

5.2.a)

Density $X \rightarrow p(x) = e^{-x} \quad x \geq 0$

$$u(x) = e^{-x}$$

Calculate $p_u(x)$ from $u(x)$

$$u(x) = e^{-x} \Leftrightarrow x = x(u) = -\ln(u)$$

~~Es gibt~~ then:

$$p_u(u) = \frac{\partial x}{\partial u} \cdot p_x(x(u))$$

$$= -\frac{1}{u} e^{-(-\ln u)}$$

$$= -\frac{1}{u} \cdot u = \underline{\underline{-1}}$$