

Recreational Mathematics

I am primarily a linguist (self-taught, but still a linguist), but I still find intrigue in math; I hate maths. They're both abbreviations of mathematics (from Greek Μαθηματικά, or Mathematica), yes? Note how I titled this with “recreational mathematics”; that is what Math is. Maths, however, is “mathematics”; in other words, the “math” you learn in school. While I rarely make this distinction, this is an important note.

Infinity

When kids are young, they wonder about a number bigger than any other; infinity (called such because it is not finite, originally meaning finished or terminated). Of course, mathematicians also talk about such a number, but they are much more careful:

1. Infinity is not a number in the typical sense.
2. Infinity is not one number.
3. Some infinities are bigger than others.

This goes against common intuition, thus common confusion.

Infinitesimals

Infinitesimals are the ~~opposite~~ inverse of infinity; numbers so small they are immeasurable.

Again, they are not one number. Often, Infinitesimals are rounded down to zero, and practically, there's no difference: for example, $1 - \epsilon = 0$; what does that? Zero does that.

Points

In geometry, everything is made out of points. What are points? Points are 0-dimensional objects, and thus has no mass. Like previously stated, all n-dimensional objects are made of an infinite number of points—which means everything has the same number of points.

Circles

Let p be a point and l be a real number. At every point l -distance away from p , create a new point. Continue until all of the space l -distance away is filled. You have a circle.

Circle constants

The distance around the circle is called the circumference; as you can tell, a circle is defined by its circumference—but how long is the circumference? Barring arbitrary measurements, you

have two options: the distance from the shell to p (the diameter), and the distance from the shell to the other side (the radius).

Diameter

If you chose the diameter, you get π , or pi. Pi is the most well known (and most over-rated) mathematical constant. Pi appears in many formulas, including the famous Euler's identity: $e^{i\pi} = -1$.

Radius

If you chose the radius, you get τ , or tau. Tau is the best (and most under-rated) circle constant, and beauties up many formulas that use 2π ; and while Euler's identity may look like it'd be messed up, it's actually much nicer: $e^{i\tau} = 1$.

