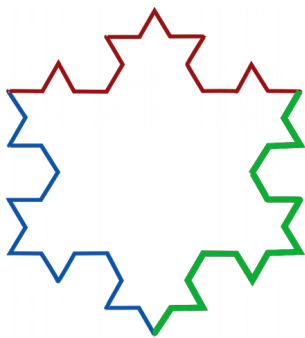


# The Koch Snowflake

The Koch curve was introduced in 1904 by the mathematician Helge von Koch and is one of the most well-known fractals. To create the Koch curve, a segment is divided into three equal parts and the middle segment is replaced by a  $1/3$ -length cusp made of two parts, such that the cusp with the segment removed would form an equilateral triangle. Now we have four stretches of the same length, where again the middle third is replaced by an (outward-pointing) spike. The first iterations of the Koch curve look like this:

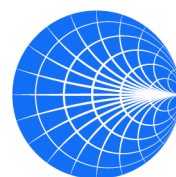


The Koch curve is the limit of this iteration process. It is continuous but nowhere differentiable, infinitely long, and has a fractal dimension of about 1.262.



Three Koch curves together form a Koch snowflake. It is also a fractal and has infinite circumference but finite area. The plane can be tiled with Koch snowflakes of different sizes.

The snowflake shown here is a joint project from winter 2022/23, initiated by the Research Station Geometry + Dynamics and the Heidelberg Experimental Geometry Lab (HEGL).



RESEARCH  
STATION  
**GEOMETRY+**  
**DYNAMICS**