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**A direct proof of the existence of eigenvalues and eigenvectors by Weierstrass's theorem.**

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The existence of an eigenvector and an eigenvalues of a linear operator on a complex vector space is proved. The proof relies only on Weierstrass' theorem (in the spirit of Argand's proof), the definition of the inverse of a linear operator, and algebraic identities. Eigenvalues and eigenvectors are defined without reference to polynomials so the author presents a polynomial-free proof of the existence of eigenvectors and eigenvalues. It is not the shortest proof (see [A. R. Schep, Am. Math. Mon. 116, No. 1, 67-68 (2009; Zbl 1175.30009)]).

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