

Exploration of the randomness of irrational number sequences

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In this talk we will begin with presenting three dimensional models representing the number sequences consisting of the digits for π and the golden ratio ϕ . The models each use a color assignment to represent the numerical value of each digit. The shapes of the pieces are significant to the number they represent. We can define a normal number as an irrational number in which each digit from 0 through 9 occurs 1/10th of the time. Although it is quite likely to be the case, there is still no proof that π and ϕ are normal numbers. Our physical models create a new point of view from which to visualize and study the likely normality of these numbers. We will explore how these naturally occurring sequences compare to truly randomly generated sequences, as well as fabricated sequences.

Key words: irrational number sequences, normal numbers, randomly generated sequences