

## Question #190

Answer: A

% premium amount for 15 years

$$G\ddot{a}_{x:\overline{15}|} = 100,000A_x + \overbrace{(0.08G + 0.02G\ddot{a}_{x:\overline{15}|})} + \underbrace{((x-5) + 5\ddot{a}_x)}$$

Per policy for life

$$4669.95(11.35) = 51,481.97 + (0.08)(4669.95) + (0.02)(11.35)(4669.95) + ((x-5) + 5\ddot{a}_x)$$

$$\ddot{a}_x = \frac{1 - Ax}{d} = \frac{1 - 0.5148197}{0.02913} = 16.66$$

$$53,003.93 = 51,481.97 + 1433.67 + (x-5) + 83.30$$

$$4.99 = (x-5)$$

$$x = 9.99$$

The % of premium expenses could equally well have been expressed as

$$0.10G + 0.02G a_{x:\overline{14}|}.$$

The per policy expenses could also be expressed in terms of an annuity-immediate.