Assignment 1

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1 Problem

(6.1.2) If

$$F_v(x) = \begin{cases} 1 - e^{-ax} & x \geq 0 \\ 0 & x < 0 \end{cases} \tag{1.0.1}$$

Find a

2 Solution

$$F_v(x) = \begin{cases} 1 - e^{-ax} & x \geq 0 \\ 0 & x < 0 \end{cases} \tag{2.0.1}$$

We get:

$$F_v(x) = \begin{cases} e^{-ax} & x \geq 0 \\ 0 & x < 0 \end{cases} \tag{2.0.2}$$

$$\int_0^\infty e^{-ax} = 1 \tag{2.0.3}$$

$$\left(\frac{e^{-ax}}{-a} \right)_0^\infty = 1 \tag{2.0.4}$$

$$0 + \frac{1}{a} = 1 \tag{2.0.5}$$

$$a = 1 \tag{2.0.6}$$