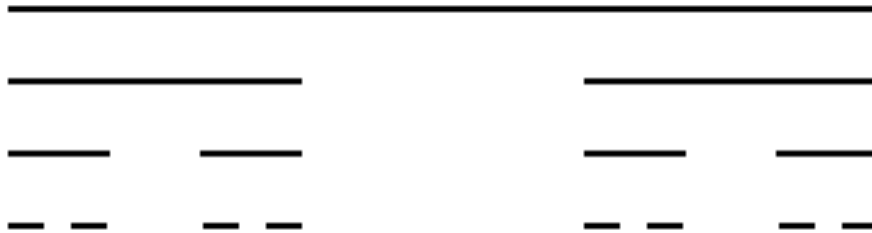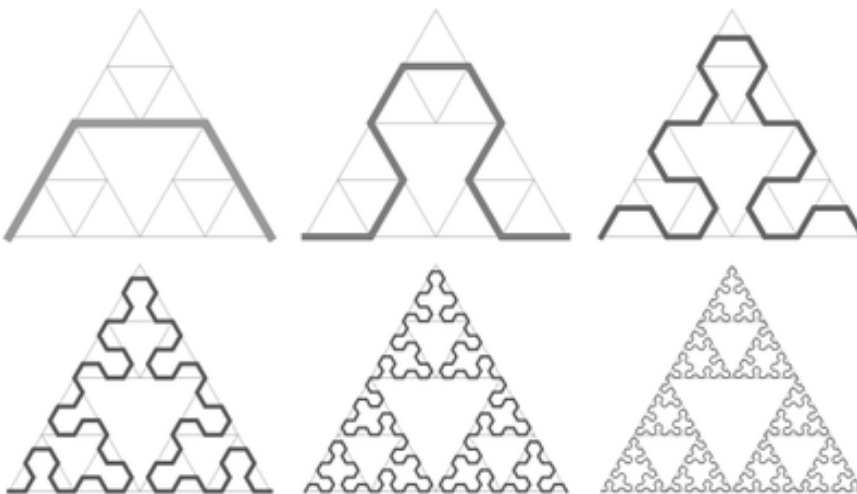Elements of Cantor Sets

Gail Nelson Fall/Winter
Prerequisite: Math 321 (Real Analysis 1) or equivalent

Start with the unit interval, remove what appears to be everything, and what is left is the Cantor set. I would love to include a picture of this set, but here is the best I can do.

The Cantor set contains no intervals, yet it is uncountable. This is the first of many remarkable features of the Cantor set. The goal of this comps is to learn as much as possible about this fascinating set.

Typically, the first Cantor set one encounters is known as the Cantor ternary set. But there are others. What qualifies as a Cantor set? Another feature of these sets is that they can be used to create space-filling curves, which seems to be a paradox.

Robert Vallin has written a book titled *The Elements of Cantor Sets*. This comps will start by working through portions of this text, then find further avenues to explore.