



My Twitter bot @oeisTriangles frequently tweets triangles based on OEIS sequences that appear to be fractal-like. I asked about the triangle that comes from OEIS sequence A186759 on Math Stack Exchange, and got an answer from David Speyer that gives a theory of computing “the fractal behavior of the coefficients of rational generating functions modulo p .”

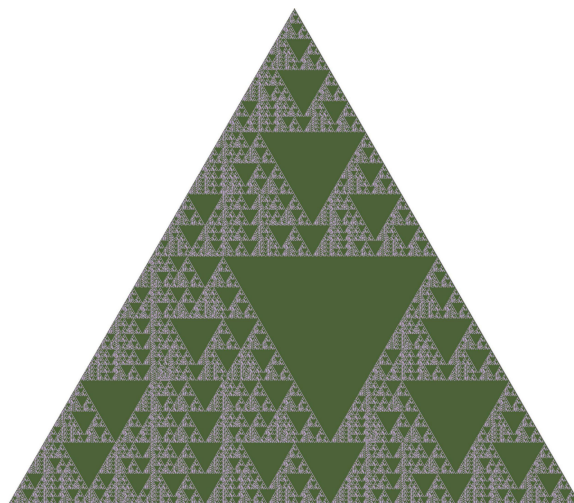


Figure 1: The parity triangle based on the first 1024 rows of OEIS sequence A186759.



Figure 2: Parity triangles for OEIS sequences A253587, A273899, A282716, and A322674.

Question. How can one algorithmically determine the fractal dimension of parity triangles given by various families of generating functions, specifically those shown in the figures above.

Related.

1. Does the fractal dimension depend on how many rows are shown? (e.g. in Figure 1, we consider the limiting shape for 2^n rows, what if we considered $3(2^n)$ rows or something like this instead?)
2. How might this work for other geometries: tetrahedra, n -simplices, squares, diamonds (i.e. two equilateral triangles together), etc.

References.

Problem 122.

Peter Kagey, Math Stack Exchange.

Twitter bot, @oeisTriangles.

Peter Kagey’s blog, Parity Bitmaps from the OEIS.