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ABSTRACT OF PAPER

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ABSTRACT

RIEMANN INTEGRATION IN ORDERED FIELDS

Riemann integrability in an ordered field F is defined by upper and lower step-functions. The collection I of integrable functions is a vector space; also an algebra and lattice. An integrable function may or may not possess an integral. The set D of functions possessing integrals is a vector subspace of I, but may fail to be an algebra or lattice. If F is Archimedean, then completeness of F is equivalent to each: D = I; D is an algebra; D is a lattice. However, there exist non-Archimedean (hence incomplete) fields in which all three are satisfied.