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ORTHOGONAL POLYNOMIALS AND QUADRATURE*

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Abstract. Various concepts of orthogonality on the real line are reviewed that arise in connection with quadrature rules. Orthogonality relative to a positive measure and Gauss-type quadrature rules are classical. More recent types of orthogonality include orthogonality relative to a sign-variable measure, which arises in connection with Gauss-Kronrod quadrature, and power (or implicit) orthogonality encountered in Turán-type quadratures. Relevant questions of numerical computation are also considered.

Key words. orthogonal polynomials, Gauss-Lobatto, Gauss-Kronrod, and Gauss-Turán rules, computation of Gauss-type quadrature rules.

AMS subject classifications. 33C45, 65D32, 65F15.

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