

We consider the singular boundary value problem

$$-r(x)y'(x) + q(x)y(x) = f(x), \quad x \in \mathbb{R}$$

$$\lim_{|x| \rightarrow \infty} y(x) = 0,$$

where $f \in L_p(\mathbb{R})$, $p \in [1, \infty]$ ($L_\infty(\mathbb{R}) := C(\mathbb{R})$), r is a continuous positive function on \mathbb{R} , $0 \leq q \in L_1^{\text{loc}}$. A solution of this problem is, by definition, any absolutely continuous function y satisfying the limit condition and almost everywhere the differential equation. This problem is called correctly solvable in a given space $L_p(\mathbb{R})$ if for any function $f \in L_p(\mathbb{R})$ it has a unique solution $y \in L_p(\mathbb{R})$ and if the following inequality holds with an absolute constant $c_p \in (0, \infty)$:

$$\|y\|_{L_p(\mathbb{R})} \leq c_p \|f\|_{L_p(\mathbb{R})}, \quad f \in L_p(\mathbb{R}).$$

We find minimal requirements for r and q under which the above problem is correctly solvable in $L_p(\mathbb{R})$.