Quadrature Rules for Unbounded Intervals and Their Application to Integral Equations

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Abstract Several quadrature rules for the numerical integration of smooth (non-oscillatory) functions, defined on the real (positive) semiaxis or on the real axis and decaying algebraically at infinity, are examined. Among those considered for the real axis, four alternative numerical approaches are new. The advantages and the drawbacks of each of them have been pointed out through several numerical tests, either on the computation of a single integral or on the numerical solution of some integral equations.