

Mathematics, Theorems, and Beauty ... Why?

By James D. Nickel

Mathematics is all about justification of mathematical statements about number and space; i.e., theorems. In the Greek, theorem literally means “to see.” A theorem can therefore be understood, in one sense, as revelation ... an “aha” moment. For one well-versed in this process, I have experienced joyous “aha” moments deriving a host of mathematical theorems. The logical march from one statement to the next has a beautiful rhyme of poetry about it and it is this beauty that has drawn men and women of nearly every race, throughout history, into the wellsprings of its depths.

Unfortunately, very few mathematicians ask pertinent questions of the mental process foundational to their discipline. And, if they ask these questions, their answer, based upon man as a starting point, literally “integrates into the void.”

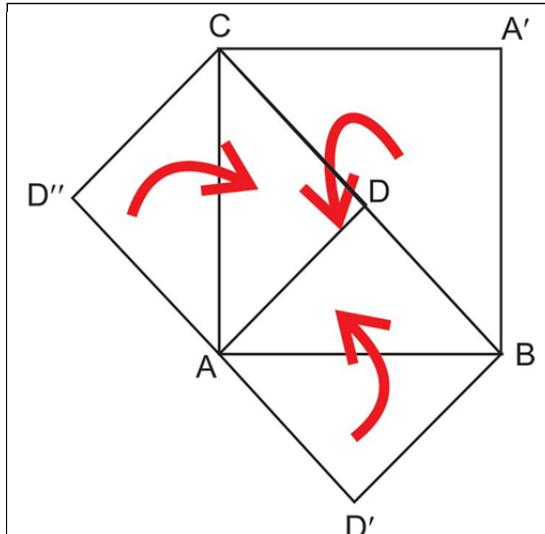
The questions are:

“Why can we prove theorems?”

“What justifies the methods of mathematical proof?”

The Bible gives the principled answer: The infinite, personal, Triune, and all-wise God has gifted man with a logical mind, a mind able to develop thought from one sentence to another, a mind geared by design to recognize harmony, balance, power, and beauty in a logical argument.

The Bible also gives the reason for the misuse of the mind, i.e., the absolutization of logic, and a roadmap, in the Gospel of Jesus Christ, leading to epistemological redemption (see Genesis 3; Ephesians 4:17-24).



A beautiful Geometric Proof (without words) of the Pythagorean Theorem.

“Very few people appreciate more than some elementary aspects of mathematical beauty, much of it revealing itself only to mathematicians in the study and creation of intricately crafted proofs, barely within the reach of the most highly trained human minds. As a mathematician, I declare that I have established the truth of a theorem by writing at the end of its proof the three letters Q. E. D., an abbreviation for the Latin phrase *quod erat demonstrandum*, which translates as ‘what had to be proved.’ On the one hand, Q. E. D. is a synonym for truth and beauty in mathematics; on the other hand, it represents the seemingly inaccessible side of this ancient science.”

Burkard Polster, Australian mathematician, *Q. E. D. Beauty in Mathematical Proof*, p. 1.