

# Hilbert Curve

## Exploration Questions

The Hilbert Curve is one of the earliest "curious curves" known to have been studied. The Hilbert Curve is the result of repeating a line-bending step infinitely many times. Hilbert and Peano were interested in such curves at the end of the 19th century. Many curves of this type were found to be "fractal" in the 1970s.

Directions: Use the [Hilbert Curve](#) applet to fill in the table below.

Iteration	1	2	3	4	5
Length					

Answer the following questions:

1. What changes occur between steps and how can you tell?
2. What would the length of the N-th iteration be? Look at the patterns made by the numbers both before and after simplifying.
3. What do you expect the Hilbert Curve to look like? In other words, what would you expect to happen if you repeated this infinitely many times?
4. What is the length of the Hilbert Curve?