

Show all work for full credit, use correct notation, and clearly mark your answer.

For numbers 1 and 2, you are given:

- a. $i = 0.05$
- b. $\ddot{a}_{50} = 15$
- c. ${}_{10}E_{40} = 0.6$

1. Determine the actuarial present value of a 10-year deferred whole life annuity due on (40) with benefit equal to 5000 per month. Use the UDD assumption and note that for $i = 0.05$, $\alpha(12) = 1.000197$ and $\beta(12) = 0.46651$.

2. Determine the actuarial present value of a 10-year deferred whole life annuity due on (40) with benefit equal to 5000 per month using the two-term Woolhouse Formula.

3. Given $\bar{a}_x = 13$, $\bar{a}_{x:\overline{n}|} = 7$, and ${}_nE_x = 0.6$, determine \bar{a}_{x+n} .

4. Use constant force assumptions with $\delta = 0.03$ and $\mu = 0.02$ to determine the expected present value of a continuous 10-year temporary annuity issued to (x) paying at a rate of 1000 per year.

5. Use constant force assumptions with $\delta = 0.03$ and $\mu = 0.02$ to determine the expected present value of a continuous 10-year certain and life annuity issued to (x) paying at a rate of 1000 per year.