

Question #175

Answer: C

$$\begin{aligned}A_{30:\overline{2}}^1 &= 1000vq_{30} + 500v^2{}_1|q_{30} \\ &= 1000\left(\frac{1}{1.06}\right)(0.00153) + 500\left(\frac{1}{1.06}\right)^2(0.99847)(0.00161) \\ &= 2.15875\end{aligned}$$

Initial fund = 2.15875×1000 participants = 2158.75

Let F_n denote the size of Fund 1 at the end of year n .

$$F_1 = 2158.75(1.07) - 1000 = 1309.86$$

$$F_2 = 1309.86(1.065) - 500 = 895.00$$

Expected size of Fund 2 at end of year 2 = 0 (since the amount paid was the single benefit premium). Difference is 895.