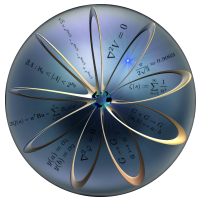

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polynomial analogon for Fermat's last theorem

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For polynomials with complex coefficients, there is an analogon of Fermat's last theorem. It can be proven quite elementarily by using Mason's theorem (1983), but the original proof (about in 1900) was based on methods of algebraic geometry.

Theorem. For an integer n greater than 2, there exist no non-constant coprime polynomials $x(t)$, $y(t)$, $z(t)$ in the ring $\mathbb{C}[t]$ satisfying

$$[x(t)]^n + [y(t)]^n \;=\; [z(t)]^n. \tag{1}$$

Remark. For $n = 2$, the equation (1) is in e.g. as

$$(2t)^2+(1-t^2)^2 \;=\; (1+t^2)^2.$$

References

[1] Serge Lang: "Die *abc*-Vermutung". – *Elemente der Mathematik* **48** (1993).