

# ON BEHAVIOUR OF THE NORMS OF FRACTIONAL INTEGRALS OF LARGE ORDERS

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## Abstract

We study the behaviour of the norm  $\|I_+^\alpha\|_{L_p(0,1) \rightarrow L_p(0,1)}$ ,  $1 < p < \infty$ , of the Riemann-Liouville fractional integral for large  $\alpha$ . It is shown that  $\|I_+^\alpha\|_{p \rightarrow p} \sim \Gamma^{-1}(1 + \alpha) p^{-\frac{1}{p}} (p')^{-\frac{1}{p'}}$ , as  $\alpha \rightarrow \infty$ . Some generalizations of this result are also given.

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*Key Words and Phrases:* fractional integral, Volterra integral operator, behaviour of the norm