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Integer-Valued Analytic Functions in a Half-Plane

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Abstract. A classical theorem of Pólya states that if f is an entire function taking integer values at the non-negative integers and satisfying the growth condition $f(z) = \mathcal{O}(|z|^M 2^{|z|})$ as $z \rightarrow \infty$, for some $M > 0$, then there exist polynomials P_1, P_2 with $f(z) \equiv P_1(z)2^z + P_2(z)$. It is shown that the same result holds for functions analytic in a half-plane $\operatorname{Re} z \geq A$.

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