

Numerical evaluation for Cauchy type singular integrals on the interval.

ABSTRACT

The singular integral (SI) with the Cauchy kernel is considered. New quadrature formulas (QFs) based on the modification of discrete vortex method to approximate SI are constructed. Convergence of QFs and error bounds are shown in the classes of functions $H\alpha([-1,1])$ and $C1([-1,1])$. Numerical examples are shown to validate the QFs constructed.

Keyword: Singular integral; Quadrature formula; Discrete vortex method; Canonic partition.