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Casey's Curves and the Big Graph

Sheet 1

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Abstract

Casey's Curves contains a summary of some of the many discoveries made using our mathematical method Modal Harmonics and the General Transform Equation or GTE. Many natural phenomena involve functions or constants which have hidden principles we cannot observe and appear mysterious. The fundamental constant π is one such example. The value is predetermined and fixed. Clearly there is some underlying physics behind this important constant; nature would not have left this for chance.

First we map the function conventionally in "Real Space", in the case π this is arc length versus angle measured. Then the Transformation Equation allows us to create a second map of the same measurement in a different space called Harmonic Space. The Harmonic Space is more complex. It is made up of an infinite set of waves which are composed of imaginary numbers which are unobservable, or other types of unobservable numbers. These waves can only combine in specific ways or "modes" for the imaginary, unobservable portions to cancel out, thus forming a map in Harmonic Space that is graphically equivalent to the Real Space map. In doing so there is a set of quantized solutions describing how much of each wave to include to form that mode. The set of solutions is like a key or coding pattern as it describes exactly how much of each of these unobservable wave to include to create the mode and produce the observable phenomena. Once properly constructed, the two maps report the result of a common event or measurement. The Real Space map is known to be true; it reports nature. In order for the results of the Harmonic Space map to agree with those of Real Space the quantized solution set or coding pattern must be also be true, otherwise the unobservable waves would not properly combine and the observable mode would not be created. And we know the two maps agree, we have constructed them to be graphically equivalent.

Although the Harmonic Space itself is not observable, the quantized rule set which forms the observable modes are. More specifically it is the sum of this solution set, or the sum of the eigenvalues solving the Transformation Equation which we observe as these fundamental constants. In this light π is no longer a geometry problem, it is a coding problem. It asks what combination of these unobservable waves is required to form the circle. When we determine this complete solution set we find it is an infinite list of real and rational numbers. The sum of all these numbers is π. Thus π represents the full set of solutions required to properly combine the waves and can be expressed as an infinite sum of rational numbers.

The Transformation Equation is a tool to create an equivalent map in Harmonic Space giving the same result as that of Real Space. In some cases we can determine the by trial and error without the Transformation. In general it does not matter how we determine the maps so long as they both give the same result for a common event.

The Big Graph Sheet 1 is intended to be printed on 24" x 36" paper. It shows how the constants e and π can be determined on first principles from the sum of the solution sets of the wave functions. Additionally it shows that e^x, ln(x), and various ratios of π can be expressed as infinite series and the mechanics of why this is so. The development of these discoveries and further details can be found at www.gte-harmonics.com. Sheet 2 is forthcoming and will further this work to more advanced topics.

Dedication

This work is in memory of Casey who taught love and patience, had unlimited optimism and a big heart. I think about you whenever I go in the house.

The General Transform Equation which forms the basis of much of our work is in memory of Mike Chavez and shall be known as The Chavez Equation.