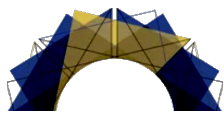# Notes on EarthDay 2025 Animation
Jeffrey Ventrella, 2025

https://gallery.bridgesmathart.org/exhibitions/2025-bridges-short-film-festival/jeffrey-ventrella

https://vimeo.com/1077461614   ventrella.com/earthday

This video shows a series of geometrical transformations.

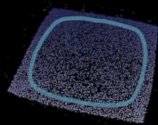A disk of swirling particles morphs into a square via a "squircle" inspired by Chamberlain Fong.

`https://archive.bridgesmathart.org/2019/bridges2019-83.pdf`

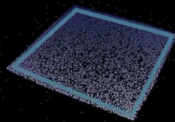The square then morphs into a hyperbolic surface.

Opposite corners of the square meet at the two poles of a sphere.
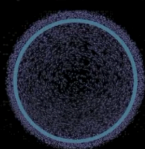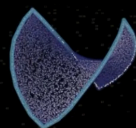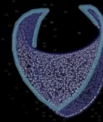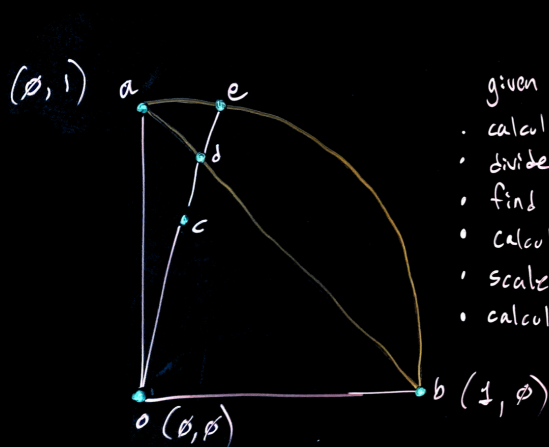
| disk | squircle | square | hyperbolic surface | sphere |

Squircle recipe:
mapping a point on a disk to
a point on a point on a square

$(0, 1)$ a   e
d
c
$o\ (0, 0)$
$b\ (1, 0)$

given c.

· calculate distance from o to c. Call it dist
· divide oc by dist to get unit vector oe
· find d as intersection of oe and ab
· calculate distance from d to c. Call it shift.
· scale shift by $dist^2$
· calculate shifted c as $c - oe \times$ shift

The background is made with two scrolling Divisor Plots: `divisorplot.com`
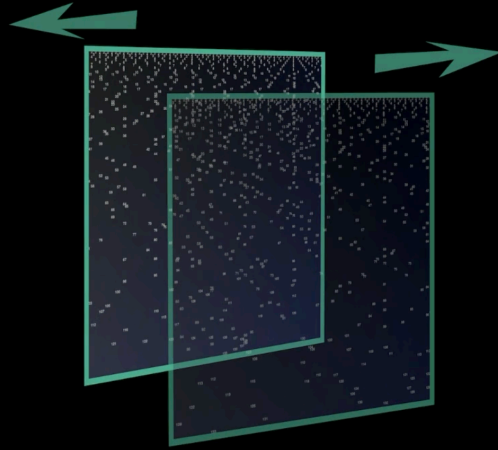
3D transformations, particle physics, and
divisor plot written in pure minimalist
JavaScript; run on a browser; recorded
with ScreenFlow