

Title: Riemann type integral in Banach spaces

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**Abstract:** In this thesis we study some differences in the behaviours of the Riemann integral when integrating functions from any compact subinterval of real numbers to real numbers or to any Banach space. Especially, we outline that the Lebesgue theorem is no longer valid in relationship to functions with images in some Banach spaces. We show that for some well-known Banach spaces using counterexamples.

**Keywords:** Riemann integral, Banach space, Lebesgue theorem