

Question #284

Key: E

$$\begin{aligned}E(X \wedge 2) &= 1 \times f(1) + 2(1 - F(1)) \\&= 1 \times f(1) + 2(1 - f(0) - f(1)) \\&= 1 \times 3e^{-3} + 2(1 - e^{-3} - 3e^{-3}) \\&= 2 - 5e^{-3} \\&= 1.75\end{aligned}$$

$$\begin{aligned}\text{Cost per loss with deductible} &= E(X) - E(X \wedge 2) \\&= 3 - 1.75 \\&= 1.25\end{aligned}$$

$$\text{Cost per loss with coinsurance} = \alpha E(X) = 3\alpha$$

$$\begin{aligned}\text{Equating cost, } 3\alpha &= 1.25 \\ \alpha &= 0.42\end{aligned}$$