

Module 4 Section 2 Exercises:

1. For a fully discrete whole life insurance of 1000 issued to (30) that has annual premiums of 7, use ILT actuarial assumptions to determine the reserve at time 20.
2. A fully continuous whole life insurance of 5000 issued to (x) has an annual premium rate of 225 that's payable for a maximum of 10 years. Let A equal the reserve at time 9 and let B equal the reserve at time 10, using $CF(\mu = .02, \delta = .04)$. Determine A/B .
3. A fully discrete 10-year endowment insurance issued to (30) has death benefit in the first year equal to 1000 and subsequent years' death benefit is 1000 more than the previous year's death benefit. The amount of the pure endowment is 8000. Using ILT actuarial assumptions, determine
 - (a) The reserve at time 10
 - (b) The reserve at the beginning of year 10 (This means the reserve immediately after the premium is paid at the beginning of year 10)
4. For a 3-year fully discrete term insurance of 300,000 issued to (30) that has annual premiums 450, use ILT mortality and $i = .05$ to determine
 - (a) $E[{}_1L|K \geq 1]$ (this is the same as $E[{}_1L]$; i.e. the reserve at time 1.)
 - (b) $\sqrt{\text{Var}({}_1L|K \geq 1)}$