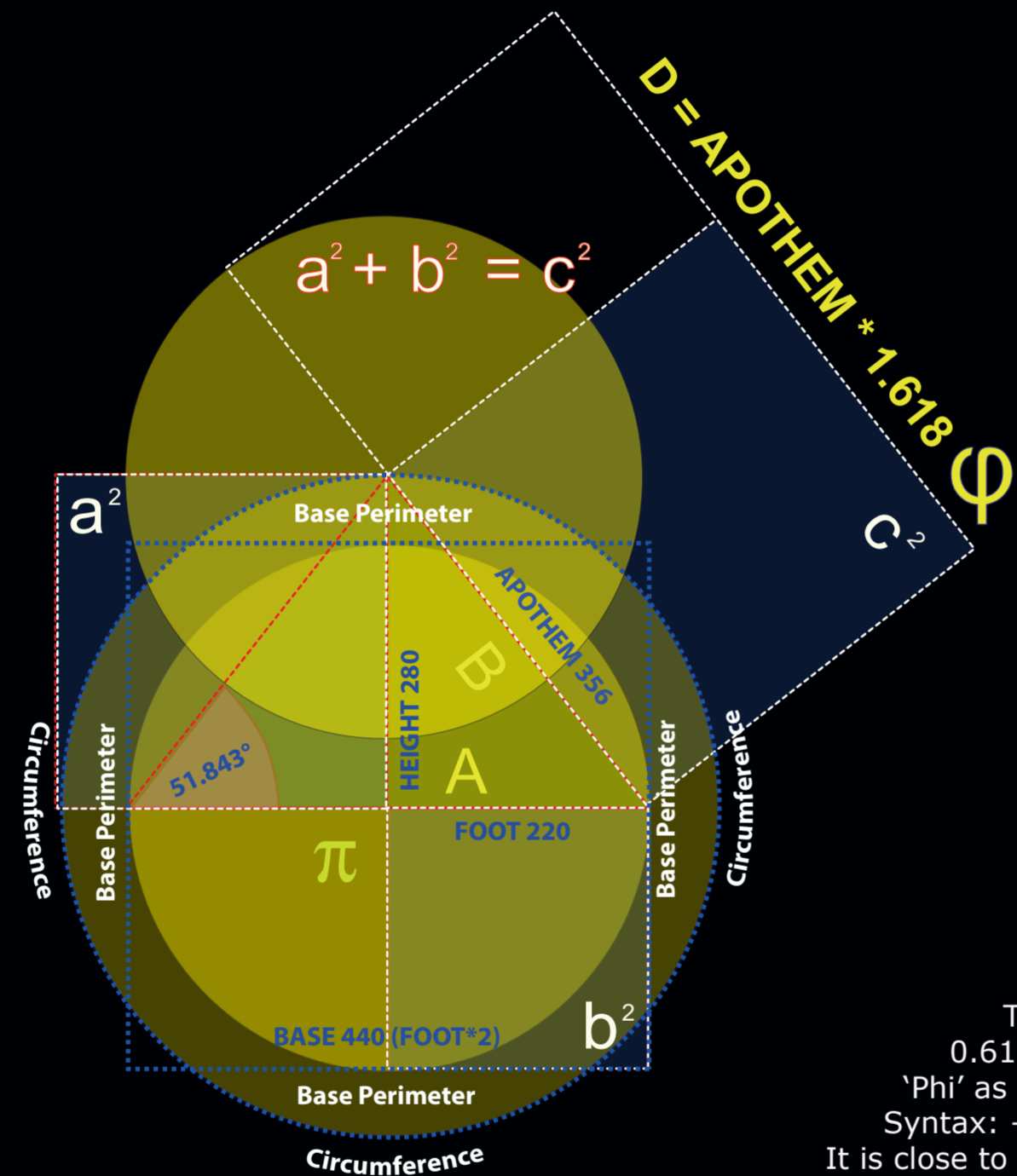
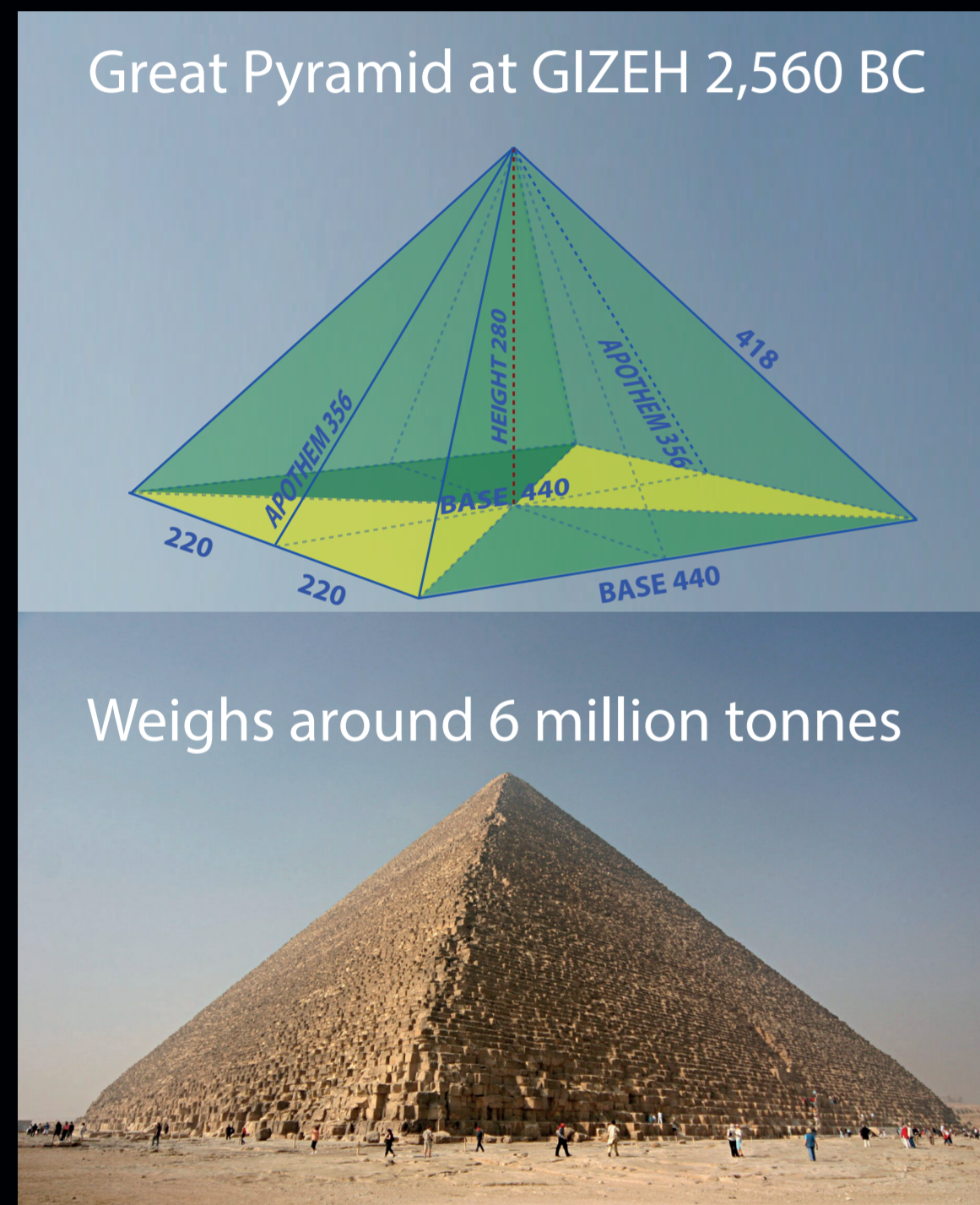


π : φ or 'Pi' to 'Phi' from 'squaring the circle' at GIZEH. 'Stringularity' gives rise to the 'Pythagorean Comma & the The Ratio Relationship is Geometry (here in 'cubits). 'Stringularity' gives rise to the 'Pythagorean Comma & the derivation of 'Phi' φ as a Rate Relationship (here in Hz 0 to 0.618)

The design choice of the Great Pyramid at GIZEH (Khufu) is remarkable & unique, but it was a design choice made when the Pyramid was built around 4,500 years ago. i.e. knowing 'Pi': 'Phi' was no 6 million tonne accident.

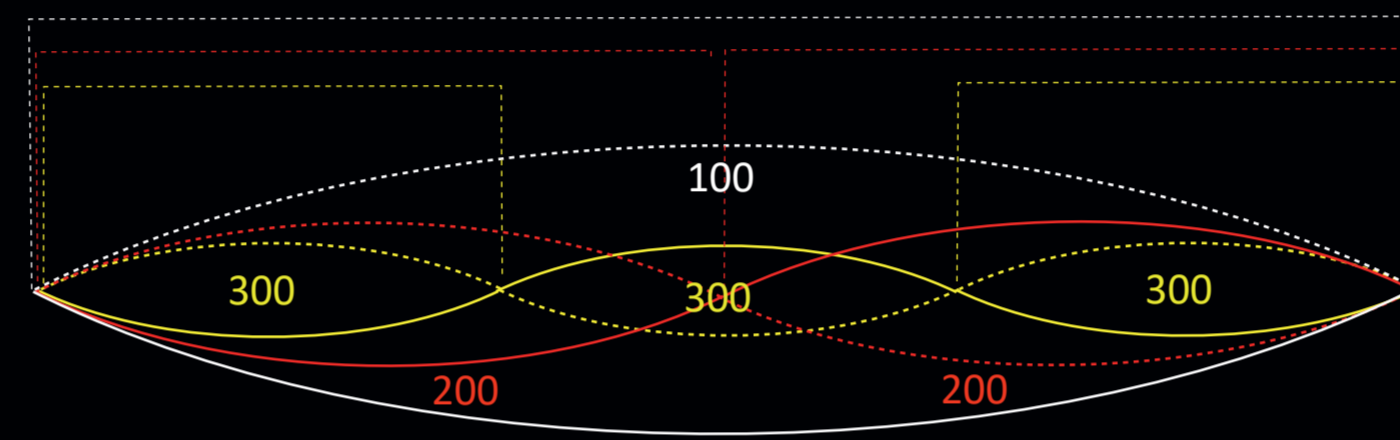


The functionality of 'Stringularity'

Khufu was about 2000 years old when Pythagoras studied in Egypt around 535 BC. He conducted his now famous 'String Experiment', probably in Crotone, around 30 years later.

In his lovely book 'The Grand Design' (2010), Stephen Hawking named this experiment 'the first law of theoretical physics'. It has a simple, robust and precise functionality in space-time thus: -

Divide a string of constant length at constant tension in two halves & the frequency (Hz) is doubled (Perfect Octave)
Divide a string of constant length at constant tension in three thirds & the frequency (Hz) is trebled (Perfect Octave & Perfect 5th)



The functionality of this simple 3:2:1 'hemiola' structure is axiomatic, *sounding* thus: - http://www.gci.org.uk/movies/Stringularity_First_Law_of_Theoretical_Physics.mp4
Exactly the same as playing on a violin string (as countless people do & have done).

The 'Pythagorean Comma'

7 Perfect Octaves or 'Doublings' (2^7) \approx 12 'Perfect' 5ths (1.5^{12})
But 7 Perfect Octaves 'commute' with or exactly = 12 'Well Tempered Fifths' (1.498^{12}).

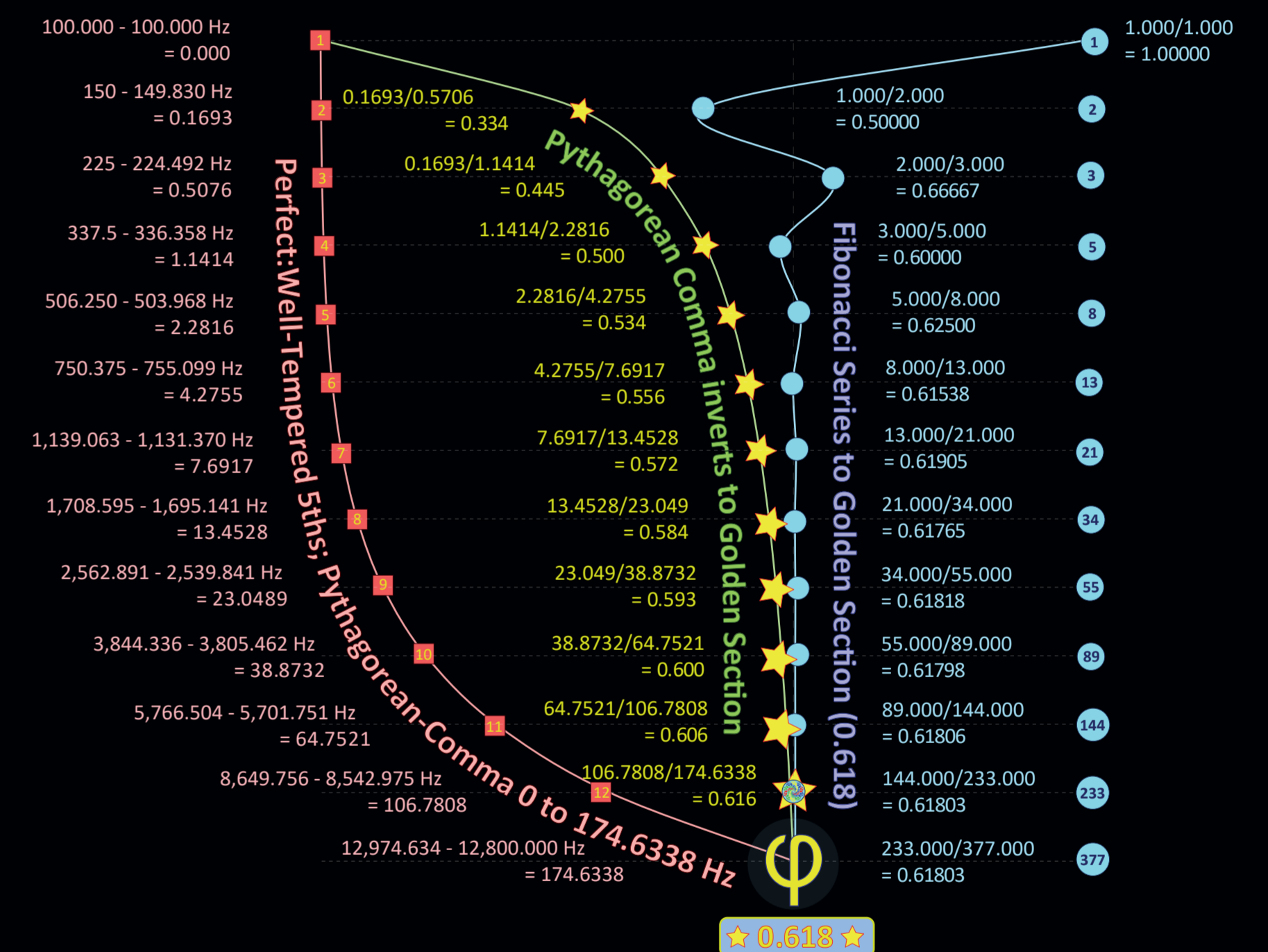
The Hz differences between 12 Perfect & 12 Well Tempered 5ths give rise to the 'Pythagorean Comma'. 'Well Tempered Tuning' (or Equal Temperament) was finally formalised by J S Bach around 1721 AD.

The 'rate derivation of Phi' from the 'Pythagorean Comma'

These Hertz differences fed back on themselves, create in 12 steps a negative-entropic curve between 0.618 & zero, the path-integral of which is the axiomatic derivation of Phi' or the 'Golden Rate' (Meyer 2015). 'Phi' as a rate, gives rise to the 'Golden Spiral', ubiquitous in Nature at all scales, from the tiniest to the most vast: - Syntax: - <https://www.youtube.com/watch?v=MGGfpa4XkO8> Model: - http://www.gci.org.uk/movies/Phi_Control.xlsx
It is close to the photon-electron exchange at the Fine Structure Constant: - http://www.gci.org.uk/images/PC_FSC_GS_c.pdf

The 'rate derivation of Phi' from the emergent 'Pythagorean Comma' is a rate-axiom from the simple functionality of *stringularity* latent at the 'Big Bang'. Quite simply, it is at least as old as *Providence* itself.

In the example shown here, the base-value in Hertz is 100 Hz (i.e. vibrations per second) However, from very large to very small, any value entered still returns the Golden Rate. To demonstrate this, use the model here: - http://www.gci.org.uk/movies/Phi_Control.xlsx



If the Foot of Gizeh is 78.5% of its Height & a Circle is drawn with its Radius as the Height: - 'Pi' shows the Circle 'Squares' at the base-perimeter of Gizeh; the square area on its Apothem equals the area squares of the Foot plus the Height; so the proportion of Gizeh's Foot to its Apothem equals 'Phi' (the Golden or 'Divine Proportion') and we get the quite remarkable proportions of the unique structure of this 4,500 year old Great Pyramid at Gizeh (known as 'Khufu').

Squaring the Circle	'Pi'	3.141592654	'Phi'	000.618	Square on the Apothem
Base (Foot*2)	440.00	Pi * 2	6.283185080	Foot	220.000
Height	280.00	Radius	280.00	Height	280.000
Base * 4	1,760.00	=(Pi * 2) * Radius	1,760.00	Apothem	356.000
				Apothem minus Foot	136.000
				Foot/Apothem	000.618
				(Apothem minus Foot)/Foot	000.618

The Circle is Squared

Base Perimeter 1,760.00 = Circumference 1,760.00



In other words, does this unique and potent value of 'Phi' emerge from chaos as argued by some? Or does it perhaps come from 3-in-1 integral that is 'Sat Chit Ananda' as declared in the Vedanta?

Richard Feynman called it a mystery that all good theoretical physicists should worry about asking, "is it related to 'Pi' or the base of natural logarithms (adding) you might (even) say the 'hand of God' wrote that number & we don't know how He pushed his pencil."

The ancient Egyptian designers of 'Khufu' must have know how to measure 'Pi', as squaring the circle, with height as radius to equal the base-perimeter & get 'Phi' from foot:apothem was no accident.

But does 'Phi' simply emerges 'agnostically' as a rate from the Pythagorean Comma? a response to which could be 'Tat Twam Asi', the Vedic cry of 'That Thou Art'.

Fine detail here, suggesting 'Phi' inflates from the 'Big Bang' to an 'event horizon', only after which the universe becomes 'visible' & 'stable': - http://www.gci.org.uk/images/PC_FSC_GS_c.pdf

John Archibald Wheeler said, "It is my opinion that everything must be based on a simple idea. And it is my opinion that this idea, once we have finally discovered it, will be so compelling, so beautiful, that we will say to one another, yes, how could it have been any different."

Who can say? But this simple mathematical truth is not in conflict with the basis of any religion or of any reputable science. Then again, who would even have thought it, its just like playing the violin . . .