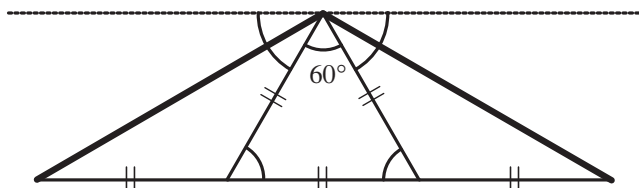


107.37 PWW: trisecting a line across an angle does not trisect the angle



10.1017/mag.2023.109 © The Authors, 2023

JESSICA E. BANKS

Published by Cambridge University Press

Dept. of Mathematical Sciences

on behalf of The Mathematical Association

University of Liverpool L69 7Z

e-mail: Jessica.Banks@Liverpool.ac.uk; Jessica.Banks@LMH.oxon.org

107.38 $c^2 = a^2 + bd$, a new proof of an extension of the Pythagorean theorem

In [1] the author provides a visual proof that generalises the typical rearrangement proof of the Pythagorean theorem. In the following diagram, we show a new proof of this generalisation. Indeed, with simple applications of the Pythagorean theorem, we have $c^2 = h^2 + (b + e)^2$, $h^2 = a^2 - e^2$ and $(b + e)^2 = bd + e^2$, where $d = b + 2e$. Therefore

$$c^2 = a^2 - e^2 + bd + e^2 = a^2 + bd.$$

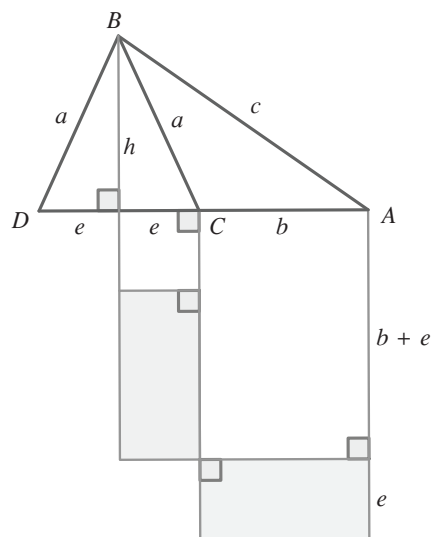


FIGURE 1

