

Zero sets of exponential polynomials

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The Identity Theorem in complex analysis says that if the zero set of an analytic function contains an accumulation point then the function is identically zero. Exponential polynomials are examples of analytic functions. Using diophantine geometry and Schanuel's Conjecture in transcendental number theory, we prove various properties about zero sets of exponential polynomials, which for the complex field are proved using analytic function theory, e.g. the Identity Theorem.