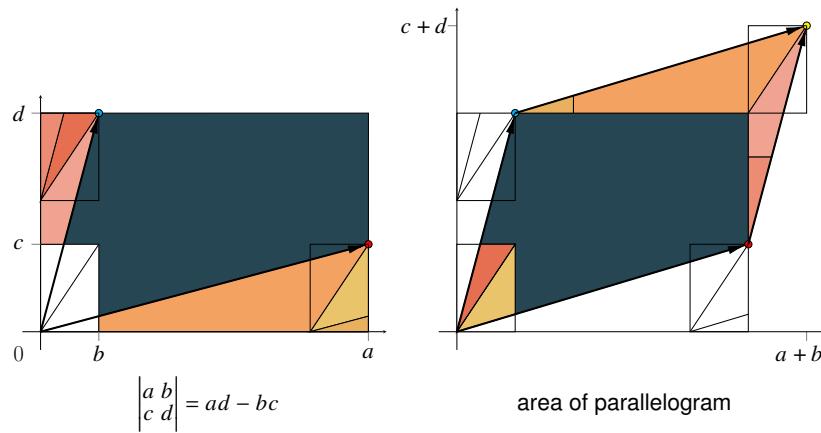


Proofs Without Words

Series 4

Paul Gartside

(Communicated by Stephan Mirtchev)



A 2×2 Determinant is the Area of a Parallelogram.

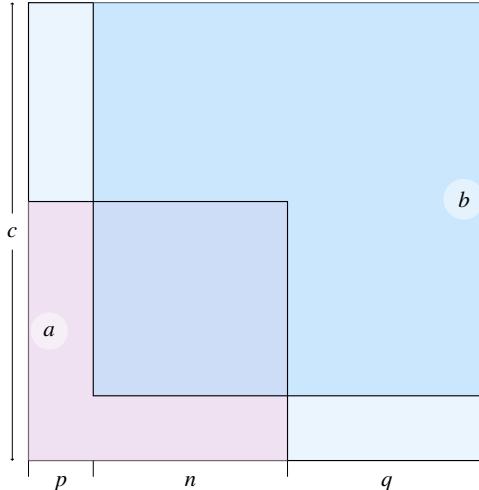
A triple (a, b, c) of natural numbers is Pythagorean if $a^2 + b^2 = c^2$.

Theorem. There is a bijection between Pythagorean triples (a, b, c) and factorizations of even squares, $n^2 = 2pq$.

$$c^2 = a^2 + b^2 - n^2 + 2pq \\ \therefore c^2 = a^2 + b^2 \iff n^2 = 2pq \quad \square.$$

Corollary. There are infinitely many Pythagorean triples.

Enumerating the Pythagorean triples.



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