$$\text{P.D.} \int_{(0,\infty)} f_1 \, d\lambda = 2$$

$$\int_{(0,\infty)} f_1 \, d\lambda = \underbrace{\int_{(0,1)} f_1 \, d\lambda}_{\substack{\| \\ 1}} + \underbrace{\int_{(1,\infty)} f_1 \, d\lambda}_{\substack{\| \\ 1}}$$

$$\boxed{\text{P.D.} \int_{(0,1)} \frac{d\lambda}{x(1+|\log(x)|)^2} = 1}$$

$$\int_{(0,1)} \frac{d\lambda}{x(1+|\log(x)|)^2} \overset{\text{T.C.M}}{=\!=} \lim_n \int_{\frac{1}{n}}^{1} \frac{d\lambda}{x(1+|\log(x)|)^2}$$

$$= \lim_n \int_{\frac{1}{n}}^{1} \frac{dx}{x(1-\log(x))^2}$$

$$u = 1 - \log(x)$$

$$du = -\frac{dx}{x}$$

$$= \lim_n \int_{1-\log(\frac{1}{n})}^{1} \frac{-du}{u^2}$$

$$= \lim_n \int_{1}^{1+\log(n)} \frac{du}{u^2}$$

$$= 1$$