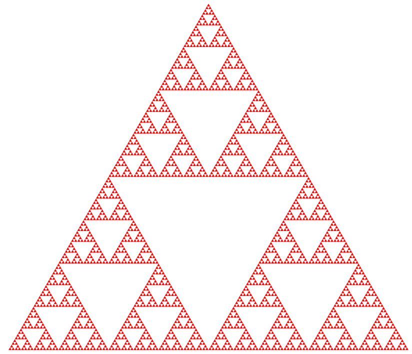

Figure 38.2: The Sierpinski gasket, version 2

The result of 7 iterations starting from the line segment $(-1,0),(1,0))$, is shown in Figure 38.3. This curve converges to the boundary of the Sierpinski gasket.

A different kind of fractal is the *Heighway dragon*.

Example 38.3. The Heighway dragon is specified by the following two contractions:

$$\begin{aligned} x' &= \frac{1}{2}x - \frac{1}{2}y, \\ y' &= \frac{1}{2}x + \frac{1}{2}y, \end{aligned}$$

$$\begin{aligned} x' &= -\frac{1}{2}x - \frac{1}{2}y, \\ y' &= \frac{1}{2}x - \frac{1}{2}y + 1. \end{aligned}$$

It can be shown that for any number of iterations, the polygon does not cross itself. This means that no edge is traversed twice and that if a point is traversed twice, then this point is the endpoint of some edge. The result of 13 iterations, starting with the line segment $((0,0),(0,1))$, is shown in Figure 38.4.

The Heighway dragon turns out to fill a closed and bounded set. It can also be shown that the plane can be tiled with copies of the Heighway dragon.

Another well known example is the *Koch curve*.