

1125-VE-1897      **James Case\*** (jcase666777@aol.com). *Who Really Proved the Isoperimetric Theorem?*

It was known to Pythagoras more than 2500 years ago that, among all simple closed curves of given arc length, the circle encloses the greatest area. Subsequent authors, including Zenodorus (200 BC – 140 BC), were able to prove uniqueness for “the isoperimetric problem” without proving existence: The maximizing curve, if there is one, can only be the circle. But proof that the circle does indeed solve the problem was apparently lacking until Weierstrass (in or about 1870) used his “sufficiency test” from the calculus of variations to validate the classical result. Accordingly, Weierstrass usually receives credit for completing the proof of the isoperimetric theorem. It will be argued that, although his book *On Isoperimetric Figures* is lost, Zenodorus almost surely supplied the missing proof. (Received September 19, 2016)