Title: Liouville's Theorem and The Fundamental Theorem of Algebra

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Abstract: In this presentation, we will state and prove Liouville's Theorem, which says that any bounded holomorphic function in the complex plane is constant. This surprisingly strong fact follows from Cauchy's Differentiation Formula, which has a very analytic flavor. On the other hand, the Fundamental Theorem of Algebra says that every non-constant polynomial with complex coefficients is guaranteed to have a root in the complex plane. This more algebraic fact happens to have an elegant proof based on Liouville's Theorem, which we will present at the end of the talk.

Reference:
A First Course in Complex Analysis. M. Beck, G. Marchesi, G. Pixon, L. Sabalka. (2017)