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SOME RESULTS RELATED WITH THE RIEMANN-LEBESGUE LEMMA II

We obtain a generalization of the Riemann-Lebesgue lemma for functions in $BV_0(\mathbb{R})$, the space of bounded variation functions that vanish at infinity. It is known that, in general, this lemma is not valid for not Lebesgue integrable functions. The result is of interest because of $BV_0(\mathbb{R})$ do not have inclusion relations with the Lebesgue space. Moreover we get a class of functions in $BV_0(\mathbb{R})$ which are Henstock-Kurzweil integrable but not Lebesgue integrable. As a consequence, we prove the Dirichlet-Jordan theorem in $BV_0(\mathbb{R})$.