

Question #86

Answer: B

$$(1) \quad a_{x:\overline{20}|} = \ddot{a}_{x:\overline{20}|} - 1 + {}_{20}E_x$$

$$(2) \quad \ddot{a}_{x:\overline{20}|} = \frac{1 - A_{x:\overline{20}|}}{d}$$

$$(3) \quad A_{x:\overline{20}|} = A_{x:\overline{20}|}^1 + A_{x:\overline{20}|}^{\frac{1}{2}}$$

$$(4) \quad A_x = A_{x:\overline{20}|}^1 + {}_{20}E_x A_{x+20}$$

$$0.28 = A_{x:\overline{20}|}^1 + (0.25)(0.40)$$

$$A_{x:\overline{20}|}^1 = 0.18$$

Now plug into (3): $A_{x:\overline{20}|} = 0.18 + 0.25 = 0.43$

Now plug into (2): $\ddot{a}_{x:\overline{20}|} = \frac{1 - 0.43}{(0.05 / 1.05)} = 11.97$

Now plug into (1): $a_{x:\overline{20}|} = 11.97 - 1 + 0.25 = 11.22$