

Tree Fractal

1. Draw any length of a vertical line that you choose (the shorter the line, the more difficult it is to complete the repetitive process).
2. Draw two branches at right angles to each other at the end of the original vertical line that you drew. The two branches should be half of the length of the original vertical line.
3. Draw two additional branches at right angles to each other at the end of the two branches you drew in step 2. These two branches should be half the length of the two branches drawn in step 2.
4. Continue this same repetitive process over and over again, making sure that the two new branches drawn are half the length of the branches that they are stemming off of.

The key is to have enough space so that as you continue the process over and over again, you have the room to continue to add two more branches. Each set of two new branches should be half the length of the branch that they are coming out from. Remember to put the two new branches at right angles to one another.

Your final product, should resemble a tree. You can continue the process for as long as you like. Obviously, the more repetitions you perform, the more the fractal will resemble the real-life object.

Snowflake Fractal

1. Begin by drawing an equilateral triangle (remember, that is a triangle that has all 3 sides the same length)
2. Divide one side of the equilateral triangle into 3 equal lengths. Erase the middle third of the original line.
3. Draw two new lengths, each $\frac{1}{3}$ the length of the original horizontal line. Extend these two new lines up to make a peak over the middle section of the original line that you erased.
4. Continue this same repetitive process over and over again, making sure that the two new lines drawn are approximately $\frac{1}{3}$ the length of the line that they are branching off of.
5. Repeat steps 1 through 4 on the other two sides of the original equilateral triangle.

The key is to have enough space so that as you continue the process over and over again, you have the room to continue to add two new lines. Each set of two new lengths should be approximately $\frac{1}{3}$ the length of the line segment that they are coming out from. Remember to complete this repetitive process on each segment of the line.

Your final product, should resemble a snowflake. You can continue the process for as long as you like. Obviously, the more repetitions you perform, the more the fractal will resemble the real-life object.

Coastline Fractal

1. Draw any length of a horizontal line that you choose (the shorter the line, the more difficult it is to complete the repetitive process).
2. Divide the line into 3 equal lengths. Erase the middle third of the original line.
3. Draw two new lengths, each $\frac{1}{3}$ the length of the original horizontal line. Extend these two new lines up to make a peak over the middle section of the original line that you erased.
4. Continue this same repetitive process over and over again, making sure that the two new lines drawn are approximately $\frac{1}{3}$ the length of the line that they are branching off of.

The key is to have enough space so that as you continue the process over and over again, you have the room to continue to add two new lines. Each set of two new lengths should be approximately $\frac{1}{3}$ the length of the line segment that they are coming out from. Remember to complete this repetitive process on each segment of the line.

Your final product, should resemble a coastline. You can continue the process for as long as you like. Obviously, the more repetitions you perform, the more the fractal will resemble the real-life object.