

Question #96

Answer: B

$$e_x = p_x + {}_2p_x + {}_3p_x + \dots = 11.05$$

$$\text{Annuity} = v^3 {}_3p_x 1000 + v^4 {}_4p_x \times 1000 \times (1.04) + \dots$$

$$= \sum_{k=3}^{\infty} 1000(1.04)^{k-3} v^k {}_k p_x$$

$$= 1000v^3 \sum_{k=3}^{\infty} {}_k p_x$$

$$= 1000v^3 (e_x - 0.99 - 0.98) = 1000 \left(\frac{1}{1.04} \right)^3 \times 9.08 = 8072$$

Let π = benefit premium.

$$\pi(1 + 0.99v + 0.98v^2) = 8072$$

$$2.8580\pi = 8072$$

$$\pi = 2824$$