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ANTI-SIMPSON'S QUADRATURE FORMULA AND ITS EXTENSION FOR EVALUATION OF ELLIPTIC AND OTHER INTEGRALS IN ADAPTIVE ENVIRONMENT

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Abstract: We have constructed an anti-Simpson's quadrature formula using Simpson's $\frac{1}{3}rd$ quadrature formula following the idea given by D. P. Laurie. An extension of this formula is developed by taking average linear combination with the Simpson's $\frac{1}{3}rd$ quadrature formula. Through error analysis, we studied the theoretical dominance of this extended anti-Simpson's quadrature formula over its constituents. We accomplished numerical verification of the formula evaluating test integrals including elliptic ones. We depict the novelty of the formula in both non-adaptive and adaptive environments. In adaptive environment the dominancy