power of ten is that simple, the proof may be understood at a deeper level, but it is precisely the same proof and nothing wrong has been taught.

Reference

1. Des MacHale, Correct item – dodgy method. *Math. Gaz.* **105** (November 2021) pp. 507-510.

10.1017/mag.2022.88

On 105.28: Alan Beardon writes: In this Note Clive Johnson studies the iterates g^n of a Möbius map, say $g(z) = (az + b)/(cz + d)$, with particular reference to the case in which the iterates are periodic (that is when g^n is the identity map). He also remarks that "This is probably reproducing known results but I have not been able to find references for them". These results are indeed well documented. Möbius maps arise in hyperbolic geometry (real Möbius maps are the isometries of the hyperbolic plane; complex Möbius maps are the isometries of three-dimensional hyperbolic space), in number theory (continued fractions, diophantine approximation and quadratic forms), and in complex analysis where they are intimately connected to Riemann surfaces and the uniformization theorem. At a more elementary level, we classify Möbius maps as follows. If g is a Möbius map then there is a Möbius map f such that $fgf^{-1}(z)$ is a map of one of the forms $z \to z + 1$ or $z \to kz$, and the periodic case is precisely when $k^n = 1$. As $\text{trace}(g) = \text{trace}(fgf^{-1})$, this classification is determined entirely in terms of $\text{trace}(g)$. Finally, the finite Möbius groups are (abstractly) the cyclic groups, the dihedral groups, and the symmetry groups of the five Platonic solids.

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