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$$f(x) = \begin{cases} 0, & x \le -a \\ b(x+a)/a, & -a \le x \le 0 \\ be^{-\lambda x}, & x \ge 0 \end{cases}$$

$$F(x) = \begin{cases} \int_{-\infty}^{x} 0 \cdot dx, & x \le -a \\ \int_{-a}^{x} b(x+a)/a \cdot dx, & -a \le x \le 0 \\ \frac{ab}{2} + \int_{0}^{x} be^{-\lambda x}, & x \ge 0 \end{cases}$$

$$F(x) = \begin{cases} 0, & x \le -a \\ \frac{b(x+a)^2}{2a}, & -a \le x \le 0 \\ \frac{ab}{2} + \frac{b(1-e^{-\lambda x})}{\lambda}, & x \ge 0 \end{cases}$$

$$F(x) = R$$

$x \le -a$: $0 = R$

$-a \le x \le 0$: $\frac{b(x+a)^2}{2a} = R$

$$\Rightarrow (x+a)^2 = \frac{2aR}{b}$$

$$\Rightarrow (x+a) = \sqrt{\frac{2aR}{b}}$$

$$\Rightarrow x = -a + \sqrt{\frac{2aR}{b}}$$

$$x \geq 0: \quad \frac{ab}{2} + \frac{b(1-e^{-\lambda x})}{\lambda} = R$$

$$\Rightarrow \quad 1 - e^{-\lambda x} = \left(R - \frac{ab}{2}\right) \times \frac{\lambda}{b}$$

$$\Rightarrow \quad e^{-\lambda x} = 1 - \left(\left(R - \frac{ab}{2}\right) \times \frac{\lambda}{b}\right)$$

$$\Rightarrow \quad -\lambda x = \ln\left(1 - \left(R - \frac{ab}{2}\right) \times \frac{\lambda}{b}\right)$$

$$\Rightarrow x = \frac{-1}{\lambda} \ln\left(1 - \frac{\lambda}{b}\left(R - \frac{ab}{2}\right)\right)$$

$$X = \begin{cases} -a + \sqrt{\frac{2aR}{b}}, & 0 \leq R \leq \frac{ab}{2} \\ \\ \frac{-1}{\lambda} \ln\left(1 - \frac{\lambda}{b}\left(R - \frac{ab}{2}\right)\right), & R \geq \frac{ab}{2} \end{cases}$$

$$E(x) = \int_{-a}^{0} x \cdot f(x) \cdot dx + \int_{0}^{\infty} x \cdot f(x) \cdot dx$$

$$= \int_{-a}^{0} x \cdot \frac{b(x+a)}{a} \cdot dx + \int_{0}^{\infty} x \cdot be^{-\lambda x} \cdot dx$$

$-a$

$$= -\frac{a^2 b}{6} + \frac{b}{d^2}$$

$$a=1, b=1, d=2 \Rightarrow \frac{-1}{6} + \frac{1}{4}$$

$$= -0.166 + 0.25$$