

Elementary Symmetric Polynomials in Numbers of Modulus 1

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Abstract. We describe the set of numbers $\sigma_k(z_1, \dots, z_{n+1})$, where z_1, \dots, z_{n+1} are complex numbers of modulus 1 for which $z_1 z_2 \cdots z_{n+1} = 1$, and σ_k denotes the k -th elementary symmetric polynomial. Consequently, we give sharp constraints on the coefficients of a complex polynomial all of whose roots are of the same modulus. Another application is the calculation of the spectrum of certain adjacency operators arising naturally on a building of type \tilde{A}_n .

Received by the editors January 9, 2001; revised July 13, 2001.
AMS subject classification: Primary: 05E05, 33C45, 30C15; secondary: 51E24.
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