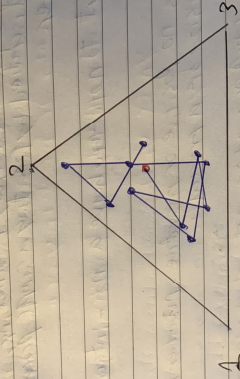


Let's create a system of "Chaos" and attempt to illustrate it.

Assume I have a 3-sided dice which contains the values 1-3 inclusively and I use the dice 10 times. We can use a triangle to illustrate the results.



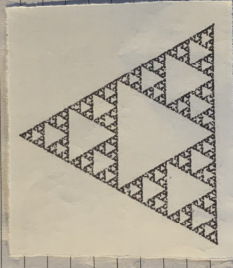
We must first place any random dot in a sample situation so that we have a point to begin with. To make this clear I have used a red dot (•).

Every time I roll the dice I shall draw a line in the direction of the result (one of the vertices).

The result is a chaotic system and at the moment does not show any signs of becoming a paradox as this is just one of the many variations of rolling a 3-sided dice.

There also high chances of the trial being biased. For instance the dice could be biased to one side or the way in which you roll the dice could be unknowingly biased.

So let's attempt this again but this time let's use a random number generator. We will this time remove the lines connecting the dots so that we can run the program a large number of times without being not able to view the results.



The result is a fractal known as the Sierpinski triangle. So perhaps the act of randomly throwing a 3-sided dice is actually a paradox and there fore an example of chaos theory.

Complex numbers are used when constructing a fractal because as we've just learnt,

Fractals are illustrations graphs of chaos theory.

When multiplying 2 complex numbers the result is always another complex number allowing us to accurately draw a graph from an iterated function or logistic map.

In Conclusion

Fractals can be used to better understand chaos theory. Fractals are a geometric representation of chaos theory.

This could explain many phenomena such as nature or alternate dimensions.

Perhaps chaos theory is the idea of normality which we do not yet know or understand or can not define.

Fractals and Chaos Theory

Chaos theory is the study of apparently random or unpredictable behavior in systems governed by deterministic laws.

In other terms, it is the idea of a seemingly random system actually being a few variables.

The idea of a fractal is truly fascinating, it is a pattern that is formed by repeating a simple process over and over.

It is important to note they have a non-integer dimension.

This means no positive or negative number may define the size of a fractal.

Instead, complex numbers are used to represent the x and y axis where the x axis is the real number value and the y axis is the imaginary number value.

* We will return to this idea later *

So how are fractals and chaos theory related?

To demonstrate let's have a look at a famous fractal known as the Sierpinski Triangle.