

Question #261

Answer: A

The insurance is payable on the death of (y) provided (x) is already dead.

$$\begin{aligned} E(Z) &= \bar{A}_{xy}^2 = \int_0^{\infty} e^{-\delta t} {}_tq_x {}_tp_y \mu_{y+t} dt \\ &= \int_0^{\infty} e^{-0.06t} (1 - e^{-0.07t}) e^{-0.09t} 0.09 dt \\ &= 0.09 \int_0^{\infty} e^{-0.15t} - e^{-0.22t} dt \\ &= 0.09 \left(\frac{1}{0.15} - \frac{1}{0.22} \right) = 0.191 \end{aligned}$$