

# ROLLE'S THEOREM FOR COMPLEX POLYNOMIALS WITH REAL COEFFICIENTS

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## ABSTRACT

Let  $p(z)$  be an algebraic polynomial of degree  $n \geq 2$  with real coefficients and  $p(i) = p(-i)$ . According to Grace-Heawood Theorem, at least one zero of the derivative  $p'(z)$  is on the disk with center in the origin and radius  $\cot(\pi/n)$ . In this paper is found the smallest domain containing at least one zero of the derivative  $p'(z)$ .

**Keywords:** zeros and critical points of polynomials, apolarity, apolar locus, polar derivative, polar locus, complex Rolle's theorem

**2010 Mathematics Subject Classification:** 30C10

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