

521 Analysis I Spring 2011
Homework 10 extra problem

Problem 10.1 (Schwarz inequality for integrals.) Let α be a nondecreasing function on $[a, b]$ and f, g bounded functions on $[a, b]$ that are members of $\mathcal{R}(\alpha)$. Show that then

$$\int_a^b |fg| d\alpha \leq \left(\int_a^b f^2 d\alpha \right)^{1/2} \left(\int_a^b g^2 d\alpha \right)^{1/2}.$$