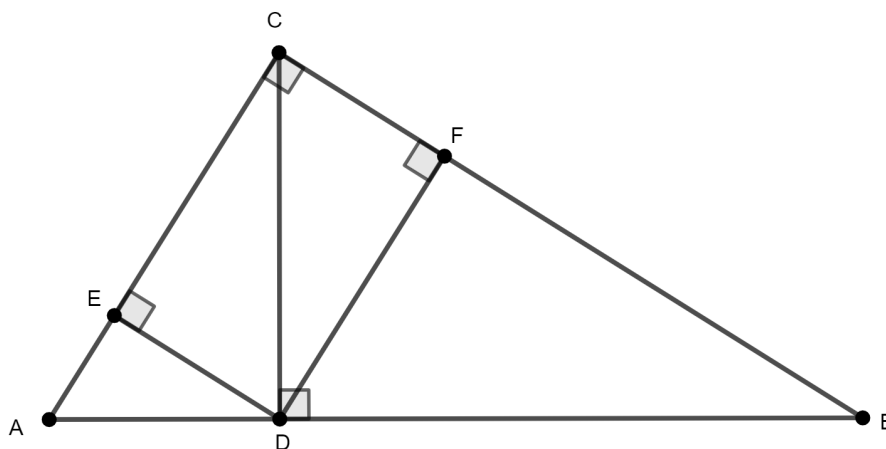# Another Proof of the Pythagorean Theorem

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Let $\triangle ABC$ be any right triangle with an altitude dropped from the right angle to the hypotenuse.

Proof. The proof is a follows:

$\triangle ACD, \triangle CBD,$ and $\triangle ABC$ are similar triangles. (1)

$\dfrac{DE}{AC} = \dfrac{DF}{CB} = \dfrac{CD}{AB} = k$ (Altitudes of similar triangles are in the same ratio as the sides.) (2)

$\Rightarrow DE = k(AC), DF = k(CB),$ and $CD = k(AB)$. (3)

$\text{Area}\triangle ABC = \text{Area}\triangle ACD + \text{Area}\triangle CBD.$ (4)

$\dfrac{1}{2}(CD)(AB) = \dfrac{1}{2}(DE)(AC) + \dfrac{1}{2}(BC)(CB)$ (5)

$\Rightarrow \dfrac{1}{2}k(AB)(AB) = \dfrac{1}{2}k(AC)(AC) + \dfrac{1}{2}k(CB)(CB)$ (6)

$AB^2 = AC^2 + CB^2$ (7)

$\square$

Amarnath Murthy retired as a Chief General Manager from ONGC , India's Leading Oil and Gas public sector company. He is the author of many articles and books. Mathematics has been a passion of his since childhood.