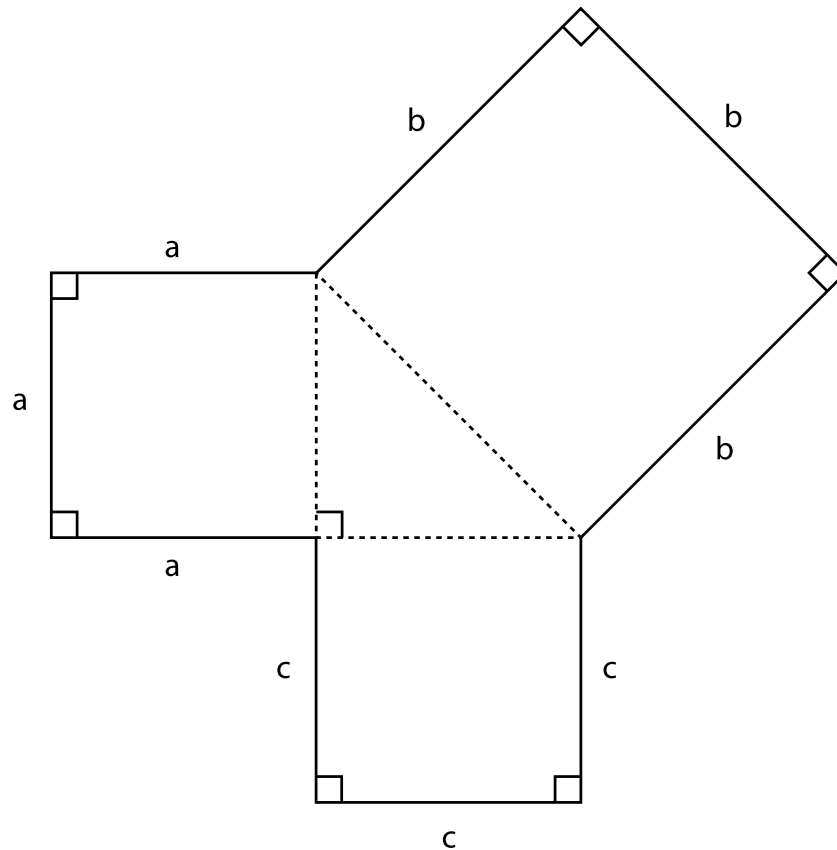


Solution
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by Benjamin Bloch, Ph.D.

Draw the dashed lines shown to complete the three squares.



The dashed line triangle is a right triangle. The Pythagorean theorem states that the sum of the two smaller square areas equals the large square area, thus $a^2 + c^2 = b^2$. The triangle area, ($\frac{1}{2}$ base times height) = $ac/2$.

Hence, the total area of the farmer's field, $A = ac/2 + 2(a^2 + c^2)$.

Now substituting $a = \frac{4}{3}c$ into the total area and collecting all terms yields

$A = 56c^2/9$. Since this must equal 56 m^2 , we get that $c^2 = 9$, and finally that $c = 3\text{m}$.

Thus, $a = \frac{4}{3}c = 4\text{m}$, and since $a^2 + c^2 = b^2$, we find that $b = 5\text{m}$, (a 3, 4, 5 right triangle).