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Simpson's cubature formulas defined using the pseudoinverse of a matrix

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Abstract - In this paper we construct the Simpson's cubature formulas on the unit square and on the unit cube which naturally extend Simpson's quadrature formula from \mathbb{R} . In construction we used a schema of interpolation defined by the pseudoinverse of a matrix (see "An interpolation scheme in the topological vector space defined using the pseudoinverse", Math. Rep., **7(57)**, 4, 2005, 325-333). We also find for it an error estimating formula.

Key words and phrases : Simpson's cubature, multivariate interpolation, pseudoinverse.

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