

Problem 4. In measure spaces $\langle \mathbb{R}, dv \rangle, \langle \mathbb{R}, dw \rangle$ with $dv = dx$ and $dw = \frac{dx}{1+x^2}$, show that non-zero constant functions are not integrable over the whole space with respect to dv while they are integrable with respect to dw . Also find values of the measures: $v(\mathbb{R})$, and $w(\mathbb{R})$