

### Question #131

Answer: D

$$\text{STANDARD: } \ddot{e}_{25:\overline{11}|} = \int_0^{11} \left(1 - \frac{t}{75}\right) dt = t - \frac{t^2}{2 \times 75} \Big|_0^{11} = 10.1933$$

$$\text{MODIFIED: } p_{25} = e^{-\int_0^1 0.1 ds} = e^{-0.1} = 0.90484$$

$$\begin{aligned} \ddot{e}_{25:\overline{11}|} &= \int_0^1 {}_t p_{25} dt + p_{25} \int_0^{10} \left(1 - \frac{t}{74}\right) dt \\ &= \int_0^1 e^{-0.1t} dt + e^{-0.1} \int_0^{10} \left(1 - \frac{t}{74}\right) dt \\ &= \frac{1 - e^{-0.1}}{0.1} + e^{-0.1} \left( t - \frac{t^2}{2 \times 74} \right) \Big|_0^{10} \\ &= 0.95163 + 0.90484(9.32432) = 9.3886 \end{aligned}$$

$$\text{Difference} = 0.8047$$