

Show all work for full credit, and use correct notation. Simplify answers completely.

1. Given a triple decrement model with $p_x^{(1)} = 0.9$, $p_x^{(2)} = 0.8$, and $p_x^{(3)} = 0.7$ determine $q_x^{(2)}$ using a constant force assumption for each decrement.

2. For a double decrement model where each decrement is uniformly distributed in the double decrement table, given $q_x^{(1)} = 0.05$ and $q_x^{(2)} = 0.10$, determine ${}_{0.5}p_x^{(1)}$.

3. Given a double decrement model where decrement 1 has $\mu_x^{(1)} = 0.01$ and decrement 2 is DML(100) in the associated single decrement table, determine ${}_{10}q_{75}^{(1)}$.

4. For a double decrement model where each decrement is uniformly distributed in its associated single decrement table, given $q_x^{(1)} = 0.05$ and $q_x^{(2)} = 0.10$, determine

(a) ${}_{0.5}q_x^{(2)}$

(b) ${}_{0.5}q_x^{(2)}$