Question #126
Answer: E

Let Y = present value random variable for payments on one life

$S = \sum Y =$ present value random variable for all payments

$$E[Y] = 10\ddot{a}_{40} = 148.166$$

$$\text{Var}[Y] = 10^2 \frac{\left({}^2A_{40} - A_{40}^2\right)}{d^2}$$

$$= 100\left(0.04863 - 0.16132^2\right)\left(1.06 / 0.06\right)^2$$

$$= 705.55$$

$$E[S] = 100E[Y] = 14{,}816.6$$

$$\text{Var}[S] = 100\,\text{Var}[Y] = 70{,}555$$

Standard deviation $[S] = \sqrt{70{,}555} = 265.62$

By normal approximation, need

E [S] + 1.645 Standard deviations = 14,816.6 + (1.645) (265.62)

= 15,254