Proof Without Words: $a^2 - b^2 = (a + b)(a - b)$

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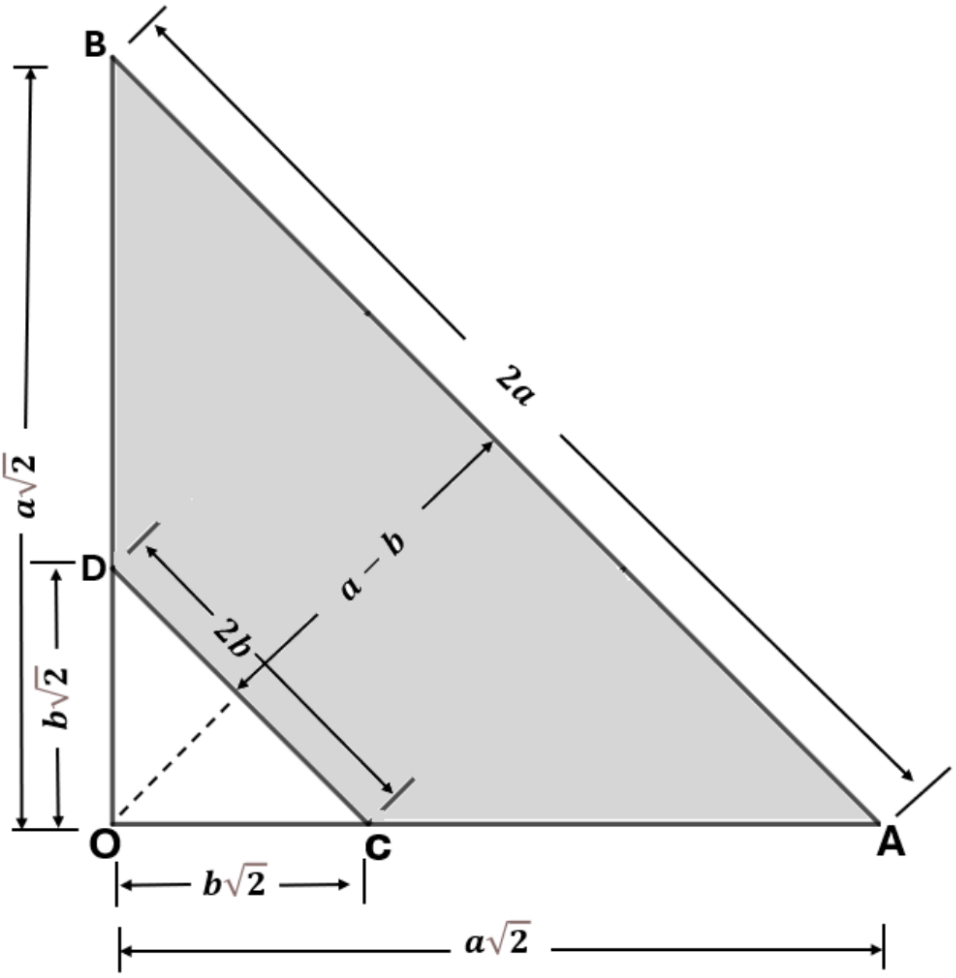
Abstract

This elegant visual argument invites students to reason spatially about algebra, revealing the identity $a^2 - b^2 = (a + b)(a - b)$ through area relationships alone.

Keywords: Proof without Words, Proof and Argumentation, Visual Reasoning



$$a^2 - b^2 = \text{area of trapezium}(\text{shaded}) = \frac{1}{2}(2a + 2b)(a - b) = (a + b)(a - b)$$

References

Nelsen, Roger B. *Proofs without Words: Exercises in Visual Thinking*. Washington, D.C.: Mathematical Association of America, 1993.