

Module 3 Section 3 Exercises:

1. For a fully discrete whole life insurance of 5000 issued to (37) with premiums of 50, use ILT assumptions to determine
 - (a) the value of the loss-at-issue present value random variable if (37) dies at age 44.1
 - (b) the probability of a loss
 - (c) the expected value of the loss-at-issue present value random variable
 - (d) the variance of the loss-at-issue present value random variable
2. For a fully continuous whole life insurance of 1000 issued to (x) with annual premium rate of 35, use $CF(\mu = .03, \delta = .07)$ assumptions to determine
 - (a) the value of the loss-at-issue present value random variable if (x) dies at time 8.7
 - (b) the probability of a loss
 - (c) the expected value of the loss-at-issue present value random variable
 - (d) the variance of the loss-at-issue present value random variable
3. A fully continuous whole life insurance of 1000 with premiums of 35 is issued to 100 independent x -year olds. Using $CF(\mu = .03, \delta = .07)$ actuarial assumptions, determine the normal approximation to the probability of a positive total loss on the policies issued.
4. Using ILT assumptions, determine the standard deviation of the loss-at-issue present value random variable for a 17-year fully discrete endowment insurance of 8000 issued to (35), with premiums of 300
5. For a fully continuous whole life insurance of 1 issued to (40) with annual premium rate of .025, use DML(100) mortality and $i = .05$ to determine the variance of the loss-at-issue present value random variable.