

Koch Curve

How to draw a Koch curve.



Start with a line segment (STAGE 0)

- * Divide the line into thirds
- * In the middle third produce an equilateral triangle
- * Then remove the base



This gives STAGE 1



Repeat the process
for each of the line segments



This gives STAGE 2



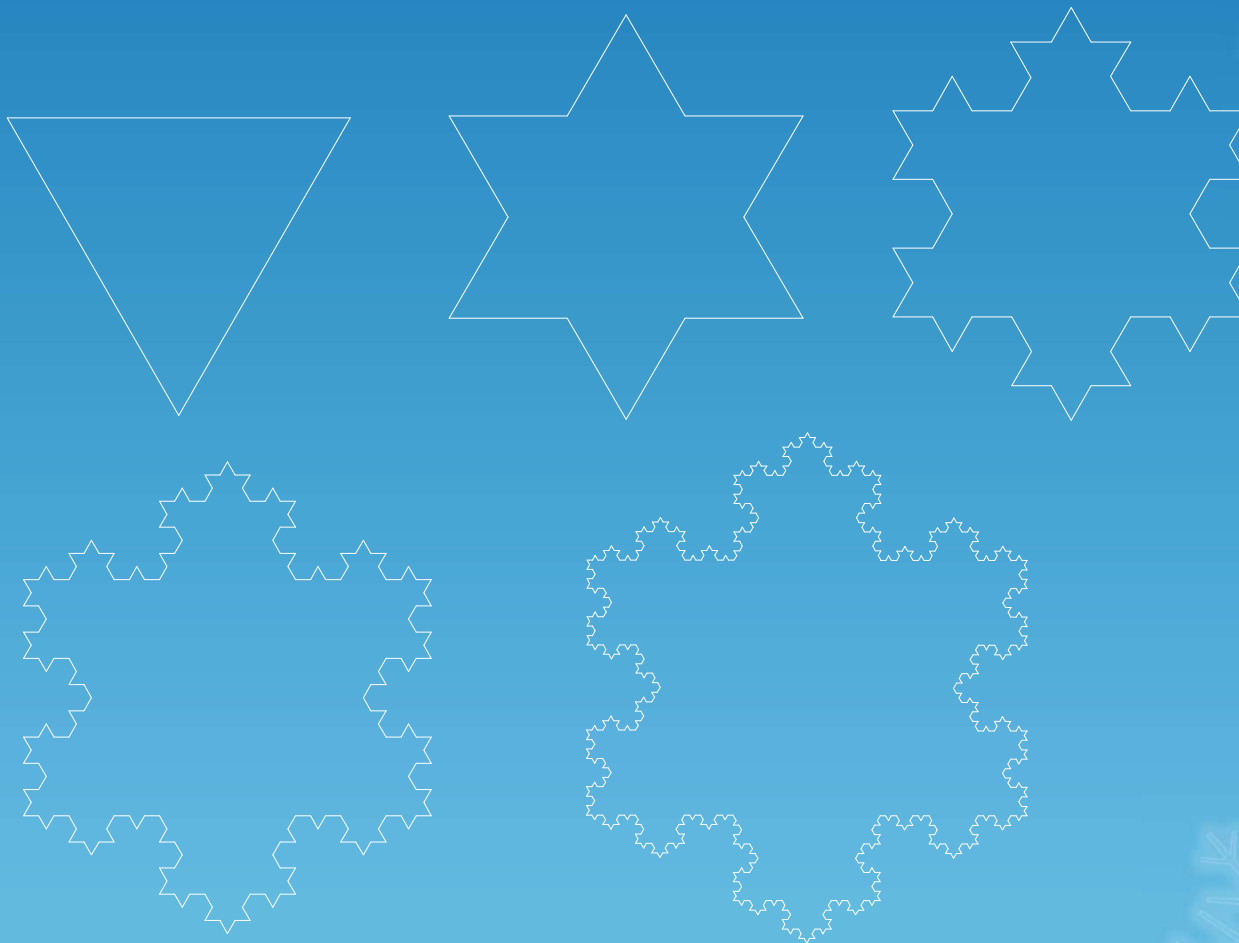
Repeating the process again
for each line segments gives
STAGE 3



This iterative process can be repeated
again and again and again.....
Below is STAGE 4

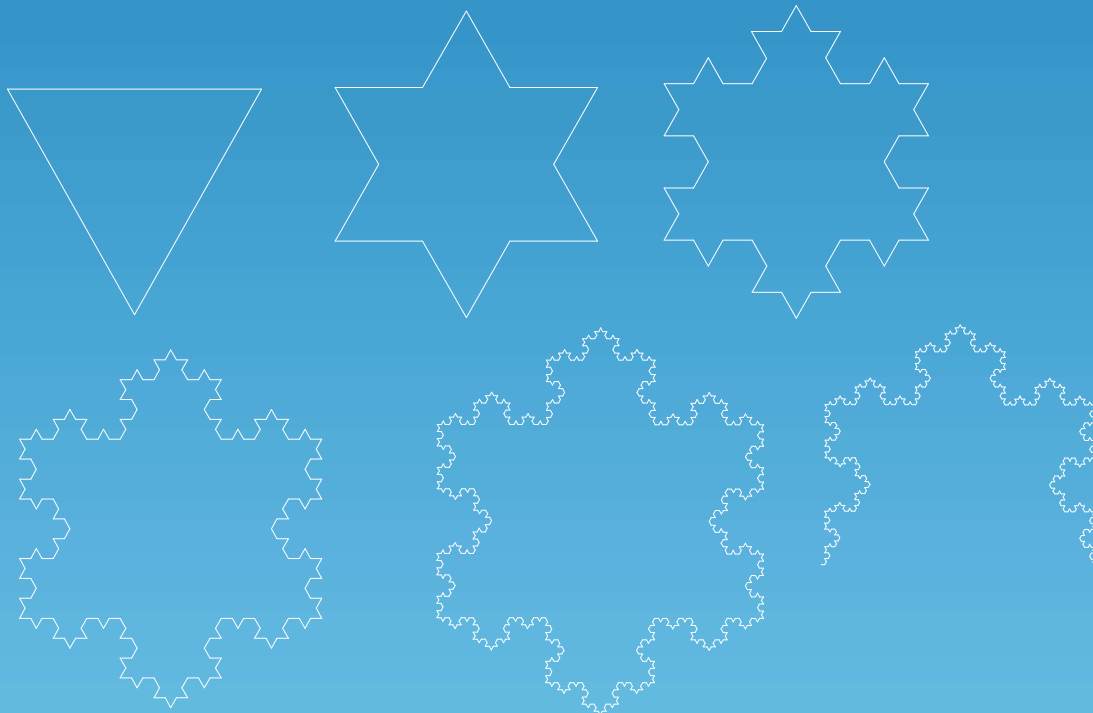


Starting with an equilateral triangle produces the Koch Snowflake



The Koch Snowflake

- The snowflake curve (Koch curve) was proposed by Niels Fabian Helge von Koch (25 Jan 1870 - 11 March 1924), a Swedish mathematician. It is created by iteratively adding a smaller triangular "bump" to each side of the figure. This fractal process, when continued indefinitely, produces a figure with infinite perimeter but finite area. This series of figures show the first five steps in the process and one of the six "petals" at the sixth stage.



Other variations

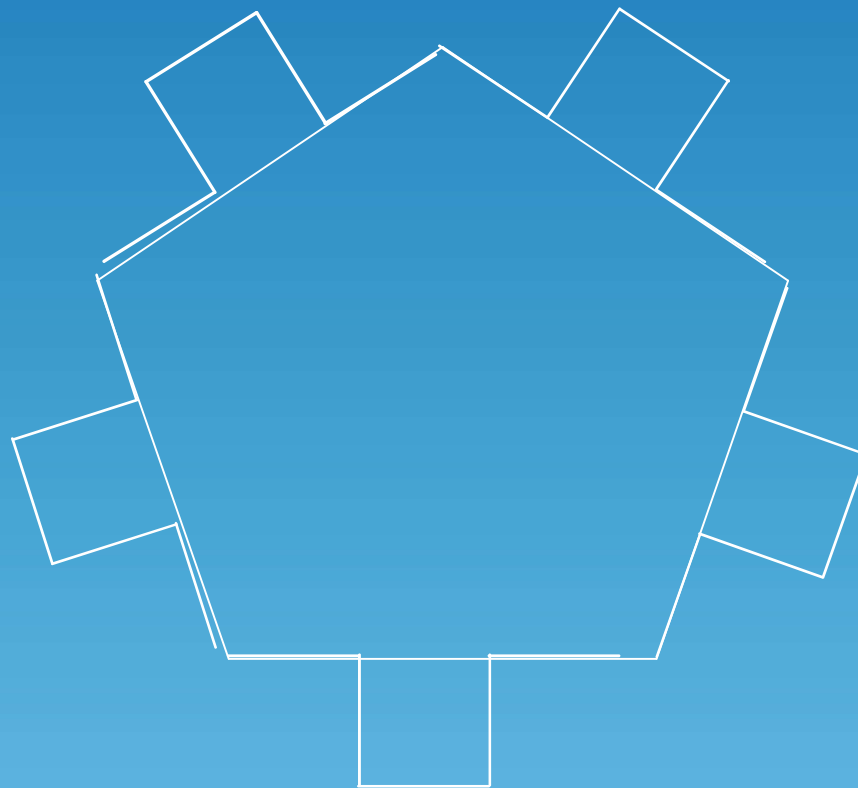
eg: use different length segments
and add an isosceles triangle



OR divide the initial line segment
into thirds and add another
shape in the gap



You could start with a polygon
rather than a straight line



Koch Snowflake

- Three copies of the Koch curve placed outward around the three sides of an equilateral triangle form a simple closed curve that forms the boundary of the Koch Snowflake.
- Three copies of the Koch curve placed so that they point inside the equilateral triangle create a simple closed curve that forms the boundary of the Koch anti-snowflake

