

Question #299

Answer: E

$$\mu_{44.75} = 0.00004(1.1^{44.75}) = 0.002847$$

$$\mu_{44.5} = 0.00004(1.1^{44.5}) = 0.002780$$

$$1000 - E({}_{4.75}L) = 0.25\{0.04E({}_{4.75}L) + 150 - 150(0.05) - 0.002847[10,000 + 100 - E({}_{4.75}L)]\}$$

$$\begin{aligned} E({}_{4.75}L) &= \{1000 - 0.25[150 - 150(0.05) - 0.002847(10,000 + 100)]\} / [1 + 0.25(0.04 + 0.002847)] \\ &= 961.27 \end{aligned}$$

$$961.27 - E({}_{4.5}L) = 0.25\{0.04E({}_{4.5}L) + 150 - 150(0.05) - 0.002780[10,000 + 100 - E({}_{4.5}L)]\}$$

$$\begin{aligned} E({}_{4.5}L) &= \{961.27 - 0.25[150 - 150(0.05) - 0.002780(10,000 + 100)]\} / [1 + 0.25(0.04 + 0.002780)] \\ &= 922.795 \end{aligned}$$