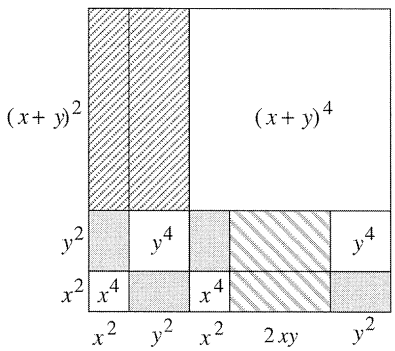
Proof Without Words: Candido's Identity

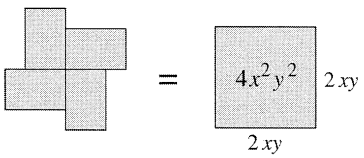
Giacomo Candido, 1871–1941

$$[x^2 + y^2 + (x + y)^2]^2 = 2[x^4 + y^4 + (x + y)^4]$$

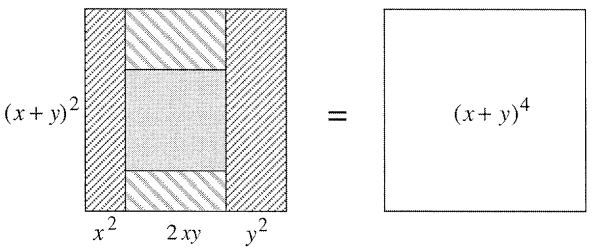
1.



2.



3.



Note: Candido employed this identity to establish

$$[F_n^2 + F_{n+1}^2 + F_{n+2}^2]^2 = 2[F_n^4 + F_{n+1}^4 + F_{n+2}^4],$$

where F_n denotes the nth Fibonacci number.

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