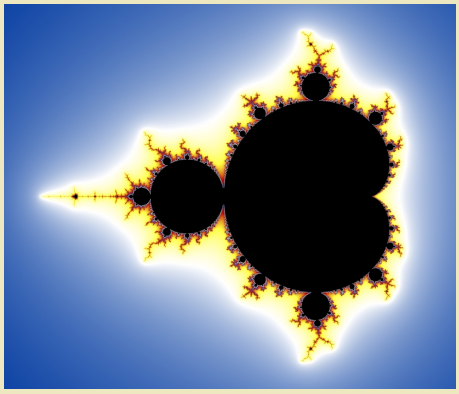
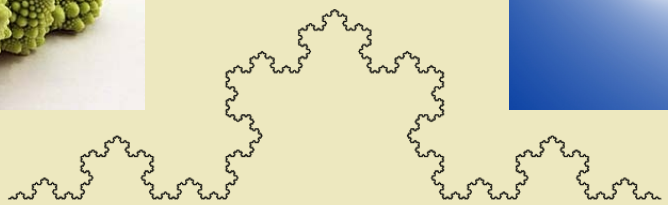
Fractals





The beauty of self-similarity

"*Clouds are not spheres, mountains are not cones, coastlines are not circles, and bark is not smooth, nor does lightning travel in a straight line.*" --- Benoit Mandelbrot

To describe the patterns of natural objects, such as clouds, mountains, and lightning, we need a different kind of geometry than mathematically perfect spheres, cones, and lines. Natural patterns are irregular and fragmented. Yet a surprising common property of such patterns is *self-similarity*. Natural objects look similar at different scales. A cauliflower floret looks similar to the whole cauliflower. A tree branch looks similar to the whole tree. In natural objects, similar patterns are repeated at smaller and smaller length scales.

Fractal geometry describes such natural patterns mathematically. In this lecture, I present an introduction to fractals, including mathematical snowflakes and plants, and the famous Mandelbrot set. The lecture is suitable for a general audience, and no previous mathematical background is required. Many beautiful examples of fractals are included, from Nature as well as those generated by computers.

Further information

The duration of this lecture is one hour. Please do not hesitate to contact me for any further information, or if you wish to have this lecture presented somewhere. The information about this and other lectures can also be found online at:

`www.WorldWideWanderings.net/Lectures.html`

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