

In this manuscript we study the action of one-dimensional integral operators on rearrangement-invariant Banach function spaces. Our principal goal is to characterize optimal target and optimal domain spaces corresponding to given spaces within the category of rearrangement-invariant Banach function spaces as well as to establish pointwise estimates of the non-increasing rearrangement of a given operator applied on a given function. We apply these general results to proving optimality relations between special rearrangement-invariant spaces. We pay special attention to the Laplace transform, which is a pivotal example of the operators in question.