

ZERO-FREE REGIONS FOR POLYNOMIALS WITH RESTRICTED COEFFICIENTS

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Abstract

A famous result of Enestrom and Takeya states that if

$$P(z) = a_n z^n + a_{n-1} z^{n-1} + \cdots + a_1 z + a_0,$$

is a polynomial of degree of n , such that

$$0 \leq a_n \leq a_{n-1} \leq \cdots \leq a_1 \leq a_0,$$

then $P(z)$ does not vanish in $|z| < 1$. In this paper we shall relax the hypothesis of this result in several ways and obtain zero-free regions for polynomials with restricted coefficients and thereby present some interesting extensions and generalization of Enestrom-Takeya Theorem.

Key Words and Phrases : *Zero-Free regions, Bounds, Polynomials.*

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