

Fibonacci relationship between longitude and latitude coordinates and their distance correspondence in the Earth sphere

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The Fibonacci sequence has the following property, if we choose fibonacci numbers whose index is a Fibonacci number. For example Fibonacci (13) ... Fibonacci (21) ... Fibonacci (34) ... etc ...

We can build a Fibonacci sequence using logarithms, that is:

$$\ln((\text{Fibonacci}(55) / \text{Fibonacci}(34))) + \ln((\text{Fibonacci}(89) / \text{Fibonacci}(55))) = \ln(\text{Fibonacci}(144) / \text{Fibonacci}(89))$$

These logarithms of Fibonacci number ratios seem to have a certain property.

If we take the whole part and two decimals of these logarithms and use one of them as coordinates of decimal degrees and the next quotient or the previous one as other decimal degrees coordinates. We have that the approximate distance using a realistic model of the terrestrial sphere between these two coordinates closely approximates a distance that is a Fibonacci number in nautical miles.

For example if we use $\ln(\text{fibonacci}(144) / \text{fibonacci}(89)) = 26.47$ and the following quotient $\ln(\text{fibonacci}(233) / \text{fibonacci}(144)) = 42.83$ and we use them as two coordinates of the same style like two longitudes or two latitudes in a realistic model of the earth, We can calculate that the distance in nautical miles between those two coordinates is: 982 which is quite close to the number of Fibonacci 987 whose index is Fibonacci (16). Using other smaller measurements the accuracy is even greater.