In[105]:=
```
Sin[π / m] / π^2 *
 Sum[(-1)^k * Exp[I * π * z * t] * Product[1 - s * Tan[π * z / (-2)^n], {n, ∞}] / z^2 /. z → k + 1 / m,
  {k, -∞, ∞}]
```

$$\frac{1}{\pi^2}\sin\left(\frac{\pi}{m}\right)\sum_{k=-\infty}^{\infty}(-1)^k e^{i\pi t\left(k+\frac{1}{m}\right)}\prod_{n}^{\infty}\left(1-s\tan\left(\pi(-2)^{-n}\left(k+\frac{1}{m}\right)\right)\right)\Big/\left(k+\frac{1}{m}\right)^2$$

$0 \le t \le 2$ Numerator[m]

draws *m* copies of a dyadic fractal arc of dimension *D* around a regular *m*-gon, where

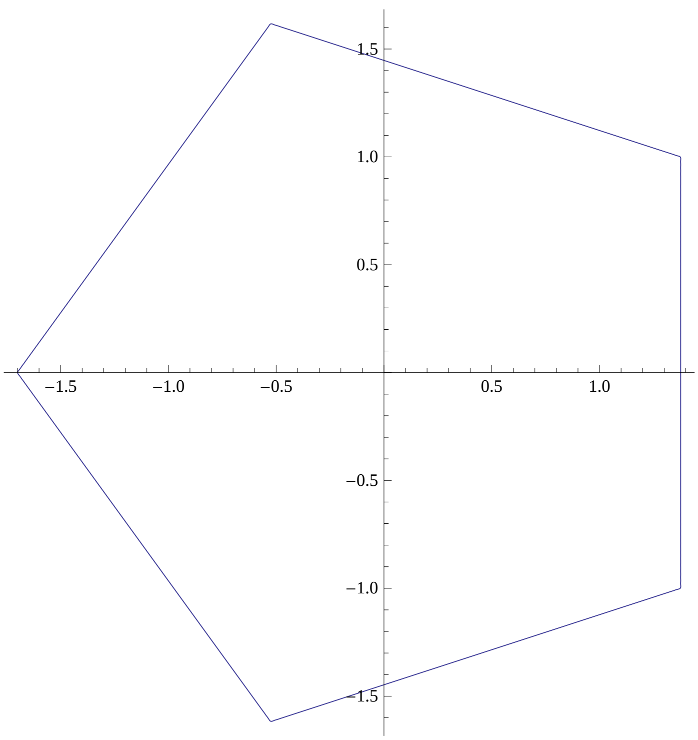
In[106]:=
```
2^D == Abs[s + I]^D + Abs[S - I]^D
```

Out[106]= $2^D = |i + s|^D + |-i + S|^D$

When s=0, D=1. E.g., for $m = 5$ and 5/2,

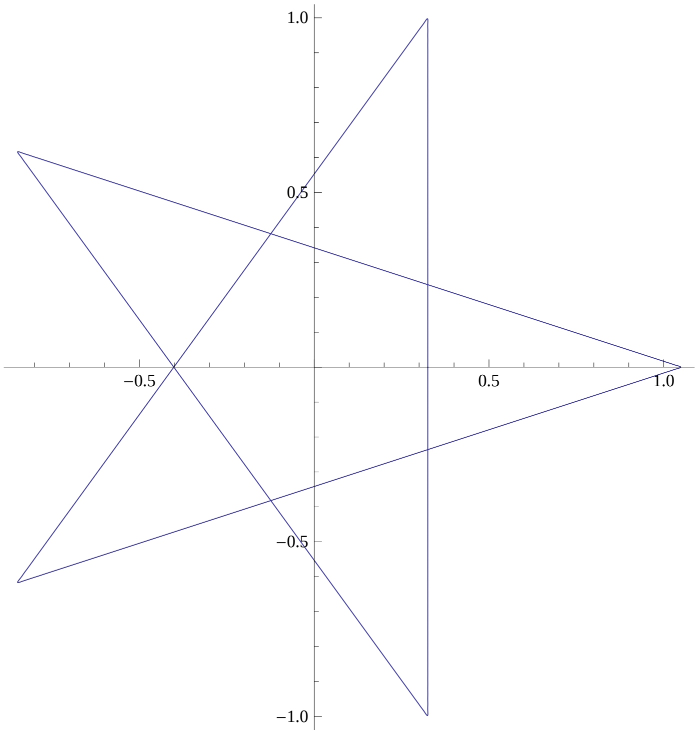
In[107]:=
```
ParametricPlot[{Re[#], Im[#]} &@futst[t, 0, 5, 69], {t, 0, 10}]
```

Out[107]=



In[108]:= ParametricPlot[{Re[#], Im[#]} &@futst[t, 0, 5 / 2, 69], {t, 0, 10}]

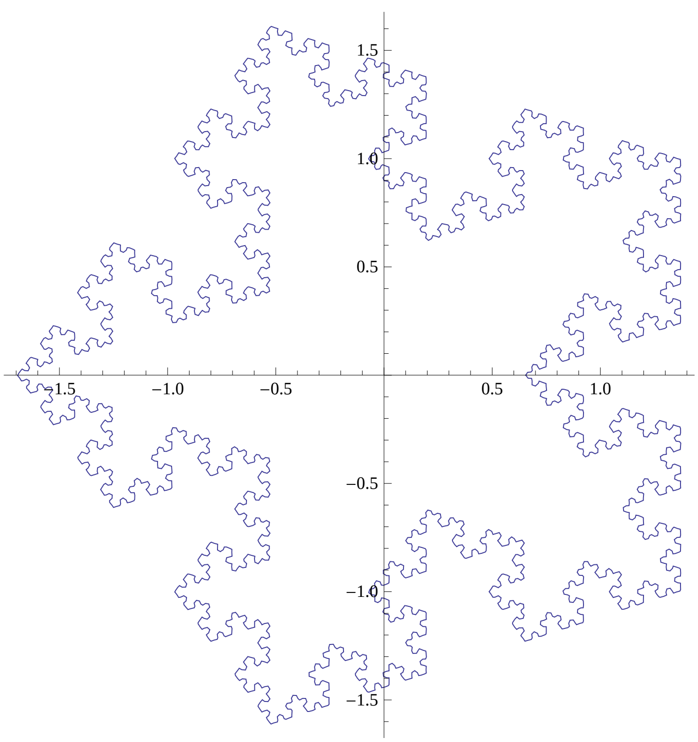
Out[108]=



Nonzero *s* adds “fuzz”:

In[110]:= ParametricPlot$\left[\{\text{Re}[\#], \text{Im}[\#]\}\ \&@\text{futst}\left[t, -\sqrt{5-2\sqrt{5}}, 5, 239\right], \{t, 0, 10\}\right]$

Out[110]=

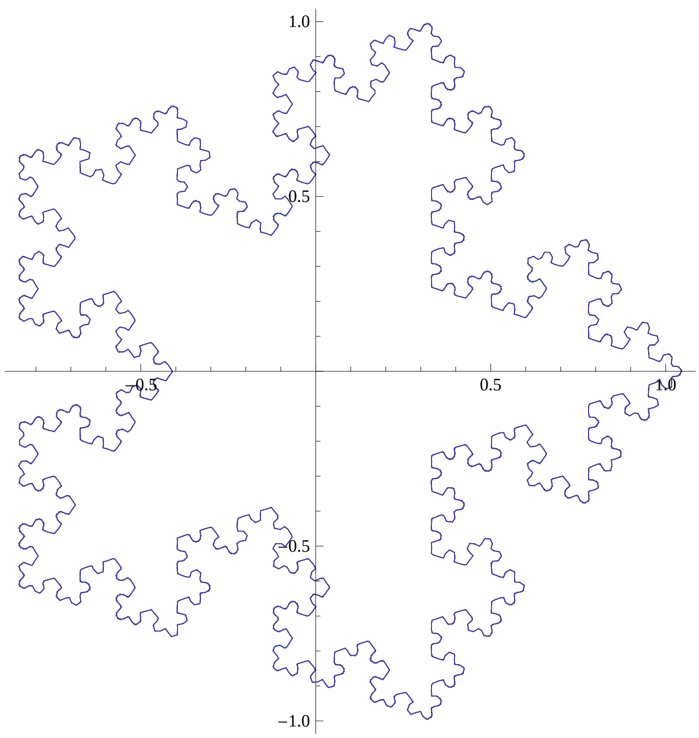


Note that m = 5/2 self-intersected. So what can we expect from

In[111]:= ParametricPlot[{Re[#], Im[#]} &@futst[t, $\sqrt{5 - 2\sqrt{5}}$, 5/2, 239], {t, 0, 10}]

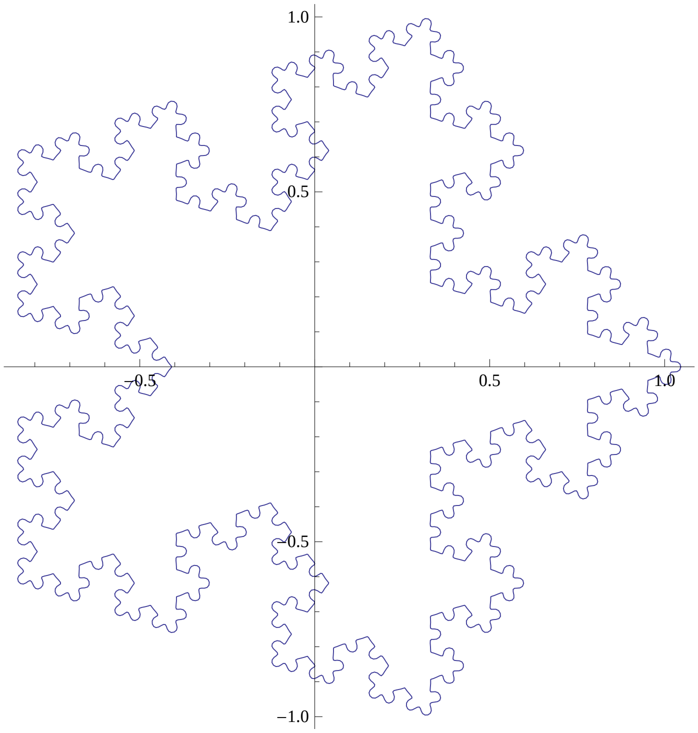
?

Out[111]=



Now suppose we only go halfway around.

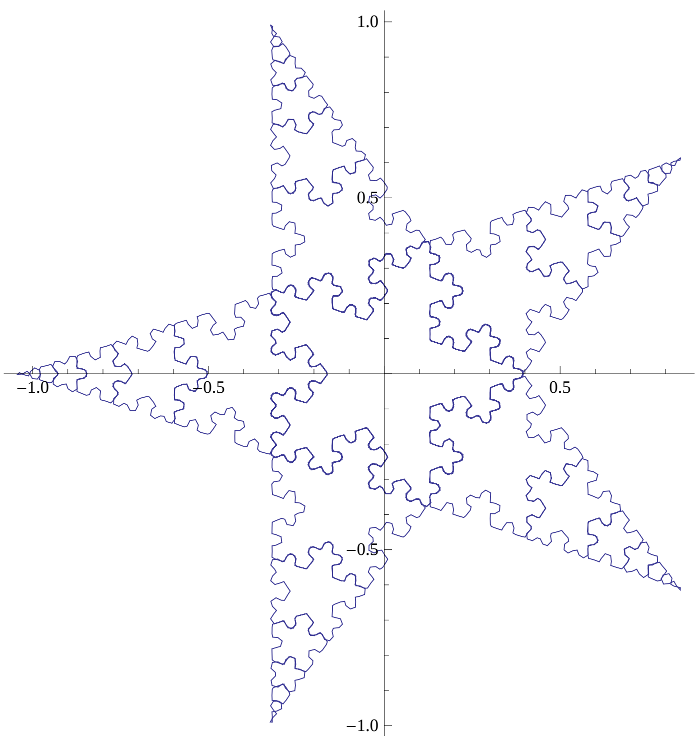
```
ParametricPlot[{Re[#], Im[#]} &@futst[t, √(5 - 2 √5), 5 / 2, 239], {t, 0, 5}]
```



Negating m turns things inside out.

In[114]:=
```
ParametricPlot[{Re[#], Im[#]} &@futst[t, √(5 - 2 √5), -5 / 2, 239], {t, 0, 10}]
```

Out[114]=

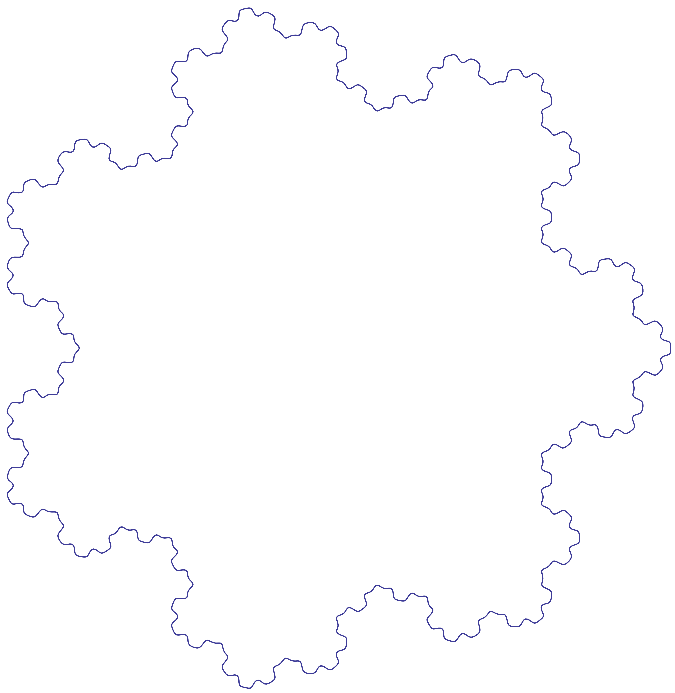


To which Julian responded

In[87]:=
```
(Print[#1]; #2) & @@ AbsoluteTiming[
  ParametricPlot[{Re[#], Im[#]} &@futst[t, Tan[π / 7.], 7 / 2], {t, 0, 14}, Axes → None]]
```

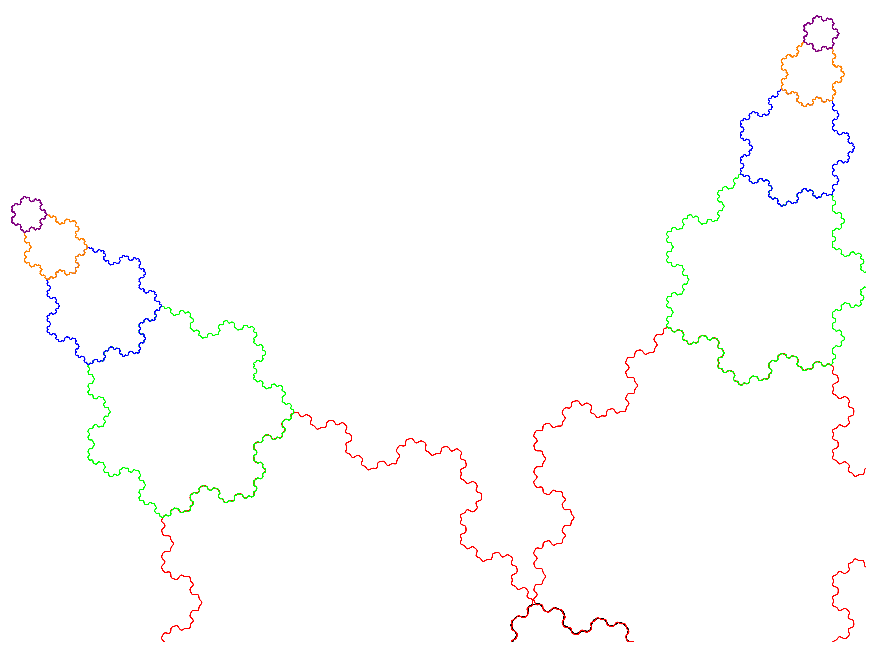
4.826519

Out[87]=



In[102]:=
```
Block[{g = %87[[1, 1, 3, 2]], scale = 1 / (2 * Cos[π / 7]),
  trans = (Cot[2 π / 7] + Tan[π / 7]) (1 + Exp[I * π / 2 * (6 / 7)] / 2 / Cos[π / 7]),
  tfun, guys}, tfun = AffineTransform[
    {scale * {{1, 0}, {0, 1}}, {Re[#], Im[#]} &@ (trans * Exp[2 * I * π * # / 7])}] &;
 guys = Table[NestList[GeometricTransformation[#, tfun[k]] &, g, 5], {k, 0, 6}];
 Transpose[Prepend[guys, {Black, Red, Green, Blue, Orange, Purple}]]]
```

In[103]:=
```
Graphics[%]
```



Out[103]=