use squared paper for square-based fractals, isometric paper for triangular- or hexagonal-based fractals.
- Start with a regular polygon, eg. a square, equilateral triangle or regular hexagon, or another simple symmetric shape.
- Decide on a simple rule.
- Draw the stages of your fractal in separate diagrams – it will help you to keep track of what you are doing.