

$$\leq \frac{1}{\sqrt{\pi}} \int_0^1 \left| \frac{f(x)}{x} - \frac{f(1)}{1} \right| dx + \frac{1}{\sqrt{\pi}} \int_1^\infty \left| \frac{f(x)}{x} - \frac{f(1)}{1} \right| dx$$

$$\leq \frac{1}{\sqrt{\pi}} \left(\frac{1}{\sqrt{\pi}} + \frac{1}{\sqrt{\pi}} \right) = \frac{2}{\sqrt{\pi}}$$

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$$\leq \text{H}_{\text{max}}^{\text{max}}(\rho) + \frac{1}{n} \log \left(\frac{1}{\epsilon} \right)$$