

Exo 3

$$f(x) = k e^{-\lambda x} \quad \text{pour } x \in [0, +\infty[$$

$$* f(x) \geq 0 \Rightarrow k e^{-\lambda x} \geq 0 \Rightarrow k \geq 0$$

$$* \int_{\mathbb{R}} f(x) dx = 1 \quad ??$$
$$= \int_0^{+\infty} k e^{-\lambda x} dx = k \left[\frac{e^{-\lambda x}}{-\lambda} \right]_0^{+\infty}$$
$$= \frac{k}{\lambda} = 1 \quad (\Leftrightarrow) \quad k = \lambda.$$