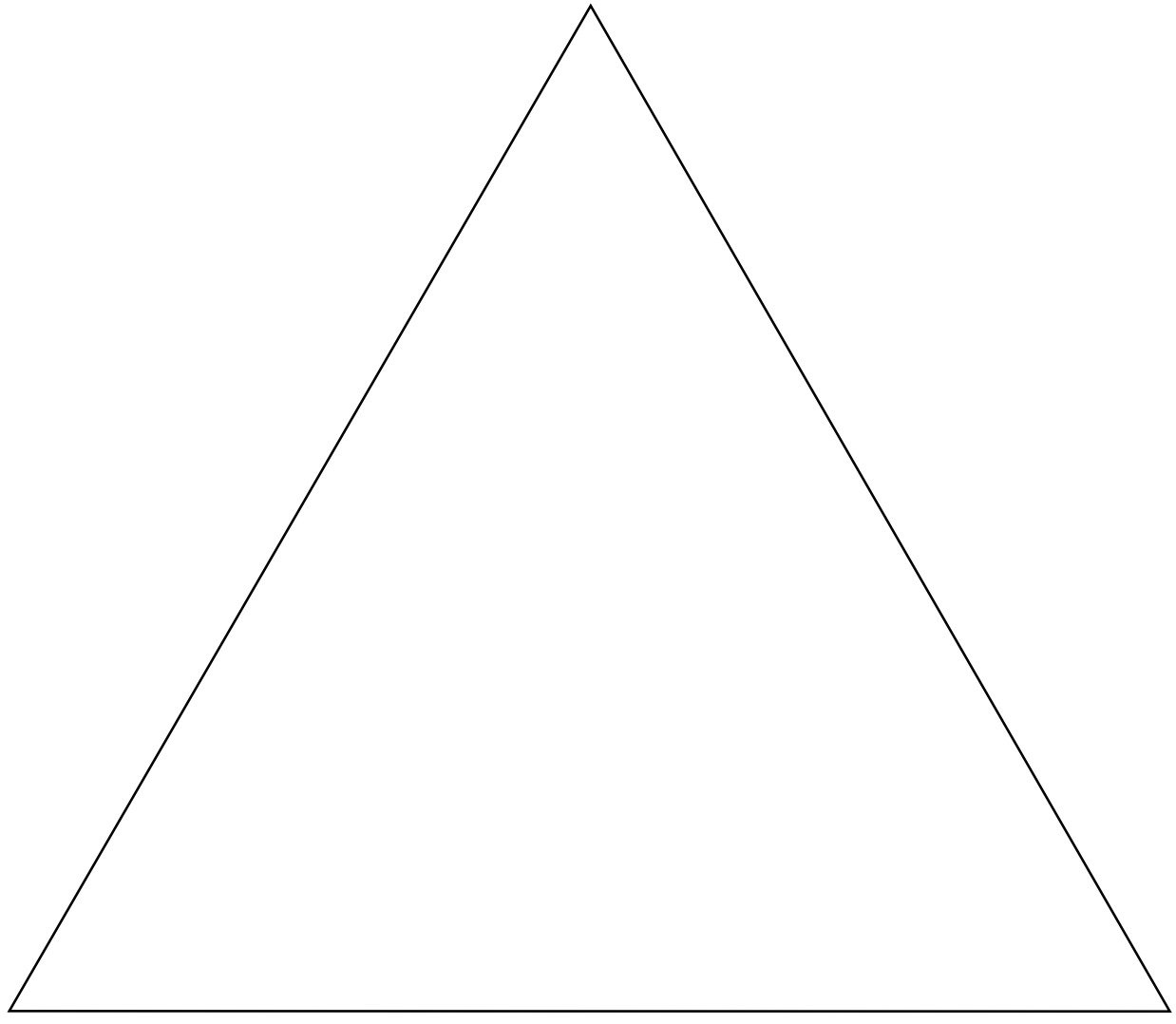
# Fractals

A *fractal* is an object $O$ possessing the property of proper self-similarity.

This means that there is a part of $O$, say $A_1$, which is similar to a proper part of $O$, say $A_2$.

# Fractal example: Sierpinski Triangle



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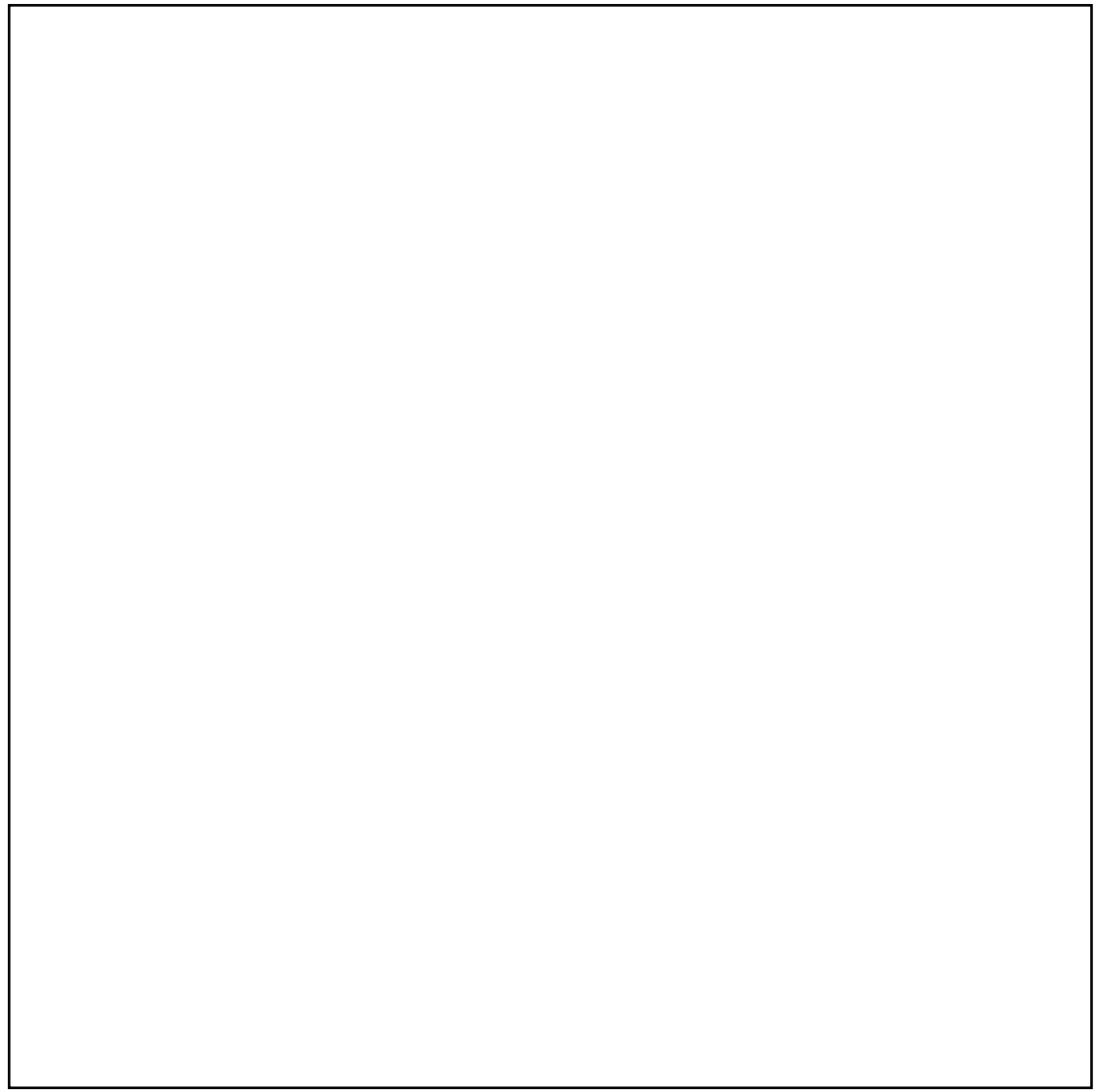

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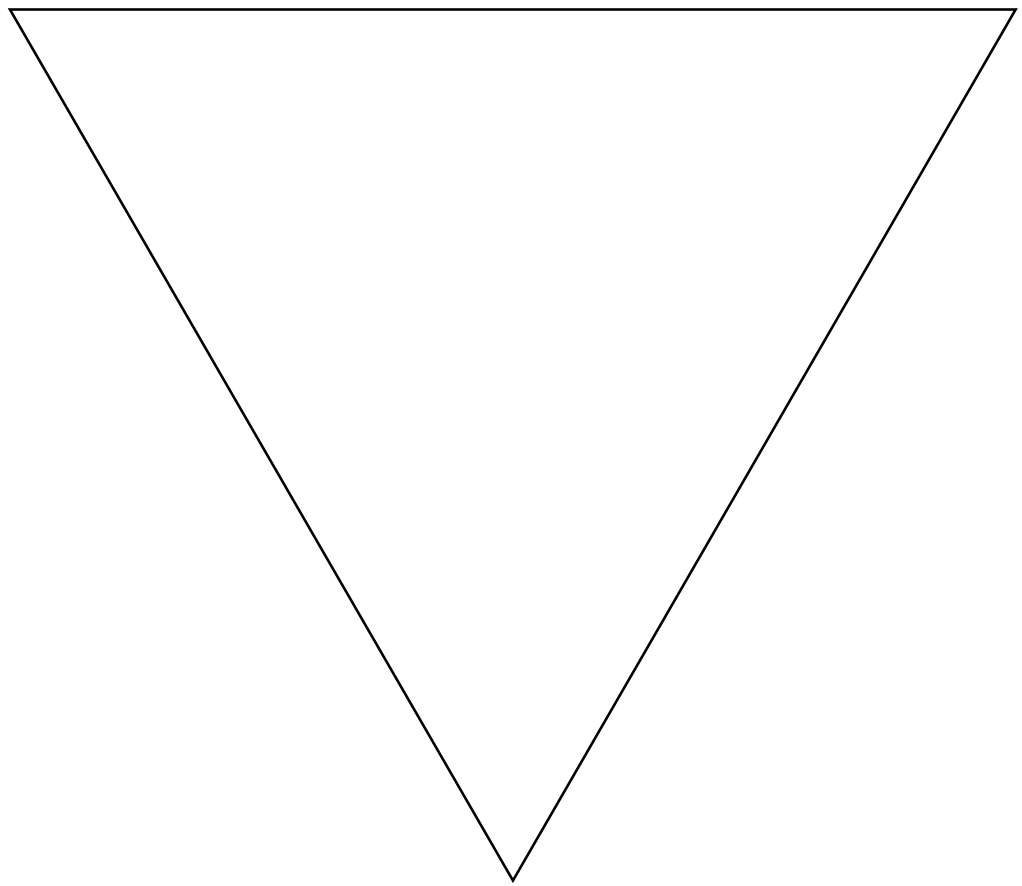

# Escape Time Fractals

Given a transformation $f$:

The *prisoner set* is the set of points $A$ where $\{A, f(A), f(f(A), \ldots\}$ is bounded.

The *escape set* is the set of points $A$ where $\{A, f(A), f(f(A), \ldots\}$ is unbounded.

The *Julia set* is the boundary between the prisoner set and the escape set. The prisoner set is also sometimes called the *filled* Julia set.