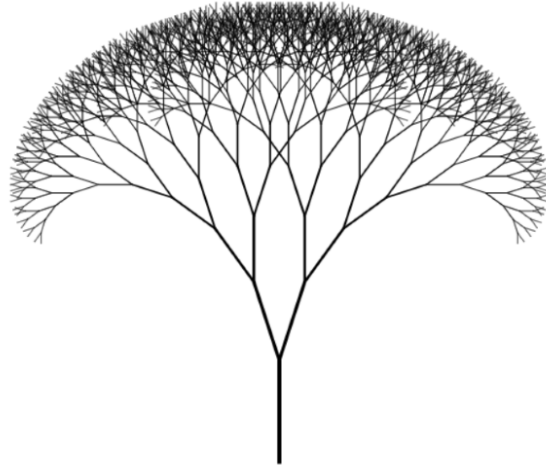


Fractal Trees and Sierpinski Triangle.



Look at these two trees. Do you find anything interesting about them?

Let's assume that each year, the tree grows branches each year, at the end of the branches from the year before.

It starts like this: |

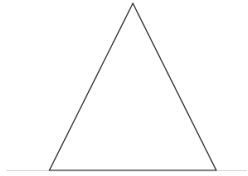
At the end of one year, it looks like this: $\begin{array}{c} \backslash / \\ | \end{array}$ (so it has two new branches)

At the end of two years, it looks like this: $\begin{array}{c} \vee \vee \\ \backslash / \\ | \end{array}$ (so it has four new branches on top)

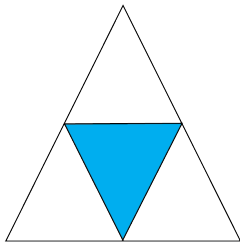
Can you draw a tree and keep track of the number of new branches it has each year? Do you see a pattern with the numbers?

Sierpinski Triangle.

We start with a triangle.



For each white triangle you see, mark the middle of the sides and draw a smaller triangle inside. There are many ways to mark the middle: you can use a ruler and measure; you can fold the paper. Join the middle marks and color the smaller triangle. You get something like this:



Oh, there are three little white triangles. Do you see them?

We now do the same thing: we mark the middle of the sides of each white triangle, draw a smaller triangle inside by joining the marks and color them (with a different color).

How many little white triangles do you see now? You can keep track of the number of triangles you color at each step. Do you see a pattern?

After a few steps, you should get something like this:

