

Question #263

Answer: A

$$\begin{aligned} {}_{0.25}q_{30.5:40.5}^2 &= \int_0^{0.25} {}_tP_{30.5} \mu_{30.5+t} {}_tq_{40.5} dt \\ &= \int_0^{0.25} \frac{0.4}{1-0.5(0.4)} \frac{0.6t}{1-0.5(0.6)} dt \\ &= \frac{0.4(0.6)}{0.8(0.7)} \frac{t^2}{2} \Big|_0^{0.25} = 0.0134 \end{aligned}$$