EXAM MLC QUESTIONS OF THE WEEK

S. Broverman, 2007

Week of February 12/07

What is the benefit premium payable during the first 5 years of a 15-payment whole life policy of $1,000 issued to (x), if the premium payable in the second 5 years is twice as large as the premium payable in the first 5 years, and the premium payable during the final 5 years is $10 larger than the premium payable in the second 5 years?

A) $\dfrac{1000A_x + 10(\ddot{a}_{x:\overline{15}|} - \ddot{a}_{x:\overline{10}|})}{2\ddot{a}_{x:\overline{15}|} - \ddot{a}_{x:\overline{5}|}}$

B) $\dfrac{1000A_x - 10(\ddot{a}_{x:\overline{15}|} - \ddot{a}_{x:\overline{10}|})}{2\ddot{a}_{x:\overline{15}|} - \ddot{a}_{x:\overline{5}|}}$

C) $\dfrac{1000A_x + 10(\ddot{a}_{x:\overline{15}|} - \ddot{a}_{x:\overline{10}|})}{2\ddot{a}_{x:\overline{10}|} - \ddot{a}_{x:\overline{5}|}}$

D) $\dfrac{1000A_x - 10(\ddot{a}_{x:\overline{15}|})}{2\ddot{a}_{x:\overline{10}|}}$

E) $\dfrac{1000A_x}{2\ddot{a}_{x:\overline{10}|} - \ddot{a}_{x:\overline{5}|}}$

The solution can be found below.

Week of February 12/07 - Solution

$$(2K + 10) \cdot \ddot{a}_{x:\overline{15|}} - 10 \cdot \ddot{a}_{x:\overline{10|}} - K \cdot \ddot{a}_{x:\overline{5|}} = 1000 \cdot A_x$$

$$\rightarrow K = \frac{1000 \cdot A_x - 10 \cdot (\ddot{a}_{x:\overline{15|}} - \ddot{a}_{x:\overline{10|}})}{2 \cdot \ddot{a}_{x:\overline{15|}} - \ddot{a}_{x:\overline{5|}}} \quad . \qquad \text{Answer: B.}$$