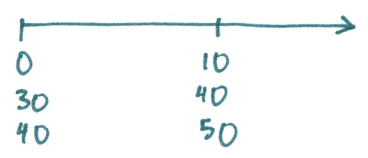


MLC Question 46

$a_{30:40:\overline{10}|}$



ILT $i = .06$

$$a_{30:40:\overline{10}|} = \begin{cases} a_{30:40} & \text{30 yr old dies } t < 10 \\ a_{30:40} & \text{40 yr old dies } t < 10 \\ a_{30:40} - a_{40:50} v^{10} & \text{30 and 40 yr old survive 10 yrs} \end{cases}$$

$$a_{30:40:\overline{10}|} = a_{30:40} - a_{40:50} v^{10} \cdot \overbrace{10p_{30:40}}^{\overbrace{10p_{30} \cdot 10p_{40}}} = (1.06)^{-10} \left(\frac{9313166}{9501381} \right) \left(\frac{8950901}{9313166} \right)$$

$tP_x = \frac{l_{x+t}}{l_x}$

$a_x = \ddot{a}_x - 1$

$a_{40:50} = \ddot{a}_{40:50} - 1 = 12.4784 - 1$

$a_{30:40} = \ddot{a}_{30:40} - 1 = 14.2068 - 1$

$a_{30:40:\overline{10}|} = 7.17 \text{ (B)}$