

MATHEMATICAL ASSOCIATION OF AMERICA, INC.
ABSTRACT OF PAPER

Title of Paper: Riemann Integration in
Ordered Fields

Time 50 minutes.

Name of Author: John W. H. Olmsted

Institution: Southern Illinois University

Address: Carbondale, Illinois 62901

Member of Mathematical Association
of America: Yes No

*Accepted
Invited abstract*

ABSTRACT

The abstract should be in the form of a brief and concise statement of the main results or points of view of the paper, without demonstrations and with a minimum of formulae. It should not exceed 100 words and should be compressed if possible into a single paragraph. It should be written in the third person. The abstract should be typewritten and in a form suitable for immediate publication in the MONTHLY.

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.

