

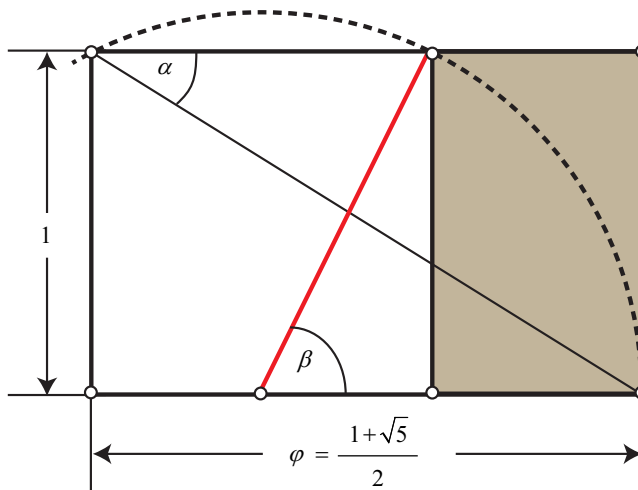
Proof Without Words: Arctangent of Two and the Golden Ratio

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Theorem. Let φ be the golden ratio, $\varphi = \frac{1 + \sqrt{5}}{2}$. Then $\arctan\left(\frac{1}{\varphi}\right) = \frac{\arctan 2}{2}$.

Proof.



$$\alpha = \arctan\left(\frac{1}{\varphi}\right), \quad \beta = 2\alpha = \arctan 2. \quad \blacksquare$$

Summary. It is proved without words that the golden ratio, φ , and the arctangent of 2 are related.

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